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Mapping the Modern City:

Otto Neurath, the International Congress of Modern Architecture (CIAM), and the Politics of Information Design (1931-1935)

Otto Neurath was a social scientist, one of the most formidable, if controversial, intellectuals of the interwar period. A student of turn-of-the-century German sociology – the writings of Georg Simmel, Ferdinand Tönnies, and the Social Policy Association [*Verein für Sozialpolitik*] – he was a key player in the socialist uprisings in Munich in 1919 as well as Vienna’s settlement movement during the early 1920s. In 1925, he gained funding from the Vienna municipality to open the Museum of Society and Economy, which still represents one of the most innovative and prescient cultural experiments of the twentieth century. The museum’s mission was an unconventional one – to bring social and economic facts to the masses, raise the self-awareness of the working class, and break down modern capitalism’s fetishization of the “object.” It exhibited facts, not artifacts; the reproducible, the transparent, and the everyday rather than the rare, the curious, and the strange. The Museum of Society and Economy was the very inverse of the Baroque “*Wunderkammer*” or “cabinet of wonder,” because it was conceived as a conduit of information, literally a medium for the masses that sought to *form* as much as it *informed* the working class public. It offered a means of looking at the world that was rooted in what Neurath termed the “scientific world conception,” the philosophy of scientific empiricism that attempted to dislodge metaphysics from everyday communication. The museum’s key innovation was a method of graphic representation known as the Vienna Method of Pictorial Statistics (later renamed the International System of Typographic Education, or “ISOTYPE”), which attempted to popularize social and scientific facts through the use of pictorial graphics. It sought to furnish the public with a systematic “picture” or “*Bild*” of society in a fashion that was easily legible and readily reproducible. For Neurath, “reading” an ISOTYPE chart was as easy as counting, grouping, and measuring: “[r]eading a picture is like making observations with the eye in everyday experience: what we may say about a language picture is very like what we may

say about other things seen by the eye. For example: the man has two legs; the picture-sign has two legs; but the word-sign ‘man’ has not two legs.”¹ (Figures 1, 2)

Town planning was one of the main arenas within which Neurath applied his graphic vocabulary. Throughout the 1920s, the city of Vienna aggressively sought to promote public housing and strategic urban planning initiatives as a means of stemming real estate speculation, consolidating physical control of the urban fabric and assuring the availability of affordable housing. Public education was central to this project in that it helped generate support for large-scale urban renewal initiatives while popularizing the goals of centralized social planning. Vienna’s Social Democrats believed that social transformation had to stem from the will of the people, that the shaping of everyday life (“*Lebensgestaltung*”) had to precede the shaping of the physical environment (“*Baugestaltung*”), and Neurath’s cultural practices were a product of this outlook. Although as Helmut Gruber has observed Neurath took objection to the liberal cultural program of Austrian Social Democrats – a program of social indoctrination that heavily favored the written word over visual signs and symbols – he still held the view that social and political change had to occur hand in hand. Neurath believed that in a socialist state the intellectual and cultural socialization of the proletariat had to take place alongside – and in many respects, prior to – the political and architectural transformation of daily life. In sharp contrast to the Stalinist line of reform, which stressed the centrality of heavy industry in the project of modernization, Neurath insisted that the long-term health of socialism could not be assured without the tacit approval of the masses, that only by challenging the traditions and values upon which the capitalist system was based could a truly socialist state be achieved. As Neurath put it rather tersely, “the general rationalization of the shaping of built form can only be possible within the context of the rationalization of life itself.”²

As director of the Museum of Society and Economy, Neurath carried out a number of collaborations that exemplified this pedagogical approach to reform, including one with the International Town Planning Congress, which was the principal organ for the European Garden City movement, and later with the International Congress of Modern Architecture (CIAM). Since its founding in 1928, CIAM had been the leading voice for modernist architecture and urbanism, sponsoring a series of annual meetings that discussed topics ranging from public housing to rational site planning, from minimum dwelling requirements to social and physical hygiene. Their proceedings were publicized widely, helping internationalize the goals of the

“*Neues Bauen*” or “*new building*” movement in Europe. Their collaboration with Neurath, which spanned the years 1931 to 1935, was exceptional for the fact that it represented the first systematic attempt at standardizing the *language* of urban planning on a transnational basis. It occasioned a discussion about the relationship between culture, science, and social progress. Although scholars have traditionally interpreted this chapter in CIAM’s history as a prelude of sorts to the publication of Le Corbusier’s “Athen’s Charter” – a document that delineated the four primary functions of the modern city – I argue in this article that it also brought to the fore critical discussions about the *normification* of culture and its significance for artistic production. It raised critical questions about the nature of information and communication in an age defined by mechanization.

My analysis takes as its point of departure the German Building Exhibition [*Deutsche Bau-Ausstellung*] of June 1931, which showcased recent innovations in the construction industry. Otto Neurath partook in this event under the auspices of the Museum of Society and Economy. He prepared an exhibit commissioned by Austria’s Business Office for Housing Relief [*Geschäftsstelle für Wohnbauförderung*]. The exhibit sought to explain a new housing relief program that had been passed by the National Assembly, dispensing information about the structure of this new program, whom it was administered by, and how it could be accessed by the public (Figure 3).³ One such chart showed the number of single and multi-family dwellings in Austria. It illustrated the average size of a residential building’s footprint in relation to both the plot on which it stood and its overall size (Figure 4). Another chart showed the number of applicants who applied for the new program, as well as the number who were accepted and rejected. Still a third gave an overview of the housing situation in Austria as a whole and within individual provinces. Taken together, the diagrams provided an overall view of the *structure* of Vienna’s public housing process. In keeping with Neurath’s educational philosophy, they tried to stimulate in the viewer a quantitative understanding of the mechanics of everyday social life.

For Neurath, the most significant thing to come of the Berlin Building Exhibition had to do with the new contacts he made. One individual he met was Cornelis van Eesteren, who at the time was in Berlin planning the 4th international CIAM congress, which was loosely called the “Functional City” and was to be held in Moscow.⁴ Like Neurath, van Eesteren had a strong interest in visual communication. In 1923, he produced a series of axonometric studies in collaboration with the Dutch artist Theo van Doesburg that appeared in Paris’ *Galerie de l’Effort*

Moderne. These “counter-constructions” consisted of colored planar geometries suspended in space. They stressed a non-perspectival, abstract representation of architectonic form.⁵ In 1924, van Eesteren participated in the publication of two *De Stijl* manifestos, “Towards a Plastic Architecture” [“*Tot een beeldende architectuur*”] and “Towards a Collective Construction” [“*Vers une Construction Collective*”]. In 1927, he became an instructor at the *Staatliche Bauhochschule* in Weimar, the successor to the Weimar Bauhaus, where he taught urban planning and design. A year later he joined Amsterdam’s Public Works Department, overseeing development of a series of expansion plans for the city of Amsterdam. The city projected that by the year 2000 Amsterdam would have approximately 1.1 million inhabitants, and Van Eesteren was asked to create scheme that would accommodate for this vast expansion in a rational fashion.

During the Berlin Building Exhibition, van Eesteren invited Neurath to assist CIAM’s exhibition committee with assembling materials for its “Functional City” congress. For van Eesteren, the congress was to constitute a collective and systematic look at 34 cities from around the world, focusing on each area’s social, economic, organizational, and functional character. It was to be a preliminary analytical study of the modern metropolis, laying the groundwork for future interventions. It stipulated relative uniformity between individual presentations, seeking to forge consensus between varying national delegations. It was inspired by van Eesteren’s concept of “comparative city planning [*vergleichende Städtebau*],” which rested on the idea that the study of urban morphology gave the planner insight into the unchanging essence of the contemporary city. Following Theodoor van Loohuizen, with whom he collaborated in the Amsterdam Public Works Department,⁶ as well as the Scott Patrick Geddes, who coined the adage “survey before plan,” Van Eesteren insisted that scientifically juxtaposing patterns of growth and development, functional organization, geography, climate, history, society, and other such elements could help the student of urbanism to identify points of weakness in the modern city, and to locate areas needing reform.⁷ This method assumed that all cities were built upon a series of *a priori* urbanistic “givens,” i.e., propositions that applied regardless of cultural or geographical context. It also suggested that cities were essentially organic and that they could be analyzed as holistic units. In accordance with Le Corbusier’s views about urbanism, comparative city planning assumed that the modern city serviced four basic needs or “functions.”

These were housing, recreation, work, and transportation. As van Eesteren summarized his philosophy,

In order to furnish a comprehensive view and to allow for comparison, there is a need to learn about... similarly structured cities in other countries. This overview of the total development [*Gesamtentwicklung*] is gradually becoming a need of every architect and every population that seriously deals with problems of city planning. This project is rooted in the universal understanding of the world [*universale Auffassung*], which is very much connected to the development of architecture today. Until now, there were very weak approaches for achieving this kind of overview. If at all, one could... achieve insight into the functions and conditions of life of various cities. For this area, of which we will give the name *comparative city planning* [author's emphasis], we need first an analysis of existing cities according to a unified method (according to identical methods, use of identical symbols, and identical colors for identical functions).⁸

By inviting Neurath, Van Eesteren hoped to capitalize on the former's close ties with the Soviet government. In 1931, the Museum of Society and Economy was invited to open a satellite museum in Moscow, which came to be known as the Isostat Institute. As Neurath wrote of the endeavor in the *Moskauer Rundschau*, "[i]n a directive issued by Lenin, readily understandable statistics must be shown in public places, on streets, in places of assembly."⁹ He continues, "[o]ne of the first tasks of the Institute is the preparation of pictorial charts for exhibitions, the preparation of newspaper and book illustrations, in special cases posters. Through special courses the transformation of statistical materials into pictorial sketches (Transformation) is being taught."¹⁰ During the Isostat Institute's existence, which lasted through late 1934, the Museum of Society and Economy kept five employees at a time there on a rotating basis. Neurath was himself required to spend 60 days out of the year in Moscow.¹¹ Governmentally speaking, the institute's activities were administered by a special Committee for Pictorial Statistics, which included members from the country's Central Executive Committee.

Between January and June of 1932, Neurath met regularly with CIAM delegates, principally in Moscow. These delegates consisted primarily of expatriated central European architects who had left positions in Frankfurt, Dessau, Berlin, and elsewhere to help advance communism in the Soviet Union. Among them were Peer Bücking, Hans Blumenfeld, Hans Schmidt, Fred Forbat, and Margarete Schütte-Lihotzky. Bücking was a student at the Bauhaus

during the late 1920s. Blumenfeld was an active communist who worked in the ateliers of both Josef Frank and Adolf Loos between 1928 and 1930s. Schmidt was a Swiss designer who co-edited the journal *ABC, Reports on Building* [*ABC, Beiträge zum Bauen*], the foremost German-language publication devoted to constructivist and radical socialist architecture and design during its four years of existence in the early 1920s. Forbat was an employee in Walter Gropius' Weimar office between 1920 and 1922. Lihotzky had been working under Ernst May in Frankfurt since leaving Vienna in 1926. She designed kindergartens, student homes, schools, and community buildings during her tenure. Her most significant achievement was her 1926 "Frankfurt Kitchen," which was a rationalized, mass-produced domestic facility that appeared in as many as 10,000 apartment units in the city. Prior to that, she had also designed a series of prototype emergency homes and domestic finishings, which she produced under Neurath's direction in the early 1920s. During this time, Neurath served as director of Vienna's Settlement and Allotment Garden Association [*Verband für Siedlung- und Kleingartenwesen*], which helped organize and coordinate the city's burgeoning "self-help" housing movement at the time.

In a letter written to Walter Gropius, Forbat reported that planning for the Moscow congress was coming along swiftly and that the group had already devised basic guidelines for the exhibition. Indeed, the delegates shared Neurath's sociological understanding of the built environment, which was strictly anti-aesthetic and anti-formal in orientation. As philosophical Marxists, they vigorously refuted the idea that modernism could be reduced to a "style." Following the lead of Schmidt, who through his journal *ABC* advocated a multi-disciplinary conception of design – one that regarded empirical and scientific analysis as a precondition for design or planning – as well as Schütte-Lihotzky, who herself relied on the time-motion studies of F.W. Taylor in devising her residential kitchen designs, they were in agreement with Neurath's holistic belief that science and culture belonged to one and the same intellectual continuum. As Forbat remarked to Gropius in typically lowercase fashion,

i hope that you are in possession of my letter of February 25, in which i reported about the first steps of the congress preparations. in the meantime, we have developed our suggestions exactly and set everything up so that the questionnaire has become superfluous. the working group consisted of schmidt, blumenfeld, Bücking, dr. neurath and me, once kaufmann was also there and twice mrs. schütte-lihotzky. it was not easy to put together the meetings; blumenfeld has been bedridden for 8 days with a lower leg fracture, Bücking is very busy and

always cancels, schmidt suddenly went to siberia, the last two nights i have been alone with neurath and yesterday, at a collective meeting with the heads of three russian sub-committees (new cities, city reconstruction, regional planning) i was all of a sudden alone with frau wyss, since otherwise no one would come. i have learned that the russians at any rate will analyze three typical cities according to our methods provided that barcelona [where the next CIAM steering committee is to be held in March] confirms our requests.

[...] with this letter i enclose also a copy of our request that has been sent back to zurich via mrs. wyss. it should still be said that in order to save money the three major regional plans and the map of the country should be wrapped carefully and should be sent to berlin or amsterdam, if as where they need to be taken to the russian border through collective transport [*sammeltransport*]. the exhibition committee can pick it up from there.¹²

Later in 1932, Neurath made a series of visits to van Eesteren in Amsterdam. At van Eesteren's invitation, he published an article on pictorial graphics in the journal *De 8 en Opbouw*, which was the mouthpiece for "de 8" and "Opbouw," two closely-related groups (one based in Rotterdam; the other in Amsterdam) that had rejected the expressionism of the Amsterdam School in favor of a more *sachlich* vocabulary rooted in the traditions of Berlage.¹³ In this article, Neurath highlighted the chief pedagogical principles of the Vienna Method of Pictorial Statistics. He drew special attention to the importance of visualizing facts mathematically and not simply spatially or cartographically; he also underscored the significance of normification and standardization in modern society. "He who knows best what to leave out is the best instructor." Neurath wrote.¹⁴ "Why must one represent the size of cities through circles. Couldn't one include twice as many figures in order to represent a city that has twice as many inhabitants?"¹⁵

Van Eesteren only partly adhered to Neurath's recommendations. The guidelines he issued to help orient each national delegation in preparation for the forthcoming congress reflected Neurath's influence in its concern for standardization and uniformity, but they also questioned whether quantitative forms of representation – using statistics in displaying density, for example – was preferable to looking at the city in plan. Van Eesteren stipulated that all participating countries produce photographs, texts, and maps of each city they analyzed.¹⁶ Van Eesteren called for "aerial views of the characteristic elements of the city and its environment."¹⁷ He called for maps (three of them for each city in total) illustrating the four functions and their interactions in the city. He and his Dutch colleagues produced and distributed three prototype maps of

Amsterdam in order to clarify their intentions. Contrary to Neurath's graphic charts, which were produced using mechanized linotype techniques, they were all hand-drawn. Map I was produced at a scale of 1:10,000 (Figure 5). It notated housing, recreation, and work zones and the specific activities to which they were attached. In its right margin was a linear graph illustrating population growth since 1850. Like the first, Map II was also drawn at a scale of 1:10,000, but only showed transportation systems. To the side of the second map was a section that showed average street widths for primary and secondary roadways. It also contained a radial graph notating annual wind patterns. Map III, a regional map, was designed at a scale of 1:50,000. It illustrated all four functions together, stressing their relationship to outerlying, non-urban areas. For notational purposes, van Eesteren and his team created a legend made up of 72 symbols. These symbols reflected van Eesteren's resistance to Neurath's quantitative and anti-formal conception of the city. More descriptive than analytical, they were designed with a level of detail and precision that defied Neurath's emphasis on simplicity and pedagogical clarity. They came in a great many shapes, sizes and colors, and mostly included a combination thereof (Figure 6). They divided into roughly two groups, one devoted to the "existing" city and the other to the "projected" city. They notated a range of locations and functions: industrial areas, public services, central markets, harbors, sheds, and petroleum docks; slum dwellings, working, middle, and upper-class districts; woods, park areas, allotment gardens, playgrounds, swimming facilities, and yacht roads; gardens, zoos, cemeteries, and train tracks. Graphically speaking, some of the signs were iconic in shape (a cemetery was represented by a cross; woods were represented by trees), while others were more abstract. The more abstract symbols included cruciform markings set against a pink background to represent upper-class areas and brown and black-checkering to indicate slums.

The congress event itself was held between July 29th and August 14, 1933. Earlier that year, it was moved from Moscow to Athens because the Soviets had withdrawn their invitation. The first and the last three nights of the meeting took place aboard the *S.S. Patris II*, which set sail from Marseille and made a stop in Piraeus, Greece before arriving in Athens. The time spent aboard the *Patris II* was devoted to the presentation of graphic charts. It was also the time when committee meetings could take place. Attendees at the event included Sigfried Giedion, Rudolf Steiger, Werner Moser, Le Corbusier, Pierre Chareau, Fernand Léger, Charlotte Perriand, Wells Wintemute Coates, László Moholy-Nagy, van Eesteren, Giuseppe Terragni, José Luis Sert, Alvar

Alto, Fred Forbat, and Helena and Szymon Syrkus (Figure 7, 8, 9). Neurath attended with his assistant Marie Reidemeister, who later also became his wife. Noticeably absent were Lihotzky, Schmidt, Bücking, and the other Moscow-based delegates with whom Neurath had conducted the initial planning for the congress.¹⁸ These figures could not attend because Marseille was prohibitively far for them. In addition, Stalin's Five-Year-Plan had given them enough work to keep them busy for the time being. In the context of CIAM IV, this proved to be a foreboding sign, if only for the fact that it augured the declining influence of CIAM's "Marxian" wing. For Neurath specifically, it meant having to defend his social and pedagogical conception of planning against more formalistic architects and critics like Le Corbusier, Giedion, and others. Since designing his League of Nations proposal with Pierre Jeanneret in 1927, Le Corbusier had grown weary of the utilitarian polemics of Hans Schmidt and other Constructivist architects. He grew increasingly preoccupied with the symbolic and metaphorical dimensions of architecture, and with Giedion, he sought to find a "middle way" between empirical analysis and artistic form.

The CIAM delegates presented their analytical maps *en route* to Athens. The cities they analyzed included Brussels, The Hague, Zurich, Barcelona, Dessau, Detroit, Warsaw, Madrid, Stockholm, Paris, Verona, Como, Oslo, Frankfurt, and Cologne.¹⁹ For the most part, they all adhered to the requirements outlined by van Eesteren. There were two exceptions, both of which reflected internal ideological differences within CIAM itself. One exception were the maps by the Swiss delegation, which was headed by Rudolf Steiger. Steiger had a very strong interest in empirical research, as evidenced by traffic surveys he and his partner Carl Hubacher had conducted for a lakeside development competition in 1925. He was exceptionally fond of Neurath's work, as suggested by the fact that the two later collaborated (something I cover in greater detail below). In Map I of Zurich, Steiger included two sectional drawings that showed statistically and pictorially population density figures in relation to both physical elevation and functional zone (Figure 10). These were closely modeled after Neurath's graphic methods, not only in terms of the pictorial signs they used, but also in terms of how the information was organized. Each of the two graphics notated in section a different geographical topography, illustrating underneath the programs and population densities attached to each. In contrast to van Eesteren's prototype maps, they treated the city as both a statistical and physical entity, juxtaposing quantitative and topographical forms of information.

A second and even more pronounced exception among the presentations were the maps the Germans produced for the city of Dessau. In addition to the three primary maps that van Eesteren had asked for, this work included a meticulously documented “explanatory report” [“*erklärender Bericht*”] about Dessau’s geological, climatological, historical, social, and economic composition in historical context (Figures 11, 12). Graphically speaking, it included a combination of text, photographic montage, maps, and drawings. It was a radical departure from the other CIAM studies in that it emphasized Dessau’s social and economic context over its programmatic or geographical composition. It was intended as a provocation in that it took issue with the very premises upon which the congress had been organized. As Kees Somer has observed, the leftist radicals involved in organizing the “Functional City” in Moscow preferred using a “historic-materialistic research methodology that would reveal the factors in a city’s actual development and thus help them in the design of cities where socialist relationships would predominate.”²⁰ This was in contrast to Le Corbusier and van Eesteren’s approach, which emphasized a more ahistorical notion of physical planning and functional zoning.

When they arrived in Athens, the CIAM delegates were greeted by the Technical Chamber of Greece. They spent their first two days touring the Acropolis and visiting Marathon. On the evening of August 3rd, they convened in Greece’s National Polytechnical University for an exhibition opening reception hosted by Greece’s prime minister. After initial introductions, van Eesteren, Giedion, Le Corbusier, and Neurath delivered individual presentations. In his talk Van Eesteren underscored the benefits of utilizing uniform graphic standards. His paper, entitled “Methods of Functional City Planning and its Utilization in Amsterdam,” made the point that standardized notational systems fostered collaboration and rational thinking. According to him, they made urbanism more accessible to the masses, as well as to professionals of different disciplinary backgrounds. As he announced in his talk,

The city as totality is the expression of the human order of society... The task of city planning is to order models of the city spatially. On the basis of studies, we come to understand the order and functions of the city and the country, so that they can come to their most full development. One of the most important means [for achieving our goals] is to set up expansion plans for cities and villages, and the coordination of regional planning. The realization and success of this work will come about if it is understood and taken on by the entire population of the affected areas. This [is] because success cannot be achieved by a central office alone. The central office can only issue the guidelines and decide whether they

[i.e., the guidelines] are being followed. The central office is like a scale that tries to achieve balance between the various interests of the planned area. Decentralization [of the decision-making process] can only lead to a harmonious totality, if in general a city planning grasp exists among those who carry responsibilities for all that is executed and built.²¹

Neurath's paper, which came after van Eesteren's and was presented in French, was titled "Town Planning and Lot Division in terms of Optical Representation following the Vienna Method" [*L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise*].²² In it, he presented a slide show and delivered an accompanying narrative. His remarks were terse and directed, primarily for pedagogical and polemical effect. They were critical of the CIAM proposals and the Dutch delegation's instructions specifically. This was the first occasion where Neurath voiced his ambivalences publicly. Although he agreed with the spirit of cooperativism suggested by the remarks by van Eesteren, he was equally adamant about the ad-hoc way with which his own Vienna Method had been adopted. "This is the first time that cities have been successfully displayed in a way that is designed in a uniform fashion," Neurath began. "However, the signs that are employed do not appear to be complete. The abstractions that have been agreed upon are not eloquent enough for the public at large." Neurath went on to enumerate the rules of the Vienna Method and the principles on which they were based. He did so in order to underline the fact that he rejected the way CIAM had carried out the design of their graphic diagrams. He announced,

We have elaborated in Vienna a pedagogical method based on the visualization of images obtained according to the Vienna Method [and] presented in the following fashion:

On first view, we should absorb information about the most major points, on second view the accessory things, and on third view the incidentals. If on the fourth view we learn something more, one can assume that the image is insufficient. This method that we have applied notably to statistics [states that] a larger quantity of objects is represented by a larger quantity of eloquent symbols.²³

Neurath underscored the fact that the Museum of Society and Economy had always been committed to serving the average spectator, to educating the masses and de-formalizing scientific and statistical information. He contrasted this emphasis on affect, receptivity, and accessibility

with CIAM and van Eesteren's residual attachment to the notion of the "master-planner," the idea that the future of the city should be left in the hands of trained professionals steeped in specialized idioms not intended for popular consumption. As Neurath commented, "we consider ourselves the executive agent of the spectators. In order to do this, it is necessary to simplify and eliminate things: he who makes the better choice will be the better pedagogue."²⁴ In his lecture Neurath then showed a number of slides in order to illustrate his comments more vividly. The first slide he showed was titled "Men Living on a Square Unit of Space in Towns" (Figure 13). He used this image to emphasize the importance of making a clear didactic statements and not distracting the viewer with excessive details. He had the following to say about the image:

I present here the density of inhabitants in the great cities of the world. The cities are represented by the medallions, for example Paris by the Eiffel Tower and Notre Dame, London by the Thames Bridge, etc., etc. One sees in the squares brick and black figures. On first view one notices that in the Anglo-Saxon cities there are fewer inhabitations per 100 square meters than in Central Europe. I do not enter into considerations about knowing whether there is a dwelling with one or two floors determines this situation.²⁵

Neurath later also made a point about geographical versus quantitative maps. These comments were critical because they underlined the epistemological differences that existed between him and van Eesteren. For van Eesteren, space and scale were intrinsic features of the urban planning process. In this sense, he was very much acting in the tradition of his Dutch predecessor and mentor H.P. Berlage, who similarly subscribed to the idea that town planning should concern itself first and foremost with the sculpting of space. Although van Eesteren's conception of the city was far more expansive in scope as compared to Berlage's, encompassing town and country alike, he nevertheless resisted parting ways with the humanistic traditions of which he had been a product. For Neurath, by contrast, the flows of the metropolis were no longer simply physical, but operated in a quasi-virtual and informational space that could only be managed through the lens of modern statistics. He comments, "I think that we could have better represented the quantity of studies done at this congress through similar schemas [to the ones I've shown] rather than through the plan and through geographical maps."²⁶

Neurath concluded his presentation by showing some of the more experimental work of the Museum of Society and Economy. One image he shared was of a model apartment building

built of transparent panes of glass, each of which showed a different floor plan within the building (Figure 14). For Neurath, providing this kind of organizational information was preferable to showing facades; doing so was in keeping with his overall anti-formal stance: “One can compare plans that we have painted on glass and superimpose them and add lighting for educational purposes. In this way one can obtain an illustration not only of a transparent house, but also diverse plans of the city, but most important is the logical elaboration of a system of eloquent symbols.”²⁷

After the reception at the Polytechnical School, the congress delegates spent one week traveling the islands of Greece. They then boarded the *Patris II* and made their way back to Marseille. During the return, the congress’ publication commission met for discussion. This group consisted of Jean Badovici, Le Corbusier, Rudolf Steiger, László Moholy-Nagy, and van Eesteren.²⁸ Moholy-Nagy held a relatively favorable view of quantitative and empirical research methods, albeit with reservations. In 1922, he and his wife Lucia began experimenting intensely with photograms, a camera-less form of photography that involved projecting light onto a photo-sensitive surface.²⁹ In 1923, he took over as head of the Bauhaus’ preliminary course [*Vorkurs*] from Johannes Itten, steering the school in a direction that emphasized industrial mass production and a more practical engagement with social issues. During the period, he built a close friendship with Gropius and van Eesteren, developing a philosophy of design that rejected strictly utilitarian art as strongly as it did purely emotional, subjectivist works. As he wrote in a 1932 article, “We cannot establish a universal intellectual attitude or cultural standard from one vantage point only, such as cognition by means of logic, or the sciences, nor indeed from the arts exclusively. In order to form a comprehensive attitude to existence, we must start *simultaneously* from emotion and cognition.”³⁰ Moholy-Nagy was strenuously opposed to the sociological biases of Neurath, which he must have associated with the scientific empiricism of former Bauhaus director Hannes Meyer. In 1928, Gropius appointed Meyer his successor in Dessau, prompting Moholy-Nagy’s resignation from the school. In opposition to Meyer, Moholy-Nagy did not believe that aesthetics should be excluded from cultural practice, that on the contrary the very function of design was precisely to explore new forms of perception that defied scientific explanation. This tacit romanticism contrasted sharply with Neurath’s radically anti-metaphysical outlook, which was very clearly derived from his conversations with the so-called “Vienna Circle.” Throughout the 1920s, Neurath met regularly with Rudolf Carnap, Hans Hahn,

Moritz Schlick, and other “scientific” philosophers in the hopes of purging science of its metaphysical pretensions, and his views about visual communication echoed just this standpoint. Although Neurath was never the foundationalist or positivist that many thought him to believe – in fact, he was staunchly opposed to the idea that science could ever function as a self-enclosed “system” – he was still deeply skeptical of the ability for artistic production to serve socially progressive aims. His general distrust of the arts stirred controversy between him and the rest of CIAM, which can clearly be gleaned from later correspondence. As van Eesteren wrote to Moholy-Nagy,

I am truly happy that you participated in the congress, not only because you made a pretty film and took the pretty photos that we still plan to see, but above all because you participated so actively in the Congress events. This only proves that at our Congresses non-architects also need to participate... In particular, what has stayed in my mind is how intensely you debated Neurath – in which you, very correctly, always integrated the psychological and the human into the discussion; had you not, we would have definitely fallen victim to Neurath’s rather limited system.³¹

Neurath returned to Vienna in the middle of August with a great deal on his plate. Despite the row between him and Moholy-Nagy (unfortunately, transcripts of the exchange do not exist), his Museum of Society and Economy was still awarded the responsibility of editing the charts presented at the congress, revising them, and assembling them for publication in two formats, a technical format for internal purposes and a more popular one for the general public. “Naturally, plans, statistics, photos [will be included],” Neurath commented. “Perhaps a few supplemental materials will be necessary.”³² “Everything should be as clear as possible,” Van Eesteren responded. “The raw material must be published in the best possible manner... Collaboration with Neurath’s Institute is a matter of trust. Naturally, the Congress must be kept informed and be allowed still to exert control.”³³ On the 19th of August, Neurath wrote to Giedion about the possibility of receiving the congress’ “resolutions” [*Feststellungen*] – this of course was in order to get the publication project underway. The resolutions were intended to represent a summation of the findings of the congress and to be used to shape the course of the next meeting. “I would be grateful to you if I could receive the formulation of the new congress goals by Le Corbusier and the ‘resolutions.’ We must quickly revise the symbols for the *new* and *old* work. This depends upon the questionnaires with whose help we can hopefully determine

what the next congress will expect of us.”³⁴ Neurath enclosed with the letter copies of the Museum of Society and Economy’s 1933 publication *Pictorial Statistics according to the Vienna Method in Schools* [*Bildstatistik nach der Wiener Methode in der Schule*], as well as issues from *Distance Learning* [*Fernunterricht*]. Neurath stated that he was interested in meeting with Moholy-Nagy in order to further discuss plans for the “Functional City” book. He wrote to Giedion, “[e]nclosed I send to you and your wife a new publication of ours, as well as a couple of issues of our periodical. Perhaps I will also include something about the congress in it as well. When will we be able to meet with Moholy? The type of layout is important. An agreement to connect ‘romantic’ a ‘classical’ elements.”³⁵

By September, Neurath was still awaiting the arrival of materials for the book. Van Eesteren wrote to Neurath that many of the resolutions’ finer points were still being debated: “[a]s you suspected, the congress resolutions have generated still a great amount of debate.”³⁶ Over the course of the fall, Neurath grew more impatient. He sensed (correctly, it seems) that CIAM was seeking to distance itself from him. He wrote to Le Corbusier in November: “I regret very much that as a member of this committee I have still not heard about the deadline and work plans... This is all the more [disappointing] because relations between Vienna and the congress have become unusually loose.”³⁷

By the start of 1934, Neurath’s work with CIAM was placed on hold. The work was forestalled for a number of reasons. First, the political and economic situation in Austria grew increasingly worse. The election of Adolf Hitler as Chancellor of Germany was undoubtedly a devastating blow. The rise of the arch-conservative Christian Socialist Engelbert Dolfuss caused further worries. Although Dolfuss was against Hitler’s National Socialists, he was also closely aligned with Mussolini and conservative elements of the Catholic church. In February 1934, in an effort to root out the Social Democrats’ para-military Republican Militia [*Republikanischer Schutzbund*], he also initiated a brutal campaign of violence against known socialist neighborhoods and districts in Vienna and Linz.³⁸ These battles, which largely took place around such iconic *Gemeindebauten* (“collectivized apartments”) as the *Karl-Marx-Hof*, culminated in 200 deaths and 300 additional casualties.

Neurath and his staff at the Museum of Society and Economy recognized the dangers that these developments posed and fled from Vienna to The Hague as a result. Records show that their worries were not unfounded. The Museum of Society and Economy was being closely

watched by anti-communist factions. As one person wrote in an anonymous police record, “in the Vienna Magistrate, there is an ‘economic and socio-political museum,’ which was founded and has been maintained by the Social Democrats and which occupies many rooms in the ground level of the city hall.... The director of this museum is a certain Otto Neurath, who spends six months of the year in Vienna and the other six months in Moscow. This museum was founded by the Worker’s Cabinet and has been subsidized by the City Magistrate. In this museum, there remain nothing but communists; specifically: a Swiss, a Dutchman, a German from Frankfurt am Main, two Russians, etc.”³⁹

In fleeing Vienna, Neurath was aided by the director of the Economic-Historical Library in Amsterdam Professor Posthumous, who had earlier helped him establish the International Foundation for Visual Communication in The Hague in 1933. After Neurath’s departure, the Museum of Society and Economy did not officially close (it was renamed the Austrian Institute for Pictorial Statistics [*Österreichische Institut für Bildstatistik*] in 1934 and the Institute for Exhibition Technology [*Institut für Ausstellungstechnik*] in 1938),⁴⁰ but its creative phase did officially end. Reidemeister left soon after Neurath; most of the rest of the staff – the *Kölnergruppe* artist Gerd Arntz, the graphic designer Erwin Bernath, and the bookbinder Josef Scheer -- later joined them. Friedrich Bauermeister and Edith Matzalik, who oversaw the Isostat Institute, were to remain in Moscow.⁴¹ The museum as Neurath had known it closed in April 1934. As Reidemeister wrote of the period,

In February 1934 the brooding storm in Vienna broke. Otto was in Moscow, but before he had left he anticipated the worst and arranged with us to cable “Carnap expects you” if we wanted to advise him not to return to Vienna. Immediately after the shootings in the street, the police came to our office and rummaged through Otto’s desk. In my room they looked at nothing but the file “Neurath, personal.” The situation was clear: obviously, Otto had been denounced to the police as a Communist. I sent the cable “Carnap expects you. Letters forwarded to Philipp” to indicate that I would meet him in Prague at the home of Philipp Frank. We met again in Brno, together with our grand Dutch friend to discuss what steps to take. I also took a duplicate passport to Otto, bearing no Russian visa, which an Austrian consul in Sweden had provided for him. Our Dutch friend came back with me to Vienna and gave me the necessary signatures so that we could make all our moves legally. We rented a room for our International Foundation [for Visual Communication] and painted a sign in Dutch for it, to make quite clear that this was foreign property, and moved all those things into the room that were needed to

enable us to carry on in Holland. Otto traveled via Poland and Denmark to The Hague, and I joined him a month later to look for a house.⁴²

A second factor that prevented Neurath from working with CIAM for much of 1934 was van Eesteren's health. He was left bedridden for most of the year on account of overwork and exhaustion. As van Eesteren wrote to Neurath in May 1934, "[d]uring this past winter I was very ill, and since then I have only been able to tend to emergencies and urgent matters. I am still not in a condition to work regularly and will travel abroad in a couple of months for a cure."⁴³ A third factor that stalled relations was Giedion's heavy opposition to Neurath. Giedion had expressed interest in Neurath's undertakings as early as 1929, even suggesting that he be included in CIAM's Frankfurt congress. "Please tell me the address of Mr. Neurath, who is personally known to me through my friend Franz Roh," he wrote to Frank. "I would be pleased if he accepted an invitation."⁴⁴ Yet Giedion had grown quite skeptical since. Neurath understood this, and when he received an official announcement for a CIAM meeting in Paris that was to take place almost the following day, he knew exactly where to point the finger. Neurath confided in van Eesteren suspicions that Giedion had deliberately waited until the last minute to invite him. He threatened to withdraw if such a pattern of activity persisted. Van Eesteren wrote back as follows: "[y]our last letter to me has weighed heavily on my shoulders, for it would be a shame if our contact were not to yield results.... My personal opinion is that the late invitation for the Paris meeting is to be attributed to a mistake of the secretary [i.e., Giedion]."⁴⁵ Van Eesteren must have been genuine in wanting to stay the course with Neurath, because his exchanges with Giedion reinforced this. "Our departure point is still that the collaboration between Neurath and the Congress must still accomplish something," he wrote, "or that something new comes of it."⁴⁶

This last exchange was the most significant because it revealed the ongoing tensions within CIAM about how to theorize the language of the modern city. Although van Eesteren's method of "comparative city planning" drew its empirical rigor and aesthetic uniformity from Neurath, van Eesteren still sided with both Giedion and Moholy-Nagy on the question of the relationship between art and science. If Neurath insisted on a language of abstraction that fully internalized scientific empiricism – that attempted to mitigate the role of subjective will in the production of culture – van Eesteren still felt wedded to the idea that art could function as an agent of politics, that is to say that human agency and metaphysical intuition could inform

judgments about planning. In his philosophical writings, Neurath was adamant about the *provisionality* of scientific knowledge; he believed that auxiliary concepts were intrinsic to scientific research. Yet in his debates with CIAM he refused to validate the emancipatory potential of the arts, which he only underscored in later discussions with his close friend, the architect Josef Frank: “I trust realistic art as little as I do unrealistic,” he announced to Frank. “As soon as art becomes too important it becomes questionable. The Russians call for realistic art in the same way that the church wanted mystical [art] – propaganda here and there. Raphael, Leonardo.... were hired by the Goebbels of their times.”⁴⁷

For Neurath, the months April to October 1934 were consumed by matters completely unrelated to CIAM. The first of these consisted in the reorganization of the International Foundation for Visual Education, his base in The Hague. It had originally been conceived as a branch institute of the Museum of Society and Economy, but once it became headquarters Neurath felt that it had to be divided into two separate entities, the International Foundation for Visual Education, which handled foreign commissions, and the Hague Mundaneum, which handled domestic commissions.⁴⁸ Second, during this time Neurath also produced a catalog and exhibition design for the International Industrial Relations Institute, which was celebrating its 10th anniversary.⁴⁹ Third, he made provisional steps toward launching the Unity of Science movement, which was intended as the *de facto* successor to the Vienna Circle, organizing international meetings, publications, and congresses.

Neurath’s efforts to advance the Unity of Science movement would absorb more of his time and energies than any other project he would take up for the rest of his life. As Friedrich Stadler has observed, the Unity of Science’s stated goal was to support cooperation and collaboration within the sciences and to promote anti-metaphysical empiricism.⁵⁰ Over the course of its history, it held seven major congresses, a primary meeting in Prague followed by annual international meetings in Paris (1935, 1937), Copenhagen (1936), Cambridge, England (1938), Harvard University (1939), and the University of Chicago (1931). Aside from Neurath, its principal organizers were Carnap and Philipp Frank, both of whom were in Prague but would later emigrate to the United States. Its members also included many of the original members of the Vienna Circle – Edgar Zilsel, Moritz Schlick, Hans Reichenbach, et. al. – as well as many new figures from outside of Austria and Germany, for example Charles W. Morris, Alfred Tarski, Bertrand Russell, Karl Popper, and Alfred J. Ayer.⁵¹

The Preliminary Conference of the International Congress for the Unity of Science was held between August 31st and September 2nd, 1934. This meeting was of great importance for the fact that it brought together members of the Vienna Circle with progenitors of scientific empiricism from Scandinavia, England, the United States, and Poland. Neurath's paper was titled "Unity of Science as a Task" [*Einheitswissenschaft als Aufgabe*], and it made the case for a conception of science rooted in the encyclopedic traditions of Denis Diderot and Jean Le Rond D'Alembert. "After the deactivation of traditional metaphysics," Neurath announced, "in constant struggle with metaphysical tendencies, as positive work we could create an *encyclopedic* summary of the sciences upon a unified logical foundation."⁵² For Neurath, the *Encyclopédie* (1745-1772) was inspired by on the idea that knowledge should be accessible to the masses, the result of collective effort, an open-ended process, and a tool for social change. The Unity of Science would help facilitate this kind of work, he believed, because it was premised on the idea that "ambiguity and uncertainty are essential."⁵³ "All of science is always fundamentally subject to debate," Neurath announced.⁵⁴

Two months after the Unity of Science meeting, Neurath and Van Eesteren resumed contact. By this time, van Eesteren was well enough to return to work; he immediately set about carrying out three projects, an exhibition featuring a General Extension Plan that he had produced for the city of Amsterdam, a four-day CIAM delegation meeting, and a "Functional City" exhibition. The two last events were planned to have their opening together at Amsterdam's *Stedelijk Museum*. For the "Functional City" Exhibition, which was officially titled "Housing, Recreation, Traffic, and Work in the Modern City" [*Wonen, werken, verkeer en ontspanning in de hedendaagse stad*], van Eesteren wanted to include, first, the analytical maps that the delegates had presented aboard the *Patris II*, a second display that addressed universal signs and symbols in urban planning, and a third that visualized the resolutions of the "Functional City" meeting in graphic terms. Van Eesteren charged Mart Stam, the radical Marxist and Constructivist who had only recently returned back from Moscow, with curating the exhibition. He asked Wilhelm Hess, Georg Schmidt, and Rudolf Steiger to produce a "visualization" of the resolutions, what was also known as the "historical table" [*historische Tabelle*]. Schmidt was an art historian; Hess had just recently graduated from the Bauhaus, and he had also played an instrumental role in producing the maps of Dessau that were presented during the Functional City meeting. Van Eesteren asked Neurath to oversee work on the

historical table and to devise a set of prototype universal symbols for urban planning that could be included in the exhibition . As he wrote to Neurath,

The intention is to hold a [CIAM] delegation meeting, as well as to bring together Dutch city planning and housing professionals.... I write you this because I hope that we can then get our work on the representation of city planning symbols far enough that we can include them in the exhibition. It will be essential for us to test, revise, and ultimately apply our entire body of symbols on a map of Amsterdam so that a complete example can be made available... I would be very pleased if our collaboration really gave rise to a symbolic language of city planning.⁵⁵

The next months were frustrating ones for Neurath. He and van Eesteren had sharply contrasting views about what the exhibition was to accomplish and how its contents were to be documented; these differences stalled their progress. Neurath's criticisms of the existing diagrams were many: "[w]e stress that at the exhibition it is better to include fewer large maps with smaller helping maps than to have too many large and overfilled maps. Wherever possible, no numbers should be used on the maps, because this disturbs the optical picture and sometimes even obscures the essential meaning."⁵⁶ Neurath also took issue with what appeared to be van Eesteren's disregard for his graphic expertise. As he wrote to van Eesteren on the 20th of February,

[e]verything gets resolved, eventually, once you have had the time to think about it, but [visualizing the city] is not a graphic task, nor is it simply a task to be left for architects; it requires the "shifting between" of the TRANSFORMATION, that is, the pictorial-pedagogical analysis and the orientation. To the remark that the architect has not time for such things, I answer with the following advice: he should not use his time for such things, but rather leave it to trained specialists. This, however, is the same old story that I have been hoeing and hawing about on various occasions."⁵⁷

The one responsibility that generated some enthusiasm for Neurath was the work with Hess and Steiger: "Hess was here with me today," Neurath reported on the 6th of February. "It was a great pleasure for me to see through this work. The entire setup is definitely very lively and appropriate for wider audiences."⁵⁸ Hess was also pleased with the collaboration. His enthusiasm for Neurath was reflected in his letters to Steiger. In one such correspondence, he

produced a hilarious visual narration of his trip to Van Eesteren's office. It consisted almost exclusively of cartoon-like drawings. He drew a picture of himself arriving at the train station on the 29th of December in Amsterdam, having just awakened from resting in the sleeper car; he illustrated the room in which he stayed, where he ate, and whom he visited (Figure 15, 16).

Physically, Steiger and Hess' historical table was approximately 5 meters long (Figure 17, 18). It divided into 5 separate panels, each of which was devoted to a different historical epoch. Unlike the other "Functional City" studies, it was not at all a geographical map, but a timeline, collage, and photo-documentation wrapped up into one. It showed the evolution of the modern city from the prehistoric age to the present. Conceptually, it differed from Neurath's ISOTYPE diagrams in that it played to the audience's emotions in an effort to stir conversation and reflection. It created dramatic juxtapositions between New York skyscrapers and modern day soldiers, maps, charts, and statistics in a montage-like fashion that strongly recalled German Dadaist art. "The highest horizontal column," Rudolf Steiger later wrote, "shows a selection of typical settlements from the European region from the cave and the era of primitive peoples to town and city models of the Middle Ages, the Renaissance, and the Baroque times through to the modern world city."⁵⁹ The chart included information about transportation systems, geographical conditions, economic and social systems, housing, social structures, and military technology. It showed the evolution of the four functions with respect to zoning conditions, historical development, and class relations. It illustrated how in the trade-based metropolis politics, the law, industry, and the media coalesce to "achieve political influence over the organized wage-earning workers." Its polemical intent and tacit anti-capitalism was underscored by Steiger's later comments. One of the aims of the diagram, he stated, was to show how modern cities "dominate the world economy through organized finance capitalism."⁶⁰

The "Functional City" Exhibition took place between the 1st and 23rd of June, 1935 (Figure 19). The historical table was the center of attention, generating immediate controversy. It was hung against a central partition in the middle of the exhibition space. At the opening of the reception, it was seen by Gropius, Giedion, and J.J.P. Oud. They were quite taken aback, very concerned. Given the unfavorable political climate, many of the members were concerned about its political content. The chart was soon taken down. As Martin Steinman observes, this was primarily "due to pressure from Gropius, who regarded its materialistic foundations as politically dangerous."⁶¹ Indeed, as I have stressed elsewhere, questioning the physical

“givenness” of the city – attempting to ground its evolution sociologically or in terms of class – already invited suspicion, particularly in Europe’s increasingly polarized political climate. The concept of the city that Steiger and Hess were offering, and that Neurath partly endorsed, proved unpalatable for the fact that it questioned the economic foundations of the modern metropolis.

It is unclear whether Neurath attended the opening of the “Functional City” exhibition. We do know that neither the graphic symbols he produced nor the prototype map he had been working on were included. He discontinued relations with CIAM. Van Eesteren continued to follow Neurath’s work – his library reveals that he owned a copy of Neurath’s *Modern Man in the Making*, which was published in 1939; he also received announcements from the University of Chicago Press concerning the release of the first two volumes of the *International Encyclopedia for Unified Science* – but van Eesteren and Neurath also lost touch. If only in spirit, Neurath’s influence was resuscitated in 1942 when José Luis Sert published *Can our Cities Survive?* The book was a documentation of the work the Museum of Society and Economy was originally commissioned to edit and rework. It showed many of the maps that had been featured at the “Functional City” congress. Neurath was never cited as an inspiration for the diagrams.

Neurath’s relationship with CIAM prompts one to question what may have caused the rift to occur. Enrico Chapel has made the claim that Neurath’s problems with the organization are attributable to the fact that “the architects were absolutists.... Architects wanted to use [Neurath’s graphic methods] for propagandistic purposes.”⁶² For all the many merits of his article, this interpretation fails to account for some of the deeper philosophical differences that I have tried to highlight. Most significantly, Moholy-Nagy, Giedion, Le Corbusier, and Van Eesteren espoused a conception of culture and society that was decisively at odds with Neurath’s. Over the course of the late 1920s and early 1930s, they grew skeptical of the utilitarian premises that informed modernist architectural discourse during the 1920s. Their optimism about science diminished as the promise of social democracy grew increasingly remote, and in many respects their “return to form” and emotion was a product of their deepening skepticism about modernity at large. The rejection of Le Corbusier’s Palace of the Soviets proposal in 1931, followed by the Russians’ withdrawal of their invitation to host CIAM IV in 1932, caused many to rethink the scientific optimism that was widely felt during the early 1920s.

For Neurath, the promise of “unified science” remained a palpable ideal in spite of the growing pessimism and conservatism that surrounded him. In Moholy-Nagy’s cultural humanism and the tradition of Bauhaus modernism to which Moholy-Nagy belonged he saw signs of a resurgent metaphysic that played against goals of scientific inquiry. As Neurath later wrote, “Bauhaus and many others were strongly fashion-driven – but perhaps we are of another time... In Berlin, everything was so principled, so dramatic, but often backed up by little, if any, action.”⁶³ In the realm of graphic design, Neurath’s emphasis on pedagogical clarity and accessibility was a reflection of his deeper distaste for autonomous art objects – concepts premised on ideas about authorship and originality. For him, the only “image” or “*Bild*” worth communicating was the one whose content was intellectually transparent. Moholy-Nagy’s efforts to achieve new cognitive heights through artistic production were at odds with Neurath’s efforts to derive a finite and clearly-circumscribed “grammar” of visual communication.

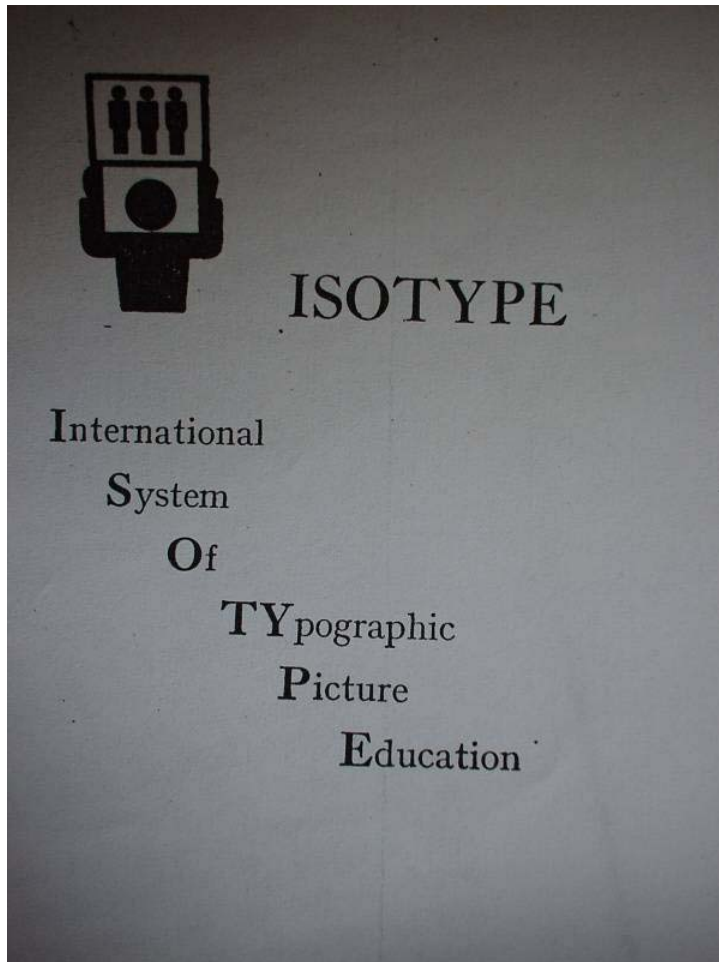


Figure 1. Otto Neurath, "ISOTYPE," 1936. (Source: Otto Neurath, *International Picture Language* (Reading: University of Reading Department of Typography & Graphic Communication, 1936, 16).

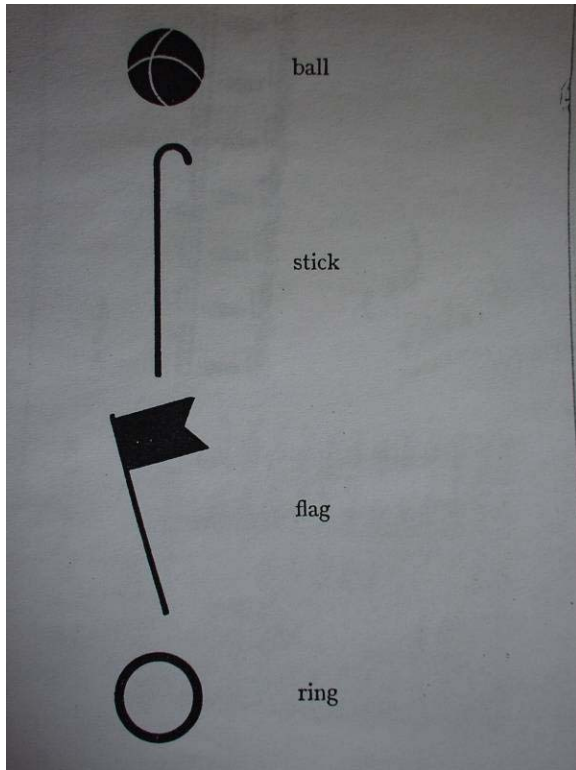


Figure 2. Otto Neurath, examples of ISOTYPES, 1936. (Source: Otto Neurath, *International Picture Language* (Reading: University of Reading Department of Typography & Graphic Communication, 1936, 16).

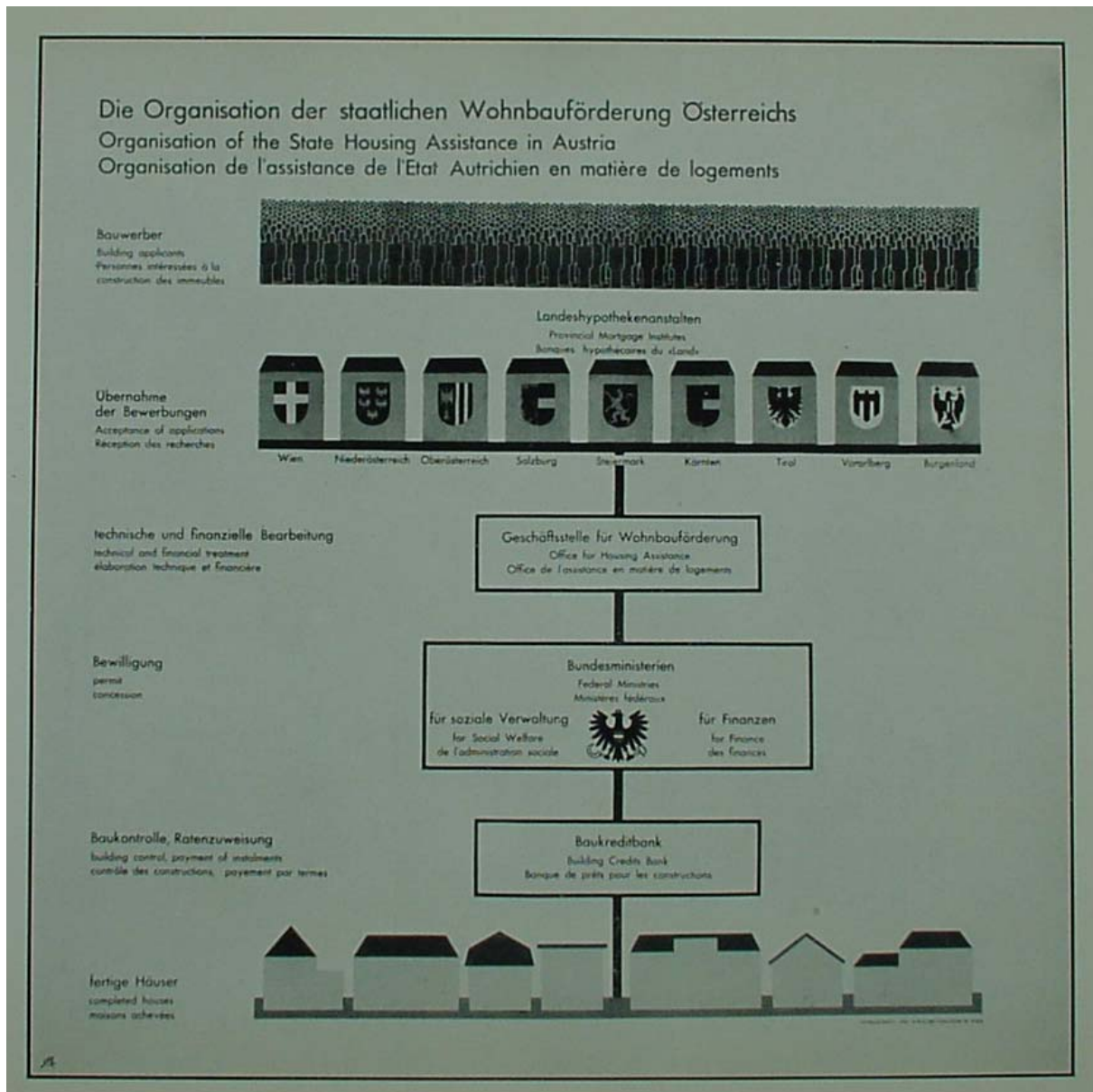


Figure 3. Sample diagram from the catalog that accompanied the Austrian contribution to the Berlin Building Exhibition of 1931. Title reads “Organization of the State Housing Assistance in Austria.” Diagram by the Museum of Society and Economy. (Source: *Wohnbauförderung in Österreich, auf der deutschen Bauausstellung*. Berlin, 1931, 2).

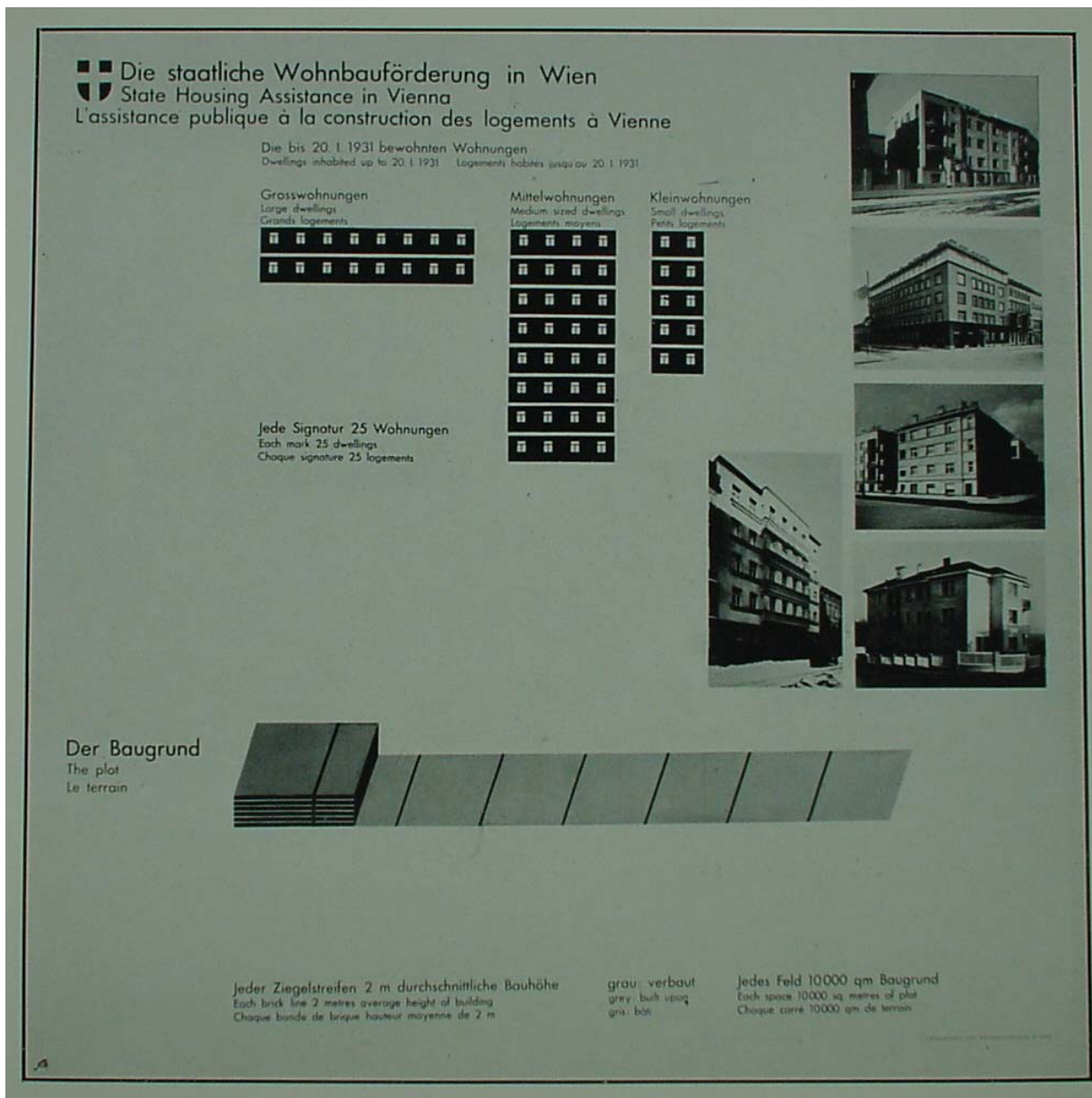


Figure 4 Museum of Society and Economy, Graphic chart from the German Building Exhibition, 1931 (Source: *Deutsche Bauausstellung Berlin*, Berlin, 1931, 11)



Figure 5. Maps of Amsterdam at 1:10,000 scale, by Dutch CIAM delegation; intended as prototype for the Functional City congress. (Source: Martin Steinmann, ed. *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928-1939*. Basel: Birkhauser, 1979.)

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Figure 7. Cornelis van Eesteren presenting analytical maps of the city of Amsterdam to CIAM delegates. (Source: Papers of CIAM, ETH Zurich, Zurich, Switzerland)



Figure 8. Sigfried Giedion speaking to Otto Neurath (Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands)



Figure 9. Neurath having a conversation with Alvar Aalto (center) and László Moholy-Nagy (right). (Source: Papers of CIAM, ETH Zurich, Zurich Switzerland).

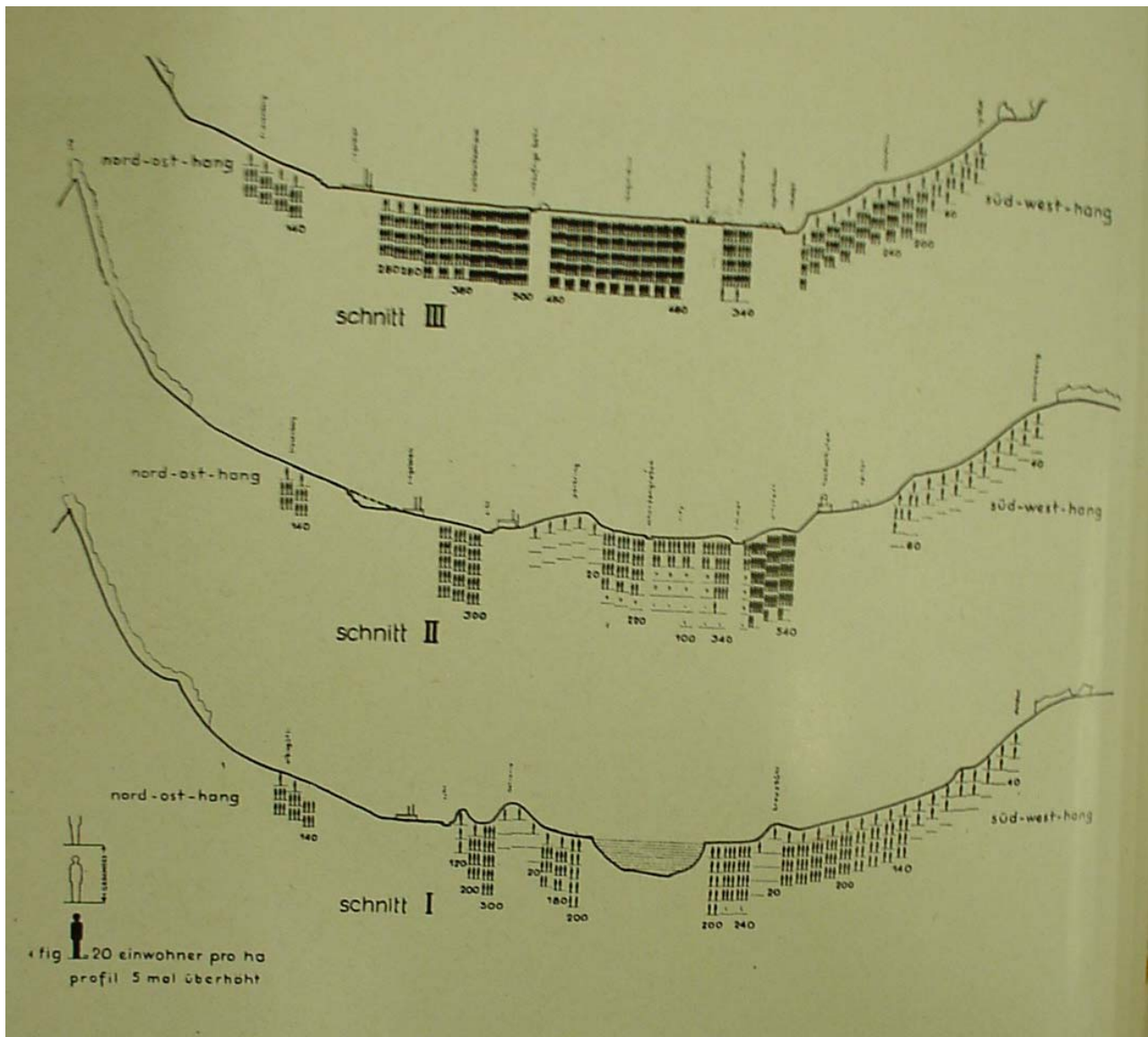


Figure 10. Swiss CIAM Delegation, Sectional view of population density in Zurich, 1933. (Source: G.A.T.E.P.A.C. "Conclusiones del IV Congreso Internacional del C.I.R.P.A.C. sobre la Ciudad Funcional." A.C.: *Documentos des Actividad Contemporanea* 3: 12 (1933): 12-42)



Figure 11 German CIAM Delegation, Study of the city of Dessau, 1933 (Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands)

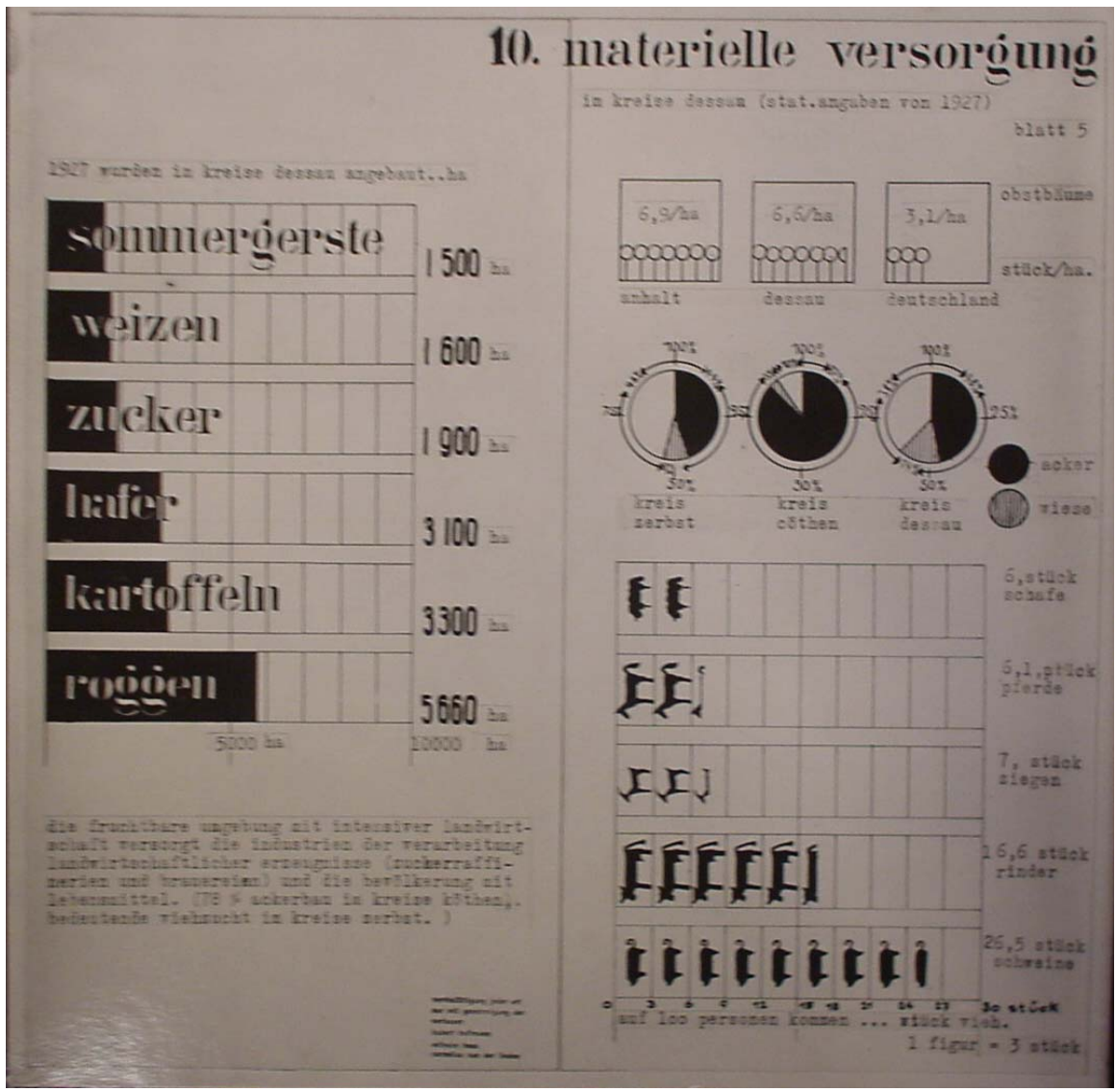


Figure 12. German CIAM Delegation, Study of the city of Dessau, 1933 (Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands)

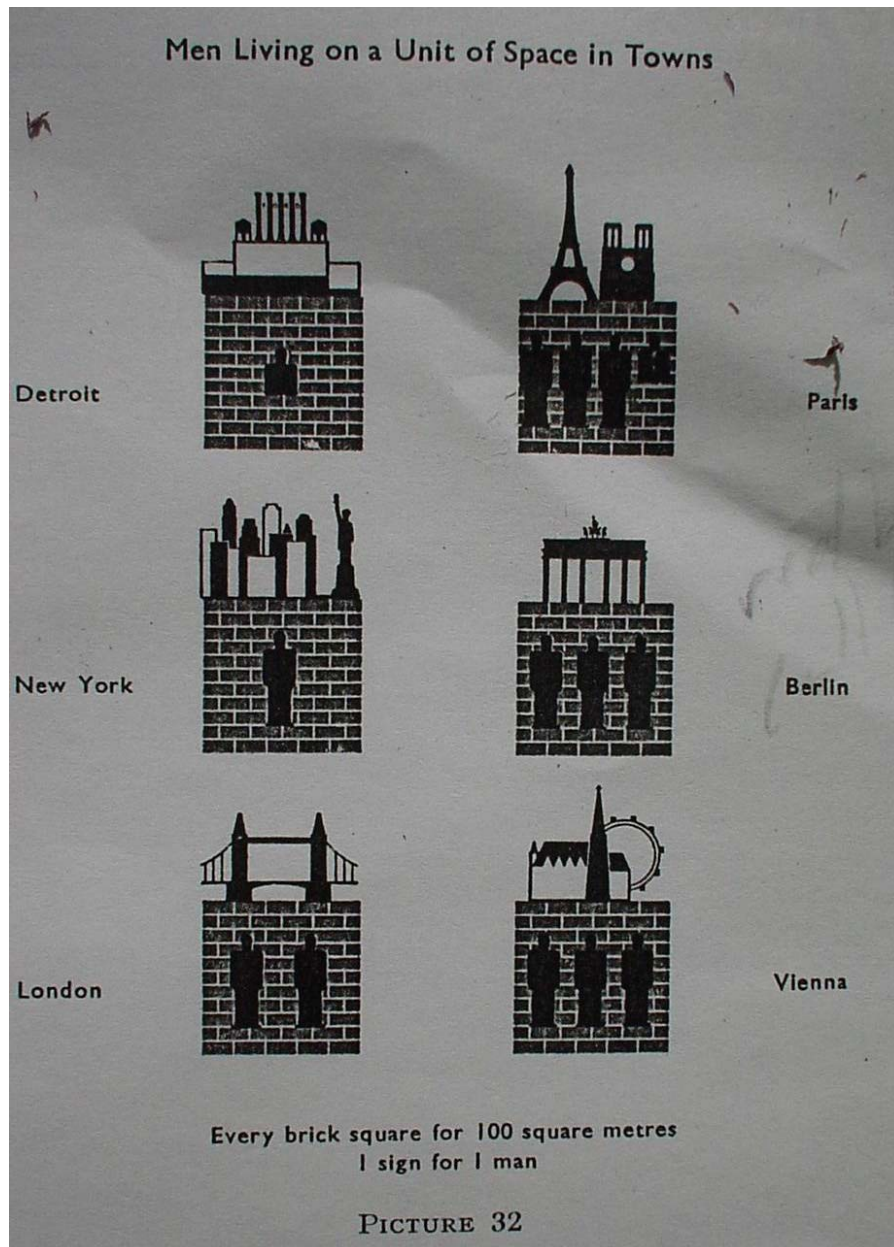


Figure 13. Museum of Society and Economy, “Men Living on a Unit of Space in Towns.” Image included in Neurath’s August 3, 1933 paper at “Functional City” CIAM congress in Athens (Source: Otto Neurath, *International Picture Language* (Reading: University of Reading Department of Typography & Graphic Communication, 1980, 54)



Figure 14. Museum of Society and Economy, model of building floor plans painted onto transparent surface, c. 1932-1933 (Source: Isotype Papers, University of Reading, Reading, England)

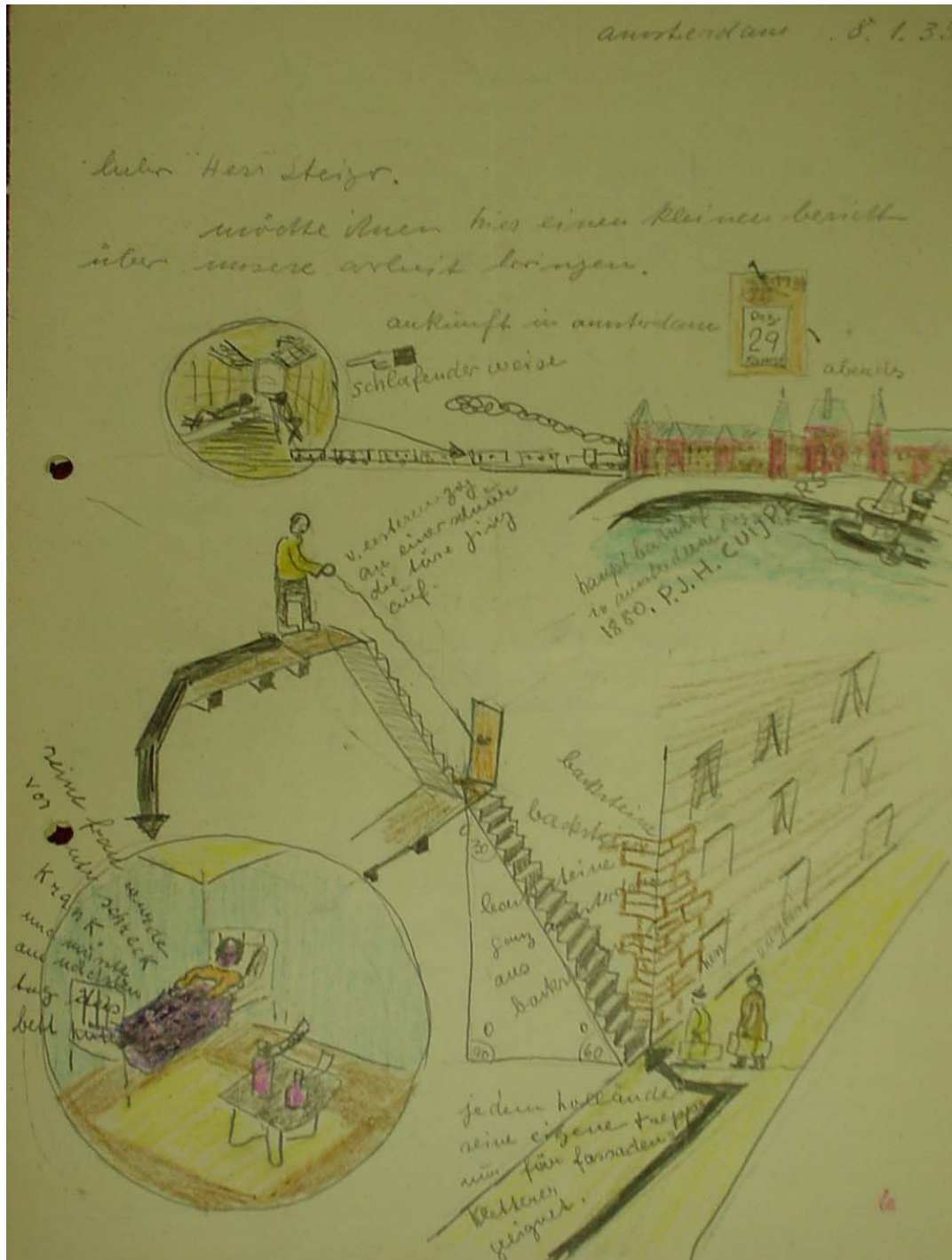


Figure 15. Wilhelm Hess, January 8, 1933 Letter to Rudolf Steiger. (Source: Papers of CIAM, ETH Zurich, Zurich, Switzerland)



Figure 16. Wilhelm Hess, January 8, 1933 Letter to Rudolf Steiger. (Source: Papers of CIAM, ETH Zurich, Zurich, Switzerland)



Figure 17. The 'Historical Table,' by Rudolf Steiger, Wilhelm Hess, and Georg Schmidt (Source: Martin Steinmann, ed. *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928-1939*. Basel: Birkhauser, 1979)



Figure 18. Wilhelm Hess and Rudolf Steiger, with Georg Schmidt, “Historical Table” [“Historische Tabelle”], detail view, visualization of the 4 functions. (Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands)



Figure 19. Poster for the Functional City exhibition at the Stedelijk Museum in Amsterdam. (Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute).

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¹ Otto Neurath, *International Picture Language* (Reading: University of Reading Department of Typography & Graphic Communication, 1980) 20.

² "...daß die allgemeine Rationalisierung der Baugestaltung nur im Rahmen einer allgemeinen Rationalisierung des Lebens möglich ist." Otto Neurath, "Rationalismus, Arbeiterschaft und Baugestaltung," *Der Aufbau: Österreichische Monatshefte für Siedlung und Städtebau* 1 (1926) 53-54.

³ *Wohnbauförderung in Österreich, auf der deutschen Bauausstellung*, (Berlin, 1931).

⁴ For a background to Van Eesteren's life and work, see Franziska Bollerey, "Cornelis van Eesteren, A Close-up," *Urbanismo*: 8 (1989). For a discussion of Van Eesteren's work at the Amsterdam Public Works department, see Mariette van Straalen, "Empirical Urban Analysis: The Collaboration between Van Eesteren and Van Lohuizen," *Daidalos* 69/70 (1998/1999); Vincent Van Rossem, "Amsterdam's General Extension Plan," *Planning Amsterdam: Scenarios for Urban Development (1928-2003)* Rotterdam: NAI Publishers, 2003). For a discussion of Van Eesteren's impact post-World War II, see Bart Lootsma, "Reality Bites: The Meaning of Research in the Second Modern Age," *Daidalos*: 69-70 (1998-1999).

⁵ Regarding Van Eesteren's work with Van Doesburg, see Paul Overy, *De Stijl* (London: Thames and Hudson, 1991) 172-175.

⁶ See van Straalen. See also Volker Welter, *Biopolis: Patrick Geddes and the City of Life* (Cambridge: MIT P, 2002).

⁷ Martin Steinmann, ed. *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928-1939*. Basel: Birkhauser, 1979. 114.

⁸ "Schon aus Gründen der Übersicht und der Vergleichsmöglichkeit bestand seit langem das Bedürfnis außer der Organisation der eigenen Stadt und ihres Einzugsgebietes, auch die ähnlich strukturierter Städte in anderen Ländern kennen zu lernen. Dieser Überblick über die Gesamtentwicklung ist allmählich ein Bedürfnis jedes Architekten und jeder Behörde geworden, die sich ernsthaft mit städtebaulichen Problemen abgibt. Begründet liegt dieses Verlangen in der universalen Auffassung, die der heutigen Architekturentwicklung eigen ist./ Bis jetzt lagen aber nur schwache Ansatzpunkte für einen derartigen Überblick vor. Wenn überhaupt, so konnte nur durch persönliches Einzelstudium Einblick in die Funktionen und Lebensbedingungen der verschiedenen Städte gewonnen werden. Für dieses Gebiet, für das wir als Ganzes den Namen

VERGLEICHENDER STÄDTEBAU vorschlagen möchten, brauchet es allererst eine Analyse bestehender Städte nach einheitlicher Methode. (Gleicher Maßstab, Anwendung gleicher Zeichen und gleicher Farben für gleiche Funktionen).“ Cornelius van Eesteren, "Prospekt für die Funktionelle Stadt," Papers of Cornelis Van Eesteren, Netherlands Architecture Institute.

⁹ “In einem von Lenin mitgezeichnetem Dekret wird bereits gefordert, es müsse Statistik an öffentlichen Orten, auf Straßensammlungsorten, leicht verständlich gezeigt werden.“ Neurath, "Bildstatistik nach Wiener Methode in der Sowjetunion," *Moskauer Rundschau* (1932) 207.

¹⁰ “Zu den ersten Arbeiten des Instituts gehört die Anfertigung von Bildtafeln für Ausstellungen, die Anfertigung von Zeitungs- und Buchillustrationen, fallweise von Plakaten. Durch Sonderkurse wird die Umwandlung statistischer Mittel in Bildskizzen (Transformation gelehrt), die Anfertigung von Skizzen und vieles andere.“ Otto Neurath, "Bildstatistik nach Wiener Methode in der Sowjetunion," 209.

¹¹ Nancy Cartwright, Jordi Cat, Lola Fleck, and Thomas E. Uebel, *Otto Neurath: Philosophy between Science and Politics* (Cambridge: Cambridge University Press, 1996) 71.

¹² I wish to thank Kees Somer for bringing this letter to my attention. “ich hoffe, dass sie in den besitz meines briefes vom 25.2 gekommen sind, in welchem ich über die ersten anfänge der kongressvorbereitungen berichtet habe. Inzwischen haben wir die vorschläge genau ausgearbeitet und alles so eingerichtet, daß die ein fragebogen nicht überflüssig geworden ist. Die ausarbeitende gruppe bestand aus schmidt, blumenfeld, bücking, dr. neurath und mir; einmal war noch kaufmann auch dabei und zweimal freu schütte-lihotzki. Es war nicht leicht, die sitzungen zusammenzukriegen; blumenfeld liegt seit 8 tagen mit einem unterschenkelbruch, bücking ist sehr beschäftigt und sagt immer ab, schmidt ist vor drei tagen plötzlich nach sirbirien gefahren. Die letzten zwei abende war ich allein mit neurath und gestern, zu einer gemeinsamen sitzung mit den leitern der drei russischen unterkommissionen (neue städte, stadtrekonstruktion, regionalplanung) blieb ich plötzlich mit frau wyss allein, da sonst keiner gekommen ist. Ich habe erreicht, dass die russen ebenfalls drei typische städte nach unserer methode analysieren werden, vorausgesetzt, dass barcelona unsere vorschläge bestätigt. [...] diesem brief lege ich ein exemplar unseres vorschlags bei, der durch frau wyes auch nach zürich abgeschickt worden ist. Es ist dazu noch zu sagen, daß aus ersparnisgründen die drei hauptpläne, der regionalplan und die landeskarte sorgfältig gerollt und verpackt nach amsterdam oder amsterdam oder berlin geschickt werden sollen, wo sie als sammeltransport bis zur russischen grenze gehen. hier übernimmt sie das ausstellungskomitee.“ Letter from Fred Forbat to Walter Gropius, March 8, 1932, Fred Forbat Papers, Stockholm, Sweden.

¹³ Otto Neurath, "Bildstatistiken des Gesellschafts- und Wirtschaftsmuseum in Wien," *Gesammelte Bildpädagogische Schriften*. vol. 3. eds. Rudolf Haller and Robin Kinross. (Vienna: Hölder-Pichler-Tempsky, 1991). Originally published as "Beeldstatistiken van het Gesellschafts- und Wirtschaftsmuseum te Weenen." *Bouw en Techniek (De 8 En Opbouw)* 3:19 (1932): 191-194.

¹⁴ “*Wer am besten weiß, was er weglassen will, ist der beste Lehrer.*“ Neurath, "Bildstatistiken des Gesellschafts- und Wirtschaftsmuseum in Wien," 211.

¹⁵ “*Warum muß man die Größe von Städten durch Kreise angeben? Kann man nicht eine Stadt, die doppelt soviel Einwohner hat wie eine andere, dadurch andeuten, daß man ihr doppelt soviel Figurchen gibt?*“ Neurath, "Bildstatistiken des Gesellschafts- und Wirtschaftsmuseum in Wien," 211.

¹⁶ José Luis Sert had the following to say about the guidelines that Van Eesteren set for CIAM IV; the emphasis of course was on normification and standardization: “The significance of [these] analytical stud[ies] [was] that... for the first time, a universal basis for the comparison of cities was established. All plans were designed on the same scale and interpreted by the same symbols, so that slum areas, traffic problems, concentrations of population, location of industry, and other phases of urban life, in communities of widely differing character and in different nations and continents, could really be compared.” José Luis Sert, *Can our Cities Survive?* (Cambridge: Harvard UP, 1942) 6.

¹⁷ Internal Memorandum of the International Congress for Modern Architecture," 1931, Papers of Cornelis van Eesteren, Netherlands Architecture Institute.

¹⁸ Mumford, *The CIAM Discourse on Urbanism, 1928-1960*, 77-78.

¹⁹ Mumford, *The CIAM Discourse on Urbanism, 1928-1960*, 81.

²⁰ Kees Somer, "Functional Amsterdam: The AUP and C.I.A.M.'s Fourth Congress," *Planning Amsterdam: Scenarios for Urban Development (1928-2003)* Rotterdam: NAI, 2003).

²¹ “*Die Stadt als Ganzes ist der Ausdruck der menschlichen Gesellschaftsordnung. Aufgabe des Städtebauens ist es, das Stadtgebilde räumlich zu ordnen. Auf Grund der soeben genannten Studien kommen wir zu dieser Ordnung indem wir jedem Element, jeder Funktion der Stadt und des Landes seine geeignete Lage schaffen, so daß sie zur vollsten Entfaltung kommen könnte. Eines der wichtigsten Mittel ist das Aufstellen von Entwicklungsplänen von Städten und Dörfern und die Koordination durch Landesplanung. Die Durchführung und das Gelingen dieser Arbeit wird nur dann zu Stande kommen wenn sie getragen und verstanden wird von der ganzen Bevölkerung des bearbeiteten Gebietes. Dieses schon deshalb weil die Ausführung nicht von zentralen Stellen aus geschehen kann. Die Zentrale Stelle kann nur die Richtlinien angeben und kontrollieren ob danach gearbeitet wird. Die zentrale Stelle ist wie eine Waage welche das Gleichgewicht zwischen den verschiedenen Interessen in Planungsgebiet abwägt. Dezentralisation kann ur dann zu einer harmonischen Gesamtheit führen, wenn allgemein ein städtebauliches Begreifen besteht bei allen denjenigen welche Verantwortung tragen für alles was erschlossen und gebaut werden soll.*“ Cornelis van Eesteren, "Methoden des funktionellen Städtebaues und deren Anwendung in Amsterdam," 1933, Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands.

²² A version of Neurath's paper was published in *Annales Techniques*. I have decided to work off the original manuscript, however, which is located at the ETH in Zurich. See Otto Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise," *Annales Techniques* (1933); Otto Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise," 1933, CIAM Papers, Eidgenössische Technische Hochschule (ETH), Zurich, Switzerland.

²³ *"Nous avons élaboré à Vienne une méthode de pédagogie basée sur la visualité l'image obtenue d'après la " méthode de vienne " se présente de la façon suivante : Le premier regard nous renseigne sur les points capitaux, le second sur les phénomènes accessoires, le troisième sur les incidents. Si le quatrième nous apprend encore quoique ce soit, on peut affirmer que l'image est insuffisante. Cette méthode, nous l'avons appliquées notamment sur la statistik. Une plus grand quantité d'objets est représentée par une plus grand quantité de symboles éloquentes. "* Otto Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise," 1933, CIAM Papers, Eidgenössische Technische Hochschule (ETH), Zurich, Switzerland.

²⁴ *"Nous nous considérons comme des agents exécutifs des spectateurs. Pour ce faire il est nécessaire de simplifier bien des choses et même d'en éliminer : celui qui saura faire le meilleur choix sera le meilleur pédagogue. "* Otto Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise," 1933, CIAM Papers, Eidgenössische Technische Hochschule (ETH), Zurich, Switzerland.

²⁵ *"Je présente ici la densité d'habitation dans les grandes ville mondiales. Les villes sont caractérisées par des médallons, p.e. Paris par la Tour Eiffel et Notre Dame, Londres par le Pont sur la Tamise, etc., etc. On voit sur des carrés figurant la brique des figurines noires. A première vue on constate que dans les ville anglo-saxonnes il y a par 100 m², moins d'habitants que dans les villes d'Europe centrale. Je n'entrerai pas dans des considérations pour savoir si le fait de l'habitation sur un seul ou sur deux étages détermine cette circonstance. "* Otto Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise," 1933, CIAM Papers, Eidgenössische Technische Hochschule (ETH), Zurich, Switzerland.

²⁶ *"Je pense que nous pourrions mieux représenter une quantité de faits étudiés à cet congrès par des schémas semblables, plutôt que par des plan et des cart géographiques."* Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise."

²⁷ *"... de pouvoir comparer les plans les uns avec les autres nous les avons dressé sur verre et superposé en ajoutant un éclairage par en. bas. De cette façon on peu obtenir une démonstration non seulement d'une maison transparente, mail aussi de diverse plans de ville. Mais le plus important cés l'élaboration logique d'une système de symboles éloquentes. "* Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise," 1933.

²⁸ Mumford, *The CIAM Discourse on Urbanism, 1928-1960*, 78.

²⁹ Victor Margolin, *The Struggle for Utopia: Rodchenko, Lissitzky, Moholy-Nagy* (Chicago: U of Chicago Press, 1997) 139.

³⁰ Laszlo Moholy-Nagy, "New Film Potentialities," *Moholy-Nagy*. ed., Krisztina Passuth. (London: Thames and Hudson, 1982) 320

³¹ *“ich bin wirklich sehr froh darüber, dass du den congress mitgemacht hast, nicht nur weil du einen schönen congress-film gemacht hast und den schönen fotos die wir noch zu sehen bekommen werden, aber vor allem weil du an der congressarbeit so aktiv teilgenommen hast. Von neuem hat es sich bewiesen, dass an unserm congres auch uns nahestehende nicht – architekten teilnehmen müssen. Besonders ist mir in erinnerung geblieben wie activ du an der besprechung mit Neurath teilgenommen hast – worin du immer das menschliche und psychologisch richtig wirkende in der diskussion nach vorne gebracht hast, sonst wären wir sicher zu viel dem etwas begrenzten system Neurath's zum opfer gefallen.“* Letter from Cornelis van Eesteren to László Moholy-Nagy, September 4, 1933, Papers of CIAM (Congres Internationaux d'Architecture Moderne), Institut für Geschichte und Theorie der Architektur, ETH Zurich, Zurich, Switzerland.

³² *“Natürlich. Planausschnitte, Statistiken, Fotos. Vielleicht einige Materialergänzungen nötig.“* Minutes of Meeting of CIAM IV's Publications Committee," 1933, Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands.

³³ *“Das Rohmaterial muß so gut wie möglich publiziert werden. Die weiter Bearbeitung muß einer Sonderstelle übertragen werden. Zusammenarbeit des Kongresses mit Neuraths Institute, eine Vertrauenssache, natürlich muß der Kongreß auch weiterhin beratend und kontrollierend eingreifen.“* Minutes of Meeting of CIAM IV's Publications Committee," 1933, Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands.

³⁴ *“Ich wäre Ihnen dankbar, wenn ich die Formulierung des neuen Kongressarbeits durch Corbusier und wenn ich die Formulierung der ‚Resolutionen‘ bekommen konnte. Wir müssen nun rasch die Zeichen für die neue und alte Arbeit überlegen. Das hängt ein wenig von dem Fragebogen ab, mit dessen Hilfe wir feststellen sollen, was wir wohl für die nächsten Kongress an Arbeiten zu erwarten haben.“* Letter from Otto Neurath to Siegfried Giedion, August 19, 1933, Papers of CIAM (Congres Internationaux d'Architecture Moderne), Institut für Geschichte und Theorie der Architektur, ETH Zurich, Zurich, Switzerland.

³⁵ *“Anbei sende ich Ihnen und Ihrer Frau, allerlei neue Drucke von uns, auch ein paar Nummern unserer Zeitschrift. Vielleicht bringe ich auch in ihre etwas über den Kongress. Werden wir mit Moholy zusammenkommen können? Die Art der Ausstattung ist wichtig. Eine Einigung auf Verbindung ‚romantischer‘ und ‚klassischer‘ Elemente.“* Letter from Otto Neurath to Siegfried Giedion, August 19, 1933, Papers of CIAM (Congres Internationaux d'Architecture Moderne), Institut für Geschichte und Theorie der Architektur, ETH Zurich, Switzerland.

³⁶ *“Wie Sie ahnen hat die Congressresolutionen noch allerhand debatten erzeugt.”* Letter from Cornelis van Eesteren to Otto Neurath, September, 1933, Haarlem, Wiener Kreis Stichting.

³⁷ *“Ich bedauere sehr, daß ich als Mitglied dieser Kommission nicht schon längst über den Zeitpunkt und die Arbeitspläne, für die ich mich doch interessiere, informiert wurde. Dies umso sehr, also die Beziehung zwischen Wien und dem Kongress ohnehin ungewöhnlich lockere sind.”* Letter from Otto Neurath to Le Corbusier, November 24, 1933, Papers of CIAM (Congres Internationaux d'Architecture Moderne), Institut für Geschichte und Theorie der Architektur, ETH Zurich (Switzerland).

³⁸ Anson Rabinbach, *The Crisis of Austrian Socialism* (Chicago: U. of Chicago Press, 1983) 206-210.

³⁹ *“Beim Wiener Magistrate besteht schon seit Jahren ein von der sozialdemokratischen Partei gegründetes und erhaltenes “wirtschaftspolitisches und sozialpolitisches Museum,“ das im Rathaus im Parterre untergebracht ist und über viele Räume verfügt, die ihm vom Stadtmagistrat unentgeltlich zur Verfügung gestellt wurden, wiewohl dieses Museum ein Privatunternehmen sein soll und zwar ein sozialistischen-kommunistisches propagandistisches Unternehmen. Direktor dieses Museums ist ein gewisser Dr. Neurath, der 6 Monate des Jahres in Wien und die zweiten sechs Monate in Moskau verbrachte. Dieses Museum ist aus den Geldern der Arbeiterkammer gegründet worden und wurde vom Stadtmagistrate reichlich subventioniert. In diesem Museum, das auch heute noch besteht, arbeiten lauter Kommunisten und zwar: Ein Schweizer, ein Holländer, ein Deutscher aus Frankfurt a.M, zwei Russen...”* Report to the Bundeskanzleramt (Generaldirektion für die öffentliche Sicherheit) regarding a "Wirtschaftspolitisches und sozialpolitisches in Museum Wien", April 12, 1934, Kriegsarchiv, Vienna, Austria.

⁴⁰ Robin Kinross. "Otto Neurath's Contributions to Visual Communication (1925-45): The History, Graphic Language and Theory of Isotype." M.Phil., University of Reading, 1979, 42.

⁴¹ Friedrich Stadler, ed. *Arbeiterbildung in der Zwischenkriegszeit : Otto Neurath, Gerd Arntz*. Wien: Löcker, 1982. 248.

⁴² Marie Neurath, "26 September 1924 and After," *Empiricism and Sociology*, eds., Marie Neurath and Robert Cohen (Dordrecht,: Reidel, 1973) 62-63.

⁴³ *“Man schrieb mir, Sie seien in Holland, weshalb ich diese Einladung nach den Haag adressiere. Vergangener Winter war ich sehr krank und nur mit Mühe und Not kann ich seither die dringlichsten Arbeiten verrichten. Ich bin noch immer nicht im Stande regelmäßig zu arbeiten und werde in den nächsten Wochen für eine Kur verreisen.”* Letter from Cornelis van Eesteren to Otto Neurath, November 21, 1934, Wiener Kreis Stichting, Haarlem, The Netherlands.

⁴⁴ I wish to thank Daniel Weiss of the CIAM Archives for bringing this letter to my attention. *“Bitte, teilen Sie mir die nähere Adresse von Herrn Otto Neurath mit, der mir durch meinen Freund Roht auch persönlich bekannt ist. Ich würde mich freuen, falls er die Einladung*

annähme.“ Letter from Siegfried Giedion to Josef Frank, August 22, 1929, Papers of CIAM (Congres Internationaux d'Architecture Moderne), Institut für Geschichte und Theorie der Architektur, ETH Zurich, Zurich, Switzerland.

⁴⁵ *“Ihr Brief hat mich sehr beschwert, denn es würde sehr schade sein, wen unser Kontakt ohne zu Resultaten geführt... Meiner persönlichen Meinung nach ist, daß die spätige Einladung für die Pariser Sitzung auf einen Fehler des Sekretariates zurückzuführen ist.”* Letter from Cornelis van Eesteren to Otto Neurath, November 21, 1934, Wiener Kreis Stichting, Haarlem, The Netherlands.

⁴⁶ *“Ausgangspunkt ist immer noch, daß ans der Zusammenarbeit zwischen Kongres und Neurath etwas machen muß... oder, daß etwas neues daraus wächst.”* Letter from Cornelis van Eesteren to Sigfried Giedion, May, 1934, Wiener Kreis Stichting, Haarlem, The Netherlands.

⁴⁷ *“Ich traue der realistsichen Kunst ebenso wenig wie der unrealistischen. Sobald Kusnt zu wichtig gekommen wird, ist sie bedenklich. Die Russen fördern die realistischen Kunst sowie die Kirche die Mystische förderte – Propagandakunst hier und dort. Raphael, Leonardo.... sind eben angestellt gewesen durch die Goebbels ihrer Zeit.”* Letter from Otto Neurath to Josef Frank, November 27, 1945, Papers of Otto Neurath, Österreichische Nationalbibliothek, Vienna, Austria.

⁴⁸ Kinross. "Otto Neurath's Contributions to Visual Communication (1925-45): The History, Graphic Language and Theory of Isotype," 43.

⁴⁹ Mary L. Fledderus and Otto Neurath, *Ten Years I.R.I Report of the International Industrial Relations Institute since its Inception in 1925* (The Hague, New York,: I.R.I., 1935).

⁵⁰ Friedrich Stadler, *The Vienna Circle: Studies in the Origins, Development and Influence of Logical Empiricism* (Vienna and New York: Springer, 2001) 356.

⁵¹ For a full list of the list of members of the Unity of Science movement and the contributions they made over the course of the movement's history, see Friedrich Stadler, *The Vienna Circle: Studies in the Origins, Development and Influence of Logical Empiricism* (Vienna and New York: Springer, 2001) 350-393.

⁵² *“Nachabschaltung der traditionellen Metaphysik, in ständigem Kampf mit metaphysischen Neigungen, könnte uns als positive Arbeit die Schaffung einer enzyklopädischen Zusammenfassung der Wissenschaften auf einheitlicher Basis logischer Grundlage beschäftigen.”* Otto Neurath, "Einheit der Wissenschaft als Aufgabe," *Gesammelte philosophische und methodologische Schriften*. vol. 2. eds. Rudolf Haller and Heiner Rutte. (Vienna: Hölder-Pichler-Tempsky, 1981) 625-626. Originally published in *Erkenntnis* 5 (1935): 16-22.

⁵³ *“Es sind die Vielfältigkeit und Unbestimmtheit wesentlich.”* Otto Neurath, "Einheit der Wissenschaft als Aufgabe," *Gesammelte philosophische und methodologische Schriften*. vol. 2.

eds. Rudolf Haller and Heiner Rutte. (Vienna: Hölder-Pichler-Tempsky, 1981) 626. Originally published in *Erkenntnis* 5 (1935): 16-22.

⁵⁴ *“Immer steht die ganze Wissenschaft grundsätzlich zur Debatte.“* Otto Neurath, "Einheit der Wissenschaft als Aufgabe," *Gesammelte philosophische und methodologische Schriften*. vol. 2. eds. Rudolf Haller and Heiner Rutte. (Vienna: Hölder-Pichler-Tempsky, 1981) 628. Originally published in *Erkenntnis* 5 (1935): 16-22.

⁵⁵ *“Die Absicht ist, dabei eine Delegiertenversammlung des Kongresses abzuhalten sowie eine Versammlung der holländischen Städtebau – und Wohnungsfachleute.... Ich schreibe Ihnen diese, da ich hoffe, daß wir dann mit unserer Arbeit an der Darstellung der Stadtplansignaturen soweit fortgeschritten sein werden, daß wir dann mit unserer Arbeit an der Darstellung der Stadtplansignaturen soweit sein werden, daß wir sie auf dieser Ausstellung ebenfalls zeigen können.“* Letter from Cornelis van Eesteren to Otto Neurath, November 21, 1934, Wiener Kreis Stichting, Haarlem, The Netherlands.

⁵⁶ *“Wir betonen, daß auf der Ausstellung besser weniger grose Karten mit kleinen Hilfskarten sind, als zu viele grosse und überfüllte Karten. Auf den Karten sollen womöglich keine Zahlen angebracht werden, weil sie das optische Bild stören und manchmal sogar wesentliche Bildangaben verwischen.“* Otto Neurath, February 2, 1935, Wiener Kreis Stichting, Haarlem, The Netherlands.

⁵⁷ *“Es lässt sich bei einiger Überlegungen alles wirksam lösen, aber das ist nicht nur eine graphische Aufgabe, so wenig es eine nnur Architektenaufgabe ist, es bedarf Dazwischenschaltung der TRANSFORMATION, das ist der bildpädagogische Analyse und Richtungsgebung. Die Bemerkung, dass der Architekt nicht so viel Zeit, für solche Sachen haben könne, beantwortete ich mit dem Hinweis darauf: er solle auch die Zeit nicht auf so was verwenden, sondern das eben hierfür ausgebildeten Spezialisten überlassen. Das ist aber das alte Lied, das ich Ihnen in verschiedenen Variationen vorgepiffen und vorklumpert habe.“* Otto Neurath, February 2, 1935, Wiener Kreis Stichting, Haarlem, The Netherlands.

⁵⁸ *“Im Sunne unserer Besprechung war Herr Hess bei mir heute. Es war mir ein großes Vergnügen, die anregenden Arbeiten durchzusetzen. Die Gesamtlage ist sicher sehr lebendig und geeignet weitere Kreise für die Kongresse zu interessieren.“* Letter from Otto Neurath to Cornelis van Eesteren, February 6, 1935, Wiener Kreis Stichting, Haarlem, The Netherlands

⁵⁹ *“Die oberste horizontale Kolonne zeigt eine Auswahl typischer Siedlungsformen des europäischen Kulturkreises von Höhle und Zeit der Primativen über Dorf und Stadtbildung des Mittelalters, der Renaissance und der Barockzeit bis zur modernen Weltstadt.“* Rudolf Steiger, "Versuch einer graphischen Darstellung der historischen Entwicklung des Siedlungs- und Städtebaus," *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928-1939*, ed., Martin Steinmann (Basel: Birkhauser, 1979).

⁶⁰ *“...von denen aus das monopolistisch organisierte Finanzkapital die Weltwirtschaft beherrscht.“* Rudolf Steiger, "Versuch einer graphischen Darstellung der historischen

Entwicklung des Siedlungs- und Städtebaus," *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928-1939*, ed., Martin Steinmann (Basel: Birkhauser, 1979).

⁶¹ Martin Steinmann, ed. *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928-1939*. Basel: Birkhauser, 1979.

⁶² Enrico Chapel, "Otto Neurath and the CIAM -- The *International Pictorial Language* as a Notational System for Town Planning," *Encyclopedia and Utopia: The Life and Work of Otto Neurath (1882-1945)*, eds., Elisabeth Nemeth and Friedrich Stadler (Dordrecht: Kluwer, 1996) 175.

⁶³ "...gewiße realistische Aktionen in Musik, Aufklärung, Hausbau, usw. In Wien mehr zuhause waren, als in Deutschland, wohl alles gespannter und vielleicht verbaler war... Bauhaus und vieles aus der Zeit waren stark modisch – aber vielleicht sind wir aus einer anderen Zeit... Ich glaube ja auch, daß es kein Zufall ist, wenn die Wiener Arbeiter altmodischer Gewerkschaftsbauten hatten, als die Berliner, aber mehr direkte Aktionsbereitschaft. In Berlin war alles immer so prinzipielle, so betont bei oft schwächerer tatsächlicher Aktion. Piscator war doch schließlich wvornwiegend für die Bürger eine Art Kitzel und AUCH dann für die Arbeiter interessiert." Letter from Otto Neurath to Josef Frank, April 7, 1940, Papers of Otto and Marie Neurath, Österreichische Nationalbibliothek, Vienna, Austria.