

Otto Neurath – City Planning

Proposing a socio-political Map for Modern Urbanism

Sophie Hochhäusl

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Proposing a socio-political Map for Modern Urbanism

MA. Mag. arch. Sophie Hochhäusl
Phd Candidate in the History of Architecture and Urban Development,
Cornell University, New York

Univ.-Prof. Ir. Bart Lootsma
Institut für Architekturtheorie und Baugeschichte, Universität Innsbruck

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Sophie Hochhäusl, Ithaca, March 2011

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From Mapping to Operating System

Otto Neurath's Urbanistic Legacy

Bart Lootsma



Figure 0.1: Otto Neurath with Mayor Karl Seitz, Vienna, ca. 1930

Otto Neurath is known, among other things, as a philosopher, a sociologist, and as a political economist. His pioneering work, together with the artist Gerd Arntz, on the Isotype pictorial language is widely acknowledged among graphic designers and information designers. More recently, architects and urbanists have become more and more interested in Neurath's role as an urban planner in post-World War 1 Vienna. From 1922 on, Neurath was secretary of the Austrian "Siedlungs- und Kleingartenwesen", the association for housing and small gardens. In this position he supported many self-help groups and associations in building their own homes and neighborhoods. Neurath proved to be an original and strong organizer who, building upon the existing settlement activity, through his analytical abilities and ideas about an economy in kind, managed

to construct a completely new kind of organization in housing and planning. The growing interest in Neurath's work in architecture and urbanism is fed by the growing awareness that a thorough understanding of bottom-up processes is again increasingly important in urban planning, be it because of the lack of clear planning perspectives, the explosive growth of shanty towns and informal urbanism all over the world or because of the effects of deregulations and privatizations in the Western Europe. Wars and economical crises may also have contributed to a new interest in Neurath's ideas about the War Economy and total socialization.

Until recently, mainly sociologists and philosophers studied Neurath's work. Notably the *Institute Vienna Circle* with Elisabeth Nemeth and Friedrich Stadler published numerous articles and books on the theoretical aspects of his work. Of course, Neurath figures significantly in Eve Blau's study *The Architecture of Red Vienna 1919 – 1934*.[1] Scattered publications, such as Peter Galison's article on the relationship between Neurath, logical positivism and the Bauhaus drew further attention to Neurath's work,[2] while Neurath appears marginally in studies on CIAM, as for example in Kees Somer's book, *The Functional City*, on the Dutch architect and urbanist Cornelis van Eesteren.[3] Research done at the Berlage Institute in Rotterdam, the University of Innsbruck and the Academy of fine Arts in Vienna under my guidance provided first hints to the forgotten potential of Neurath's work in the field or architecture and urbanism. An important catalyst in the growing interest in Neurath's work was Nader Vossoughian's book *Otto Neurath: The Language of the Global Polis*,[4] based on the PhD Vossoughian wrote at Columbia University.[5] Vossoughian's book provided a first introduction to Neurath's work in the field of architecture and urbanism. The exhibitions Vossoughian organized in leading galleries and museums in Europe and the United States inspired more architects, urbanists and scholars in these fields to study and debate Neurath's contribution and to speculate on whether aspects of it could play a role in the contemporary debate on urbanism again.

This book by Sophie Hochhäusl is an excellent example of such an approach. It tries to move away from the dominant interpretation of Neurath's involvement in the *Viennese Settlement Movement* as a phenomenon situated in a specific place in a specific time, as this inevitably leads to a rhetoric of "Rise and Fall." This history would begin with the wild and anarchistic settlers, who through mass demonstrations on the Vienna Ringstrasse showed their potential power and, were at first only hesitantly accepted by the Social Democrats. In that process they became gradually absorbed in the official planning system, slowly losing their momentum until it finally ended with the fall of "Red Vienna" in 1934 and the exile of the main protagonists, such as Otto Neurath. Sophie Hochhäusl by contrast focuses on Neurath's later urbanistic work, most notably his involvement with CIAM and the 1937 map, as it was published in *Architectural Record*.

This contribution is crucial, as it shows how Neurath's body of thoughts developed from approaches that were first strictly theoretical and scientific, over a period in which he was an important pioneer in policy making and governance, making scientific information available and accessible to wider audiences, to decades in which he looked to integrate his scientific and educational methods into the new modernist "language" of architects and urban planners: plan, elevation, section and notably mapping.
We are therefore happy to be able to present this book as the first volume of the series edited by architecturaltheory.eu, the chair for architectural theory at the University of Innsbruck. The continuity of architectural thought that sprung from *the Viennese Settlement Movement* is an important focal point of our research under the umbrella of a project that we call "Out of the Wild."

Out of the Wild

"Out of the Wild" is a research project by the chair for architectural theory of the University of Innsbruck. Initially, students and staff from the platform History, Theory and Criticism of the Academy of Fine Arts in Vienna were involved as well and played a crucial role in its setup. Out of the Wild tries to find continuities in architectural thinking that came out of the *Viennese Settlement Movement* after the first World War. It tries to figure out if and how these ideas spread and were developed further and if they have a potential for architecture and urbanism today and in the near future.
The project centers around three Austrian-born architects and theoreticians: Otto Neurath (1882 – 1945), Friedrich Kiesler (1890 – 1965) and Christopher Alexander (born 1936) but also investigates personalities, ideas, projects, events and movements in their vicinity. An important tool in this research is a website, www.outofthewild.eu, which allows us to visualize both direct synchronous relationships between people and events as well as relationships and developments in time. The idea and structure for this website were developed by architecture students and staff of the Academy of Fine Arts in Vienna (Florian Medicus) and the University of Innsbruck. Michael Hofstädter from Ovos web design programmed it. The website consists of a database, a customized Content Management System (CMS) and a web interface, which not only allows us to store and present events and contents in a range of different formats, but also to visualize the relationships between these different contents/events in history and between each other. This provides a new and more complex view of these relationships.
The title of the project – "Out of the Wild" – is an inversion of *Into the Wild*, the title of the 1996 non-fiction book by Jon Krakauer[6] and also the title Sean Penn's 2007 movie that was based on it, in which the young American Chris McCandless, probably influenced by the great Romantic American tradition of Henri David Thoreau and Jack London, leaves civilization behind to survive on his own in nature. At the end of the book, after having tried in vain to return to civilization and shortly before he dies from eating poisoned plants and starvation, the main protagonist writes his last entry in his diary: "Happiness is only real when shared."[7] This sentence seems almost an echo of Otto Neurath's dictum that "The sum of world happiness is too small. It must be made

bigger."[8] "Out of the Wild" tries to find a way to transform a tradition or urbanism that is based on liberal individualism, as it became heavily promoted from the 1970s on, into forms of urbanism that seek out synergies and also try to address shared needs and desires without returning to classical collectivist examples.

Surveys

Scientific methods in architecture and urbanism became increasingly important in Europe after the first World War. They ranged from empirical esthetics to functional analyses. Taylorism and Fordism left their traces from France to Russia, as Jean-Louis Cohen has demonstrated in *Scenes of the World to Come*.[9] Of course, statistics have played an important role in Western Europe and its colonies for centuries. As Ian Hacking remarks:

> *"Every state, happy or unhappy, was statistical in its own way.* [...] *Visionaries, accountants and generals have planned censuses in many times and places."*[10]

However, with the explosive growth from cities to metropolises at the end of the nineteenth century, the survey became increasingly important for urbanism and soon became a crucial tool in the planning and design process all over Europe. Therefore, it is no surprise that all key urban projects that were developed in the aftermath of World War 1 were largely driven by statistics. These statistics tied projects, which were often presented as visionary and from the 1950s on dismissed as "utopian" to the everyday reality of the city. Le Corbusier, for example, presented his *Contemporary City for Three Million Inhabitants* from 1922 in his *Oeuvre Complète*[11] accompanied by quantitative comparisons to other cities and four facsimile images of his sketchbook that were largely filled with statistical calculations. It was a city for three million inhabitants because Paris had 3,000,000 inhabitants in 1922. The program for Le Corbusier's *Contemporary City* was distilled from extrapolations of the actual program of the city of Paris. In "Großstadtarchitektur",[12] Ludwig Hilberseimer criticized Le Corbusiers *Contemporary City* for not giving an adequate answer to the given numbers and proceeded to present his proposal for a *High Rise City* from 1924, that was developed as a remedy for the increasing congestion in the centre of the city of Berlin. Setting up a new department for city development in the 1920s, advised by architect Cornelis van Eesteren, the social democratic aldermen of the city of Amsterdam opted for a scientific approach from the beginning. First, in 1928, Theodoor Karel van Lohuizen, an urban planner specialized in surveys was hired and only later the architect Cornelis van Eesteren. With their surveys they were able to prove that the inner city of Amsterdam could largely survive in the state they found it. After that, from 1929 on, they developed the AUP, the famous general extension plan of Amsterdam, which was realized with minor adaptations until the year 2000.

What these projects had in common was that, first of all, they sought remedies for the congestion of the cities centers, which was due to their explosive growth; and second,

that these solutions departed from the assumption that it would be possible – among many other things – to realize large-scale infrastructural and industrially produced building projects by mobilizing large-scale municipal, state or industrial investments. The way this capital could be deployed. The internal organization of these projects differed from case to case, depending on the ideological view of the architects and politicians involved. The Saint Simonist Le Corbusier had the industrial elite dominating the centre; the socialist Hilberseimer sought to delimit the alienation of work by proposing neighborhood units, in which dwelling was immediately superimposed on industry; and Van Eesteren and Van Lohuizen, working for the social democratic city council, distributed all functions as equally over the Amsterdam as they could.

Otto Neurath, as the "architect" of the *Viennese Settlement Movement*, shared some essential characteristics with his notorious colleagues, in particular his belief in scientific methods and statistics. However, radically different from them, statistics were not the immediate, unquestionable basis to produce a program for experts to develop an urban project but rather an educational tool for the masses, to help them shape their own individual lives and to understand what they voted for. Also, different from most of his colleagues at the time, Neurath departed from issues that figured in the periphery of the city of Vienna – the center having been organized before World War 1 with the Ringstrasse and the large infrastructural works planned by Otto Wagner. Also, at least initially, Neurath had a very different take on the industrialization of housing production, as he did not immediately depart from large, abstract quantities of housing and other functions needed, but from the smallest possible, concrete unit: the individual hut built by the settlers themselves. This was related to his belief to be able to continue after the collapse of the economical system during the war with an economy in kind, in which there was no money involved. Different from his colleagues in the rest of Europe, he thus aimed at a "Converse Taylor System." Different from most of his colleagues, Neurath did not propose to tear cities down or create artificial land to form a tabula rasa to build upon but worked with the situation at hand, which he tried to improve in small steps, almost as in his famous metaphor in which the body of knowledge is compared to a boat that must be repaired at sea:

> *We are like sailors who on the open sea must reconstruct their ship but are never able to start afresh from the bottom. Where a beam is taken away a new one must at once be put there, and for this the rest of the ship is used as support. In this way, by using the old beams and driftwood the ship can be shaped entirely anew, but only by gradual reconstruction.*[13]

Whereas most modernist approaches to urbanism have increasingly come under attack from the 1950s on just because of their abstract approach that tried to build cities from scratch, Neurath's contribution to urbanism, notwithstanding a revival over the last couple of years, has almost been forgotten. There are many reasons for this. Soon in the 1920s, "Red Vienna" also chose more collective approaches, because large-scale collective projects proved more efficient in solving the housing problem. After 1934 many of the

people involved left Austria to live in exile. But as the project "Out of the Wild" would like to show, this did not stop the theoretical impulses Otto Neurath and the *Viennese Settlement Movement* had given architectural and urban thinking – ideas that would be further developed in the work of other notable Austrian-born architects and theoreticians, such as Friedrich Kiesler and Christopher Alexander. Today, this tradition may even have more potential than more established modernist approaches in architecture and urbanism.

Shantytowns

Today, architecture and urbanism are confronted with new tasks and challenges, one, of course, being the need for more sustainable lifestyles. The way we analyze and calculate the ecological footprint of a house today reminds one of the way Otto Neurath unraveled the *Rootstock of a Settlement House*.[14] Other tasks and challenges arise as consequences of the postcolonial era. Globalization does not just consist of increasing flows of people, data, money and goods all over the world. It also means that we can no longer blend out the increasing percentage of settlements in the world that consist of shantytowns. With over fifty per cent of the world population living in them, they are an ever-increasing part of the context of architecture. The way shantytowns are built, hut after hut by the people themselves, bears striking similarities to the situation in Vienna after the first World War. Therefore architecture and urbanism will inevitably have to rethink their roles in the world, putting themselves in the service of the people who live there. Large-scale modernist housing programs, such as those that were still successful in Hong Kong and Singapore in the 1950s and 1960s, are not possible any more today because of the immense investments needed. Looking at the increasing amount of quasi temporary camps in our cities – the refugee centers, the homeless sleeping in tents in Paris and in the United States, the Roma in Italian cities, the victims of earthquakes in Italy and Turkey, the victims of Katrina in New Orleans; or looking at the explosive increase of informal settlements in Turkey and in the former Yugoslavian countries, etc., etc. – this context inevitably moves closer and closer. Retroactive legalization of illegal and informal extensions of cities, as largely financed by institutions like the World Bank and the European Union, is an unavoidable task. It is, however, only the first step in the direction of another form of mental amnesty that will allow us to start working on these shantytowns in proactive ways.

Otto Neurath

More than any other historical example, Otto Neurath and the *Viennese Settlement Movement* from the period immediately after the first World War might help us to find new perspectives for dealing with today's situation. In 1919, Vienna was in a desperate state and hundreds of thousands of families, both from outside the city and from the city itself, sought refuge around allotment gardens and in the periphery to avoid starvation by growing their own food. For many observers of the city, these "Zigeunersiedler" or *gypsy*

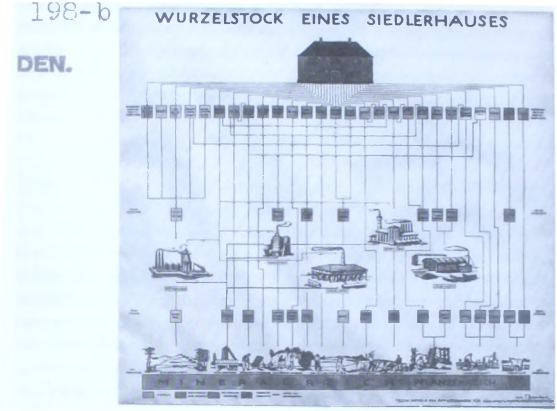


Figure 0.2: Otto Neurath. "Wurzelstock eines Siedlerhauses" (Rootstock of a Settlement House)

settlers were the ideal citizen-planners in that they relied on know-how and instinct, utilizing everything around them, from urban refuse to trees and captured prey, to ensure their survival. They illustrated the power of community as an agent of urban reform, and as a force that had the potential for improving life in the metropolis more extensively.[15] The governing Social Democratic Party accepted and supported this movement reluctantly, but still almost from the beginning, as it knew it could not afford any collective infrastructure and wanted to build upon the self-supporting energy of the settlers. For Neurath, who had been working on theories related to the socialization of economy in Vienna after becoming general secretary of the Research Institute for "Gemeinwirtschaft" in 1919, this was an ideal opportunity to put his ideas into practice. As a key player in the *Austrian Settlement and Allotment Garden Association*, the *Public Utility Settlement and Building Material Corporation* (GESIBA), the *Settlement and the Housing and Construction Guild of Austria*, Neurath looked for a "Converse Taylor System," in which he tried to combine bottom-up and top-down strategies borrowed from industry.[16] In the diagram of the *Rootstock of a Settlement House*, Neurath dissected a settler's house into all its components and traced them back through different forms of production to their origins in the reigns of minerals, plants and animals. A diagram in similar style unraveled the organization of an industrial company, in which many did standardized work on raw materials to produce products, from which only a small part of the company profited financially. As long as Neurath could, he maintained an economy in kind, in which people paid for their houses by performing collective duties, like, for example, building the houses, the roads and other necessary infrastructure. Architects like Adolf Loos, Josef Frank, Margarethe Schütte-Lihotzky and many others were also involved in this ambitious and successful undertaking and developed new housing

typologies and building systems that unskilled workers could handle. Information and communication, in the form of newspapers and exhibitions were important aspects of Neurath's approach and became even more crucial to him after he left the *Settlement Movement*. From 1928 on, together with the artist and graphic designer Gerd Arntz he developed *Isotype*, a sign language that allowed communicating statistical data about the city – and later on about the world – in a simple and striking way, in order to make the citizens understand the complex organization of their city.

Friedrich Kiesler

The *Settlement Movement* and Otto Neurath were deeply anchored and well known in Viennese society in the 1920s. Many young Austrian architects and thinkers more or less grew up with the movement and the related ideas and tried to give them a place in their own work – even if they might also develop in other directions. One of them is Friedrich Kiesler, who might be an important link between the early theoreticians of the *Settlement Movement* and more contemporary thinkers.

Kiesler claims that he worked with Adolf Loos to assist on the *Settlement Movement* in 1920. This has never been confirmed and is unlikely, as Loos only became Director of the "Siedlungsamt" in 1921. Still, this claim shows that Kiesler was well aware of the *Settlement Movement* and keen on being associated with it. Kiesler left for New York to settle there already in 1926.

According to an entry in the diary of his wife Stefi Kiesler at the Kiesler Foundation in Vienna, Kiesler met Otto Neurath there in 1933. A copy of Neurath's book *Modern Man in the Making* from 1939 can be found in Kiesler's private library in the Kiesler Foundation in Vienna. Although Kiesler has been associated with artistic movements from De Stijl to Surrealism, the esoteric and irrational overtones of which seem difficult to relate to the strict positivism of the Vienna Circle, the participatory aspects of the *Settlement Movement* or Loos' craftsman-inspired traditionalism, there is also a continuous more down-to-earth and strangely pragmatic tendency present in his work, most notably in his theoretical writings. With his writings on Correalism and Biotechnique, Kiesler showed himself as a strong defender of multidisciplinary, scientific design approaches to avoid building design that would "continue to exist as a series of disparate, overspecialized, and unevenly distributed products."[17]

Under the title "Magic Architecture" – a title that might be confusing in this context – over the years he produced a series of texts and manuscripts for books that try to root architecture and urbanism in everyday life. Taking a distance from mystical inspirations, according to Kielser *Magic Architecture* was to be distinguished from *Dream Architecture*, he wrote already in 1936 "it is not an expression of escape into religious solitude (resignation)."[18] For Kiesler, *Magic Architecture* is the expression of the creativeness of man, but not in isolation. Instead, it is the emphasis on participation.

> *[...] Magic architecture is not dream architecture, like that of temples or castles; it is the architecture of everyday, every-night reality.*

> *Magic architecture is a tool of realistic life. [...] Magic architecture is a generator. It can operate on any scale. Any cell of habitation is a nucleus for a power house of joyful living. Neither wealth of cash, nor that of building material, nor social power are needed to accomplishing the most with the least. [...] Magic architecture is of course, unthinkable without its sociological roots in a society of free will and sacrifice.*[19]

In the 1950s, Kiesler tried to turn the original short essay into a book, which never went beyond the stage of manuscript. In this manuscript, which is now stored in the archives of the Kiesler Foundation in Vienna, he tried to root architecture in the landscape and as an evolution of animal nests. The manuscript, which is richly illustrated with clippings from popular scientific magazines like National Geographic, shows many examples of anonymous architecture, preceding Bernard Rudofsky's – also a native Austrian – *Architecture Without Architects*, which was published in 1964 on the occasion of an exhibition with the same title in the Museum of Modern Art in New York.[20] In the manuscript of a book he started working on in the 1950s but which was left unfinished, Kiesler returned to the themes of *Magic Architecture*. In this manuscript he struggled notably with the question where the animal function of shelter stops and architecture begins, but still tried to distinguish it from the *Dream Architecture*. Crucial is however that Architecture (written with a capital A) is not implemented from above but evolves out of the everyday. Or, as Kiesler formulates it in the unpublished manuscript that is also titled *Magic Architecture*, a book he was working on in the 1950s but never had published, now located at the Kiesler Foundation in Vienna: "Architecture must wait." The manuscript cannot only be read as an attempt to continue the lessons from the *Settlement Movement* and the gradual improvements architects like Loos, Frank and Schütte-Lihotzky tried to make on the huts they found, but also somehow as an attempt to reconcile the collective architectural values as they were realized on a large scale in Europe in the nineteen fifties with American urbanism, which always departs from the individual house.

Christopher Alexander

Intuitively, we can immediately understand the work of Christopher Alexander as a continuation of certain aspects of the *Settlement Movement*, particularly if we think of the participatory tendencies, and of the analytical and philosophical work of Otto Neurath, if we think of Alexander's *A Pattern Language* as an encyclopedia consisting of architectural protocol sentences. In the tradition of the great architectural encyclopedias of the 19th century, like those of Eugène Emmanuel Viollet-le-Duc, it is also a handbook, a manual by means of which one can build his or her own house, neighborhood or city.

Also Alexander's fascination for diagrams recalls that of Neurath. Already in *Notes on the Synthesis of Form*, which he wrote as his disseration for a PhD in Architecture at Harvard in 1964, Alexander dissected the design process by means of tree diagrams

that recall Neurath's *Rootstock of a Settlement House*. In the appendix *A Worked Example*, Alexander demonstrated the functioning of his interpretation of the design process by means of an Indian village, in other words by means of an example taken from vernacular architecture.[21] Alexander's patterns in *A pattern Language*, 1,166 numbered examples of architectural situations from the large scale of a region to the small scale of ornaments and building components like bricks, read as an even more ambitious dissection of a larger whole. Intriguing is that Alexander already reserves the idea that some of the patterns might be updated in the course of time, depending on the number of asterisks that are placed behind them in the header:

> *You see then that the patterns are very much alive and evolving. In Fact, if you like, each pattern may be looked upon as a hypothesis like one of the hypotheses of science. In this sense, each pattern represents our current best guess as to what arrangement of the physical environment will work to solve the problem presented. The empirical questions centre on the problem – does it occur and is it felt in the way we have described it? – and the solution – does the arrangement we propose in fact resolve the problem? And the asterisks represent our degree of faith in these hypotheses. But of course, no matter what the asterisks say, the patterns are still hypotheses, all 253 of them – and are therefore all tentative, all free to evolve under the impact of new experience and observation.*[22]

As such, Alexander's thinking reminds us not just of Kiesler's evolutionary concept of *Magic Architecture*, it also recalls Neurath's ship metaphor once again. Still, even though Alexander was born in Vienna in 1936 and raised in England, where he studied mathematics and architecture at Cambridge University, he and Neurath never met and one will not be able to trace immediate references to either Neurath or the *Settlement Movement* in Alexander's work. References to other Viennese logical positivists, such as Ludwig Wittgenstein,[23] do appear, just as to Friedrich Kiesler, especially to the Chart of Need-Evolution in Technology that is related to Kiesler's theory of Correalism.[24] Alexander invested a great deal of his energy and ideas in building with unprivileged groups, such as in his Mexicali Project from 1975 in Baja California and the Previ project in Peru from 1976.

Operating System

The way ideas and traditions travel in history is, particularly in a globalized world, not necessarily a linear process. They travel through literature and persons and often arrive at their final address only through a detour. They are taken up and congested, yielding to different peoples' needs, only to be taken up and reworked again, only hoping to find themselves again as improved components in a new, more or less plausible whole. "Out of the Wild" might enable us to figure out how certain ideas as they were developed in

the *Viennese Settlement Movement* travelled in time from one protagonist to another, maybe not always directly but maybe even through other Austrian-born protagonists that we hardly mentioned or did not even mention in this article yet: Josef Frank, Herbert Bayer, Heinz von Foerster, Karl Popper, Paul Feyerabend, Ludwig Wittgenstein and many others. It is highly plausible that there is a continuity in thinking from Neurath to Alexander, because the migration of thoughts can be traced through the connections of the Austrians in exile. For now, the website www.outofthewild.eu is the only medium that allows us to map these complex relationships. What we did discover until now, apart from the immediate relationships discussed above, is that the correspondences between Neurath, Kiesler and Alexander mainly revolve around themes that deal with conceptions of organization, wholeness, endlessness, participation and happiness. Different kinds of diagrams are important communicational tools in both analysis and design. All three are important predecessors and pioneers in the development of computer software, parametric design and the Internet. If we were able to prove these continuities, would it be possible, maybe with the help of new computer technology, to once again transform the ideas of the *Viennese Settlement Movement* into methods that have a better chance of success? Maybe that is too much to ask. But even if we will not be able to solve that problem, we might at least open doors to a different sensibility in thinking about architecture. Because apart from the quest for more sustainable, worthy living conditions for the largest part of the population, the question how architecture, *Magic Architecture*, as a more intelligent form or organization develops out of the everyday reality of the built environment, remains the key question of what architecture is or could be – and thereby it might attract the attention of the profession. In this respect, Neurath's critical involvement in CIAM and the 1937 map as discussed in this book by Sophie Hochhäusl might provide essential keys to a renewed and wider understanding as they provide a connection to urban planning and design. The 1937 map finally integrates Neurath's sign language in an actual map of a city, which is, as Sophie Hochhäusl makes plausible, probably based on a map of a part of the city of The Hague in the Netherlands. Although developed as a generic mapping method for architects and urban planners to enable to compare different cities, it is therefore still more a simplified depiction of a reality. This is already an important proposal in itself, which would make it possible to compare and research cities not just by formal characteristics and separate statistics, but also to incorporate aspects of what sociologists today call "lifestyles," in a standardized way. It gives an idea of lifestyles as it depicts not only functions, surfaces and programs but also the institutions which anchor these lifestyles. It is suddenly easy to see how Neurath's ideas about "Gemeinschaft und Gesellschaft," policies and governance could be turned into a spatial design, which takes these aspects into account visually and communicates them in a simple and immediate way. The promise of the 1937 map goes further than that, however. Whereas the 1937 map still seems static in its depiction of a situation as found, it could easily be turned into a dynamic approach so that it becomes an "operating system." This seems to be exactly what Rem Koolhaas and the Harvard Project on the City have done in *How to build a City*.[25] Rem Koolhaas, who shared with Sophie Hochhäusl that he was aware of Neurath's work from his early youth and has used other aspects of Neurath's work

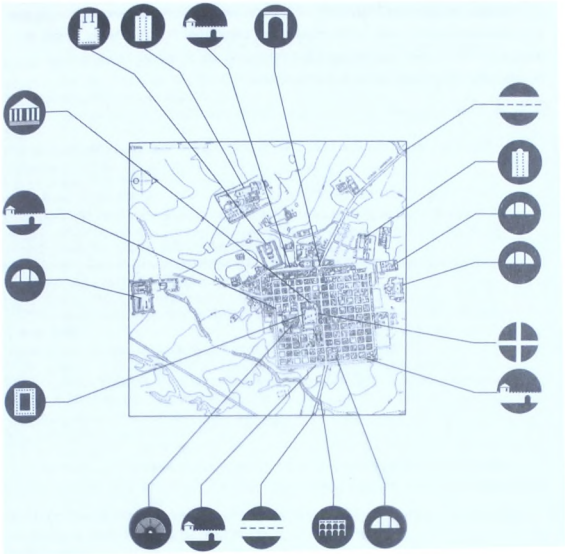


Figure 0.3: Rem Koolhaas, Harvard Project on the City, Roman Operating System

in different research projects with AMO, the most striking of which is probably the analysis of the presence of Prada Stores in the World in order to be able to develop an expansion strategy for the fashion company.[26] In How to build a City, Koolhaas and the Harvard Project on the City take the historic example of the principle Roman City with its grid, buildings, monuments and infrastructure to understand the underlying abstract principle as the *Roman Operating System*. Buildings – institutions – appear as Neurath-inspired pictograms in the grid. The general operating principles depart from the site, which should have access to trade, water and transportation. After the strategic selection of the site taking advantage of the geographic conditions, setting up a grid around the cardo and decumanus is the next step. Then comes the setting up of the program around the forum for commercial activity and implementing the other activities and institutions related to defense, commerce, entertainment, hygiene, agriculture, worship, and administration. The basic setup in four quadrants allows for developing the first four different neighborhoods. When this generic basis is sufficiently programmed, the surrounding landscape can be gridded for agricultural purposes. This gridding will also allow for the controlled development of the city as it grows. Even if the Roman Operating System is still basic and based on a historical example, it shows the potential for developing Neurath's map into a contemporary form of more dynamic

city planning in which bottom up developments and top down planning come together in a more satisfactory way. It might be in this sense that the anarchistic legacy of the *Settlement Movement* and Neurath's legacy as a policy maker and precursor of the Internet and programming find a new synthesis.

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Introduction

Sophie Hochhäusl

Architects are trained to distinguish between two kinds of maps: representational ones and those that serve as heuristic architectural devices. While representational maps are usually drawn to make observations more accessible to a larger audience, the map as an architectural tool serves as a device for design thinking. By means of drawing space it makes relationships visible that could not have been conceived without the drawing. When deploying such maps, architects pay close attention to the particularities of space, because insight can only be gained when non-spatial observations are put in precise relationship to the specific terrain. Its synergy generates new content, meaning, knowledge and possible design solutions.

Austrian philosopher and economist Otto Neurath (1882 – 1945) was famous for his engagement with representational maps. He revolutionized the discipline of chart making by finding a way to create picture statistics and quantitative maps that were accessible to a larger public. In this book I will argue that Otto Neurath's map "City Planning" served not only as one of the first easily accessible socio-political maps of a city, but that it was in effect also a heuristic device.

Originally crafted in color, "City Planning" was edited to appear in red, black and white, accompanying Neurath's text "Visual Representations of Architectural Problems," in Architectural Record in July 1937.[1] The text and the 1937 map were a direct reaction to a similar and in effect more extensive mapping operation pursued by CIAM IV (Congrès Internationaux d'Architecture Moderne, International Congresses of Modern Architecture) in 1933. Nonetheless it was Neurath who first illustrated the socio-political map for urbanism according to graphic rules and with a graphic vocabulary that possessed a consistent logic and even syntax. In addition, this map reveals to what degree Neurath perceived of the city as an agglomeration of social facts and to what extent his socio-political map contributed to planning the city on such basis.

In order to create this map, three main fields of expertise came into play. First, Neurath's specific views on urbanism were different from those of most architects. A second necessary expertise for Neurath's undertaking was the ability to graphically craft abstracted data – the transformation, which was invented at Neurath's Museum of Society and Economy (Gesellschafts- und Wirtschaftsmuseum). Thirdly, in search of "humanizing" knowledge, Neurath hoped that by making information graphically available, he would enable all people to "participate in a common culture," eliminating "the canyon between educated and uneducated people."[2]

CIAM was a catalyst for creating the 1937 map as well, in that it triggered Neurath's further research in illustrating the city. When in 1937 his map finally appeared, it marked the culmination of his search for simplicity in the context of a spatial discussion. But this map was also the last to accompany one of Neurath's texts on architecture and

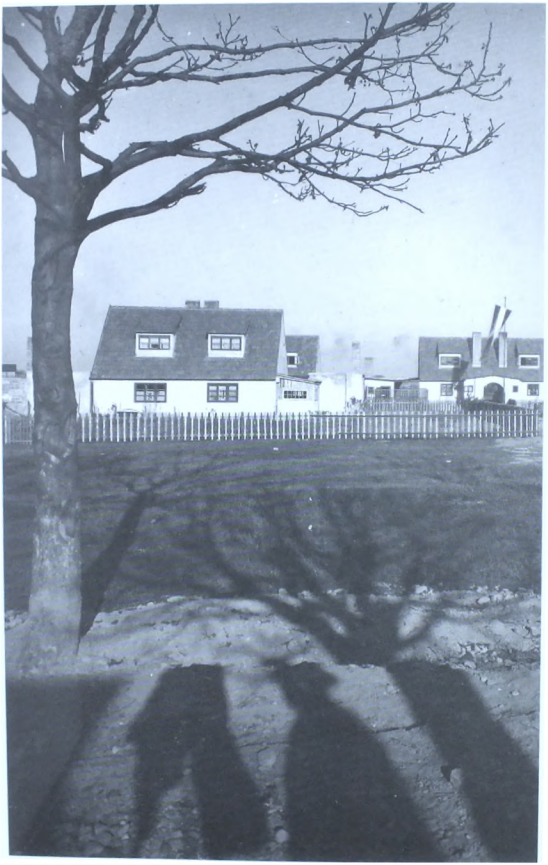
urbanism and it ended Neurath's public theorizing of the city, which had lasted for two decades, with the exception of the later Bilston experiment.[3]

Rem Koolhaas's AMO is the most prominent architectural think tank promoting the use of the map as tool as well as representational device in a contemporary context. Through their publication activities and their particular architectural wit, AMO has fostered an interest in mapping that is now found in architecture schools all around the world. Some aspects of AMO's maps are strikingly similar to the ones produced by the Museum of Society and Economy. Indeed, in an interview conducted for this book at Cornell on April 13th 2010, Koolhaas confirmed he knew Neurath's work.[4] So when I first decided to assess socio-political mapping and its application to architecture it was precisely to understand this missing piece: how did socio-political mapping in architecture first emerge, which connotations did it possess, which goals did it initially pursue, did Neurath have an influence on the contemporary debate on mapping and if so, how?

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When will the Middle Ages be at an end? As soon as all men can participate in a common culture and the canyon between educated and uneducated people has disappeared.
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4 See the full interview at www.architecturaltheory.eu

Chapter 1

Otto Neurath's Urbanist Convictions



Neurath's View on Urbanism and the Austrian Settlement and Allotment Garden Association



Figure 1.1: Shadow looming over new Settler Houses

The first and most fundamental component to the 1937 map, *City Planning*, was Otto Neurath's distinct perception of urbanism. To Neurath the Modern City was an economic organism. But unlike many of the Modern figures in architecture, who either rationalized city building by economic means, or subordinated the production of city planning to the economy of the industrialized world, Neurath perceived economic strategies as a means to substantiate a lively urbanism. The core of this position was Neurath's unique mind and skill set. Thus, before moving into a detailed account of Neurath's view on urbanism, it is crucial to gain an understanding of these skills.

While attending universities in Vienna and Berlin, Neurath combined the fields of history of antiquity and modern political economics for his studies. He was awarded a doctorate for his dissertation "Towards a Perspective on Antiquity through Trade, Commerce and Agriculture," in Germany in 1906.[1] He then began teaching at the New College of Commerce in Vienna (1907 – 1914) and acted as the director of the "German Museum for War Economy" in Leipzig, which he left in 1918, when he joined the Bavarian Soviet Republic as one of their main political agitators until its violent end in 1919. After being imprisoned for a short time, Neurath was released and returned to Vienna.[2]

All of these experiences proved to be fruitful upon his return, when he became the secretary of Vienna's Settlement Association. It was only then that he was given the platform to make full use of his theories on economics, his skills as a political orator and his thoughts on education. It was through the settlement movement that Neurath's view on urbanism could fully unfold.

1.1

Neurath's conviction that life in a city could largely benefit from the economic forces that shaped it, was based on his knowledge of such relationships. This fundamentally

shaped the way in which he theorized the city. For instance, when he collected images of harbors, grain silos and factories in 1925, he did not necessarily admire them for their machine aesthetics, as Modern architects did at the time.[3] For Neurath, ports, warehouses and elevated railway tracks represented the global industry, in which he believed lay the foundations for a socially improved Modern city.[4]

Neurath, the economist and philosopher, looked at the city more like a planner than an architect. To him, the city was an agglomerate of industrial and housing zones that had to be connected via transportation routes, but he saw those interwoven with sociological and anthropological components as well. Cities were spaces where cultural exchange took place, where people met in plazas and in coffee houses, where they demonstrated and went to school, where they were hospitalized, enjoyed a walk in a park, or swam in a public pool.[5] The city predicated on economic relationships did not imply that the factory coerced the common man, but instead offered an opportunity to provide for him. When looking at urban fabric, Neurath always maintained the idea that it could only undergo dramatic alterations for the better if it existed in a unity: a unity between architecture and organization.[6]

This unity between architecture and economic organization was what fundamentally defined how Neurath encountered the city. He applied this idea when he became the secretary of the settlement movement. It was while thinking about the city on a large scale that he utilized his diverse understanding of politics, economics, philosophy, graphics and education.

From "wild" settlements to the Austrian Settlement and Allotment Garden Association

In the early years of World War I, thousands of people in Vienna fled the city and started settling on its outskirts due to food and housing shortages. Utter poverty coerced cooperation: small groups formed to help one another build rudimentary shelters. Any material that could be used for making the most basic barracks was utilized. The land on which the settlers built was often not purchased or even negotiated for, but merely appropriated. In this desperate search for food and housing, clusters of huts and small garden patches developed quickly on the periphery of Vienna; informal slums emerged. 1.2

In Austria's cold winters, the lack of coal caused the settlers to deforest parts of the Wienerwald (woods on the outskirts of Vienna), so they could warm their shacks. However, in time, the land formerly covered by woods proved to be fertile ground for small farming. There and on other fallow patches of land, the setters tilled vegetables and fruits in the proximity of their barracks. Even some dairy and meat products were produced from kept animals, such as chicken, rabbits or goats. This saved the settler families from starvation.[7]

These advances were largely due to the setters' ability to morph their decentralized building activity into a self-help organism. Since the movement grew rapidly, a crucial step in its development was the founding of an overarching organization. With the



Figure 1.2: Informal Settlement



Figure 1.3: Settlement under Construction

institutionalization of the settlement movement, its dimension and potency changed dramatically: the organization did not only foster the allocation of basic shelter, but people were given the chance to own a one or two story house, many of which where built by some of Austria's most prominent architects. Additionally, all these houses maintained small gardens and some of them even possessed barns for animals.

But above all, these settlements were built under a comprehensive plan, which provided common facilities where activities could take place and where the settler's community could prosper. This process happened fairly quickly.

When Neurath became involved in 1919, the dimensions, as well as the quality of the movement's organization, had already changed. The movement consisted of more members and it was organized in small individual settlement associations. Though Neurath was not instrumental in increasing the association's size, he was mainly responsible for restructuring the settlers' organization into one united cooperative association: the "Austrian Settlement and Allotment Garden Association" (Österreichischer Verein für Siedlungs- und Kleingartenwesen).[8]

Neurath's Unity of Urbanism and Organization

Neurath knew that behind every large building movement there had to stand a strong organization and it was due to his engagement that good organization came to govern almost every activity in the history of the "Austrian Settlement and Allotment Garden Association."

In general, there were three main mechanisms that triggered the growth of the movement: economic, political, and educational strategies.

Economic Strategies

In 1916, the 13 singular settlers communities had 2,000 members. By 1920, when Neurath became the head of the secretariat, the organization had grown into hundreds of clubs and the number of members had climbed to an estimate of 40,000 settlers.[9] After three years in office, in 1922, the association stood united under one governing body for 50,000 members and 230 affiliated clubs.[10]

Since the number of settlers and small gardeners registered with clubs had most

dramatically increased from 1915 – 1919, Neurath's first task was to form these dispersed clubs into an efficient operation while still maintaining the principle of self-help.
Having founded the umbrella-organization "Austrian Settlement and Allotment Garden Association," Otto Neurath believed the concept of *Gemeinwirtschaft*, communal economy or co-operative economy, to be not only central, but capable of meeting the aspirations of top down and bottom up organizations at the same time.[11] The strength of communal economy was that "it capitalized on the bureaucratic infrastructure of the modern metropolis, while still leaning heavily on grassroots organization and communities."[12] In the realm of the settlers' building activities, this meant that Neurath found *Gemeinwirtschaft* to enable "formal and informal approaches to urban planning [and] accommodate a range of audiences and needs."[13]

The concept proved to be fruitful, since in the later years of its existence the *Settlement and Allotment Garden Association* was not only supported by the city, but rooted within it, while it kept its original principles of self-help and autonomy.

Also following the logic of *Gemeinwirtschaft*, this autonomy could be maintained since the small, singular settlement clubs developed into non-profit companionships over time, which were able to keep collective ownership over all houses and shared infrastructure. Moreover, while the city prepaid ninety percent of all building costs in 1923, the settlers' unpaid construction work (1,000 – 3,000 hours) was recognized by the city as an equivalent of a ten percent contribution.[14]
Therefore, these three elements of *Gemeinwirtschaft*, collective ownership, shared infrastructure and contribution to the building process by unpaid work, fed into the fourth and most important of the settlers' core issues: their autonomy from the city, while working closely together with it.
But although these rules seemed to give the settlers a good basis, Neurath knew that in order to keep this autonomy it was crucial to found institutions that also followed the economic model of *Gemeinwirtschaft*. These institutions would then be able to execute large building operations on the settlers behalf. **1.4, 1.5**
This resulted firstly in founding the cooperative construction company, *GESIBA Gemeinwirtschaftliche Siedlungs- und Baustoffanstalt*, which supplied and managed the settlers' building materials. The second element was the creation of the city's *Kleingartenstelle*, an entity that distributed parcels of land to the settlers, and thirdly the *Siedlungsamt*, which was an architectural entity that dealt with the actual design of the buildings and which employed some of the most famous architects of the time. All of these entities were instrumental in facilitating a conversation between the interests of the settlers and the city of Vienna. Together, with the first principle of autonomy, they constituted the association's final structure.[15]

Political Efforts

In order to realize his visions for the settlers on a large scale Neurath increased their fiscal, judicial and legislative power. For this reason, he used his inspirational speeches to actively engage politicians and other celebrities for the settlers' causes.
Although by 1916 the settlers had decided on their first bylaws, it was in November of



Figure 1.4: Cooperative Supermarket at "Lockerwiese"


Figure 1.5: "Lockerwiese," 1925 – 1932

1919, when Otto Neurath had just gotten involved in the settlement movement, that a crucial meeting was held in Vienna's city hall. It was then that the settlers met to lobby for their rights to be anchored in legislation.[16]

Real changes came with the settlers' demonstration on the April 3, 1921, organized in front of Vienna's town hall and led by Adolf Müller, the chairman of the organization, and Neurath. In it the settlers peacefully expressed their demands to the city. On banners they wrote:

"What you give to the settlement, you will save in unemployment supports" and "give us land, wood and stone and we will make bread from it!"[17] The mayor of Vienna, Jakob Reumann, assured the settlers of his full support and granted them the construction of additional settlements, quick expropriation proceedings, distribution of all necessary building materials through the *GESIBA* and machines and tools. Furthermore, he promised the supply of sufficient federal and municipal financial support, the foundation of a settlers' bank and the utilization of various credit institutions for the settlers' affairs.[18]

Both of the social democratic mayors of Vienna in Austria's First Republic, Jakob Reumann (1853 – 1925) and Karl Seitz (1869 – 1950), as well as the city councilor for finance, Hugo Breitner (1873 – 1946), were devoted supporters of the politics of the "third way." By advocating for communal dwellings (Red Vienna's "second way") to tackle the housing shortages that speculation in the *Zinskaserne* (kamienica) had created, the settlement activities consolidated a small, but stable third housing agenda. In fact, the politicians dedicated thirty percent of all fiscal means for general housing to the construction of settlements.[19]
Although the support of the city of Vienna was mostly due to the open-mindedness of the city council members and their capacity to recognize that the associations' social agenda ran parallel to their own, it should also be noted that a large decentralized and unorganized movement without institutional support would have posed a serious threat to the stability of the young Austrian state.

Under Otto Neurath's management, the *Settlement and Allotment Garden Association* became a well-established contributor to the building activities in Vienna. This success also allowed him to integrate the "Settlement and Allotment Garden Association into

the Settlement, Housing and Construction Guild" in 1921.[20] This connected it with two other cooperative unions, the "Austrian Tenants Union" and the "Central Union of Construction Workers," which made it part of a 400,000 person organization.

And although most of the subsidy for the settlers was cut on the basis of a municipal council resolution in September 1923, triggered by the high reparation payments put on the state by the Geneva conventions, the settlers managed to maintain smaller recourses to continue their program well into the 1930s. They even built the settlement for the *Austrian Werkbund's* exhibition in 1932,[21] when the city of Vienna had long dedicated most of its remaining housing subsidy to the city's communal housing programs.[22] 1.6

Educational Strategies

The energy that had been poured into top-down activities was also dedicated to bottom-up strategies. A considerable part of the latter were educational and epistemological activities. Additionally, the distribution of such media was important, as well as events that would raise public awareness of the settlers' causes. Educational activities had been a part of the settlers' agenda early on via the organization of classes in agriculture, horticulture, vegetables and fruit as well as classes on cooking, canning and the keeping of small animals. This was necessary as many of the settlers were unemployed workers, originating from an industrial and distinctly urban environment.

In addition to these agricultural and housekeeping activities, the forerunner of the *Settlement and Allotment Garden Association* also provided lectures on architectural and urban topics, such as the construction of settlements in general and the emergence of garden cities.[23]

Parallel to classes, the association also ran a periodical, which could reach a larger audience. These periodicals often included statistics on various topics helpful to the settlers, which became an increasingly important source of information.[24]

With Neurath's appointment as director of the Secretariat in 1920, an emphasis was placed on keeping of statistics and publication of a periodical. The bureau for statistics was named *Forschungsinstitut für Gemeinwirtschaft* (Research Institute for Gemeinwirtschaft) and the periodical established as Der Siedler (The Settler).[25] With a circulation of 40,000, it advertised relevant lectures and promulgated the achievements of new settlements.

For the publication, of the periodical Neurath teamed up with Hans Kampfmeyer (1876 – 1932), a German who had founded the garden city in Karlsruhe in 1907 and who had been writing for the German paper *Gartenstadt* (Garden City).

Neurath also emphasized educational lectures and classes as one of the association's core components. He even founded a settlers' school.[26] Statististical charts became crucial in the biggest apparatus that was used to inform the public: exhibitions.

In April of 1923 the "Austrian Settlement and Allotment Garden Association" put together a large show titled "Viennese Small Garden-, Settlement- and Housing



Figure 1.6. "Werkbundsiedlung under Construction," Vienna, ca. 1930

Exhibition" (Wiener Kleingarten-, Siedlungs- und Wohnbauausstellung), which put statistics and pamphlets, but also entire houses on display. The exhibition attracted the interest of thousands of people and was well-attended, not only by settlers and small gardeners, but also by the Viennese city population and the working class.[27] This event
1.7 was the culmination of a series of similar exhibitions on housing. It was crucial not only because it signified Neurath's first step toward a new position on urbanism, but also demonstrated how such an urbanism could be depicted. Otto Neurath summarized his activities with the settlers for this event:

> *I had to direct not only the organization as such, but also its activities in connection with education and the dissemination of information...*
> *It all started with a great display. Our association decided to do something to inform the general public about the housing and garden plot movement; and so developed the somewhat unusual plan of arranging a big exhibition in the very centre of Vienna. Real houses, fully-furnished, were erected on the square before the city hall, and within the hall, exhibits in the long galleries supplied further information...*

And then he goes on to describe the first use of picture statistics:

> *There, for the first time, we showed what were the activities of our members, not only presenting fine specimens of vegetables etc, but also by depicting the results on big wall charts. For instance, the increase of poultry keeping in small courts and gardens by our members was shown in bright colors... We exhibited ground plans of new settlements and plans of new garden cities; and in this way we were able to show to the Vienna public what had been done by the association for the betterment of the food and housing situation.*[28]

The exhibition of 1923 and its emphasis on pictorial statistics was a herald of what was to come: an entire museum where global and urban relations were put on display to educate and inform the masses.[29]

What had begun only half a decade earlier as a decentralized conglomerate of "wild" settlers, had developed into a full-grown organization with judicial rights and municipal subsidies by 1923. Families, who had at one point been on the verge of starvation, were now cultivating gardens and engaging in self-sufficient farming. A formerly loose group of paupers, collectively possessed their own enterprise, and a former group of the homeless, moved into homes built by themselves, planned by Austria's best architects, while maintaining self-help as their chosen privilege.

It was the unity of organization and urban strategies that had made such development possible. Economical and political enterprises truly were as important as the objects – the urban elements – they created. And the hidden organization that lived behind all elements of a city was what had to be drawn out and explored in Neurath's 1937 map, and what would take his urban project to a next step.

The Architectural Articulation of "Gemeinschaft"

The first step towards the 1937 map was Neurath's realization that invisible forces in the city should be detected and drawn out. This was essentially a consequence of Neurath's perception of the interrelations of economics and the city and his notion of *Gemeinwirtschaft* (communal economy). However, Neurath's second crucial step was to ask what had to be drawn out among these organizations. In terms of the city, this answer was related to Neurath's notion of *Gemeinschaft* (community). In all the years of its existence the settlers movement stayed true to this notion.

Surprisingly, Neurath saw a similarity between the garden city movement and the settlement movement,[30] since they both emerged as a result of people fleeing the desolation of the megacity.[31] Nonetheless, he explicitly stressed the fact that the social agendas of these movements were antithetical. While the garden city was created to keep the workers close to the factory, he argued, the settlers were, as an organized movement, autonomous, and while garden cities in later years were only for those who could afford to leave the city and who did not seek *Gemeinschaft*, the settlements relied heavily on their community.[32]

Neurath explored these differences in detail by comparing Vienna's *Cottage Viertel* – a development of exclusive urban cottages – and Josef Frank's (1885 – 1967) *Siedlung Hoffingergasse*, which consisted of 284 row houses and was self-sufficient in its food production.[33]

1.8

Neurath was disgusted by the cottages, which sat in one of Vienna's wealthiest, bourgeois districts, because of their eclecticism, which he felt only fulfilled the vain desire of the upper class to stand out from their neighbors.[34] Much to the contrary, the natural austerity of the low-rise settlements of *Siedlung Hoffingergasse* fed into



Figure 1.7 Dwelling and Settlement Town, Exhibition in Linz, 1929



Figure 1.8 "Hoffingergasse," Architect Josef Frank

the creation of *Gemeinschaft*. Impressed by Frank's contributions in systematizing the building elements and procedures in order to minimize costs and fuel commonality, Neurath wrote:

> *The similarity of the apartment (types), the similarity of the building's parts (norms) is an expression of modesty, but also an expression of the sense for equality, which roots in both, fraternity and envy alike. Not one singular building is the subject of design, but the collectivity of all houses. The singular building is like the brick within a house. A new community is created from the class solidarity of the labor-forces.*[35]

But Neurath did not only contrast the commonality that was visible amongst houses in *Siedlung Hoffingergasse*, and was drastically lacking in the cottage district, he also criticized the absence of any spatial parameter in search of community. In fact, he emphasized that architectonic measures had been taken to prevent commonality, "since there did not exist anything common among the inhabitants of these cottage villas. There is no gathering place – because what could (possibly) bring the civil officer, the merchant, the stock broker, the writer and the factory owner together?"[36]
Apart from the lack of spaces that could foster community, Neurath critiqued the lack of common organization. In great contrast to this, the basis for all settlements was not only a variety of instances that dealt with common organization, but spaces for "encounter," such as plazas, gardens and community houses, where the settlers often assembled. Small shops that sold gardening and household utensils, boulevards and the narrow secondary paths that gave people access to their gardens from the back, were perfect places to linger and engage in a conversation.
The community that was created among the settlers was therefore two-fold. Its architectural composition and planned density truly did foster closeness, but the organization or specific club that all settlers belonged to bound them together by law. Due to these architectural and judicial connections, some of these settlements and communities still live on. Today, one can only "inherit" the privilege to be a real settler.

Neurath did prove to be accurate in the sense that he reiterated that more than any formal articulation the social construction of *Gemeinschaft* was the key to success of an architectural project:

A complex of low rise buildings with small gardens, which has not been born out of a collaborative cooperative companionship's organization, is of similar lifelessness as a large Kamienica tenement... Only via a life based on cooperative association will a new common life style emerge! [37]

Communal Housing and the Architectural Concept of Pluralism

Although Neurath always favored settlements, his receptiveness to other urban conceptions grew increasingly over time. This was in part due to the fact that the *Siedlungsamt* was asked to design a "Generalplan," a master plan for Vienna which was carried out by its main architects: chief architect Adolf Loos (1870 – 1933), Josef Frank, Oskar Strnad (1979 – 1935), Margarete Schütte-Lihotzky (1897 – 2000), Josef Hofmann (1870 – 1956) and Peter Behrens (1868 – 1940). The master plan specifically required the creation of a small garden belt, which would meet with communal housing developments at Vienna's periphery. By 1924, Otto Neurath recognized that in order for the idea of the settlement to survive among the larger communal developments, he had to address broader issues in his writings on urbanism. He therefore tried to weave the settlers' ideas more strongly into the communal housing program of the municipality.[38] 1.9
In a speech presenting the main idea of the master plan at a workers' asylum in 1924, he stressed that "settlements and allotment gardens were not meant to be secluded islands at the periphery of the metropolis; instead one should aspire to always maintain green spaces, composed of settlements and small garden colonies, from the Wald- und Wiesengürtel[39] [wood- and meadow belt on the outskirts of Vienna] to the high rise, and therefore to create an integrative "Gesamtplan."[40]

He also started to recognize that settlements could not be employed everywhere, since they were not as dense as the communal projects and they also required more fiscal and human resources. He admitted that communal housing blocks of five to six stories were even a necessity in accommodating another 200,000 people who were seeking housing at the time and acknowledged that, "the high-rise apartment has time on its side due to economic circumstances."[41] He also underlined that *Gemeinschaft*, thus formally articulated differently than in the settlements, was also generated in the municipal dwellings. He wrote:
"In the public dwellings of Vienna's municipality emerges a new common life. The common courtyard serves the play of children, on summer evenings young and old possibly even dance to the sound of the loudspeaker."[42] He also noted that the diverse proposals for common living, worked out by many different architects in Vienna encouraged beneficial pluralism.[43] "The question in Vienna," he concluded, "is therefore not if high rise buildings should be erected at all, but the question is where and in what way."[44]
This notion of pluralism in urban planning was connected with Neurath's philosophical perception of coherentism and logical empiricism. Coherentism advanced the idea that truth is a compound of entire systems, but can also be ascribed to its individual



Figure 1.9 "Karl Marx Hof," Courtyard. Architect: Karl Ehn



Figure 1.10 "Baumgartnerhöhe," Tuberculosis Sanatorium

propositions. However, scientific opinions differed on the question of whether coherentism allowed many possible systems of truth or only a single one. Neurath believed that whatever decision one made "lay in the 'path of life' chosen by the decision maker."[45]

Therefore, a city had to encourage various models to solve problems, so a collective decision could be made by many people on the basis of what they found appropriate for their ways of life and their needs. This attitude foreshadowed Neurath's notion of the purposes of picture statistics. By showing various statistics (aspects of reality) chart by chart, they encouraged their viewer to draw his or her own conclusion.

This attitúde foreshadowed Neurath's notion of the ends of picture statistics. By showing various statistics (aspects of reality) chart by chart, they encouraged their viewer to draw his or her own conclusion. In an article published posthumously, Neurath wrote:

> *The encyclopedism of logical empiricism does not see why experts, trained to discover as many alternatives as possible, should be particularly able to select one alternative only (one that never can be based on calculation) by making a decision of performing an action for other people with different desires and attitudes... I think it would even destroy the scientific habit of the experts, if they were asked to make decisions and not only to prepare arrays of possible solutions.*[46]

Unfortunately the master plan of 1923/24, the first attempt to create a comprehensive urban plan in Vienna that explored the negotiation between possible architectural paradigms – high and low rise buildings as well as settlements and small gardens – could never be realized due to the Association's financial distress.[47]

Although by the early 1930s Neurath wanted to explore all kinds of architectural possibilities of housing, he always remained true to his notion of *Gemeinschaft*, community, when judging architecture.[48] He observed its existence within the settlers' projects as well as communal housing projects and notably in the entirety of all communal efforts.

1.10

In 1931, he wrote that the Viennese building activities were remarkable in themselves, however they were even more admirable when judged within the context of Vienna's



Figure 1.11 Communal Housing Project "Margartengürtel." Paddling Pool with Fountain

entire public building enterprises – the construction of schools, parks etc.[49] Therefore he wrote: "Welfare organizations [note organizations, not buildings!] are widespread all throughout the city, information centers for mothers, tuberculosis help desks, kindergartens, youth welfare offices, twenty-two open air pools and furthermore multiple paddling pools in the new kindergartens and communal housing developments of the municipality of Vienna."[50]

When Neurath set out to illustrate his view on the city, it was precisely this that he wanted to capture: different institutions that fundamentally shaped the city, factories and hospitals alike. He was convinced that the common man had to have knowledge of them, because not only did they shape his life, but he would be able to make a choice to use them to his benefit and induce actual change, if he understood them within their context. Change that would improve living conditions of the broader public could only come about if politicians and people alike demanded it. And in order to demand, the people had to be aware of the world and the city in which they lived.

"While in other cities money is spent to encourage swimming of children by posters, in Vienna this encouragement happens with the greatest success by providing the possibility for children to swim at as many places as possible for free."[51]

1 I am using Nader Vossoughian's translation for *Zur Anschauung der Antike über Handel, Gewerbe und Landwirtschaft*, to make reference as easy as possible.
Nader Vossoughian, *Otto Neurath: The Language of the Global Polis*, (Rotterdam: NAi Publishers, 2008) 149.

2 Margarete Schütte-Lihotzky states that Neurath was released from prison on the basis of Otto Bauer's intervention, who was then Austria's State Secretary of Foreign Affairs,
Margarete Schütte-Lihotzky. "Mein Freund Otto Neurath," in *Arbeiterbildung in der Zwischenkriegszeit, Otto Neurath – Gerd Arntz*, ed. by Friedrich Stadler, (Vienna and Munich: Löcker Verlag, 1982) 40.

3 These are all photographs of other photographs or publications that Otto Neurath collected in the N_Files. These are N_421, N_425, N_430. ISOTYPE Archive, Department of Typography, University of Reading, Reading, UK

4 Otto Neurath, "Städtebau und Proletariat," *Der Kampf*, (1923): 240.
Wie wird die kommende Stadt aussehen? Vor allem arbeitet an ihr die moderne, großorganisierte Industrie, der weltumspannende Handel. Hafenanlagen, Bahnhöfe, Silos, Lagerhäuser, Fabriken, kühn geschwungene Hochbahnen, Eisenkonstruktionen kennzeichnen die kommende Stadt, Wolkenkratzer recken sich stolz empor, an bestimmten Stellen durch bestimmte Zwecke bedingt, einem Gesamtbild unter Umständen durchaus harmonisch eingefügt. Wie aber werden die Wohnungen verteilt sein?

5 O. Neurath, "Städtebau," 240.
Es geht darum, nicht nur die Industrie- und Wohnbauten richtig zu verteilen, Wohnungen mit den Verkehrswegen richtig zu verknüpfen, es geht auch darum, das so Geschaffene architektonisch harmonisch zusammenzuführen, die Stadt als eine einzige architektonische Einheit anzusehen!

6 O. Neurath, "Städtebau," 240.
Was für Architekturideen leben nun in den Architekten und Organisatoren, was für Architekturideen werden von den breiten Massen aufgesogen?

7 Otto Neurath, *Österreichs Kleingärtner- und Siedlerorganisation*, (Vienna: Kommissionsverlag der Wiener Volksbuchhandlung, 1923), 6.
So kam es denn, daß Holzmangel Frierende antrieb, Hänge des Wienerwaldes zu verwüsten. Die ersten Scharen der Holzsucher hieben Bäume dort ab, wo es am leichtesten war, ein gut Stück über dem Boden. Die zweite Kolonne ging bis zu den Stümpfen herunter, dann mußten neue Opfer gesucht werden. Öde Ruinen herrlicher Wälder blieben zurück. Nun kamen die Kleingärtner. Jene gequälten Massen, die aus bitterer Not heraus Holz geerntet hatten -… - waren während des Krieges und nach dem Umsturz, ohne es zu wollen, die Pioniere der Kleingärtner geworden, die nun unter unsäglichen Mühen -… - Wurzelstöcke auf mannigfache Weise entfernten, um ihre kleinen Gärten anzulegen. So griff alles in einander.

8 The Austrian Settlement and Allotment Garden Association emerged from multiple associations. It fell under Neurath's governance however that the last two big associations, *Zentralverband für Kleingärtner- und Siedlungsgenossenschaften*, which had mainly consisted of small garden associations, was united with the association *Hauptverband für Siedlungswesen*, generally composed of settlers associations in 1921. From then on the overarching association was called *Österreichischer Verein für Siedlungs- und Kleingartenwesen*. Adolf Müller became its executive and Neurath remained director of the management.

9 1916 the forerunner of the Austrian Settlement and Allotment Garden Association, Österreichischer Verband für Kleingarten- und Siedlungswesen, was called Schrebergarten für Wien und Umgebung, was compound of 13 clubs and counted 2000 members.

10 Klaus Novy and Wolfgang Förster, *Einfach Bauen: Genossenschaftliche Selbsthilfe nach der Jahrhundertwende: Zur Rekonstruktion der Wiener Siedlerbewegung* (Vienna: Picus Verlag, 1991) 45. Otto Neurath defines these numbers as 230 clubs and 30.000 members in *Österreichs Kleingärtner- und Siedlerorganisation* in 1923.

11 For a closer definition of Neurath's notion of Gemeinwirtschaft see Chapter I of Nader Voussoghian's Global Polis.

12 N. Vossoughian, *Global Polis*, 29.

13 N. Vossoughian, *Global Polis*, 29.

14 O. Neurath, Kleingärtner- und Siedlerorganisation, 25.
Wenn Bund und Gemeinde 90 Prozent der Baugelder zur Verfügung stellten, konnte der Siedler die restlichen 10 Prozent in Geld und Arbeit leisten, womit er den Baugenossenschaften überlegen war, welche nur Geld aufzubringen bereit waren.

15 The final structure of the association in Vienna was divided into three main entities; firstly

the organization and the autonomy stayed with the *Association* itself. Secondly, *GESIBA* and the city's *Kleingartenstelle* acted as *Wirtschaftseinrichtung* and thirdly *Siedlungsamt* and *Kleingartenstelle* became the official, municipal entities to consult the settlers. *Kleingartenstelle* was in charge of acquiring and preparing small useful areas and *Siedlungsamt* dealt with all architectonical questions and was specifically appointed to drafting, planning and building. Also see Neurath, *Kleingärtner- und Siedlerorganisation,* 22.

16 O. Neurath, *Kleingärtner- und Siedlerorganisation,* 8.

17 O. Neurath, *Kleingärtner- und Siedlerorganisation,* 15.
Mit Wagen, Automobilen und Musik rückten die Kleingärtner und Siedler an, die im Zuge charakteristische Tafeln mit ihren Forderungen trugen: "Was ihr den Siedlungen gebt, erspart ihr an Arbeitslosenunterstützung." "Gebt uns Land, Holz und Stein, wir machen Brot daraus."

18 O. Neurath, *Kleingärtner- und Siedlerorganisation,* 15.

19 O. Neurath, *Kleingärtner- und Siedlerorganisation,* 22.

20 Eve Blau, *The Architecture of Red Vienna* (Cambridge and London: MIT Press, 1999) 97.
I have used Eve Blau's translation as well as her numbers here, since she has collected all previously existing sources, which vary from 200,000 – 400,000.

21 Under the leadership of Josef Frank, the Austrian *Werkbund* became active in the beginning of the 1930s after a decade of sleep. With the exhibition in 1932, Frank "saw a chance to counter the ideas of the more radical modernists." Christopher Long, *Josef Frank, Life and Work,* (Chicago: The University of Chicago Press, 2002) 119.

22 Novy and Förster, *Einfach Bauen,* 46.

23 In 1916 the organization was called *Schrebergarten für Wien und Umgebung.*

24 In 1916 the periodical was called *Mitteilungen* and was later renamed into *Gartenfreund.*

25 *Der Siedler* was again renamed into *Siedler und Kleingärtner* (settler and small gardener) in 1922

26 "Siedlerschule," *Der Siedler* (1921): 125.

27 O. Neurath, "Städtebau," 236.
Die Kleingarten-, Siedlungs-, und Wohnbauausstellung im Herbst 1923 zeigte, wie groß das Interesse der Wiener Stadtbevölkerung für alles ist, was mit Wohnbau und Kleingartenwirtschaft zu tun hat.

28 R. Kinross, "Otto Neurath's Contribution to Visual Communication (1925 – 45), The History, Graphic Language and Theory of Isotype." (M.Phil. thesis, University of Reading, 1979), 17.

29 For Neurath's explanation of the emergence of the Museum see Robin Kinross, Otto Neurath's Contribution to Visual Communication (1925 – 45), The History, Graphic Language and Theory of Isotype, Thesis, University of Reading, Reading, 1979, 17.
This ensemble of large objects and visual descriptions attracted such an enormous number of visitors that they could hardly pass through the galleries of the exhibition. It was intended that after some days this impressive display should disappear and the material be wasted as usual. But I suggested collecting some of it and using it as the nucleus of a museum for housing and city planning, of which I became director in 1923. I thought it advisable to explain housing and gardening and indeed all kinds of planning, as elements of the whole social fabric not only in Austria but also of mankind.
Wiener Kleingarten-, Siedlungs- und Wohnbauausstellung was thus the foundation stone to creating a permanent housing museum, which was, according to Kinross, sometimes called *Museum für Wohnung und Städtebau, Museum für Siedlung und Städtebau* or *Österreichisches Siedlungsmuseum.*
The museum gave information to all kinds of questions. From the history of mankind in general, it led up to the history and social structure of Austria and Vienna. Public Health was dealt with as, for instance, the importance of good water supply, which in Vienna is excellent. Different kinds of material gave information about types of settlements and the technique of house building, since a large number of members of co-operative housing societies actually worked with the builders. The visitor could be at parts of real walls constructed of various types of bricks; he could study simplified technical drawings and also photographs of houses and furniture. Even a real kitchen could be looked at and many different pieces of furniture. A continual chain of visual links connected the single items in such a way that visitors felt at home with, and not overwhelmed by, the material presented. This successful attempt to spread information by means of visual aids led the municipality to support the creation of a museum of social sciences in Vienna, in which I was able to expand the general departments of our small museum and reserve one department only for housing and the subjects dealt with in our museum for housing and city planning.

30 The first *Schrebergarten* (small garden), Neurath insisted, was named after Moritz Schreber, a medical doctor from Saxony in Germany, who was concerned with the health of children and the social outcome of living in the industrialized city. Although Schreber did not create the first *Schrebergarten* Neurath believed it was named in honor of him. It was therefore that the history of the small gardens started with enlightened consciousness of a social reformer. Studying the slums of the megacities of the 19th century, Schreber advocated gardens for the poor in the proximity of *Zinskasernen* (Kamienica) where physical activities could take place. In him, Neurath saw the ancestor of the Viennese movement.

31 Neurath, *Kleingärtner- und Siedlerorganisation*, 5.

Heute, da wir mittendrin stehen, Umfang und Bedeutung jenes dumpfen Drängens nach Licht und Luft als einen Teil der Umwälzung begreifen, welche das Ende jener Sklaverei bringt, die vor allem in der Trostlosigkeit der Riesenstädte sich voll entfaltete, vergessen wir allzu leicht jene stilleren Anfänge und gedenken zu wenig den Menschen, die, ihre Sonderpfade gehend, den Massen der Unterdrückten wertvolle Dienste geleistet haben.

O. Neurath, *Kleingärtner- und Siedlerorganisation*, 32.

Unsere Großstadt ist ein Ausdruck für die rein äußerliche Zusammenballung vereinzelter vereinsamter Menschen.

32 O. Neurath, *Kleingärtner- und Siedlerorganisation*, 33.

Gartenstädte und Gartenvorstädte entstehen auf mannigfache Weise. Einzelne Unternehmer gründeten Arbeiterkolonien, sei es um die Arbeiter enger an den Betrieb zu fesseln und ihre Abhängigkeit zu erhöhen, sei es aus allgemeiner Menschenliebe, welche solche unterjochende Nebenwirkung ausübt.

33 C. Long, *Frank*, 59.

The Hoffingergasse Siedlung, as it became known, consisted of 284 row house units and a small community centre…

… Most of the houses were situated on narrow rectangular lots of approximately 465 square meters (the size deemed large enough for the average family to be self-sufficient in food production), with only one-tenth of the site occupied by the buildings.

34 O. Neurath, *Kleingärtner- und Siedlerorganisation*, 34.

Im Cottageviertel steht jedes Haus für sich, umgeben von einem Garten. Der Wunsch nach Absonderung drängt dazu, daß Wand nicht Wand berühre, sondern daß ein Zwischenraum jedes Haus vom anderen trenne; das erzeugt freilich nicht das gewünschte Ergebnis, einer schaut dem anderen ins Fenster, was unmöglich wäre, wenn die Häuser in Reihen stünden. Alle diese Häuser zeigen deutlich, daß die Bewohner nicht nur darauf aus waren, angenehm zu wohnen, sondern sich möglichst stark vom Nachbarn zu unterscheiden…

Kein Haus paßt zu dem des Nachbarn, allerlei Bauten – derlei Stil zu nennen, verbietet der Sprachgebrauch… Rohziegelbau leuchtet neben imitiertem Marmor, mißverstandende Barockmarmorelemente wetteifern mit "secessionistischem" Gschnas. Was sofort auffällt: die Anlage hat keinen Mittelpunkt,…

35 O. Neurath, *Kleingärtner- und Siedlerorganisation*, 34.

Die Gleichartigkeit der Wohnungen (Typen), die Gleichartigkeit der Baubestandteile (Normen) ist Ausfluß der Sparsamkeit, aber auch Ausfluß des Sinnes für Gleichheit, der ebenso in der Brüderlichkeit wie im Neid wurzelt. Nicht ein einzelnes Haus ist Gegenstand der Gestaltung, sondern die Häusergesamtheit. Das einzelne Haus ist wie ein Ziegel in einem Gebäude. Eine neue Gemeinschaft entsteht hier aus der Klassensolidarität der Arbeitermassen heraus.

36 O. Neurath, *Kleingärtner- und Siedlerorganisation*, 34.

Es gibt eben für die Bewohner dieser Cottagevillen nichts Gemeinsames…

Es gibt keinen Zusammenkunftsort, denn was sollte den Staatsbeamten, den Schauspieler, den Großkaufmann, den Börsenspekulanten, den Schriftsteller, den Fabrikanten zusammenführen? Eine gemeinsame Verwaltung fehlt, ebenso eine gemeinsame Fürsorge für Kinder und Jugendliche.

37 O. Neurath, *Kleingärtner- und Siedlerorganisation*, 36.

Eine Anlage von Flachbauten mit Kleingärten, die nicht aus einer zusammenarbeitenden Genossenschaftsorganisation geboren wurde, ist von ähnlicher Leblosigkeit wie eine große Zinskaserne… Nur in einem genossenschaftlich verknüpften Leben entsteht ein neuer gemeinsamer Lebensstil.

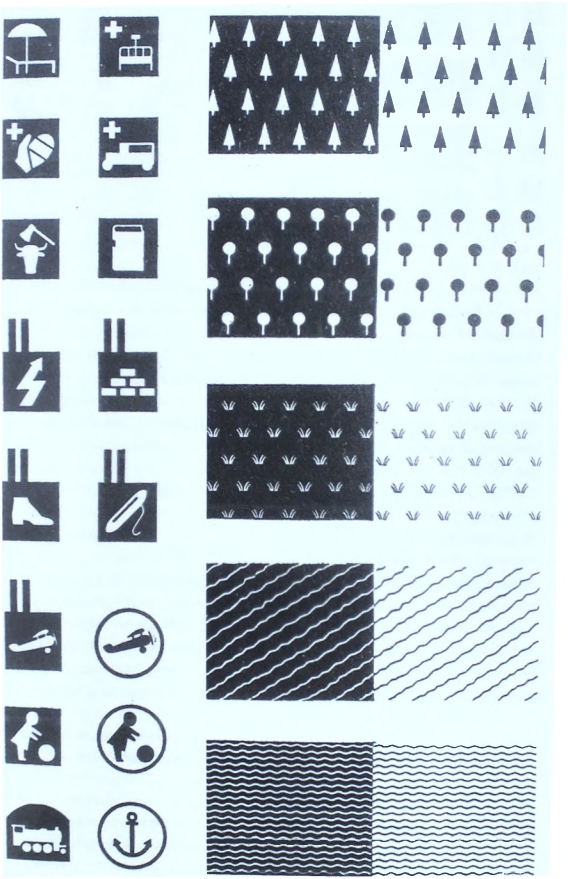
38 O. Neurath, "Städtebau," 237.

…daß nunmehr … von den Massen zu der Frage Stellung genommen wird, in welcher Weise Siedlungen, Kleingärten, Hochbauten miteinander sinnvoll verbunden werden können. Es

widersprüche dem Geist proletarischer Solidarität, wenn die Siedler und Kleingärtner um jeden Preis ihren Willen durchsetzen wollten: sie können auf die Dauer nur als Teil des Gesamtproletariats gestaltend eingreifen.
...Anfangs als die Wohnbautätigkeit der Gemeinde beschränkt war, konnten die Siedler und Kleingärtner mit einer gewissen Berechtigung von ihr fordern, alle Wohnbauten seien als Flachbauten innerhalb von Kleingartenkolonien und Gartenvorstädten zusammengefasst, zu errichten. ... Nun aber hat die Gemeinde ein so gewaltiges Wohnbauprogramm vor – es sollen innerhalb fünf Jahren mehr als 25.000 Wohnungen gebaut werden – dass durch den Bau von Siedlungen unter den gegebenen geschichtlichen Verhältnissen der Wohnungsbedarf nicht gedeckt werden könnte.
39 *Wald- und Wiesengürtel* was a declared green zone on the periphery of Vienna on the basis of a city council decision in 1905.
40 Novy and Förster, *Einfach Bauen,* 46.
Schon im Jänner 1924 stellte der Verband erste Entwürfe öffentlich vor. Im Favoritner Arbeiterheim sprachen neben anderen Adolf Müller, Otto Neurath und Peter Behrens über Wiens Generalarchitekturplan und die sinnvolle Verbindung von Hoch- und Flachbauten, Kleingärten und Gartenstädten. Otto Neurath sagte: "Kleingarten- und Siedlungsanlagen seien nicht als Inseln am Rande von Großstädten aufzufassen; vielmehr müßte man danach trachten, vom Wald- und Wiesengürtel her Grünzungen, zusammengesetzt aus Siedlungsanlagen und Kleingartenkolonien, bis zu den Hochhäusern zu führen und dauernd zu erhalten und einen einheitlichen Gesamtplan zu schaffen.
41 Nader Vossoughian, footnote to Chapter 1, Note 111, N. Vossoughian, *Global Polis,* 44.
42 Otto Neurath, "Kommunaler Wohnbau in Wien?," Die Form (1931)
In den Volkswohnungsbauten der Gemeinde Wien beginnt ein neues Gemeinschaftsleben. Der gemeinsame Hof dient dem Spiel der Kinder, an Sommerabenden tanzt Groß und Klein wohl gar nach den Klängen eines Lautsprechers.
43 O. Neurath, "Kommunaler Wohnbau," 52.
Die Neubauten zeigen die verschiedensten Formen, wie sie eben entstehen, wenn in toleranter Weise die breiten Scharen der freischaffenden Architekten sich betätigen können...
44 O. Neurath, "Städtebau," 237.
Die Frage lautet in Wien daher nicht, ob überhaupt Hochhäuser zu errichten seien, sondern wo und in welcher Form.
45 Andreas Faludi. "Otto Neurath and Planning Theory," in *Encyclopedia and Utopia, The Life and Work of Otto Neurath (1882 – 1945),* ed. Elisabeth Nemeth and Friedrich Stadler (Dortrecht, Boston and London: Kluwer Academic Publishers, 1996), 208.
46 A. Faludi, footnotes 35 and 36, "Planning Theory," 211.
47 Novy and Förster, *Einfach Bauen,* 46.
48 N. Vossoughian, *Global Polis,* 44.
Upon the decline of the settlement movement in late 1923, he did become less hopeful about the potential of "gypsy urbanism" to bring about change, but he never abandoned his confidence in Gemeinschaft as such.
49 O. Neurath, "Kommunaler Wohnbau," 52.
Zu verfolgen, wie sich die Umgestaltung des Lebens auch formal in Architektur und Wohnung auswirkt, ist eine besondere Frage, die man aber erst dann richtig eingliedern kann, wenn man die Wiener Wohnbautätigkeit als Ganzes ins Auge fasst. Das kann man nur, wenn man sie als Teil der gesamten Wiener Kommunalpolitik im Rahmen der sozialen Verhältnisse erörtert.
50 O. Neurath, "Kommunaler Wohnbau," 52.
Die Fürsorgeorganisationen sind über die ganze Stadt verbreitet, Mutterberatungsstellen, Tuberkulosefürsorgestellen, Kindergärten, Jugendämter, auch 22 Freibäder und außerdem noch zahlreiche Planschbecken in neuen Kindergärten und Wohnbauanlagen der Gemeinde Wien.
51 O. Neurath, "Kommunaler Wohnbau," 52.
Während in anderen Städten Geld dafür ausgegeben wird, durch Plakate das Baden der Kinder anzuregen, geschieht diese Anregung mit dem größten Erfolg in Wien dadurch, daß man an möglichst vielen Orten den Kindern die Möglichkeit gibt, unentgeltlich zu baden.

Chapter 2

Otto Neurath's Graphic Convictions



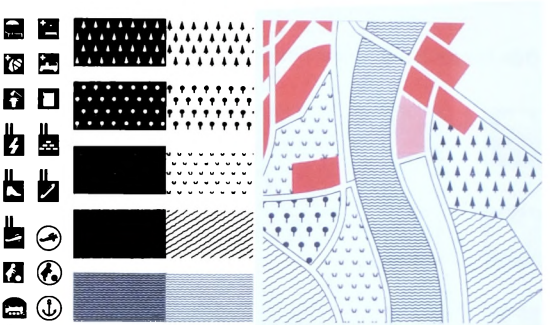


Figure 2.1, 2.2, 2.3 "ISOTYPE Symbols," "ISOTYPE Patterns," "2nd Version of a Section of the same (1937) Map," ca. 1937

Since Neurath perceived of the Modern city as an economic organism, he had to find a way to illustrate the "invisible forces" that governed it. And since in his opinion the new driving force within the city was the proletariat and no longer the bourgeoisie, it was necessary to provide them with the means of conceiving of urbanism in its manifold layers.[1] To facilitate this comprehension, which could potentially transgress borders and social status, he strove for a universal language: the language of picture statistics.[2] Therefore, this chapter highlights Neurath's search for graphic simplicity. It was his main preoccupation and the basis of all his educational ventures.

Starting in 1924/25, Neurath spent the last two decades of his life with his collaborators at the "Museum of Society and Economy in Vienna" (Gesellschafts- und Wirtschaftsmuseum) articulating and improving the language of picture statistics, which he believed capable of illustrating social forces.[3]

Collecting picture statistics had already been an important activity during Neurath's involvement in the settlement movement and picture charts resulting from this activity had been shown in the housing exhibition in 1923. However, the production of picture statistics was only a small part of the settlers' core agenda.[4] With the emergence of the "Museum of Society and Economy" from the housing exhibition, this however changed. In strong contrast, the Museum was mainly concerned with *transforming* statistics into picture statistics.[5] While the core of the settlers' exhibitions had always been their settlements and city planning, architecture and urbanism only made up one department amongst three at the Museum: work and organization, life and culture and settlements and city.[6]

The map presented in 1937 alongside the text *Visual Representations of Architectural Problems* was the culmination of Neurath's search for simplicity in spatial discussion. It was the first map ever to combine socio-political pictograms with a city's abstracted fabric.

The graphic history of this map is found in three conditions: first it consisted of pictograms, second it contained patterns made of symbols and third it combined these with a spatial component, the actual abstracted map. 2.1, 2.2, 2.3
It took more than a decade of collaboration at the "Museum of Society and Economy" to bring all three components to this level of abstraction.[7]

While many steps had to be taken toward simplicity in general, which concerned the pictogram, the "pattern" and the map, Neurath and his collaborators concerned themselves mostly with pictograms. Therefore, after a general introduction, we will consider the evolution of the pictogram, move on to the "pattern-wallpapers," and finally the map.

Throughout the years Neurath remained true to one rule: simplicity.
Since many workers in the Vienna of the 1920s and 1930s were barely able to read, they were also barely capable of understanding complex economic data. For this reason, Neurath founded a graphic language that fostered learning through visual means.
Additionally, Neurath, although well rounded in his education, had never been good at drawing and lacked a vivid spatial imagination. This shortcoming turned into an advantage, since he worked inexhaustibly on simplifying graphic information.
Neurath often argued that, even as a child, he made "clear distinctions between pictures as an artistic whole and pictures whose first aim was to convey information."[8] He was convinced that meticulous picturesque images were not apt to illustrate information, since they confused the eye by showing too many details. For this reason, Neurath also tried to avoid the use of photographs to present social facts. And while it was in the nature of biological and technical museums to make use of the objects they exhibited and to show them with their discipline's proper tools,[9] - sections and plans - this was almost impossible for a social museum.[10]

Since the discipline of social science often times lacked physical objects, its centerpieces, the "invisible forces," had to be visualized by the means of statistics. But in order for the public to perceive invisible forces, they had to be presented in a non-technical manner.
Number statistics per se were difficult to memorize, but even with a curve it could happen "that one remembers its form and color, but forgets what subject it indicated."[11] This is why Neurath chose to work with pictograms.[12]
The use of picture statistics also came about because they seemed livelier than abstract geometric means and therefore more attractive for the spectators in a museum. Moreover, Neurath argued that "nobody was afraid of little figures," as was sometimes the case with numbers and curves.[13] Picture statistics were the easiest to remember and triggered quick but long lasting memory. This was the goal of putting together educational material.[14]
Neurath even went so far as to argue, that picture statistics were specifically apt for the mind of the worker. He stressed that the working class was more receptive to visual knowledge than intellectuals, as "this method countered their bourgeoisie ideology."[15]

From Picture Statistics to I.S.O.TY.P.E

Otto Neurath was not the first individual to employ picture statistics. In fact, by 1925, newspapers were flooded with them and many were sloppy and misleading.[16] Willard C. Brinton's book, *Graphic Methods for Presenting Facts*, published in 1914, is valuable evidence of this. Brinton (1880 – 1957) collected an extensive amount of graphic statistics, charts and maps from Europe and the United States. His book not
2.4, 2.5 only provided an overview on the graphic material available, but also critiqued it.[17] To Brinton, as to Neurath, it was essential that the chosen type of diagram most effectively illustrated the conveyed information.

This was also why Neurath concluded that the essence of picture statistics was to show an increase of quantities by the multiplication of a symbol. This stood in strong opposition to showing increase and decrease by changing a symbol's size, which was often the case in other illustrations.

In order to be effective, a "bigger quantity of objects or people had to be shown by a
2.6 bigger quantity of symbols."[18] This became Neurath's most basic rule.

This first rule was necessary, upon observing that the human eye was confused by changes in size and shape, and that multiplication was easier to comprehend and more exact for making comparisons.[19] Additionally, Neurath found a system by which he could organize and assemble symbols from left to right so that comparisons could be
2.7 drawn between two groups efficiently.

The novelty in using picture statistics was therefore not that they were present, but that their rules were determined by scientific consideration. With the "Museum of Society and Economy," an entire evolution of graphic language making emerged. It was due to the continuous effort of Neurath and his collaborators that the science of picture statistics was transformed and eventually could discuss the city, even the world, by simple means.[20] The *Viennese Method of Picture Statistics (Wiener Methode)* was born. Although the rule of multiplication was already applied in an early publication of the "Museum of Society and Economy," the symbols themselves still lacked the concision and the graphic consistency they would later have, as well as the rigid, but necessary
2.8 and coherent, organizing principle.

Some of them still also lacked overarching organization. Much of the improvement regarding the symbols' design can be attributed to Gerd Arntz (1900 – 1988). The German graphic designer, who met Neurath in 1926 and joined the team in Vienna full time in 1929, worked sporadically at the Museum for a year.[21] By that time, the collaborators had already started to dramatically simplify the symbols using scissor-types to forcefully abstain from all necessary detail and were moving slowly towards applying linocut and woodcarving techniques.[22]

The more elaborate theories on the symbols' forms and colors that Neurath recorded for the first time in 1933 date within Gerd Arntz' time at the "Museum of Society and Economy."[23]

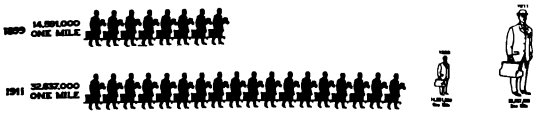


Figure 2.4, 2.5: Graphic Comparison, "Number of Passengers Carried on the Railroads," Willard C. Brinton, before 1914

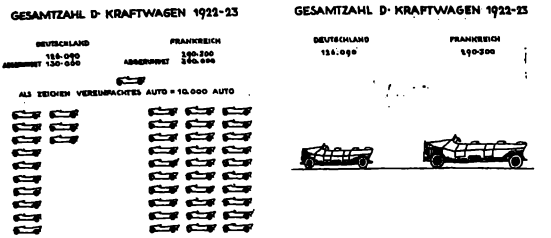


Figure 2.6: "Darstellungsarten des Gesellschafts- und Wirtschaftsmuseum – Vermiedene Darstellungsarten," ca. 1925 [24]

AAAAAABBBBBB AAAAAA BBBBBB

AAAAAAAABBBBBB AAAAAAAA BBBBBB

AAAAAABBB AAAAAA BBB

AAAABBBBB AAAA BBBBB

AABBBBBBB AA BBBBBBB

AAAAABBBBBB AAAAA BBBBBB

AAAAAAAABBBBBBBB AAAAAAAA BBBBBBBB

Figure 2.7: Comparison, Drawn on the Basis of Neurath's Graphic Rules, 2008/2009

The woodcarving and linocut technique obviously allowed for efficient multiplication of the chart, but moving towards the abstract linocut was also essential for the legibility of the picture statistics at large, and therefore to the ultimate didactic goal. **2.9, 2.10**

A second rule for the symbols concerned their form and stated that characters could not only be signalized through *Binnenzeichnung*, skirts and trousers for instance in case of humans, but their very contours and silhouettes. The shape of their heads even, had to indicate "female" and "male."[25] **2.11, 2.12**

This shows that there was a fine line between balancing the necessary degree of abstraction and the required precision. Once a silhouette was established within the "graphic vocabulary," it was advisable to show it throughout all future exhibitions, so people were able to recognize it.[26] **2.13**

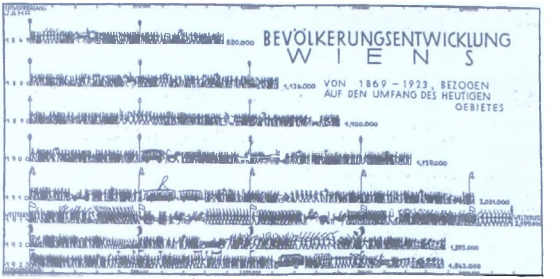


Figure 2.8: "Bevölkerungsentwicklung Wiens," (Vienna's Population Growth), 1925

Additionally, the employees of the Museum always crafted one solid symbol and one that consisted only of a contour. In this manner, it was possible to illustrate two different
2.14 groups, such as import and export, among a single category.

A third rule was related to the use of color. Neurath argued that people had difficulty remembering shades of colors and therefore, only primary colors, or colors that could be easily distinct from them, like yellow, brown, black and white should be employed.[27] Similar to using the same symbol throughout an exhibition, Neurath also suggested that certain colors would be attributed to certain themes.
The transformation from color images to a black and white was another crucial issue. Differentiating symbols had to be done not only by means of color, but also by significant detail, like hats and cloths.[28]

One of the duties of the *transformers*, the scientific staff that translated the statistical
2.15, 2.16 data into a pictogram, was to work out the information transnationally and even
2.17, 2.18 transtemporally, unless historicity was intentionally wanted. This meant that symbols
2.19, 2.20 needed to be stripped of their ethnological and historical background.
During the process of transformation great care was applied to the collection of data, their selection and the resulting translation into pictograms. As the statistical data did not always lend itself well to transformation, actual statistical personnel cooperated with graphic designers and artists *transforming* data into pictograms.
This process of the *transformation* was essential to Neurath's picture statistics, since the difficult decision-making in how to "round numbers into images" required both types of expertise.

For example, Marie Reidemeister (1898 – 1986), later Marie Neurath, had studied mathematics and was one of those *transformers*.[29]

From the start, the most important thing to Neurath was the legibility of the chart. He elaborated on this core aspiration when he stated:

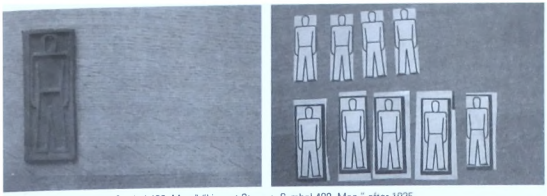


Figure 2.9, 2.10: "Linocut, Symbol 489, Man," "Linocut Stamps, Symbol 489, Man," after 1925



Figure 2.11, 2.12, 2.13: Man and Woman, Silhouette, Full Print and Precision

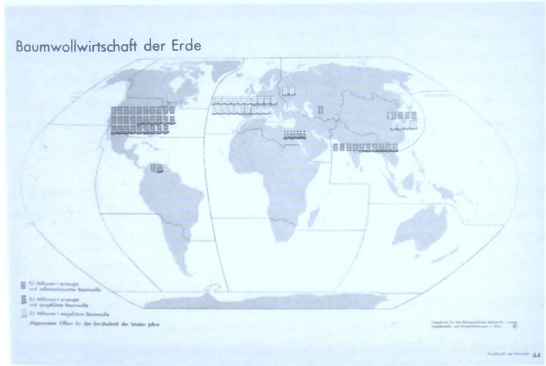


Figure 2.14: "Kaffe-, Kakao-, Teewirtschaft der Erde"

A picture made according to the Vienna method shows at first glance the most important aspect of the subject; obvious differences must be at once distinguishable. At the second glance, it should be possible to see the more important details; and at the third glance, whatever other details there may be. A picture that has still further information to give at the fourth and fifth glance is, from the point of view of the Vienna school, to be rejected as pedagogically unsuitable.[30]



Figure 2.15: Generic, Man

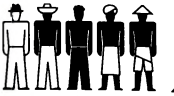


Figure 2.16: "Ethnicity"



Figure 2.17, 2.18, 2.19, 2.20: Historical

The major graphic breakthrough coincided with the renaming of the Vienna Method to I.S.O.TY.P.E. (The International System Of Typographic Picture Education), which was the phenomenon of pairing symbols. While in the 1920s, "factory" and "shoes" were represented as two separate symbols. By the early 1930s, these started to appear in pairs, representing the symbol for "shoe factory."

2.22, 2.23

But paired symbols were not always taken literally, in fact they also sometimes stood for something closely related. The boat full of coffee, for instance, implied the import or the export of that product. This advance changed the "grammar" of the picture language. In fact, it finally made it an elaborate one. This was reflected in its name. But the abbreviation ISOTYPE was symptomatic for a couple of things: for one it indicated the internationality of the picture language, as the Museum had opened braches in Holland and Russia and by 1933 – 1934 had completely relocated to Holland.

The integration of "international," however, also indicated the goal of the "language's" transnationality, which Neurath had desired since its inception. The word "System," just as "Method" previously, proved that the language followed a set of scientific rules. The fact that it had a grammar and the indication of "Typography" supported the notion of language. But also picture education (Bildpädagogik), was crucial. It implied that didactic ends drove all graphic means.

In Holland, picture statistics finally reached their culmination with paired symbols, after a decade of research. The first element, the transnational, transhistoric, which paired icon with socio-political implications, was on its way to map the city.

Hatches: From the Symbol to the Map

The second entity employed in the 1937 map was symbolic patterns. As mentioned earlier, Neurath avoided using various saturations of the same color within a single map with one exception; if colors were paired to make, what he called, "wallpaper."[31] These wallpapers, today coined "hatch" in architectural terminology, are more or less elaborate patterns. The hatches resembled a breaking point in Neurath's application of graphics, because they bridged the symbol to the plan. Furthermore they allowed the symbol not only to signify quantities within space, but to actually become space when multiplied. But for this to happen, two realizations needed to take place. Although how the hatches came into existence is not documented in writing, the images from Neurath's graphic dictionary paired with his theories on symbols are highly suggestive.[32]

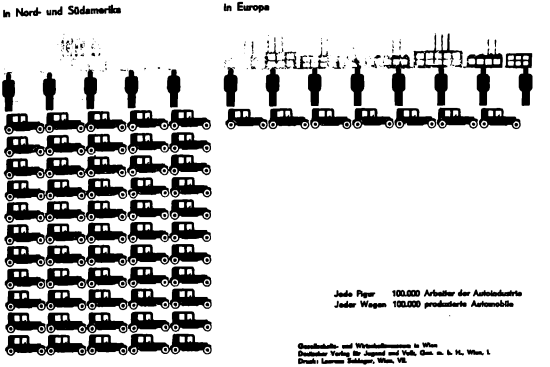


Figure 2.21: "Die Automobilindustrie," 1929

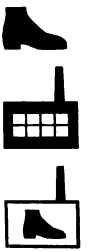


Figure 2.22: Paired Symbols, Shoeworks



Figure 2.23: Paired Symbols, Symbolical Meaning

The basis to the first realization was the inversion of the symbol. As noted before, all linocut stamps produced by the "Museum of Society and Economy" were carried out in two versions: one that showed a solid figure and one that created its void.

Collecting these statistical figure-grounds, somebody at the Museum might have realized, maybe by accident, that the "grounds," the inverted symbols, would lend themselves especially well to differentiate spaces when multiplied. **2.24, 2.25**

Secondly, the need to differentiate spaces ran parallel to Neurath's thinking about modifying color images to black and white graphics. Adapting singular symbols, originally in color, for a black and white publication, Neurath had suggested that *Binnenzeichnung* could be used. It was only a logical step, that the same effect could be

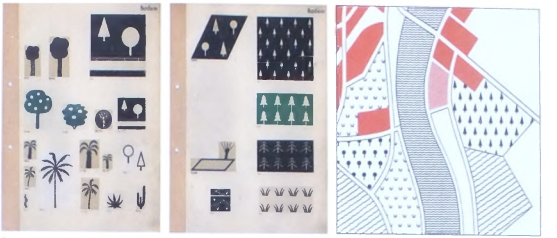


Figure 2.24, 2.25, Figure 2.3: Bodem (Ground), Series: "Bodem 1" and "Bodem 2"

applied for spatial differentiation via symbolic repetition. This application had already been used in conventional agricultural plans and lot divisions.[33] Neurath was certainly familiar with those.

However, there is also a second way to read what might have happened. During his involvement with elementary schools, Neurath started to pay attention to the issue of solving mathematical problems via picture statistics. He found especially that the calculation of relative density could be easily comprehended through drawings.[34] He even abstracted this representation to the degree of a pointilized hatch, arguing that this representation was "for the eye almost as simple as the comparison of the men by themselves.[35]

2.26, 2.27

The realization that a transformation from the symbol to the hatch was possible, and the revelation that integrating these mini-symbol-patterns worked even within the spatial domain, were the two necessary advancements that founded the second layer of the 1937 map.

After establishing a scientific theory that employed picture statistics for demonstrating quantities and rejected unnecessary detail, it might have seemed inconsistent to employ symbols as picturesque patterns. Especially after applying hatches for mapping density, it was awkward to go back to using them as wallpapers. In fact, one could argue that Neurath's picture language regressed by employing those hatches, because it also went against its first rule: a greater amount of symbols is employed only for a greater quantity. This was obviously not the case with the hatches. They were merely picturesque and their scale, the quantity in which they appeared, did not imply anything. Additionally, it might seem strange to show sections, or elevations of objects projected onto space, where they can never be seen as such, in plan.
But despite this inconsistent, unscientific approach, the hatches served their purpose. They represented the fabric of rural and urban space efficiently to the uneducated eye. Color solids, and technical hatches composed of horizontal, vertical and inclined lines, were employed in other architectural maps at the time, but they were never nearly as comprehensive as Neurath's wallpapers.

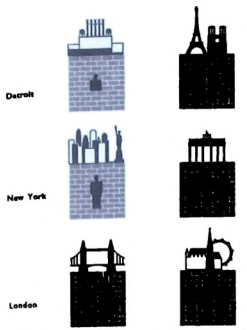


Figure 2.26: Density, "Men Living on a Unit of Space in Towns"

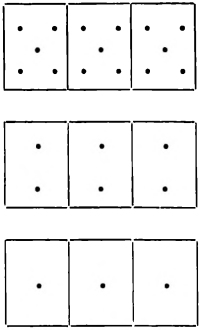


Figure 2.27: "Densities as Hatches"

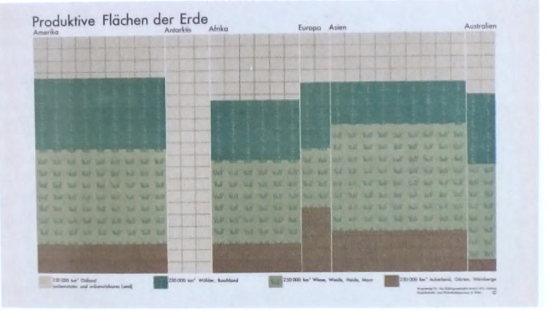


Figure 2.28: "Produktive Flächen der Erde," Productive Areas in the World, ca. 1929 – 1930

The fact that it took a long evolution from the symbol to the map is exemplified by the total absence of hatches employed within space in *Die Bunte Welt* (1929)[36] and *Gesellschaft und Wirtschaft* (1930),[37] (although first variations of them were shown as quantities in these books).

2.28, 2.29

From the Geographical Map to the Battle Plan

Neurath always strove for quantitative maps to work in similar ways as geographical ones do. However, his picture statistics lacked spatial implications. So where did this dismissal of any kind of spatial element originate?

In his *Visual Autobiography*, Otto Neurath stressed that perspective drawings, in which things in the foreground appear bigger and the ones in the background seem smaller,



Figure 2.29: "Vegetationszonen der Erde," Vegetation Zones in the World, ca. 1929 – 1930

"fixed the spectator to a specific spot from which he ought to look at the image and did not allow for the freedom to see them the way one wanted to."[38] This might tie in with Neurath's logic that complex details and technical drawings had to be avoided, since three-dimensionality was too complex for the ordinary man to understand. But there was another factor that contributed to making this decision: the way in which geographical maps represented information. They were easy to read due to their lack of perspective and because they contained a catalogue of universal signs.[39] But most of all, geographical maps seemed to depict information in an unbiased way.[40]

2.30, 2.31 2.32

All throughout his life Neurath collected maps fondly. They were categorized in three groups; a) large scale, regional and world maps, b) town plans and c) maps of battlefields.[41]

In the first years of using the Vienna Method, however, there was not a great variety of quantitative maps with spatial components. Projected plan spheres often showed locations of import and export in the world and images of Eurasia constituted the main events of the migration of nations.[42]

Neurath even testified in the appendix to *Gesellschaft und Wirtschaft*, in its subtitle *Picture Statistical Elementary Opus*, that, although maps of the world and the city had been employed, they were intentionally "not geographical maps, but only cartograms. The cartographic depiction of the atlas was adjusted to match the picture statistics."[43] This is why the world was usually shown as solely distinguished from the seas and if countries were differentiated from one another at all, then only by the use of color. All these cartograms intentionally remained only the background for quantitative maps and did not even intend to be geographical ones.

Cartograms produced by the "Museum of Society and Economy" consciously followed the laws of the pictogram and this is why neither inherited the properties of a real diagram.



Figure 2.30: Regional Map, "A.D. 1811, Empire of Napoleon Bonaparte," ca. 1811



Figure 2.31: Town Plan, "Harlem, Netherlands, 1742," ca. 1742

There were a few geographical maps produced that tried to look closer at the city, in the form of town plans. It is arguable, however, that also these are cartograms. Within them, information was very selectively displayed. Additionally, the Museums' town plans seldom-contained more than one geographical layer. **2.35**

What set the geographical layer apart from the quantitative map was that it collected information pertaining to terraign. However, this information was separated from the quantitative information. They were never superimposed. Additionally, the representation of the city was trimmed down to resemble the simplicity of the quantities charts. According to Neurath, town plans should only "explain the character of a district, but not its exact location or disposition."[44] **2.33**

This shows that it was not until the 1937 map that Neurath thought in depth about how to map socio-political factors onto space. Before then, these two layers were consciously kept apart. Pairing layers stood at the end of a long process.

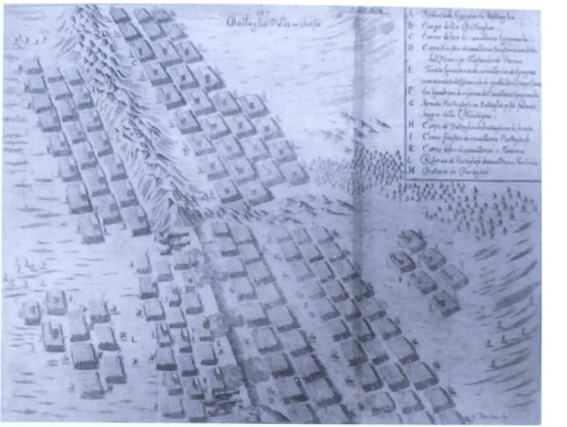


Figure 2.32: Battle Plan, "Battaglia Vouillé"



Figure 2.33: "New York," ca. 1929 – 1930

Although the segregation of space from statistical information might have fostered better understanding of the chart, it also testifies to Neurath's underestimation of space's dispositions and its resulting complexities.

This becomes apparent when looking closer at how Neurath perceived maps of battlefields. In recollections about his childhood, Neurath stresses that from battle maps predating the 17th century, he learned how by simple means the "array of the battle, the marching order and the arrangement of the camp, could be illustrated."[45]



Figure 2.34: "Fighting Troops, WW I 1914 – 1918," ca. 1929

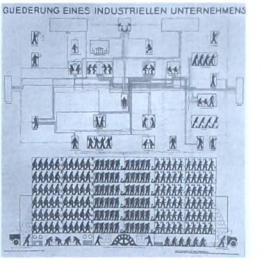


Figure 2.35: Structure of an Industrial Company

This is most striking, since battle maps in general are spatially interesting because of a strategy, a diagram or the military plan they embody.

Focusing on the static arrangement of company, rather than its active plan for action, is one of Neurath's two shortcomings when thinking about maps: that an operative component is crucial for many diagrams. Moreover, he does not mention how topography related and determined a battles' outcome. A spatial component, just as an operative one, is often what distinguishes between picture and diagram.

The labels of Neurath's map collection overestimate his understanding of the representation of battle. For Neurath, the depiction was precisely an unbiased map of battle – a neutral, historical still frame – not a battle plan; a plan, whose intelligence potentially decided an entire country's destiny. **2.34**

Critique – Spatial and Operative Components

As mentioned in the introduction, when Neurath came on the scene, graphic statistics were widespread, especially in popular media like magazines and billboards. But it was his great merit to give birth to quantitative mapping as a comprehensive tool for understanding social correlations.

Nonetheless, it is crucial to review other tools available at the time, since some of them seemed to be capable of graphically facilitating the construction of knowledge efficiently, while others presented precise facts on urban fabric and regional composition. Additionally, by contrasting collected examples from Brinton's *Graphic Methods for Presenting Facts* with Neurath's quantitative maps, it might be possible to gain a better understanding of the latter's properties. Otto Neurath remained true to his quantitative maps and seldom wandered off this path, with the rare exception of using organigrams.[48] **2.35**

That it was actually Otto Neurath, who lacked the vision or the will to employ operative diagrams, is proven by the fact that Gerd Arntz did strive to use various techniques in his

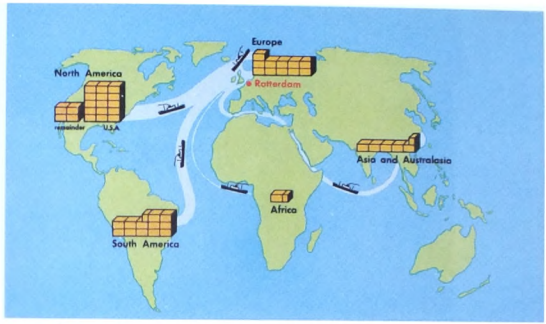


Figure 2.36: "Rotterdam Port," around 1950

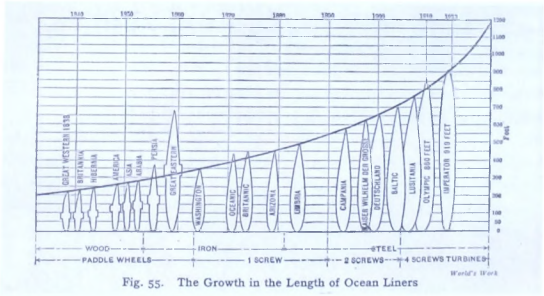


Fig. 55. The Growth in the Length of Ocean Liners

Figure 2.37: "The Growth in the Length of Ocean Liners," Willard C. Brinton, before 1914

later independent work on ISOTYPE, after the Neuraths immigrated to Holland.[47]

2.36 That operative charts were in use at the time, and even earlier, is shown in one of

2.37 Brinton's examples, the curve recording the growth in length of various ocean liners. Ocean liners grew exponentially over time. The chart also indicates that their materiality and technical equipment changed, hinting that these indications might have to do with the ocean liners' enlargement.

Otto Neurath would have justly objected to this graphic representation, because it falsely suggests that an ocean liner built in the years between 1880 and 1900 would conform to the curve, even if it did not.[48] This means Neurath rejected this diagram because its operative component drew false conclusions. But the suggestive element is also what makes the diagram powerful. For a hypothetical firm, interested in superseding the projected trend, this diagram would be a way to get ahead of its time. Neurath would have argued that a trend however could not predict the future. Also the indication of material and technical advancements in the same diagram suggests correlations that

would be hard to draw if the information was presented in separate charts. However, in theory, it was possible that the change from wood to metal had nothing to do with the growth of the ship. Neurath would have never advocated using a suggestive diagram like this.

Other examples for operative drawings from Brinton's collection are not diagrams but maps. What all of these have in common is that they can be easily translated into planning strategies.

A good example is the map showing the basis for the comprehensive system of Chicago passenger subways in accordance with the density of the city's population. **2.38**

It shows that there is a clear relationship between population density and the proposed routes. Reading the title, the spectator immediately understands that routes of transportation were planned on the basis of this density chart.[49]

Planned analysis lead to a train system that functions well until today.

Otto Neurath thought about how to employ densities in a map as well. But the question emerges why this triggered the founding of hatches and wallpaper, rather than attributing spatial and possibly operative components to the map, that achieve statistical and architectural precision.

Two other maps that illustrate the possible outcome of combining data and spatial conditions are "Passengers Carried in Twenty-four Hours on the Street-car Lines of Frankfurt am Main" and "Freight Traffic in America." **2.39** **2.40**

The simplified, networked map of railroad traffic in America, which purposefully lacks spatial indications besides comparative lengths, clearly shows main and secondary routes of transportation. Additionally it contains directionality. The spectator can easily identify that the freight traffic toward Kansas City is heavier than in the outgoing direction. Although this map does not suggest a planning strategy, its abstraction allows for it to be utilized in such a capacity.[50]

A similar phenomenon can be witnessed when looking at the model of Frankfurt's transportation efficiency. Although the physical model does not indicate why passenger ratios are higher in certain areas, the model would lend itself well to such implications. Big housing projects and industries could be factors. Models like this one are the start of an effective spatial analysis and the possible beginning of an urban project.

It would be incorrect to argue that Neurath did not think about such operative and spatial models of illustration at all. In fact, two examples counter the maps as presented. The quantitative map "Density of Traffic on Berlin's Highways," although thematically closer to the analysis of Frankfurt's transportation system, stands in direct contrast to the networked freight diagram. While in the freight diagram, it is possible to compare the traffic's density by the "line weights," Neurath's illustration of density by symbols and their gaps seems counterproductive. It is hard to conclude for example, that street A is twice as heavily travelled as street B. This is also true for sections of the street. **2.41**

In great contrast, Brinton's diagram effectively achieves such a distinction. It even inscribes two directions.

If two directions would be accounted for in Neurath's Berlin diagram, it would be completely impossible to read it. After all, even the symbols of the cars, which mime the

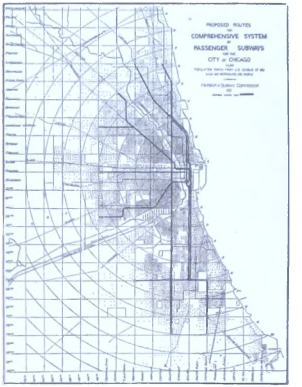


Figure 2.38: "Proposed Routes for a Comprehensive System of Passenger Subways for the City of Chicago," bef. 1914

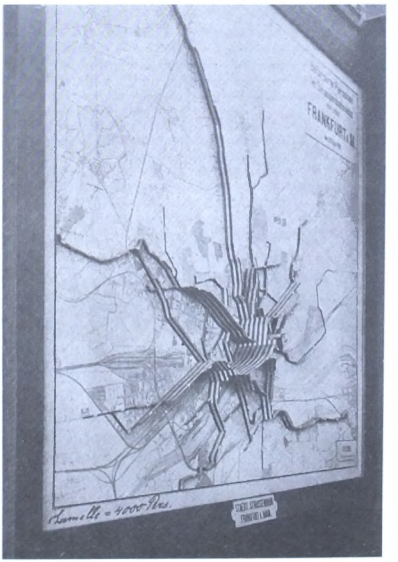


Figure 2.39: "Passengers Carried in Street-car Lines of Frankfurt. Each Strip Represents 4,000 Passengers," before 1914

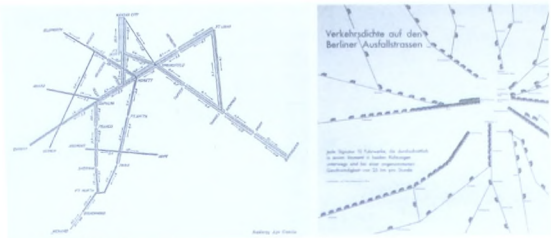


Figure 2.40, 2.41: "Freight-traffic Density on Railroad," before 1914 and "Density of Traffic on Berlin's Highways," 1926



Figure 2.42: Chart with drawn Relief, late 1920s

elevation of a car, seem clumsy when applied on a spatial map that operates in top view. Most importantly, the map of Berlin cannot go into operation, since it is hard to translate the symbols back into understandable correlating ratios. Neurath seldom used maps similar to "Freight Traffic," which were too abstract to make spatial judgments.

The model of the subway system in Frankfurt can be compared to a map of tariff boarders in Europe. The model, showing how hard it is to cross boarders between various states, is not even a real model. It is a painted plastic. Neurath insisted that models should only be employed if it was absolutely necessary.[51] The spatial illustration of this situation

2.42

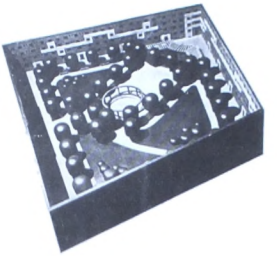


Figure 2.43: "Relief Model. Pool in a Pubic Park," late 1920s

did not do itself justice, as it is exceptionally hard to make out differences, especially between going from country A to B and going from country B to A. Moreover, it is questionable why a model-like graphic was chosen to solve this problem at all, because there are no spatial implications within the countries that correlate to the situations at the boarders. This map remains an image. It cannot go into operation and it does not suggest spatial strategies.

2.43 This was unfortunately true for most of the models created at the "Museum of Society and Economy." They did not help to gain spatial insight. They did not enhance the presented material by their third dimension, because the model did not behave differently than the plan. In fact, instead of calling them models, it would be legitimate to refer to them as extrusions, since they fostered a mere extrapolation of the plan.
Some of them even dismissed the representation of architectural objects as volume completely, like a stage design that contains depth and layers, not to mention complex social overcutting. They did not seize any of the model's properties that can make it superior to a plan or a series of sections or elevations.

Most importantly, they never achieved what the maps eventually did. They were not able to show the correlation between social forces and spatial implications. At no time did they even accomplish abstraction at all. They were simplified copies of reality, which was ironically what Neurath dreaded the most.

Defense – The Concept of the Social Silhouette

Although I believe that Neurath lacked spatial imagination on an architectural level, other matters are also important. First, and unlike Brinton who evaluated maps and established rules case by case, Neurath built the language of picture statistics from the bottom up. His vocabulary expanded over time, as did the language's syntax.[52]
Secondly, he produced a clear order in the discipline of urbanism through simple maps. An additional fact that might cast new light on Neurath's enterprises is the concept of

the social silhouette, which he elaborated in one of his more complex publications, *The International Encyclopedia of Unified Science* (1944).[53]
As the title suggests, the book is concerned with the question of uniting various fields of science and it prompts the question of how it was possible to found a language that could serve them all.

The principle of the social silhouette is essential in understanding Neurath's entire legacy:

> *Mechanical engineers, using old traditions, are accustomed to making statements concerning the effects of machines. They may say of a certain airplane that it transports more weight than another, but that its speed is not high, the seats less are comfortable, the risk of accidents is smaller, and so on. Each of these qualifications may be measured by means of its own unit or ranked according to some scale (e.g., comfort of seats). The same seems to be the given procedure in the social sciences. One may compare two social patterns as far as death rate, suicide rate, illiteracy, use of radio sets, and other items may be concerned. Let us speak of various "silhouettes," composed of the items in question, in analogy to individual "profiles".*[54]

And later he states:

> *Various nations have different mortality rates; one cannot say that where the mortality rate is higher, we may also expect a lower standard of public health. It may be that in one nation the percentage of old people is extraordinarily high and, therefore, the national mortality rate may also be very high, even if in all age groups the mortality rate were smaller than in other nations. The silhouette of mortality rates would tell us what the situation is.*[55]

This is precisely why Neurath wanted to illustrate every single category by itself. Only in their collectivity would the charts create a social silhouette that would show a more holistic picture of social interconnectivities. **2.44**
Splitting social phenomena that were already hard to understand into singular components also made them accessible. The collections of various charts, which were then, in their entirety, open to interpretation and did not draw one distinct image, were also supportive of the idea of pluralism that Neurath tried to foster for the discussion of the city. For him there was not one distinct question and one correct answer. Global forces, as well as the manifold city were always, and had to be, open to variety. And the beauty of the city and the world was that these multiple realities existed in parallel to one another.
Despite Neurath's concept of the social silhouette and the notion of pluralistic thought, the lack of operative elements in Neurath's maps remains when looking at them from an

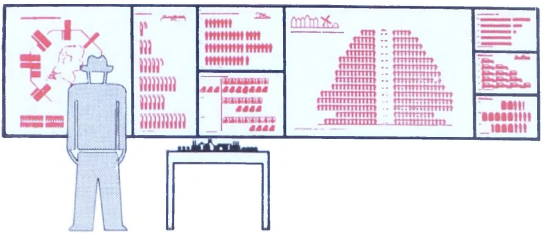


Figure 2.44 "Scheme for the Exposition of Charts"

architectural point of view. On the other hand it was what distinguished Neurath from the architects, and denoted his great achievement.

Because in contrast to architects, Neurath, the philosopher, could perceive the city as the cognitive construct of manifold social relations that it was. He was freed from the burden of having to coerce it with the specificity that a design tasks demands,

Therefore his maps were cognitive tools, but never instruments.

However, with the 1937 map he achieved what he had always wanted and what no architect had accomplished before him: to illustrate socio-economic forces within the city with the same objectivity as the geographical map. This achievement may be the reason why the overlap of the map and socio-economic forces became a successful tool in fostering debates on urbanism from that point on.

1 Otto Neurath, "Städtebau und Proletariat," *Der Kampf*, (1923): 378, 341.
Das neue Wien, das so entsteht, wird in wachsendem Maße ein Abbild des Geistes sein, der das organisierte Proletariat erfüllt, so wie das Wien der letzten Jahrzehnte ein Abbild des Geistes ist, das unser untergehendes Bürgertum erfüllt. ...
Das Zusammenarbeiten der Architekten mit der Arbeiterschaft muß so weit getrieben werden, dass von den Wünschen, von der Sehnsucht, die in allen lebt, etwas in die neue Bauweise eingeht. Und wo der Architekt als der Fachmann entscheidend gehört werden muß, kann doch das Leben des einzelnen wirksam werden. Die Architekten werden vor die Arbeiterschaft hintreten, von der Hoffnung erfüllt, dass das, was sie an baulicher Gestaltung ersehnen, von der Arbeiterschaft gewollt werde. Sie werden lauschen müssen, was die Gesellschaftsentwicklung ihnen verkündet, um in Einklang mit ihr zu bleiben. Das zu erkunden und zu erfassen, in diesem Sinne mehr oder minder bewusst Räumliches zu gestalten ist eine der nächsten künstlerischen und organisatorischen Aufgaben. Daß eine umfassende Bewegung das gesamte Bauwesen erfasst, wird wohl ein Menschenalter brauchen. Die wechselnden Schicksale proletarischer Macht und proletarischer Organisationskraft werden sich in der Architektur der Zeit deutlich abspiegeln. Die Architektur kann bereits als ein wesentlicher Bestandteil der proletarischen Kulturbewegung aufgefasst werden.
2 Otto Neurath, "Die pädagogische Weltbedeutung der Bildstatistik nach Wiener Methode," *Die Quelle*, (1933): 209
Die internationale Bedeutung dieser Methode beruht unter anderem darauf, dass wie die Erfahrung zeigt, die gleichen Bildertafeln in verschiedenen Ländern verwendet werden können. Die Bilder sind geeigneter als Worte, eine Menschheitskultur vorbereiten zu helfen. Worte trennen – Bilder verbinden.
Otto Neurath, "Visual Autobiography: From Hieroglyphics to ISOTYPE," *Future Books III*, (1946): 100.
This is the goal of Isotype: to communicate knowledge by visual means as widely as possible and so help to reduce the gulf between nations and language groups.
3 Otto Neurath argues in his Visual Autobiography that he was already drawn to picture statistics during his childhood. However his continuous scientific efforts in search of a graphic language started with the founding of *Gesellschafts- und Wirtschaftsmuseum.*
4 O. Neurath, "Autobiography," 97.
Shortly after the first World War, I became Secretary of the Austrian Association of Co-operative Housing and Garden Allotment Societies. Part of my duties was to supervise education schemes and to disseminate information.
5 Otto Neurath translated the term Gesellschafts- und Wirtschaftsmuseum in Wien to *Social and Economic Museum in Vienna* in Graphic Survey in 1933. However I am using the translation most contemporary Neurath scholars have chosen: Museum of Society and Economy.
Gesellschafts- und Wirtschaftsmuseum was founded in 1925 under this name, emerging from the Housing Museum and ceased to exist in 1934. It reopened after WW II and is called Austrian Museum for Social and Economic Affairs today.
Otto Neurath, "Museums of the Future," *Survey Graphic* (1933): 462.
But how is humanity to be presented in a museum? That was the question which the Social and Economic Museum of Vienna set itself to answer a decade ago.
Otto Neurath described how *Gesellschafts- und Wirtschaftsmuseum* derived from the Housing museum (1924 – 1925), which initially collected charts from the settlers' housing exhibition (1923).
O. Neurath, GWM in Wien, 3.
Das Gesellschafts- und Wirtschaftsmuseum ist nicht auf einmal ins Leben gerufen worden. Zuerst entstand das Österreichische Siedlungsmuseum, das nunmehr als Abteilung "Siedlung und Städtebau" in das Gesellschafts- und Wirtschaftsmuseum aufgenommen wird. Dieses Siedlungsmuseum war im Anschluß an die letzte große Kleingarten-, Siedlungs- und Wohnbauausstellung des Jahres 1923 durch den Österreichischen Verband für Siedlungs- und Kleingartenwesen unter kräftigster Förderung der Gemeinde Wien und der Internationalen Freundeszentrale ins Leben gerufen worden. Die Arbeiter- und Angestelltenkammer für Wien und Niederösterreich, die Gemeinwirtschaftliche Siedlungs- und Baustoffanstalt, die Großeinkaufsgesellschaft der Konsumvereine und andere Organisationen haben Mittel für die Ausgestaltung zur Verfügung gestellt. Graphika, Photographien und Modelle der Ausstellung wurden hier vereinigt. Weiteres Material wurde angekauft und angefertigt und damit der Grundstock für eine Sammlung geschaffen, die zeigt, wie auf allgemeinwirtschaftlichen Grundlagen, menschliche Siedlungen sich entwickeln, wie Städte bald planmäßig geschaffen werden, bald durch fallweise Errichtung von Baulichkeiten sich entwickeln, wie die reine

Hochhausstadt des neunzehnten Jahrhunderts in fast allen Ländern allmählich durch den Bau von Gartenvorstädten und Gartenstädten überwunden wurde.

6 O. Neurath, GWM in Wien, 6.

7 The *Gesellschafts- and Wirtschaftsmuseum* was renamed into *Isotype Institute* and *Mundaneum The Hague*, when the Neuraths immigrated to Holland in 1934.

8 O. Neurath, "Autobiography," 96.

From an early age, I made a distinction between pictures as an artistic whole and pictures whose first aim was to convey information through lines and colours. Gradually, I came to regard those who drew educational pictures as the servants of the public and not as their masters.

9 Otto Neurath, "Das Sachbild," *Die Form* (1930): 30.

Der Mißbegriff, wissenschaftliche Zeichnungen, Schnitte usw. für die Aufklärung breiter Massen unverändert oder wenig verändert zu verwenden, liegt auf dem Gebiet der Hygiene und Technik sehr nahe, weil hier die Wissenschaft selbst sich orientierender Bilder bedient. Auf dem Gebiete sozialer Aufklärung dagegen müssen neue Methoden zur Anwendung kommen, deren die Wissenschaft nicht bedarf.

10 O. Neurath, GWM in Wien, 2.

Naturwissenschaftliche Vorgänge lassen sich gewissermaßen unmittelbar abbilden! ... Man kann Modelle des Herzens bauen und den Pumpvorgang im einzelnen demonstrieren. Wie aber soll man Vorgänge innerhalb eines Gesellschaftskörpers zeigen, die Veränderung der Klassenschichtung, die Zirkulation des Geldes und der Waren, die Tätigkeit der Banken usw., die Zusammenhänge zwischen Einkommen und Tuberkulose, zwischen Geburtenziffer und Sterblichkeitsrate? Auch hierfür sind Modelle möglich, graphische Darstellungen.

Otto Neurath, "Darstellungsmethoden des Gesellschafts- und Wirtschaftsmuseums in Wien," *Österreichische Gemeindezeitung*, August 15, 1925, 18.

Ein technisches oder biologisches Museum hat vor allem die Aufgabe, physische Gegenstände unter besonders günstigen Bedingungen zu zeigen, um ihren Aufbau vorzuführen, den geistigen Gehalt einer Erfindung, den „Sinn" eines Organs zum Bewusstsein zu bringen. Modelle zeigen den Gegenstand manchmal verkleinert, manchmal vergrößert. Sie sind aber fast ausschließlich Abbildungen von Gegenständen und bedürfen in seltenen Fällen besonderer Bedeutung. Anders steht es mit dem, was ein soziales Museum zu leisten hat. Es sind nicht einfache physische Gegenstände, die vorgeführt werden sollen, nicht Dampfmaschinen oder Säugetiere, nicht Ventile oder Herzen, es handelt sich vielmehr um Gebilde und Zusammenhänge, die durch besondere Denkvorgänge überhaupt erst konstruiert werden können. Die ortsansässige Bevölkerung ist nicht gegeben wie ein Fordautomobil, und die Wirtschaftskrise nicht wie ein Krebsgeschwür. Gebilde, wie sie im sozialen Museum die Regel sind, bilden im technischen oder biologischen Museum die Ausnahme. Es sollen im Gesellschafts- und Wirtschaftsmuseum soziale Erscheinungen durch Symbole erfasst werden, leicht überblickbare Anordnung von Linien, Flächen, Körpern sollen gesellschaftliche Zusammenhänge darstellen. Statistisch erfasste Tatbestände sollen lebendig gemacht werden.

11 Otto Neurath, "Bildstatistik und Arbeiterbildung," *Bildungsarbeit*, (1929): 11.

Es kann einem bei einer Kurve passieren, dass man sich Form und Farbe merkt, aber dabei vergisst, was sie bedeutet... Das Mengenbild sagt immer auch, wovon es handelt.

12 Otto Neurath, "Bildstatistik in der `Wiener Methode'," *Österreichische Gemeindezeitung*, (1930): 17.

Nur Zahlen sind nicht für jeden gut zu behalten. Die Kurve zeigte wohl die Bewegung an, also einen Teil des Vorzustellenden, hatte aber, um einzelne Zeiten, Momente schnell anzugeben, erhebliche Nachteile. Der Kreis, das Quadrat, die langgezogene Fläche, besonders bei Vergleichen angewendet, hatten den Nachteil, dass eine übersichtliche und genaue Größenangabe beziehungsweise Größenunterschiede nicht erfolgen.

13 O. Neurath, "Bildstatistik, Wiener Methode," 11.

Sie [Mengenbilder] geben das Gefühl der Sicherheit, vor den kleinen Figuren hat man nicht Angst wie vor Zahlen und Kurven.

14 O. Neurath, "Sachbild," 37.

Soziologische Merkbilder sollen den einzelnen befähigen, über sein Wissen jederzeit sicher zu disponieren. Es handelt sich um eine wichtige mnemo-technische Aufgabe, deren Lösung darauf beruht, dass sehr viele Menschen, insbesondere die weniger Vorgebildeten, vor allem ein optisches Gedächtnis haben.

15 O. Neurath, "Arbeiterbildung," 8.

Es fragt sich nun, ob es nicht Methoden gibt, die, dem Wesen der Arbeiter besonders angepasst,

Kenntnisse vermitteln, dass der Arbeiter dem Menschen überlegen wird, der über die überlieferte Bildung verfügt. Eine solche Methode scheint die Wiener Methode der Bildstatistik zu sein, welche vor allem an das Auge sich wendet und so soziale Tatsachen optisch erfassbar macht. Da nun in der Arbeiterschaft das Auge lernbegieriger als bei Intellektuellen ist, besteht die Möglichkeit durch optische Bildungsmittel rasch und eindringlich Kenntnisse verbreiten zu können, die von Menschen mit bürgerlicher Bildung nicht in gleichem Maße und nicht mit gleicher Sicherheit gehandhabt zu werden pflegen. Diese Überlegenheit ist dann besonders stark gegeben, wenn diese Methode wegen ihres optischen Gehaltes den bürgerlichen Intellektuellen geradezu weniger zugänglich bleibt, wenn aus bestimmten Gründen die Verbreitung dieser Methode der bürgerlichen Ideologie widerstrebt.

16 Michael G. Mulhall, *Dictionary of Statistics*, (London and New York: George Routledge and Sons, 1884)

The use of picture statistics exploded in the 1880s with the publication of this book.

17 Willard C. Brinton, *Graphic Methods for Presenting Facts*, (New York: The Engineering Magazine Company, 1914)

18 O. Neurath, "Arbeiterbildung," 8.

Eine größere Menge von Gegenständen und Personen wird durch eine größere Menge von Zeichen wiedergegeben.

19 In the N-Files Neurath observed this phenomenon based on a publication by the Austrian Hickmann. However, Nader Vossoughian states in his monograph on Neurath, that Neurath was familiar with the work of Brinton and followed one of his detected rules.

20 O. Neurath, "Autobiography," 98.

Isotype work is the result of close and continuous collaboration by a team of workers. We have, of course, had many forerunners who tried various methods of visualizing important events, but they do not appear to have attained the visual consistency which map-makers did so well. Others have represented a greater number of objects by greater number of little drawings, but they have not used symbols as units of such representations to form a kind of technique. We were, I think, the first to evolve a theoretical framework for modern visual education.

21 N. Vossoughian, "Facts and Artifacts: Otto Neurath and the Social Science of Socialization," (PhD diss., Columbia University 2004) 164.

R. Kinross, "Otto Neurath´s contribution to visual communication (1925 – 45), The History, Graphic Language and Theory of Isotype." (M.Phil. thesis, University of Reading, 1979) 21.

22 O. Neurath, "Autobiography," 97–8.

At first our symbols were drawn realistically, but by using a new technique we soon simplified them without losing their self explanatory qualities. We began to cut out symbols – silhouettes of animals and ploughs and men – from colour paper, necessarily reducing the outlines to a minimum and avoiding internal lines wherever possible.

23 Otto Neurath, *Bildstatistik nach Wiener Methode in der Schule* (Vienna and Leipzig: Deutscher Verlag für Jugend und Volk, 1933)

Neurath gives his first extensive overview on the rules established for the Isotype in this text.

24 Neurath collected this image from another publication in the N-Files. This image served as a basis for illustration 2.6., N-521.

25 O. Neurath, *Wiener Methode in der Schule*, 19.

Die Erfahrung hat gezeigt, dass es nicht genügt, Hose und Rock einander gegenüberzustellen, es ist wichtig, dem die Reihen entlang gleitenden Auge unterschiedliche Kopfformen vorzuführen. So ergeben sich ungezwungen bestimmte Konventionen, welche die Darstellung von „Mensch," „Mann und Frau," „Arbeiter und Arbeiterin," „Bauer und Bäuerin" usw ermöglichen.

26 O. Neurath, *Wiener Methode in der Schule*, 19.

Es liegt auf der Hand, dass einmal festgelegte Konventionen möglichst beibehalten werden sollen, damit jeder, der eine längere Reihe von Mengenbildern nach Wiener Methode kennt, die folgende immer leichter „liest."

27 O. Neurath, *Wiener Methode in der Schule*, 20.

Dabei darf man nicht übersehen, dass man über eine ungeheure Zahl gut merkbarere Formen verfügt, aber nur über eine sehr geringe Zahl gut merkbarer Farben, die sich dem Gedächtnis einprägen. Ganz abgesehen davon, dass auch Menschen, die nicht farbenblind sind, für Farbunterschiede nicht immer sehr empfänglich sind, vermögen viele sich nicht zu erinnern, ob ein bestimmtes Blau, das ihnen gezeigt wird, dem Hell- oder Dunkelblau entspricht, das sie gestern gesehen haben. Die Erfahrung zeigt, dass man womöglich sich auf Farben Schwarz, Grau, Weiß, Rot, Grün, Blau, Braun, Gelb beschränken soll, wobei die Verwendung von Weiß auf weißem Hintergrund nur mit Kontur möglich ist.

28 O. Neurath, *Wiener Methode in der Schule*, 20.
Man muss grundsätzlich bei allen Mengenbildern die Scharzweißreproduktion ins Auge fassen. Den Gedanken die Farben etwa nach der Schwarzweißwappenskala wiederzugeben, muss man fallenlassen, weil man so die optische Wirkung zerstört. Man muß vielmehr danach trachten, für jede Farbdifferenz eine Zeichendifferenz bereitzuhalten, falls man sie nicht von vorn herein anwendet und die Farbe nur als Verstärkung benützt.
29 Marie Reidemeister (Neurath) carried the tradition of picture statistics in England on long after her husband's death, which had first emerged at the Museum of Society and Economy in Vienna.
30 Otto Neurath, "Museums of the Future," *Survey Graphic* (1933): 484.
31 O. Neurath, *Wiener Methode in der Schule*, 21.
Die Verwendung von Hell- und Dunkelblau, Hell- und Dunkelgrün sollte nach bisherigen Erfahrungen auf ein Mindestmaß eingeschränkt werden. Unbedenklich ist die Verwendung der Farbenpaare dort, wo sie miteinander kombinierbar sind, etwa Wald: hellgrünes Baumzeichen auf dunkelgrünem Grund, Wiese: dunkelgrünes Graszeichen auf hellgrünem Grund. Die Verwendung solcher „Tapeten" ist sehr aussichtsreich. Sie können an die Stelle der üblichen Darstellung von Geländebedeckungen treten, indem man das zu kennzeichnende Gebiet aus der vorhandenen Tapete herausschneidet, ohne auf die Verteilung der Zeichen Rücksicht zu nehmen.
32 Neurath collected his symbols and maps carefully. The collection of symbols was called the graphic dictionary. Neurath aspired for it to fold into an international encyclopedia of signs.
33 Sybilla Nikolow, who has published extensively on Neurath, mentioned in a conversation that Neurath took his five categories of terrain employed in the 1937 map – water, ploughed fields, grassland, deciduous woods and evergreen woods – from the conventional depiction of agricultural maps and plans.
34 Otto Neurath, "Statistik und Schule," *Kulturwille* (1927), ed. Rudolf Haller and Robin Kinross in Gesammelte Bildpädagogische Schriften (Vienna: Hölder-Pichler-Tempsky, 1991), 197.
Man gibt beide Länder in verkleinertem Maßstab wieder und verteilt die Zeichen für die Bewohner auf ihnen. Welches der beiden Länder „dichter" besiedelt ist, kann man sehen, lange ehe man es zu berechnen vermag! So wie der kleine Junge dem Vater zu sagen weiß, ob für die Familie mehr Platz frei ist im „grünen Esel" oder in der „blauen Grotte."
35 Otto Neurath, *International Picture Language - The first rules of ISOTYPE* (London: Kegan Paul, Trench, Trubner & Co, 1936) 88.
Men living on a unit of space. This is clear from die distribution of signs without doing a division: The more persons are massed together, the more signs there are on the unit of space. That is for the eye almost as simple as the comparison of the men by themselves.
36 Otto Neurath, *Die Bunte Welt, Mengenbilder für die Jugend* (Vienna: Artur Wolf Verlag, 1929)
37 Gesellschafts- und Wirtschaftsmuseum, *Gesellschaft und Wirtschaft, Bildstatistisches Elementarwerk* (Leipzig: Bibliographisches Institut A.G., 1930)
38 O. Neurath, "Autobiography," 93.
...I could not discover that there was any educational advantage in carefully drawn perspective of the orthodox kind. Why should one have to draw things that are far away smaller than those which are close?
Orthodox perspective is anti-symbolic and puts the onlooker into a privileged position. Any picture in perspective fixes the point from which you look. I wanted to be free to look from wherever I chose... I liked any method that would allow me to use things of the same size, whether they were near or far away.
39 O. Neurath, "Autobiography," 93.
I soon realized that map making is one of the few techniques which does not use orthodox perspective. It therefore seemed to me more educational than other visual techniques.
O. Neurath, "Arbeiterbildung," 8.
Die Wiener Methode bildet soziale Tatbestände ab, so wie eine Landkarte geographische Tatbestände abbildet. Eine größere Menge von Gegenständen und Personen wird durch eine größere Menge von Zeichen wiedergegeben. So wie auf einer Landkarte eine Postanstalt, eine Brücke, eine Ruine, ein Wald sein bestimmtes Zeichen hat, hat in der Bildstatistik der Arbeiter, der Selbstständige, der Kleinbauer, das mit Kohle geheizte Schiff, das Segelschiff, das mit Erdölfeuerung versehene Schiff sein bestimmtes Zeichen.
40 O. Neurath, "Autobiography," 100.
When controversial problems are presented in print, people expect some kind of bias from the..., in a way which they would not expect from looking at geographical maps. Isotype is bound to be as neutral as maps and to provide material for free discussion from any point of view. Isotype

symbols have fewer positive or negative associations than the printed or written words of a language. You cannot write in a neutral way without being boring, but you can present a neutral picture which is nevertheless attractive.

41 These are the contemporary labels on the drawers at the Isotype Archive at the Department of Typography at the University of Reading, England.

42 O. Neurath, "Sachbild," 34.

Otto Neurath explained his use of planisphere in stead of models.

Es muss immer wieder betont werden, dass Licht, Raum und Bewegung auf Interesse rechnen können. Es ist aber ein häufiger Fehler, diese Mittel dort anzuwenden, wo sie nicht notwendig sind. Wozu Modelle, wo Pläne genügen?

43 Otto Neurath, "'Grundsätzliches zur Kartographie': Gesellschaft und Wirtschaft, Bildstatistisches Elementarwerk,". (Leipzig: Bibliographisches Institut A.G., 1930): 102.

In diesem Bildstatistischen Elemetarwerk gibt es keine geographischen Karten, sondern ausschließlich Kartogramme, um Eintragungen vorzunehmen oder bestimmte Tatsachen zu veranschaulichen.

44 O. Neurath, "Grundsätzliches," 102.

Auch die Stadtpläne sollen nur den Charakter der Stadtteile, die Verschiebungen der Lage kennzeichnen, nicht aber genaue Lokalisierungen ermöglichen. Die kartographische Darstellung des Atlas wurde ausschließlich der Bildstatistik angepasst.

45 O. Neurath, "Autobiography," 93.

Our library also had some military charts and their clarity and information impressed me. There was a tradition of presenting the array of battle in an expressive and self-explanatory way. Even 16th-century drawings show the marching order of a military column or the arrangement of a camp.

46 Neurath used organigrams all throughout his career. He started to have them drawn up early on, illustrating the components of a settler's house and he kept using them until his death in 1945.

47 Gerd Arntz remained in Holland when Otto Neurath and Marie Reidemeister fled to England in 1940. He carried on the Isotype work in the Netherlands.

48 O. Neurath, *International Picture Language*, 100–102.

What the curve gives in addition to the ISOTYPE picture, is the points of the curve between these four marks which the curve has in common with the ISOTYPE picture. Sometimes they have a possible sense – but sometimes they have no sense at all… Is there an amount of iron produced for every minute of the year? Certainly not. What possible sense have these in-between points?

49 W. Brinton, *Graphic Methods*, 246.

On this map each dot is carefully located to represent 200 of the population. A spot map of this kind, made to some scale whereby one dot represents several people, is essential to any reliable study of transit facilities.

50 W. Brinton, *Graphic Methods*, 224.

The figures are in terms of 100,000 net tons hauled one mile per mile of road. A map of this kind is easily made and is often of very great utility. The method can also be used to show the number of passengers carried on railroad, subway, or street-car lines, etc.

51 O. Neurath, "Sachbild," 35.

Statistische Tatbestände bewegt vorzuführen bedeutet im Allgemeinen ihre Überschaubarkeit zu beseitigen. Es gibt noch immer genug Fälle, in denen man der Bewegung, der Räumlichkeit, der Lichteffekte dringend bedarf. Gemalte Plastik ist oft wirksamer und überschaubarer als reale Plastik.

52 Rudolf Modley, *How to use Pictorial Statistics* (New York and London: Harper and Brothers, 1937), 130.

What is the difference between Neurath's work and the chart which we mentioned before as appearing in Brinton's book? While the latter was nothing but an accidental occurrence in the search for a better way to present facts, Dr. Neurath tried to build up his method on a logical basis. He visualized a system in which picture words would be combined into a symbol dictionary, forming the working stock of an international picture language.

53 Otto Neurath, Rudolf Carnap, Charles Morris, editors, *International Encyclopedia of Unified Science, Foundations of the Unity of Science, Volumes I-II of the Encyclopedia* (Chicago: University of Chicago Press, 1944)

54 O. Neurath, R. Carnap, C. Morris, *International Encyclopedia*, 32.

55 O. Neurath, R. Carnap, C. Morris, *International Encyclopedia*, 33.

Chapter 3

Otto Neurath's Pedagogical Convictions





Figure 3.1: Children, Vienna, 1925 – 1932

People were always central to Neurath's endeavors, as his goal was to achieve human happiness for as many as possible. One component of this happiness could be achieved by knowledge, since knowledge fostered security and social organization.[1] Therefore, a system had to be employed that would lead to happiness through knowledge. It was this concept that led Neurath to embrace picture education.

In order to live up to these high goals, all aspects of graphic education had to be scientifically and pedagogically probed in relation to the intended audience. Otto Neurath believed that every Modern man and woman could be educated to understand complex socio-economic forces through his language of picture statistics, but he was also convinced that teenagers and children could profit tremendously from it.[2] Therefore, the language of picture statistics was tested scientifically and improved by and for its various "target audiences." It was also due to Neurath's educational approach and his work, especially with children, that his graphics were refined, and that the 1937 map was eventually created.

The vehicle for this refinement became the Museum[3] – it was where new tools were invented and tested.[4] While the invention of these tools did not change the language of picture statistics much, they were additional instruments through which this language could be articulated. Concretely, this meant a shift from exhibiting solely quantitative maps on paper, toward providing a set of items that could be used to inform the broad public, ranging from magnetic boards to short films.

This alteration was reflected in the change of the name. *Bildstatistik*, picture statistics, was replaced by *Bildpädagogik*, picture pedagogy, better known as *Picture Education*, which also became the catchphrase in Neurath's articles' headlines, since that was what the isotyP.E. abbreviation stood for.[5]

In order to distill how the work with certain "target audiences" eventually informed ISOTYPE graphics, it is first helpful to understand which material was presented at the Museum and later at schools. It is also crucial to outline what convictions Otto Neurath held for the museum at large. **3.1**

The Museum

Neurath theorized museums extensively.[6] By 1936, he was so consumed with the idea of museums serving the purpose of education that he called the built structure of the museum, "a simple cover for teaching material."[7]

It was crucial to him that museums operated like the visitor wanted them to work.[8] This meant that they had to be accessible to their public. Since the proletariat was Neurath's audience, the Museum was specifically tailored to the worker.

Therefore, besides the headquarter institution, the "Museum for Society and Economy" at Ullmanngasse, and the central exhibition at *Neues Rathaus*, there were smaller branches all throughout the city and especially in districts where many workers lived.[9] **3.2** **3.3**

In addition, being "conscious of the fact that the working man had time to see a museum only at night,"[10] the central Museum at *Neues Rathaus* kept its doors open in the evening and entertained one small branch, a store front, which could also be used as a waiting room, open twenty-four hours a day.[11] **3.4, 3.5**

Although Neurath theorized that the visitor should determine what and how a museum should exhibit, he had a clear vision on what he thought the viewers wanted. He was convinced that the "working man" would want "everything that is shown in a museum to serve a comprehensive pedagogical purpose."[12]

In order to achieve comprehensiveness, Neurath asked his friend Josef Frank, with whom he had worked intensively during his years with the Settlement and Allotment Garden Association, to become the Museum's architect. Frank applied great simplicity to the exhibitions' designs: he deemed it important to provide a good overview on what information was displayed. Therefore, the guidance of the visitor through the Museum was key, and the rooms' sequencing had to correspond with the order of "material on view."[13] In addition, the exhibition space had to be flexible to accommodate the





Figure 3.2, 3.3 Exhibitions, "Neues Rathaus" and "Bezirksmuseum, Am Fuchsenfeld," 12th District





Figure 3.4, 3.5: Zeitschau Storefront, Outside and Inside, Am Tuchlaubenplatz, 1st District, Vienna

ever-changing collection of information. Frank paid great attention to the design's adaptability, which ranged from planning flexible walls to creating dismountable frames for the charts.[14] These frames, as well as the Museum's furniture, were all based on a

3.6 modular system, which enabled the exhibit to travel.[15]

The dimension of all charts and dismountable frames corresponded with the *"Ausgangsquadrat"* (base square) and fragmentations of it, so that shipping would be made as easy as possible. Most charts could slide into their frames, which were specifically designed by Frank.

Frank's design tradition for buildings complemented this elementary approach to the inventory's design, since Frank had always tried to keep "simple frames around doors and windows, [which were] devoid of decorative elements or picturesque modulations."[16] The frames also had to be kept as discreet as possible, so that they would not steal any attention from the charts. But paper charts were no longer the only items in the exhibit.

During the evolution from "Picture Statistics" to "Picture Education," other items became regulars. Magnetic charts were key, because of their ability to change displays easily. Models, reliefs, illuminated charts, advertising columns, slide projections and

3.7 short films were also utilized, as were maps that modeled the fabric of the city.

In addition, the "Museum of Society and Economy" started an extensive collection of their own photographs, which were used in later years to depict labor environments.[17] The photographs were labeled "*Nature*-Files;" the ISOTYPE symbols and charts were



Figure 3.6: Travelling Exhibition, Architekt: Josef Frank



Figure 3.7: Models at Neues Rathaus

called "*Tafel* (Chart)-Files." Furthermore, the Museum contained a huge archive for historical maps, cave drawings, hieroglyphics and other symbolic drawings. It also featured children's books and children's drawings and even responses of adults and children who had visited the Museum.[18]

All of these collections, as well as the archival and the building work of objects, were stored at the "Museum of Society and Economy."[19] This led to the intensive collaboration of all staff, which consisted of "statisticians, cartographers, ethnologists, technicians, medical doctors" and artists.[20] It becomes obvious that over the years the Museum developed into a productive scientific and pedagogical research facility.

Both adults and children were educated at the Museum and Neurath tested his picture pedagogical system with all ages: grown ups, students of vocational schools, high school students, elementary school children, and even preschoolers. The ends for his education, both revolutionary and peaceful, depending on the context.

Neurath the revolutionary orated to adult workers: "statistics are the tool of the proletarian fight,"[21] and Neurath the philanthropist aspired in thinking about the goal for schools and statistics; the "aim... is to humanize and democratize the world of knowledge and of intellectual activity,"[22] so "all men can participate in a common culture and the canyon between educated and uneducated people can disappear."[23]

Education for All

Workers (approx. 18 and above)

While the elaborate statistical devices developed for the "Museum of Society and Economy" were mostly refined by their usage in schools, there were three modes of communication that were considerably utilized and enhanced for adult education: films, lantern slides shows and photographs. The use of film, just like the display of illuminated advertising charts and advertising columns, showed that Neurath and his collaborators at the "Museum of Society and Economy" were interested in using the first offspring of mass media and culture to their advantage. In fact Neurath consciously used techniques from advertising and entertainment,[24] since in the "visual era"[25] one "had to compete with all the amenities that the eye was attracted to in the streets."[26] However, closer discussion of them can be omitted, since they were mostly used to show moving ISOTYPE graphics. They did enable a view of statistical evolution over



Figure 3.8: Worker and Shoes, Vienna

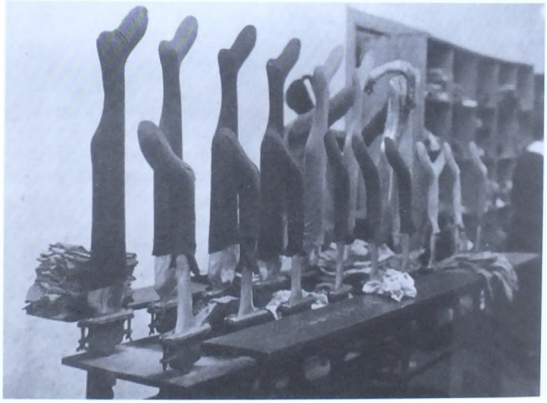


Figure 3.9: Socks

time, but they did not advance the ISOTYPE language as such, nor did they offer a new form of graphic representation. Lantern slide shows and photographs, however, were new media. In the early years of its existence, the "Museum of Society and Economy" had distinctly avoided the use of photographs in strong favor of picture statistics. This changed with a series of collaborations between the Museum and Vienna's "Professional Support Bureau and the Viennese Chamber of Labor," both of which had supported the Museum from early on.[27] In one of these exhibitions, laborers and their specific environments were meticulously studied.

3.8, 3.9

This exhibition showed female and male laborers in their workplaces. The same series also documented details, such as how to operate machinery properly and how to handle tools.[28] 3.10

Work Seeking and Work Advice (14/15 – 18 years old)

Another series specifically targeted young adults that had not pursued higher education in order to go to work.[29] This work for the "Professional Support Bureau" made use of the lantern slide shows, to give the prospective wage earner an overview of various job possibilities.[30] In progressive sequences, the collection created a narrative on the duties of the hairdresser, the locksmith, the optician, the tailor, the carpenter, the blacksmith and even the factory worker.[31] All these lantern slide shows had a title and credit slide as well as a "lead image" which would head the series. 3.11, 3.12

The "Museum of Society and Economy" also started to use "lead images" for picture statistics in the late 1920s to introduce a certain topic. 3.13

But the "Museum of Society and Economy" not only "visited" these work environments and brought them back into the Museum by depictions, it also tested work-seeking people in the Museum and recreated certain environments for labor consultation, where people were advised and evaluated.

Looking at the photographs the N-Files provide is necessary. Although as a medium they are not evidence of a highly altered didactical method they surely entail that the dedication at the Museum to understand the life of a worker went beyond what could be said scientifically. Sometimes exhibitions displayed details, but most retained great abstraction. On occasion Neurath proudly declared looking back on his time in Vienna:

> *Taking everything into account, the GESELLSCHAFTS- UND WIRTSCHAFTSMUSEUM IN WIEN was a museum measuring itself by man's measure and basing its work on the needs of the man in the street.*[32] *When a Viennese citizen [entered] this museum, he was impressed from the first moment with the fact that the institution was intended for him. In it, he finds reflected his problems, his past, his future – himself.*[33]

Although adult education and school pedagogy were not congruent, they had "enough similarities, so that experiences, which had been made in the one field, could be seized for the other."[34] Already in 1927 Neurath wrote in the article *Statistik und Schule*:

> *If statistics are an essential part of the new world-view, then they will also become a (school) subject. The broad masses cannot attain statistical thinking, when they remain a privilege of universities and at best are recited in schools, which are reserved for the better off, bourgeois classes. Where the interests of the work- and labor force are determining, statistical knowledge and thinking will be thought in some form in the general elementary school from the first grade on.*[35]



Figure 3.10: How to operate the Machine

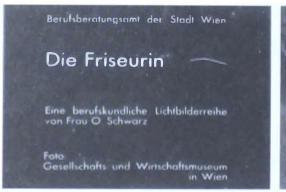




Figure 3.11, 3.12: The Hairdresser, Credits and Lead Image



Figure 3.13: The Hairdresser, Series

And this is exactly what happened. By the end of the 1920s picture education became a part of the Viennese school reform. Initiated by the social-democratic government of the Red Vienna, the school reform tried to weed out antiquated teaching methods that were considered debris of the monarchy. The Vienna method was from then on probed in various school types, but mostly in *Hauptschulen* (middle schools: 10 – 15 year olds), elementary schools (6 – 10 year olds) and kindergartens (3 – 6 year olds).
In these classrooms magnetic walls, ready made charts, folders and books with picture statistics, but also cut out symbols that could be ordered from the Museum, finally found their way into the hands of the end consumer.

Middle School Student (10 – 14/15 years old)

Based on a decision of the head of Vienna's school board the middle school, *Hauptschule Schwerglerstraße*, in 14th district, which was heavily populated by workers, was sought out to become a "test school" to pilot the use of the Vienna Method.[36]

Working with older students the object tools most frequently used were magnetic walls, reliefs and ready-made charts. Teachers used them to illustrate changes in the world by adding magnetic symbols, or they showed migrations and other demographic movements in geographical maps. The great novelty was that teachers tried to use the same charts and models for different subjects, to minimize the risk of isolating singular fields intellectually, which was most likely to happen in higher levels of education.[37]

This method was in tune with Neurath's general belief that a school should train students to understand relationships and make connections, rather than studying singular facts for a test.[38]

Another method of applying picture statistics in school was assembling cut-out symbols or drawing them out by hand. While I will talk more about the cut-out symbols for elementary schools, it is remarkable what scientists at the "Museum of Society and Economy" discovered about the use of the Vienna Method with teenagers, the age group of 10 – 14 years old.

When confronted with drawing a statistical chart on how many children stayed at home on the weekend and how many went outside, Neurath remarked that teens were inclined to solve these problems in an all too detailed and naturalistic way, if the instructor did not specifically request symbolic depiction.[39] He attested on the drawings: **3.14**

> *In an all girls' class, for instance, one will find series of (drawn) girl-(figures), whose little dresses feature all kinds of details. Braids and such animate the composition. The girls, who stay at home, look outside the window, whose drapes are affectionately drawn out. The lead images give reason for picturesque activity. All too easily they lose the character of statistic free symbolism.*[40]

Since Neurath always tried to avoid impeding the legibility of symbols with detail, he suggested the use of ready-made paper pictograms or stamps for this age group so students could concentrate on the actual statistical challenge, which was of course the focal point.[41]

Elementary School Students (5/6 – 10 years old)

The technique of drawing picture statistics, however, was especially apt for children in elementary schools. Otto Neurath realized early on, that the "gap between pictures for children and pictures for school instruction was big, but pedagogically unfounded."[42] He soon discovered a way to prove his assumption, that picture statistics could aid



Figure 3.14 Sample. Children approximately 10 or 11 years old

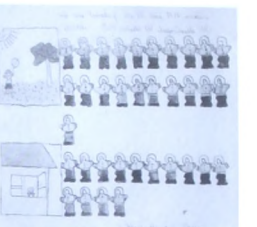


Figure 3.15: Younger Students Same Task

the construction of knowledge while maintaining a child-like way of illustrating it.[42] Research in child psychology had shown that during the years of elementary school and even earlier, children were very good at inventing symbols and designing them in
3.15 an abstract way.[44]

Neurath gave a detailed account on methods that had been used in various schools to further encourage this creativity for picture statistics, which children naturally possessed.

> *In the beginning the best way to conduct picture statistics with 6 and 7 year olds is to select examples in which one sign signifies an object. The question is posed, for example: How many kids were at home last Sunday, how many on the open-air?*
>
> *The invention of signs is on this level very insightful; In one… case a child indicated the "Sunday in the open-air" with the tree symbol adjacent to a mushroom symbol, omitting [the symbol] of children walking outside. Asked why he chose the tree and the mushroom, he answered absolutely in terms of best picture education: the tree alone could indicate a park in Vienna; with the mushroom it becomes clear*
> 3.16 *that it is a forest.*[45]

Once children grew accustomed to this way of illustrating singular objects, in a second step teachers could start introducing the more abstract mathematical part of picture statistics.

To make them understand the compression of a bigger quantity into a singular symbol,
3.17 Neurath suggested physical demonstration:

> *Groups of five children are formed. Five children each stand behind one another; we will only draw the man in front. In the beginning "rest figures" are still accounted for, then the "rounding off" starts.*[46]

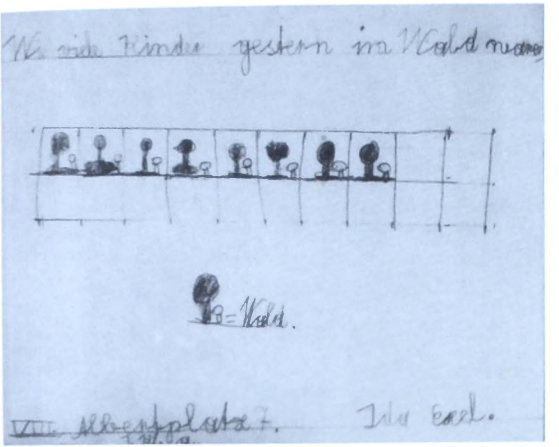


Figure 3.16: Good Example, approximately 6 years old

A major achievement of picture education in schools in terms of mathematics was Neurath's realization that children were able to grasp the concept of relative density through drawings. Neurath suggested dividing countries into partitions and distributing their specific population within it. Which of the countries "is more densely populated can be seen long before one is able to calculate it!"[47] 3.18 3.19

Using maps to investigate transportation systems and urban fabric in a certain district expanded this first step towards a spatial analysis in schools. As briefly mentioned before, there is reason to believe that in this specific instance picture education not only informed students, but that Neurath also learned from them.

In 1928/29 students were first given the task to draw out the Meidling district in Vienna, on the basis of another map. The results showed that a larger territory's texuality was easily comprehendible and employable for students by means of hatching. 3.20

In 1929/30 then, the first hatched charts and maps in prints of the "Museum of Society and Economy" appeared in the publication of *Die Bunte Welt* and *Gesellschaft und Wirtschaft*. If Neurath was only testing them with the children remains unclear, however their introduction to the chart was necessary in drawing the 1937 map.

In general, the method of drawing quantitative rather than geographical maps, was quickly understood by the children. Once established, the statistical hard facts of work could be carried out with ready-made symbols. For that task the "Museum of Society and Economy" provided big symbols that could be glued on big charts or even school magazines on wallpapers.[48] Small symbols were meant to be tagged into notebooks,

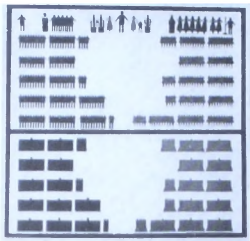


Figure 3.17 Rounding Off "Figures," Vienna, 1925 – 1932

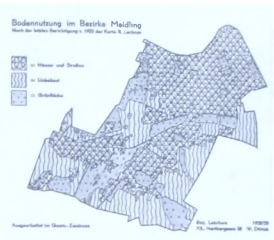


Figure 3.20: Bezirk Meidling, Vienna, ca. 1928 –1929

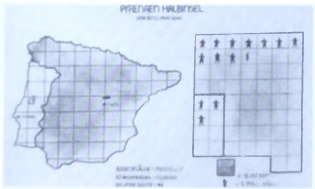




Figure 3.18, 3.19: Comparison: Figures and Densities in Chart drawn by Children and Chart prepared by the Museum

which enabled everybody to do their individual charts.[49] Also available in cardboard, the symbols could be applied onto maps. The same was true for magnetic symbols. There was even the option to work with stamps. But the material could not only be assembled. The "Museum of Society and Economy" also provided matrixes, which could be cut out and had to be rearranged.

With the help of the "Symbol-Dictionary," a collection of all pictograms sorted by categories (animals, transportation, work) it was up to the teacher to request symbols and matrices in appropriate material, size and color.[50]
Neurath found that it was in accordance with the idea of the modern worker's school, to assemble and cut, to draw and to paint.[51] But this kind of hands-on work, which enabled cross-field learning and understanding with both parts of the brain, was also en vogue at the new types of schools that started emerging in the early 20th century, among them, schools based on the teachings of Rudolf Steiner and Maria Montessori.

Kindergarten Children (3 – 5/6 years old)

The first test of the applicability of the Vienna Method was made in a Montessori kindergarten,[52] although the use of symbols did not exactly stand within a Montessori tradition.[53]
The various ways that the Vienna Method was applied in kindergartens proved to be successful, and is exemplified by Neurath's side note in *Bildstatistik und Schule* as well as by photographs.



Figure 3.21: "Haus der Kinder," House of the Children, Vienna

> *There shall be no talk about the preschool age here, not of the marked-off carpeted areas [that can be used cartographically], not of the "statistical reading-box" and similar teaching materials, which are by the way occasionally even used within schools. That one can use quantitative maps also for the preschool age, should only be mentioned on the side.*[54]

The photographs are proof that indeed pictograms did enable even the youngest children to navigate through their life and that visual education at large could "permit them to combine symbols as they combined wooden blocks to make buildings and bridges."[55] 3.21

Critique

The critique of Neurath's use of teaching material is similar to that noted in the previous chapter. There is something operative and generative about building bridges and houses, which picture statistics could not offer.

Although all teaching materials aimed to be pedagogical, they themselves lacked this generative, creative quality. That it was possible to craft didactic devices within the realm of ISOTYPE, which embodied such a generative component, is best illustrated by the Spoorwegen exhibition curated by Gerd Arntz in the Netherlands of the late 1940s. To inform the broad public about the Dutch railway company, the audience was prompted to engage with the content of the exhibition by a simple question: *Wat weet U van de Spoorwegen?* (What do you know about trains?)

Accordingly the visitor was guided through the exhibition by a series of questions that were answered when looking carefully at the material displayed. 3.22

At the end of the exhibition, there was a machine waiting for the visitor by which he could test his knowledge and which gave him statistical information on how well he had done.

Neurath seemed not to have been of the opinion that it could be enjoyable for adults and children alike to playfully learn by such a challenge.

Arntz's exhibition also illustrated how creatively one could make use of models, machines, furniture and charts at once; of comic-like illustrations and their abstractions; of elevations, axonometrics, sections and plans; as well quantitative, geographical and operative maps.

Defense

In Neurath's defense, Arntz's exhibition took place almost two decades after the ones shown at *Neues Rathaus*, two decades in which Arntz was fully committed to picture education.

More importantly however, in great contrast to the maps whose lack of operative and spatial understanding limited their function, the teaching devices worked. In fact they worked well, and it was psychologically proven that the memorability of depictions according to the Vienna method was two and a half times as great as regular depictions.[56]

The critique of Neurath points out that a decade after Neurath's death, Arntz had found an even more creative what to carry on what had become the ISOTYPE legacy, which they had started to build together two decades earlier.

Nonetheless, in the apparent simplicity of the Vienna Method lay something unique; it empowered the weak, it gave the ones who could not read the chance to participate, and it considered the adult or the child with any kind of disadvantage or disability.[57]

In concluding it should be taken in account that ISOTYPE was not taught everywhere, not in gymnasiums, not secondary schools at large and not at universities. It was not taught in institutions that only drew the upper class to them. ISOTYPE was not for everyone, a fact that Neurath understood and intended. First and foremost, he wanted to provide his language for those who needed it most.

When confronted at a conference on *School and Society* in 1945, shortly before his death, with the remark from a member of the audience that a group of "sixth-form" boys preferred the "verbal argument, the histogram and the graph" over the ISOTYPE

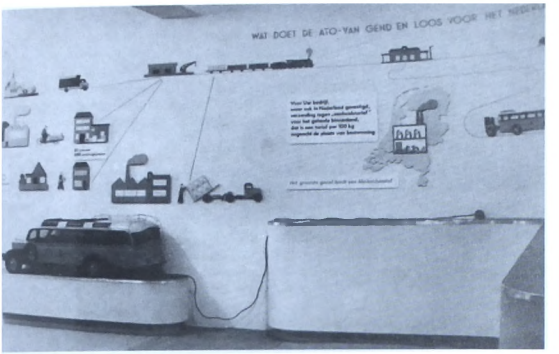


Figure 3.22: "Wat weet U van de Spoorwegen," (What do you know about trains) Holland, late 1940s

method Neurath answered, that it was "not a medium for specialist studies." In fact that it was not intended for the "trained student," but should serve "primarily as an educative device for the non-specialist."[58]
And if one looks close enough, it is evident that the ISOTYPE gave the smallest of all children not only a way to navigate through their world, but also a first tool to illustrate it. **3.23, 3.24**

School Material and Internationalism

In the mid 1920s, Neurath took what he remembered from his own childhood, the way in which books for kids illustrated the world, and utilized it to educate adults. This took half a decade. But in a second half of the decade the ISOTYPE system, refined as picture education, trickled back down to be used by children, who did their part in shaping it.

It might not come as a surprise that the extensive use of ISOTYPE material in schools coincided with the rapid international expansion of the ISOTYPE institute and the founding of branches in Holland, England, Germany, Russia and even the USA.

After all, the language of picture statistics was international and the use of different audiences had proven that. However, the expansion of ISOTYPE was also due to an attribute that the teaching material, the exhibtion material and even the Museum itself shared. Everything from the largest to the smallest item could travel. While symbols and charts were being delivered to schools within the city of Vienna; maps, reliefs and even demountable booths were shipped around Europe. In fact, the "Museum of Society and Economy" in Vienna was not confined to a building at all. It was "one of the first institutions to think about the Museum as a nomadic entity, as a mobile body that could be serially reproduced."[59]



Figure 3.23: Gerd Arntz Lead Image, USSR, 1934

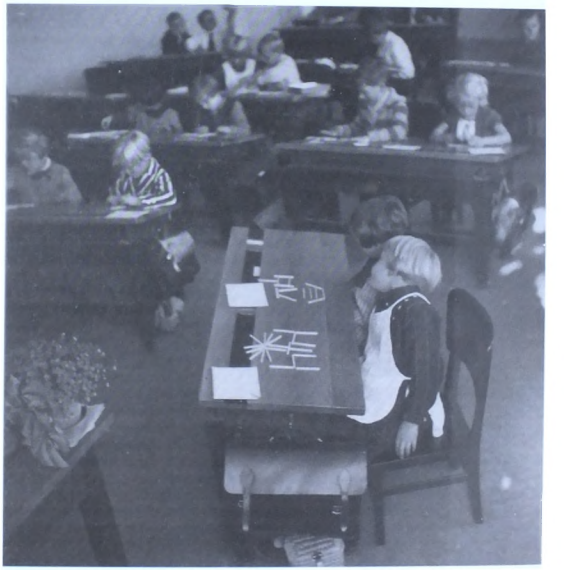


Figure 3.24: Children Building Arntz Symbol, Vienna

A first step toward the travelling museum certainly was Neurath's insistence that nothing of monetary value, nothing that could not instantly be reproduced, was shown in the museum. Distancing himself from any object-based exhibition, Neurath paved the way towards an exposition of sheer information. However, in a second step, Frank was instrumental in taking this concept to the next level. He realized that "the modern museum could be in multiple places simultaneously" and that everything about it "could be copied, including its site" as Vossoughian has observed.[60]

During the late 1920s, Neurath also briefly collaborated with Paul Otlet who was influential in his thinking about the Museum. The Belgian Otlet had set out to found

an "international museum of world culture" which evolved into the idea of founding a "World City," or "Cité Mondiale," which "involved the creation of community through the standardization and consolidation of knowledge throughout the world."[61] Although a Belgian architect had already realized a similar project just outside Brussels, Otlet preferred to work with a Swiss man and commissioned him in 1928 to make some suggestions. When Neurath joined the team in 1929, he met Charles-Edouard Jeanneret-Gris, better known as Le Corbusier (1887 – 1965). Although the collaboration, called N.O.P., an association founded by Neurath and Otlet specifically to oversee their cooperation, only lasted a year and was split into two entities, Neurath was left with the promising name "Mundaneum" and the task to build regional exhibitions and museums. This task certainly helped to clarify Neurath's visions of the international museum and to foster the spread of Mundaneum institutes in Europe and around the World.[62]

And it was at the same time that some rather famous architects took notice of Neurath and invited him to be the first non-architect member to advise them on how to create a didactic map of the city. Neither the architects nor Neurath knew what they were getting themselves into, until after they boarded a steam ship that carried them toward Athens and the most defining congress of architecture and urbanism of the 20th century: CIAM 1933.

1 Otto Neurath, *Modern Man in the Making* (New York and London: Alfred A Knopf, 1939) 8.
Fear and hope worry man… The combination of the desire for security with the desire for adventure is inherently human, but the desire for security may lead to social organization, which the desire for adventure does not… By modern means, I shall try to tell about our environment, about you and about myself; but in a general way.
2 Neurath paid special attention to the education of women and reiterated their equal status amongst men.
3 Whenever I have capitalized the word "Museum" in this chapter it means that I am referring to the "Museum of Society and Economy."
4 Otto Neurath, "Gesellschaft und Wirtschaft im Lehrbild," *Österreichische Gemeindezeitung*, May 1, 1927, 44.
Man muss nun darangehen, festzustellen, welche Lösungsweisen uns zur Verfügung stehen, es muss der Bereich der Darstellungsarten abgegrenzt werden. Leuchttafeln, Magnetkarten, Zeichenfilme, die alle bedürfen methodischer Pflege. Man muss allmählich feststellen, was man so darstellen kann, was nicht; welche Vorteile das ruhende statistische Bild vor all dem hat. Die Wirkung von statistischen Bildern, die abwechselnd aufleuchten, ist noch allzuwenig untersucht.
5 Otto Neurath, "Bildhafte Pädagogik im Gesellschafts- und Wirtschaftsmuseum in Wien," *Museumskunde, Neue Folge III* (1931): 125–129.

Neurath used the term *Bildstatistik* all throughout the 1920s and well into the 1930s. Alltough pedagogy had always been an element of Neurath's aspirations, it became the most important end in the early 1930s when *Picture Education* replaced *Picture Statistics* for the first time an article's headline in "Bildhafte Pädagogik."
For the change in artice headlines see Robin Kinross, index to *Band 3 Gesammelte bildpädagogische Schriften*, by Otto Neurath, edited by Rudolf Haller and Robin Kinross (Vienna: Hölder-Pichler-Tempsky, 1991) v-vi.
6 For an extensive analysis on how Neurath theorized the Museum, and in particular what he aspired for the *Mundaneum* and his collaboration with Paul Otlet, see Nader Vossoughian, *Otto Neurath: The Language of the Global Polis* (Rotterdam: NAi Publishers, 2008)
7 Otto Neurath, *International Picture Language - The first rules of ISOTYPE* (London: Kegan Paul, Trench, Trubner & Co, 1936) 70.
Even from the outside the ISOTYPE museums will be different from the museums of yesterday. They will be nothing but a simple cover for teaching-material.
8 Otto Neurath, "Museums of the Future," *Survey Graphic* (1933): 458.
Museums of the future, anyhow ought not to be as I should like to have them, but as the visitors and users would want them if they knew what makes a museum.
9 Otto Neurath, *International Picture Language*, 72–73.
There were branches of the museum in different parts of the town.
O. Neurath, "Bildhafte Pädagogik," in *Bildpädagogische Schriften Band 3*, 199.
Die Zentralausstellung befindet sich im Neuen Rathaus, in der Mitte der Stadt. Im Interesse der Dezentralisation der Bildungsmittel sind weiters eine Dauerausstellung am Parkring 12 (Sozialhygiene und Sozialversicherung) und im Volkswohnbau "Am Fuchsfeld" (Weltwirtschaft, Mundaneum) eröffnet worden. Weitere mit wechselndem Inhalt sollen folgen. Man kann nicht von den Bewohnern der Außenbezirke verlangen, dass die eine oder mehr Stunden für den Weg zum und vom Museum aufwenden.
10 O. Neurath, *International Picture Language*, 72.
Being conscious of the fact that the working man has time to see a museum only at night, the GESELLSCHAFTS- UND WIRTSCHAFTSMUSEUM was open at night. The lights were so placed that the brightest rays came on the pictures.
11 O. Neurath, *International Picture Language*, 73
One room in the business part of the town with pictures and special apparatus for testing the public was open all through the day. It was seen by 2000 persons every day, some using it as a sort of waiting room, and others going there for some minutes every day for knowledge and amusement…. Taking everything into account, the GESELLSCHAFTS- UND WIRTSCHAFTSMUSEUM IN WIEN was a museum measuring itself by man's measure and basing its work on the needs of the man in the street.
12 O. Neurath, "Museums of the Future," 459.
Now suppose the visitors had appointed an expert of their own to represent them, what would he say about it? Everything that is shown in a museum, he would say, ought to serve a comprehensive pedagogical purpose.

13 O. Neurath, *International Picture Language*, 70
Not only has the order of rooms to be in harmony with the order of the things on view, but it has to be readily changed on the addition of new groups of things; for this reason it is important to make adjustments of the building possible, having floors and walls which may be moved, space for new rooms, etc. The designing of an ISOTYPE museum will be special work needing a house designer and an ISOTYPE expert.
14 O. Neurath, "Bildhafte Pädagogik," 128–129.
In diesem Sinne sind auch alle Einrichtungsgegenstände ausschließlich dazu bestimmt, den Museumszweck zu fördern, nicht aber museumsfremde, sei es sentimentale oder monumentale Wirkung zu erzielen. Optische Erwägung bestimmen die Dimensionen des Ausgangsquadrats. Durch Teilen und Vervielfältigung wurden Tafelformate abgeleitet, die sich immer zu geschlossenen Flächen vereinigen und wesentlich verschiedene Proportionen ermöglichen, sodass sie sich dem Darstellungszweck ausgezeichnet anpassen lassen. Die Rahmen sind schmal dimensioniert und hell, damit die Bilder möglichst stark wirken und das Rahmengitter das Auge nicht zu sehr belastet. Diese Bilder werden in die ebenfalls möglichst schmalen, vom Museum entworfenen Fallrahmen eingeschoben und können ohne Schwierigkeiten jederzeit ausgewechselt werden. Alle Gestelle sind zerlegbar, die Unterabschnitte genormt. Es wurde der Versuch gemacht, ein ganzes Museum so zu gestalten, dass es sich leicht beweglich und für jede Ortsveränderung vorbereitet ist. Der Verzicht auf repräsentative Schwere und Wucht ermöglicht es, durch schlichte Helligkeit das Behagen der Besucher zu heben und das Museum einem Klub anzunähern; so wurde im Sinne des Museumsarchitekten Josef Frank eine anspruchslose Unterbringung der Museumsobjekte angestrebt, um die Darstellungen möglichst für sich sprechen zu lassen.
15 O. Neurath, *International Picture Language*, 72.
On the walls there were two rails of wood at such a distance from one another that pictures a certain number of centimeters high might be put on and taken off without any other apparatus. The normal size of a picture is 126 x 126 cm (4 feet x 4 feet), and the middle-point of a picture is about 150 cm (5 feet) higher than the floor, that is the position on the eye of a normal upright person. Smaller pictures are put together in groups so that every group is 126 cm high (see Picture 24). 90 cm (about 3 feet) of wall-space under every picture is kept clear, so that a table with apparatus, some books or other things on view may be placed there.
16 Christopher Long, *Josef Frank, Life and Work* (Chicago: The University of Chicago Press, 2002) 53.
The design of the buildings' facades was guided by what Frank described as the „Niedrig-Praktische" (basely practical): aside from simple frames around the doors and windows, they were devoid of decorative elements or picturesque modulations.
17 O. Neurath, "Bildhafte Pädagogik," 128.
Das Gesellschafts- und Wirtschaftsmuseum beschränkt sich nicht auf Bildstatistik, es hat in seinen Werkstätten mit seinen Mitarbeitern noch eine Reihe musealer Hilfsmittel geschaffen, wie neuartige Karten in ungewöhnlichen, pädagogisch wirksamen Ausschnitten (Projektionen), technische Bildtafeln, insbesondere zur Rationalisierung großzügige Holzmodelle für seine Abteilung Wohnung und Städtebau, auf durchsichtigem Material Grundrisse übereinanderliegender Stockwerke, Magnettafeln zur Eintragung wechselnder Mengen; auch die Photographie wird zur Charakterisierung viel herangezogen.
18 O. Neurath, "Bildhafte Pädagogik," 128.
Neben seinem Archiv eigener Arbeiten ist dem Museum das Archiv für bildhafte Pädagogik angegliedert, welches Sachbilder aller Zeiten und Völker sammelt vor allem das, was es an Bildstatistik gab, ihre Vorläufer in gewissen ägyptischen Bildern und alten auf Heeresgrößen abgestellten Schlachtenbildern; Vogelschaubilder und Karten zur Geschichte der Kartographie; Höhlenzeichnungen der Primitiven; technische Schnitte aus alter und neuer Zeit; Unfallverhütungsbilder: Reklame; Wandzeitungen; optische Unterrichtsbehelfe für die verschiedensten Unterrichtsgebiete, Mathematik, Physik, Geschichte usw. Auch werden Kinderbücher und Kinderzeichnungen gesammelt.
O. Neurath, "Bildhafte Pädagogik," 127.
Urteile von Erwachsenen und Kindern über die Wirkung der Museumstafeln werden gesammelt, auch psychologische Untersuchungen, die für die Gestaltung Anregung geben.
19 O. Neurath, "Bildhafte Pädagogik," 126.
Die technische Abteilung des Gesellschafts- und Wirtschaftsmuseums ist derart eingerichtet, dass sie alle Ausstellungsgegenstände selbst herzustellen vermag. Sie verfügt über ausgezeichnete Spezialkräfte, über modern eingerichtete Werkstätten für Holzbearbeitung, Spritzverfahren, Reproduktion, Photographie, Druck und Lithographie.

20 O. Neurath, "Bildhafte Pädagogik," 127.
Außerdem aber gehört zum Gesellschafts- und Wirtschaftsmuseum eine wissenschaftliche Abteilung mit einem Stab von internen und externen Mitarbeitern (Statistiker, Kartograph, Ethnologe, Kunsthistoriker, Techniker, Mediziner und andere), ebenso ein umfangreiches Archiv. Da ununterbrochen neue Tafeln angefertigt werden, entsteht ein stetig wachsendes Archiv über alle Gegenstände, die im Museum bildhaft dargestellt werden. Diesem Archiv angegliedert ist die photographische Kartothek, die sämtliche vom Museum angefertigten Tafeln enthält.
21 Otto Neurath, "Statistik und Proletariat," *Kulturwille* (1927): 188.
Statistik ist Werkzeug des proletarischen Kampfes, Statistik ist wesentlicher Bestandteil der sozialistischen Ordnung, Statistik ist Freude für das mit den herrschenden Klassen ringende internationale Proletariat.
22 Otto Neurath, "Visual Education: A new Language," *Survey Graphic* (1937): 28.
The basic aim of this visual method is to humanize and democratize the world of knowledge and of intellectual activity. The best foundation for a comprehensive visual education would be to let all children learn their own language and also foreign languages by this method.
23 O. Neurath, "Visual education," 25.
When will the Middle Ages be at an end? As soon as all men can participate in a common culture and the canyon between educated and uneducated people has disappeared.
24 Otto Neurath, "Bildstatistik, Führer durch die Ausstellung des Gesellschafts- und Wirtschaftsmuseums in Wien," in Dürerbund (Leipzig: Schlüter & Co, 1927), ed. Rudolf Haller, ed. Robin Kinross, *Bildpädagogische Schriften Teil 3* (Vienna: Hölder-Pichler-Tempsky, 1991) 104.
Verschiedene Reklametechniken wurden in den Dienst der Veranschaulichung gestellt. Auf einer Leuchttafel, auf der das Bild auf Glas eingetragen und von rückwärts beleuchtet ist, kann man Schemata auf einer Ebene eintragen und nacheinander – begleitet von einem Vortrag – zahlreiche Bildstatistiken in dem Netzwerk der Waagrechten und Senkrechten farbenglühend erscheinen lassen. … Schließlich wird der Zeichenfilm wirksam werden.
25 O. Neurath, "Visual education," 25.
Visual impressions have become more and more important in our "visual era," and especially to unschooled adults and to children.
26 Otto Neurath, *Bildstatistik nach Wiener Methode in der Schule* (Vienna and Leipzig: Deutscher Verlag für Jugend und Volk, 1933) 37.
Neurath said this in regard to schools, but this was just as true for the museum.
Will die Schule die Konkurrenz mit dem optisch bewegten Leben aufnehmen, muss sie selbst optische Fülle darbieten. Ja sie muss es überzeugender, klarer, eindringlicher tun als das Leben da draußen, will sie jene führende Stellung sich sichern, die sie ehedem gehabt hatte. Es ist nicht notwendig, dass die Lehrmittel der Schule durchschnittlich auf einer niedrigeren Stufe der Gestaltung stehen. Wie soll das Kind sich an klare reine Formen gewöhnen, wenn so viele Lehrbücher und Lehrbilder ohne einheitliches System optisch wirken wollen.
27 O. Neurath, "Bildhafte Pädagogik," 125 – 129.
Auch die Photographie wird zur Charakterisierung viel herangezogen. Gemeinsam mit dem Berufsberatungsamt der Stadt Wien und der Wiener Arbeiterkammer werden z.B. Photoserien von Berufsbeschreibungen angefertigt.
28 O. Neurath, "Bildhafte Pädagogik," 125 – 129.
Ähnliche Serien stellen gute und schlechte Arbeitsweise einander gegenüber. Logische und Psychologische Durcharbeitung aller solcher Ausstellungsobjekte und Photoreihen (Diapositive) ist mit eine Aufgabe des Museums.
29 O. Neurath, "Bildhafte Pädagogik," 125 – 129.
Gemeinsam mit dem Berufsberatungsamt der Stadt Wien und der Wiener Arbeiterkammer werden z.B. Photoserien von Berufsbeschreibungen angefertigt, die für die Aufklärung der Schulentlassenen und ihrer Eltern bestimmt sind.
30 See Note to Illustration 2.24 and 2.25 in N. Vossoughian, *Global Polis*, 77.
31 Reading, Otto and Marie Neurath Isotype Collection, University of Reading, Department of Typography, N-Files See N_Files 593 – 755, N-Files.
32 O. Neurath, *International Picture Language*, 73.
Taking everything into account, the GESELLSCHAFTS- UND WIRTSCHAFTSMUSEUM IN WIEN was a museum measuring itself by man's measure and basing its work on the needs of the man in the street.
33 O. Neurath, "Museums of the Future," 463.
34 Otto Nerath. "Gesellschaft und Wirtschaft im Lehrbild," *Österreichische Gemeindezeitung,*

May 1, 1927, 41.
Die Methoden des Gesellschafts- und Wirtschaftsmuseums in Wien werden in steigendem Maße den Bedürfnissen der Schule angepasst. Volksbildungspädagogik für Erwachsene und Schulpädagogik für Kinder decken sich nicht ganz, haben aber genügend Ähnlichkeiten, so dass von Erfahrungen, die auf dem einen Gebiet gemacht wurden, das andere Nutzen ziehen kann. Was das Museum als Volksbildungsinstitut erarbeitet hat, wird von der Schule mitverwendet.
35 Otto Neurath, "Statistik und Schule," *Kulturwille* (1927): 196.
Ist Statistik ein wesentliches Stück der neuen Weltanschauung, dann wird sie auch ein Unterrichtsgegenstand werden. Die breiten Massen können nicht zu statistischem Denken gelangen, wenn sie ein Privileg der Hochschulen bleibt oder höchstens in Schulen vorgetragen würde, die vor allem für die bessergestellten bürgerlichen Klassen reserviert sind (Gymnasium, Realschule usw.). Wo die Interessen der Arbeiter- und Angestelltenschaft entscheiden, wird statistisches Wissen und Denken in den allgemeinen Volksschulen von der untersten Klasse an in irgendeiner Form gelehrt werden.
36 O. Neurath, *Bildstatistik in der Schule*, 7.
Als Teil der Wiener Schulreform wurde diese Methode (Wiener Methode) vor allem in Wiener Schulen angewendet; eine Hauptschule (Wien XIV, Schweglerstraße) wurde vom Stadtschulrat als Versuchsschule zur Erprobung dieser Methode bestimmt. Es wird dort mit vollem Erfolg im Rahmen der geltenden Lehrpläne der Versuch gemacht, Bildstatistik in möglichst vielen Unterrichtsfächern anzuwenden, in Geographie ebenso wie in Physik, in Geschichte ebenso wie in Rechnen. Das Gesellschafts- und Wirtschaftsmuseum in Wien stellt fertige Bildtafeln, Einsentafeln mit Magnetzeichen, kleine und große Einzelzeichen zur Verfügung. Über die Ergebnisse wird die Schule gemeinsam mit dem Gesellschafts- und Wirtschaftsmuseum in gegebener Zeit ausführlich berichten.
37 O. Neurath, *Bildstatistik in der Schule*, 37 – 38.
Auf der höheren Stufe kann die drohende Isolierung der Lehrfächer etwas gemildert werden, wenn dasselbe Mengenbild von verschiedenen Seiten her Verwendung findet, wenn es ebenso im Rechenunterricht wie im Geographieunterricht auftaucht, insbesondere dann, wenn die Lehrer sich über gemeinsame Verwendung bestimmter Mengenbilder einigen.
38 O. Neurath, "Visual education," 28.
In this way learning is not limited to acquiring the facts necessary to pass examinations, and then not using these facts again. Students are led to understand the relationships of facts within one subject field.
39 O. Neurath, *Bildstatistik in der Schule*, 39.
Bilder der 10 – 14jährigen zeigen deutlich, wie die Aufgabe immer naturalistischer gelöst wird, wenn man nicht ausdrücklich die symbolische Darstellung verlangt.
40 O. Neurath, *Bildstatistik in der Schule*, 39 – 40.
In einer Mädchenklasse z.B. sieht man Reihen von Mädchen, deren Kleidchen allerlei Details aufweisen. Zöpfe und anderes belebt die Situation. Die Mädchen, welche daheim bleiben, blicken etwa zum Fenster hinaus, dessen Gardinen liebevoll ausgemalt werden. Die Führungsbilder geben Anlass zu malerischer Betätigung. Allzu leicht verlieren sie den Charakter statistikfreier Symbolik.
41 O. Neurath, *Bildstatistik in der Schule*, 40.
Da empfiehlt es sich in wachsendem Maße, die von Anfang an fallweise zu verwendenden fertig gedruckten Symbole anzuwenden, kleine Stempel oder andere Hilfsmittel, durch welche die freie Gestaltung auf die zweckmäßige statistische Anordnung konzentriert wird, die ja die nie beendete Daueraufgabe bildstatistischer Erziehungsarbeit bleibt.
42 O. Neurath, *Bildstatistik in der Schule*, 36.
Die Kluft, welche heute zwischen den Kinderbildern und den späteren Unterrichtsbildern besteht, ist pädagogisch nicht begründet, Versuche haben gezeigt, dass Figuren, welche man später im Mengenbild zu verwerten gedenkt, auf früher Stufe innerhalb rein erzählender Bilder auftreten können.
43 O. Neurath, *Bildstatistik in der Schule*, 7.
Die von Anfang an gehegte Vermutung, dass das Verständnis für Mengenbilder auf sehr früher Stufe beginnt, hat sich durchaus bewährt…
44 O. Neurath, *Bildstatistik in der Schule*, 36.
Während auf den unteren Stufen die Kinder, wie dies den Erfahrungen der Kinderpsychologie entspricht, sehr geeignet sind, Symbole zu erfinden und vereinfacht zu entwerfen, drängt sich auf höherer Stufe, insbesondere knapp vor der Pubertät, der Naturalismus vor, welcher die

mannigfaltige, reiche Darstellung bevorzugt.
45 O. Neurath, *Bildstatistik in der Schule*, 39–40.
Mit 6- und 7jährigen wird Bildstatistik anfangs am besten in der Weise betrieben, dass man Beispiele wählt, in denen ein Zeichen einen Gegenstand darstellt… Es wird z.B. die Frage aufgeworfen: Wie viele Kinder waren am letzten Sonntag daheim, wie viele im Freien. … Die Erfindung von Zeichen ist auf dieser Stufe sehr aufschlussreich;… In einem anderen Fall hat ein Kind den „Sonntag im Freien" mit einem Baumsymbol, verbunden mit einem Pilzsymbol gekennzeichnet, unter Weglassung der Kinder, welche ins Freie wandern. Gefragt, weshalb es den Baum und den Pilz gewählt habe, antwortete es durchaus im Sinne bester Bildpädagogik: Der Baum alleine könnte einen Park in Wien bedeuten, durch den Pilz wird klar, dass es ein Wald sein soll.
46 O. Neurath, *Bildstatistik in der Schule*, 41.
Sind die Kinder auf diese Weise mit der Abbildung einzelner Gegenstände durch einzelne Zeichen vertraut, was sehr rasch eintritt, so bildet man z.B. Fünfergruppen, die man immer mehr zusammendrängt, bis sie durch eine Figur wiedergegeben werden. Deutung etwa: Je fünf Kinder stehen hintereinander, wir wollen nur den Vordermann aufzeichnen. Anfangs werden die „Restfiguren" noch eingetragen, dann beginnt die „Abrundung."
47 O. Neurath, "Statistik und Schule," 197.
Man gibt beide Länder in verkleinertem Maßstab wieder und verteilt die Zeichen für die Bewohner auf ihnen. Welches der beiden Länder „dichter" besiedelt ist, kann man sehen, lange ehe man es zu berechnen vermag!
48 O. Neurath, *Bildstatistik in der Schule*, 45.
Fertige Zeichen
Großzeichen für große Papierflächen, die in gemeinsamer Klassenarbeit beklebt werden. So können Großzeichen auch für Schulwandzeitungen verwendet werden.
49 O. Neurath, *Bildstatistik in der Schule*, 45.
Kleinzeichen, die in das Heft eingeklebt werden. Jeder Schüler schafft sein Mengenbild. Solche Kleinzeichen können auch auf Karton geliefert werden und dienen dann z.B. dazu, auf Landkarten aufgelegt zu werden. Anfertigung von veränderlichen Kartogrammen.
50 O. Neurath, *Bildstatistik in der Schule*, 45.
Die Schule bestellt beim Museum die Zeichen auf Grund des Zeichenlexikons unter Angabe der Größe und der Farbe.
51 O. Neurath, "Statistik und Schule," 197.
Der modernen Arbeitsschule entspricht es, diese statistischen Ergebnisse durch Zeichnen, Malen, Ausschneiden anschaulich festzuhalten. Versuche, die sich auch auf die untersten Klassen erstreckten, zeigten, wie aussichtsreich diese Bemühungen sind! Eine neue Welt, das gesellschaftliche Leben wird bereits dem Heranwachsenden erschlossen, seinem Denken und Schauen zugänglich gemacht.
52 O. Neurath, *Bildstatistik in der Schule*, 7.
Die von Anfang an gehegte Vermutung, dass das Verständnis für Mengenbilder auf sehr früher Stufe beginnt, hat sich durchaus bewährt, wie die ersten Versuche im Wiener Montessori-Kindergarten und in der Wiener Montessori-Schule zeigten.
53 The Montessori Tradition did not necessarily encourage students to work with ready made symbols, because it went against its tradition that every child could find its own ways of expression. Neurath comments on this.
Otto Neurath, "Die pädagogische Weltbedeutung der Bildstatistik nach Wiener Methode," *Die Quelle* (1933): 212.
In Hinblick auf das vollendete Lehrmittel bedient sich die Wiener Methode der Bildpädagogik, insbesondere der Bildstatistik, mit der Montessori-Methode, wenn auch diese die Pflege der Symbole eher vermeidet. Die Wiener Methode wird insbesondere in den höheren Jahrgängen von Montessori-Schulen verwendet, für die es bisher weniger Lehrmittel gab.
54 O. Neurath, *Bildstatistik in der Schule*, 45.
Vom vorschulpflichtigen Alter soll hier nicht die Rede sein, also nicht von den Stoffwandtafeln mit Stoffsymbolen, nicht von den abgegrenzten Fußbodenflächen (die eventuell kartographisch verwendet werden können), nicht von den „statistischen Lesekasten" und ähnlichen Lehrmitteln, die übrigens auch fallweise innerhalb der Schule Verwendung finden können. Dass man auch im vorschulpflichtigen Alter Mengenbilder verwenden kann, sei nur nebenbei erwähnt.
55 O. Neurath, "Visual education," 28.
Such visual education may be started with very young children, permitting them to combine

symbols as they now combine wooden blocks to make buildings and bridges. Their play with symbols would supplement the pictures and designs they make with paints, crayons, and modeling clay. Many imaginative children find they are unable to handle enough elements to tell long stories with pencils and colors as they want to do. But they would be able to express their thoughts and their daydreams if they had a supply of visual units, representing men and women, boys and girls, houses, trees, cars, engines, animals, rubber, cloth, sugar, apples and all the other things that interest them. In this way children would have a bridge between their games and their systematic education, as well as between their own pictures and the pictures they see hanging on the walls or in their books, based on the law of perspective.

56 O. Neurath, *Bildstatistik in der Schule*, 50.

Dr Helmut von Bracken, Dozent für Psychologie an der Technischen Hochschule in Braunschweig, schreibt im „Volkslehrer" über Gesellschaft und Wirtschaft:
Kollege W.M. hat zusammen mit mir experimentelle Untersuchungen durchgeführt. Die Einprägsamkeit der Darstellungen nach Wiener Methode ist zweieinhalbmal so groß wie bei den üblichen Darstellungen. Die Versuche sollen fortgesetzt werden!

57 O. Neurath, "Visual education," 28.

This visual method has special uses in teaching public health lessons, child care, safety, and so on, adults and children, and in teaching retarded or handicapped children. The International Foundation for Visual Education is working along these lines in many countries.

58 Otto Neurath. "School and Society," in *Sociological Review, Journal of the Institute of Sociology*, 1946, 57.

In the discussion which followed an interesting point was raised which enabled Dr. Neurath to define the function of the Isotype method. A member of the audience described how he had used Isotype material to present economic statistics to a group of sixth form boys. These boys, however, preferred the more usual methods of verbal argument, histogram and graph.
Dr. Neurath said that the Isotype material was not intended as a medium for specialist studies. At that level statistical data must be dealt with by logical and mathematical procedures, and this was the normal medium for the trained student. Isotype material, on the other hand, although it could be used to great advantage as a means of illustrating technical processes visually, was intended primarily as an educative device for the non specialist.

59 N. Vossoughian, *Global Polis*, 87.

Nonetheless, the Museum of Society and Economy was one of the first institutions to think about the museum as a nomadic entity, as a mobile body that could be serially reproduced.

60 N. Vossoughian, *Global Polis*, 79.

What were the implications of Frank's intervention in the Neues Rathaus? It revealed, first, that the modern museum could be in multiple places simultaneously. That there was nothing "real" or "authentic" about the Museum of Society and Economy's collections. Everything could be copied, including its site.

61 N. Vossoughian, *Global Polis*, 97.

62 By 1933 the organization of Neurath's Verband zur Verbreitung der Bildpädagogik nach Wiener Methode (Association for the circulation of picture education according to the Vienna Method) consisted of branches in The Hague, Vienna, Moscow, London, Berlin and New York.

CIAM as Catalyst for the 1937 Map



Neurath and "The Functional City"

CIAM IV (Congrès International d'Architecture Moderne), titled "The Functional City" took place on the cruise ship SS Partis II en route from Marseille to Athens between July 29 and August 12, 1933. In retrospect, it is surprising what high hopes Neurath and the architects had for their collaboration, given the eventual outcome of the meeting. Once aboard the ship, Neurath and the CIAM architects encountered controversy on almost every level.

In general, Neurath's perception of urbanism differed from the architects', as did the nature of his graphic analysis of the city and the audience for whom his work was intended. Neurath's pluralistic view on urbanism, his preference for settlements over high-rises and his strong focus on buildings that generated community within a city did not resonate with the CIAM architects, since their mapping activity fed into what would later become famous as the Charter of Athens.[1]

But Neurath's conflict with the CIAM architects did not arise over the contents of urbanism, but in how to visually present a city. Neurath's focus on representing the city in simple, abstracted cartograms without considering the planning process certainly expedited his divorce from CIAM's purpose. But after years of focus on picture education, Neurath prioritized the legibility of the maps for various audiences over the presumed necessity for architects to suggest design proposals.

Neurath was attracted by the platform CIAM presented to him for launching an interdisciplinary professional language on a large scale, since his final goal had always been to compile an international encyclopedia of signs.[2] He intended his quantitative maps to be as neutral as geographical ones and he dreamed that the ISOTYPE would become as comprehensive a sign language as the one found in those maps.[3] Above all, he never doubted that the ISOTYPE was appropriate for a discussion on urbanism. Over the years, Neurath and his collaborators had tested ISOTYPE and developed an elaborate syntax. It was time to give back and to prove that the ISOTYPE had the potential to become a "real urbanistic sign language."[4] Once rendered effective for CIAM, a big step would have been taken towards an interdisciplinary encyclopedia legible to all.

Neurath, however, underestimated the task at hand.[5] In fact, his collaboration with the CIAM architects failed at every level. Yet, it seems that CIAM was a catalyst that started Neurath thinking about ISOTYPE in the context of concrete, spatial parameters. Although he was unable to deliver what CIAM wanted, the congress triggered a reaction, which eventually manifested in the form of the 1937 map, which then took on a life of its own.[6]

Preparations for CIAM 1933

Neurath's contact with some of the central figures of CIAM dated back to the twenties. In 1926, Neurath wrote the laudatory article, "New Bauhaus in Dessau," in an Austrian magazine for settlements and city planning.[7] The Bauhaus' director at the time was Walter Gropius (1883 – 1969), who had designed the new building for the school in Dessau after its uprooting from Weimar.[8] Consequently Neurath came in contact with

Bauhaus faculty and held guest lectures at the new school.[9] In 1929 Neurath also began to contribute frequently to the magazine of the German Werkbund, "Die Form."

More important than his connection to Bauhaus faculty and members of the German Werkbund – many of whom were to be involved in the founding of CIAM – was Neurath's contact to Josef Frank. Frank was the only Austrian representative at CIAM I in La Sarraz in 1928, and also one of CIAM's founding members.[10]

In a history on Neurath and CIAM the meeting in La Sarraz was crucial, since the founding declaration cast light on why the CIAM project resonated with Neurath. As Christopher Long has observed in his monograph on Josef Frank, there were "two camps" of Modernists in La Sarraz, who could not come to an agreement.[11] While the non-German speaking architects, Le Corbusier and Alberto Sartoris (1901 – 1998), were advocating a more formal debate on architecture, the German, Swiss German and the Dutch architects like Hannes Mayer, (1889 – 1954), Hans Schmidt (1893 – 1972) and Mart Stam (1899 – 1986), "urged the elimination of aesthetics conventions in urban planning and called for greater emphasis on the social aspects of building."[12] Kenneth Frampton supports Long's observation in his introduction to Eric Mumford's *CIAM Discourse on Urbanism*. He states that the absence of Gropius, Mies and Mendelsohn "left the field open to the more polemical Basel-based ABC group,"[13] (Mart Stam, Hannes Meyer and Hans Schmidt) so that the "founding declaration was largely the work of left-wing Swiss architects, aided and abetted by like-minded figures from Germany and the Netherlands."[14]

Frampton then goes on to cite the original CIAM declaration to prove his point:

> *The idea of modern architecture includes the link between the phenomenon of architecture and that of the general economic system. Town planning is the organization of the functions of collective life; The redistribution of land, the indispensable preliminary basis for any town planning, must include the just division between the owners and the community of the unearned increment resulting from works of joint interest.*[15]

This passage foreshadows one of the main points Neurath made in his speech for CIAM in 1933, "all of this matters because problems of urbanism are also problems of social order."[16] This calls Neurath's principles of social justice to mind, which he had voiced so strongly as secretary of the settlers' movement.[17]

Although architects from "both camps" drew up the declaration together (Hannes Meyer, Sigfried Giedion, Andre Lurçat, Josef Frank and Le Corbusier), the section on urbanism and therefore the crucial one for CIAM IV was a result of CIAM's left wing, Hans Schmidt and Hannes Meyer, demanding "substantial changes."[18] In addition, Hans Schmidt made final edits to the text, while the other members attended a costume party. On this initial division, Mumford states:

> *These differences for the most part also reflected the political conflict between Le Corbusier's wish to accommodate architecture to the*

demands of large scale industrial capitalism and the Dutch, German, and German-Swiss efforts to use the advanced techniques of capitalism to help bring about a new collectivist society.[19]

This divide was eliminated in 1933, when Le Corbusier and the Swiss architecture historian, Sigfried Giedion (1888 – 1968), CIAM's secretary, took matters into their own hands.

But in the late 1920s, the divide between CIAM's left and right wing was not as obvious, and it was Giedion who first tried to contact Neurath in 1929 via Josef Frank to participate at CIAM's second congress in Frankfurt, "Die Wohnung für das Existenzminimum (The Minimum Subsistence Dwelling)."[20] It is unclear why Neurath did not participate. His friends Josef Frank and Margarete Lihotzky did, both of whom had substantially contributed to planning minimal housing as architects of the *Siedlungsamt* and communal housing projects for the city of Vienna.

At the second congress, the final structure of CIAM was also settled. From then on, Le Corbusier functioned as its official president and Giedion as its secretary. Le Corbusier also presided over the newly founded CIRPAC, the *Comité International pour la Résolution des Problèmes de l'Architecture Contemporaine*, which comprised "delegates" – one member each representing one country. Among other tasks, CIRPAC was in charge of preparing the congresses and of enforcing CIAM's resolutions with other CIAM members from their designated countries.[21] Le Corbusier also insisted that all CIRPAC members had to be architects and that the collaboration with specialists was "transferred to a national level."[22]

In 1930, Hans Schmidt advanced the idea of a larger mapping project to CIAM. He had "perceived a regular pattern in the development of Zurich, Basel and Geneva" in an analysis drawn up for the exhibition "Rationelle Bauweisen (Rational Lot Development)" in Brussels, during which the third CIAM congress took place.[23] But the topic for the third congress was already "broad enough," and so it was suggested that the mapping project could stand at the centre of the fourth congress.[24] That it was Hans Schmidt who suggested a large mapping enterprise was crucial to Neurath's later involvement, because it signified that its basic idea originated from CIAM's left wing.

Later the same year, the title for the fourth congress was finalized as "The Functional City." The committee for its preparation consisted of Le Corbusier, Walter Gropius, Rudolf Steiger (1900 – 1982) and Cornelis Van Eesteren (1897 – 1988), which also implied a move towards more moderation.[25]

The election of the Dutch architect and city planner Cornelis Van Eestern as CIAM's chairman in 1930 was crucial for the path CIAM would take with Neurath, because he became the person with whom Neurath most frequently communicated. But Van Eesteren was also instrumental in shaping the fourth congress, and in terms of CIAM politics, he symbolized the neutral compromise between the opposing (Swiss)-German and (Swiss)-French camps. Moreover, Van Eesteren's mild nature and his will to mediate between different actors contributed to his aptness as chairman. A further quality that prepared him in preparation for CIAM IV was his double role as architect and urban

planner. Being called to serve in the Urban Development Section of Amsterdam's Public Works Department in 1929, Van Eesteren started to work on an extension plan for the city.

He there begun to draw out maps generating a comprehensive design strategy. Working excessively on the maps for the city of Amsterdam, it was sensible to use them as the three models, or prototype maps for CIAM IV. On that basis, the CIAM members would draw up maps of cities all over Europe.[26]

The first map in 1:10,000 sought to show existing conditions in a city, recording industrial and housing zones, as well recreational areas. The second map, drawn at the same scale, analyzed transportation networks and the third, at 1:50,000, captured "the city in its regional setting, including areas of public and private open space, and additional information on all four [Corbusian] functions of dwelling, work, recreation and transportation."[27] 4.1 4.2 4.3

Van Eesteren prepared the model maps and 72 symbols that would help clarify the provided information. He presented the guidelines for "The Functional City" at a preparatory meeting during the "Berlin Special Congress" in 1931. This congress took place at the same time as the "Berlin Building Exposition."

Looking to improve the graphic representation for the maps of "The Functional City" congress, members were advised to closely examine the urban planning section at the "Berlin Building Exposition." It was at this exposition that a contribution of the "Museum of Society and Economy" received special attention from the CIAM members, since its designs were so attractive. Van Eesteren's symbols, however, were still not very elaborate, so Giedion suggested collaborating with specialists, namely Otto Neurath.[28]

Van Eesteren contacted Neurath as Giedion had suggested; however, a personal meeting between him and Neurath did not take place until December of 1932, when Neurath met Van Eesteren and Walter Gropius in Moscow.[29]

A concrete discussion on Neurath's possible assistance for the Congress did not emerge until January 1933. Eventually, Van Eesteren promised Neurath that "the Viennese results [would] be shown in [CIAM's] exhibition" and that CIAM would welcome Neurath to give a speech in which he could elaborate "his methods and view points."[30] But in fact, Van Eesteren expected a more concrete examination of CIAM's concerns from Neurath's work. This was exemplified by his disappointment over the lack of graphic advancements in Neurath's results. Having given all plan material on Amsterdam to Dr. Bauermeister, an assistant of Neurath's, in January, he assumed that the "Museum of Society and Economy" would advance his 72 symbols, if not the maps at large. Thus in March 1933, Van Eesteren reported to Gropius that he was hopeful that Neurath would support CIAM in the future.[31] After a further meeting between Neurath and Van Eesteren in Amsterdam in May 1933, in which more extensive plans were discussed, the chairman issued a letter to the secretary, Giedion, stating that Neurath should "promptly receive an official letter from the Congress" inviting him on board of the Patris.[32] In addition, Van Eesteren suggested that Neurath become the first specialist-member to CIAM, which required an alteration of CIAM's bylaws.[33]

Giedion, however, only notified Neurath in last minute. An express letter with an official



Figure 4.1: "CIAM Model Map I," Cornelis Van Eesteren, CIAM, 1931



Figure 4.2: "CIAM Model Map II," Cornelis Van Eesteren, CIAM, 1931



Figure 4.3: "CIAM Model Map III," Cornelis Van Eesteren, CIAM, 1931

invitation reached Neurath in July 1933, the same month in which the Congress took place. It is uncertain if Neurath read this as an indicator that this collaboration with CIAM was not appreciated and if this might have been a reason why he was fairly unprepared for the Congress. If Neurath had such instincts, he had them rightfully; looking back on the preparatory time of CIAM IV, Van Eesteren wrote to Giedion in 1934, that in 1932 he had been critical of the Viennese proposals.[34]

But, there is also reason to believe that Neurath was naïve about the CIAM architects' reservations towards his ideas. His closer connection to CIAM consisted of the Moscow based group, all members of CIAM's left wing, notably Margarete Schütte-Lihotzky, Hans Schmidt and others. This group had been asked to draw up the USSR's contribution to the Congress, since they had moved there earlier. Their relocation coincided with the opening of a Moscow based branch of the "Museum of Society and Economy" in the early 1930s called "Isostat Institute." Receiving much positive response, Gerd Arntz started to spend extended periods of time in Moscow with some other employees. Upon this expansion, Neurath also lived in Moscow for 60 days each year.[35]

For this reason, "Neurath conducted the initial planning for the congress" with Schütte-Lihotzky and Schmidt, who were in Moscow at the time.[36]

The CIAM Congress of 1933

"From the start, graphic criteria were at the heart of the CIAM architects' discussions, [since] they were aware that the comparative study of so many cities could only yield positive results to the extent that their maps would be immediately accessible to the reader."[37] Van Eesteren had done his best in the preparation to the congress to come up with an extensive graphic system. He was, however, unable to unite his 72 symbols in a coherent way, since he mixed that conventional architectural drawing methods of various hatches and lines with symbols.

Aware of this shortcoming, Van Eesteren still expected Neurath's speech to clarify certain issues in regard to CIAM's publication of their maps, when they boarded the Patris on July 29, 1933. Neurath's speech was held in Athens on August 4, where the maps were exhibited at the Athens' Polytechnic University.

The first three days on board of the Patris were dedicated to discussions and analyses of the delegations' maps. Le Corbusier held an introductory speech, addressing the question of how the maps could arrive at concrete conclusions. "For him, however the outcome was already known; in a lengthy discourse on the principles that should be elaborated in the congress resolution, Le Corbusier summed up the ideas behind his 'Ville Contemporaine' and 'Ville Radieuse.'"[38]

4.4
4.5

Corbusier's speech was consequently followed by presentations of all delegations. They were short and there was not much time for discussions or conclusions. Most groups had closely worked in accordance to the three provided prototypical maps by Van Eesteren, with the exception of the Swiss Delegation, composed of Rudolf Steiger



Figure 4.4: CIAM Delegates on Board of the Patris, 1933

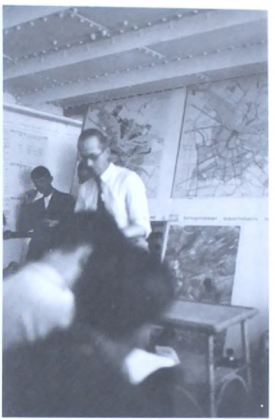


Figure 4.5: Le Corbusier

and his colleagues, and the German Delegation.[39] Both of their entries were inspired by ISOTYPE. While Steiger included three sections, which mapped various densities in the city of Zurich by making use of picture statistical principles, the Germans presented an extensive study on Dessau that included social, economic and historical charts presented in accordance to the Viennese Method, in addition to their maps.

In general, all of CIAM's key members were present on board the Patris except for Gropius and notably Hannes Meyer. However, the entire Russian delegation, with whom Neurath had prepared an entry, was absent, which "proved to be a foreboding sign, if only for the fact that it augured the declining influence of CIAM's Marxian wing."[40]
Before arriving in Athens, Corbusier tried to draw up some quick *a priori* conclusions a second time, but his suggestion was met with great resistance. Eventually all participants filled out questionnaires and it was decided that conclusions would be drawn from them at a later point during the Congress.
The Patris arrived in Athens on the fourth day of the journey, on August 1, and the exhibition "The Functional City" was opened in the evening of August 3. Corbusier held the first lecture titled "Air – Son – Lumiere (Air, Sound, Light)."[41] He reiterated the principles of "Ville Radieuse" and stressed that it held the answers to making order in the great chaos of the modern metropolis. He was the only one who actually discussed design proposals following extensive study.
The next day, Cornelis Van Eesteren's precisely addressed the relationship of effective illustrations of urban analyses and their translation into design proposals in his speech "Methoden des Funktionellen Städtebaus (Methods of Functional City Planning)."[42] He explained how data had been extracted and to which urban proposals these analyzes



Figure 4.6: Van Eesteren



Figure 4.10: Alvar Aalto, Otto Neurath, Lazlo Moholy-Nagy

lead. He accompanied his lecture with the extension plan for the city of Amsterdam as an example. On the collection of data, he said: 4.6

> *In the extension plan, one only has to take into consideration the entities that require an advantageous position in relation to the entire body of the city. These are the objects that appear insular in every city: hospitals, mental institutions, cemeteries, crematories, etc.*[43]

This notion of collecting data for the city was eventually supported by Neurath since he drew out the same indicators in the 1937 map. Van Eesteren then continued to emphasize that these maps were fluid and always subject to change.

> *Now, one should not envision that these surveys lead to fixed, irremediable plans. On the contrary, these surveys and estimations are to the city planner, what the compass and the stars are for the navigator.*[44]

He further explained the relation to the resulting design proposals:

> *Extensive demographic surveys have been undertaken. On the basis of technical details, like railways and shore connections, solutions were found and extensive reports were drafted. For the expected population a prognosis was made and a minimum as well as a maximum were determined, for both cases the plan should propose housing possibilities.*[45]

His speech was followed by Neurath's "L'Urbanisme et le Lotissement du Sol en Représentation Optique d´après la Méthode Viennoise (Town Planning and Lot Division in terms of Optical Representation Following the Viennese Method)."[46] In comparison to Corbusier, who only lectured on the content of urbanism, Neurath solely addressed the question of its illustration.

In general, Neurath elaborated the same principles he had presented in papers the years prior to the Congress. He had not tried to find graphic solutions to the new spatial problems at hand.
In fact, his answer to mapping densities in a city was still what he had always pledged; they should not be mapped into the drawing, but they should be shown in a separate supporting chart. Presenting the image "Men Living on a Unit of Space in Town" he reiterated:

> *If one wants to show the density of inhabitants in the large cities of the world using our method, they would be characterized by monuments, for example, Paris by the Eiffel Tower and Notre Dame, London by the bridge over the Thames, etc. The population density will be represented by black or colored figures. At first glance, one will notice that while in Anglo-Saxon cities, for example, there are fewer inhabitants per 100 square meters than in the cities of Central Europe. I do not enter into considerations of whether dwelling in one- or two-floor buildings determines this situation.*[47]

This solution was of course disappointing to the architects, because it did not allow for density to have a spatial implication. Secondly, Neurath insisted that actual maps did not even have to be drawn up at all and that cartograms served the cause of mapping out the city even better.

It is not always necessary to show these graphics on geographical maps; it often suffices to use geographical diagrams. The diagram facilitates observation. I think that we could better represent many facts studied at this congress through similar diagrams [to the ones I've shown] rather than through plans or geographical maps.[48]
To some, this statement must have felt like a slap in the face, since they had spent days and weeks in preparation of their precise city maps.

4.7 At last Neurath showed plans on the city development in Damascus, produced for the Atlas *Gesellschaft und Wirtschaft* in 1930, to illustrate the topic of the congress more closely. He explained:

> *Now I will show a few more cities, notably the development of the oasis city of Damascus. We first see the little oasis, then the rigorous Roman castrum, then the finalizing of the contours by the Muslim intervention, and finally the apparition, at the periphery, of the modern orthogonal*

districts. At the same time one notices the repression of the desert, the victory of water over dryness, and the fluctuations of the number of inhabitants.[49]

Despite the good intention, these maps were also lacking any kind of paired information like combinations of spatial implications and symbols, or implied socio-political and demographic data.
But Neurath's speech, despite its lack of new insight, was of course accurate in its criticism of the CIAM maps. It identified their shortcomings by calling out their lack of a uniform system of symbols. Furthermore, it pointed out that they were not apt for the public at large. To remedy this, Neurath suggested the usage of wallpaper cut outs and symbols on paper, which schools had been able to order through the Museum. Neurath's harsh criticism paired with the lack of valid answers to the spatial problem at hand was a bad combination in the eyes of the CIAM architects.

Nonetheless, after a few days of exploring Greece in small groups, there was still hope that the CIAM architects would come to terms with Neurath. At the conclusion of the Congress, he was elected into three of the Congress' commissions: the Program Commission, the Publication Commission and notably the newly founded Commission for Statistics. The rubric "Publication Commission" in CIAM's minutes explicitly stated that in "collaboration with the Mundaneum Vienna a steadily working commission should be created which is responsible for the collection, the sighting and the editing of the necessary statistical material."[50] Additionally the commission should "try to unify the signs to illustrate the city plans for administrative departments and schools, after careful reassessments."[51] But an even bigger indicator of the architects' appreciation was that CIAM also changed its bylaws and accepted Neurath as its first non-architect member, on his outspoken wish, alongside with Lazlo Moholy-Nagy.[52] This was stated on August 13 in Marseille, the day after the delegations had returned to France.

CIAM Aftermath

On the August 12, upon arrival in Marseille, two other meetings took place. The first only concerned Neurath marginally since it dealt with the entire congress' resolution. There was doubt that the questionnaires would easily formulate into a resolution. Welles Coates (1895 – 1958), representing the English delegation, voiced this concern strongly and criticized the Congress' work methods at large. He suggested that the material should be reworked and a more scientific analysis should be drawn. In addition a new commission should be founded, specifically overseeing this process.

Giedion, Van Eesteren and Corbusier were strongly opposed to Coates's proposal. Giedion said that it was "not the task of the architects, to deliver ultimate precision, but to draw guidelines."[53] Welles Coates countered, stating that he feared that without this precision the resolution would not resonate with governments. Van Eesteren jumped

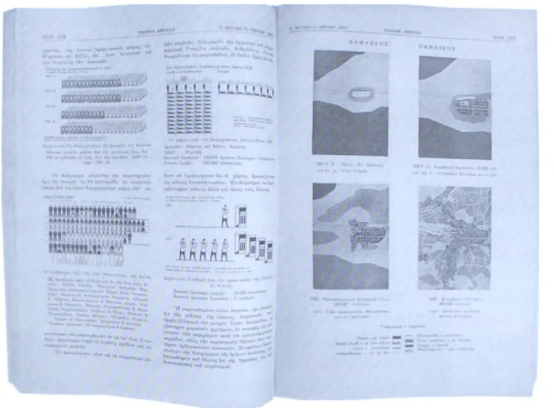


Figure 4.7: "Damaskus," ca. 1929 - 1930

in stating "without resolutions our work does not have any meaning! The congress never did intend ... to produce scientifically exact and final works. This intuitive work method enables the meeting to make leaps."[54] He continued: "We should feel the chaos that derives from it, but we are not...." and here Corbusier finished his sentence and exclaimed: "we are not in a [military] camp!"[55]

"The main objectives are our summaries," Van Eesteren concluded. "The congress should rather risk an erroneous resolution, than loose itself in endless analyzes."[56]

At last Alvar Aalto made a statement supporting Van Eesteren's position. Finally Van Eesteren pronounced that the commission should proceed to work on the resolutions, since they could still be disputed.

This disunity also affected the first meeting of the Publication Commission, in which Van Eesteren, Sigfried Giedion, Lazlo Moholy-Nagy and Otto Neurath and his colleague and later wife, Marie Reidemeister, were present.

4.8, 4.9

Based on the English request for more scientific research, the Publication Commission decided to work on two separate publications, a small one and a second larger one. While the first had to be done quickly and would only illustrate the resolution, the second could incorporate more detailed studies. Giedion insisted on a focused discussion for the small publication, since it had to be produced quickly. He also wanted only one or two people working on it constantly and he emphasized that no new work could be done for it. For him, the material from the congress sufficed.

In the small publication, Neurath saw his chance to spread the international language of signs widely by illustrating the resolution. He was therefore opposed to Giedion's idea of using only congress material. This caused a large dispute between him and Moholy-Nagy.




Figure 4.8, 4.9: Otto Neurath and Marie Reidemeister as well as Sigfried Giedion and Otto Neurath on Board of the Patris

Neurath, on one hand, advised that the resolution should be shown in simple statements with newly produced fragments of plans illustrating the resolution's singular focal points.[57] Moholy insisted that CIAM's maps were "impressive" and best displayed the resolution's origin as well as its process. Lastly, it was decided that Moholy's idea was preferable since CIAM's maps represented the chaos of the existing city, which Van Eesteren had stressed to be an important issue.

The second publication caused less of a stir than the first. Planned to take a year of preparation, the larger publication was expected to appear in anticipation of another exhibition of the maps. This was supposed to be done in cooperation with Neurath's "Mundaneum" in Vienna (formerly "Museum of Society and Economy"). In conclusion, the commission decided that the small publication should contain the resolution with "images and explanations" and that the larger publication required "in depth reassessment with perfect optical representations."[58]

Neither of the publications ever saw the light of day.

In the near aftermath of the congress, Neurath was eager to get to work. In mid-August, he wrote two letters, one to Giedion[59] and one to Van Eesteren,[60] requesting the final version of the resolution so he could get started. Along with the letter, he sent some of the Museum's existing prints to Giedion, maybe hoping that the secretary would pick them for some illustrations. However, he did not hear back from either of the CIAM members until September.

In the meantime, Van Eesteren wrote a letter to Moholy-Nagy confessing that he was really happy Moholy had "so actively participated in the congress [in particular in a conversation with Neurath], otherwise we would have certainly fallen victim to his rather limited system."[61] He finally responded to Neurath later that month, saying that the resolutions were not ready yet, since they had caused bigger debates.[62] Nonetheless, he sent Neurath descriptions for signs used in the existing maps, which could have kept Neurath busy for the time being.

4.10

But the collaboration, which had already seemed problematic at the first official publication commission's meeting, suffered a further major upheaval in November of 1933, when Neurath was notified late of the second get-together in Paris. Neurath also noticed that his name had been removed from the program commission, but he was willing to accept that fact. The missed publication meeting, however, weighed heavily

on him, because he suspected that Giedion had excluded him on purpose. "My personal opinion is that Mr. Giedion seemed to have only invited me, when he heard about my trip to London."[63]

He immediately issued a short letter to the CIRPAC voicing his discontent.[64] When he did not hear back from them for three weeks, he finally decided to confide to Van Eesteren: "Please tell me how all of this should be understood in your opinion. If prominent members of your CIRPAC do not attach importance to the collaboration with us, I would prefer to withdraw with my institute, but not without maintaining a personal friendly memory of you and your kind way of conduct with us."[65]

Nobody replied to Neurath until five months later. During this time Van Eesteren had been very sick. When he finally wrote back in May of the following year, he stressed, however, that as soon as Neurath made concrete suggestions on the basis of the plan of Amsterdam, he would still present these results to CIRPAC.[66] A meeting between Van Eesteren and Neurath followed this letter.

During the months of Van Eesteren's sickness, Neurath had his own problems. In winter of 1933/34, he left Vienna for a visit at the "Isostat" in Moscow. In February, the Austrian Civil War broke out. The social democratic mayor of Vienna, Karl Seitz, and the former city councilor for finance, Hugo Breitner, a close friend of Neurath's, were imprisoned, as were many others affiliated with the social democratic party. When the police came to search Neurath's office at the "Museum of Society and Economy," Marie Reidemeister warned Neurath not to come back to Vienna and they arranged to meet in Prague, from where they immigrated to Holland.

Van Eesteren was honest in giving Neurath a second try in 1934. In a letter to Giedion, issued a couple of days after his meeting with Neurath in Amsterdam in May, he wrote that he was still of the opinion that "something must grow" from the collaboration between the congress and Neurath.[67] Concretely, he thought of the exhibition "The Functional City," that he planned to show in Amsterdam the next CIRPAC meeting would take place. He still hoped that Neurath could advance his symbols for city planning.

In preparation for "The Functional City" in Amsterdam, Neurath's interest and Van Eesteren's enthusiasm for the collaboration rekindled. They met frequently between October 1934 and February 1935. Neurath tried to work on the symbols and maps, identifying some of the major spatial problems. "One should possibly combine density of population, number of apartments, floor heights etc. [by means of symbols]" Neurath wrote.[68] He grew convinced that one had to be able to make combinations of at least two of such indicators.

Besides developing symbols, Neurath also started to advise the Swiss architects Wilhelm Hess and Rudolf Steiger on the "Gesamthistorische Tabelle (Historical Chart)," showing the history of city development, created for "The Functional City" exhibition. The chart gave an overview on the history of architecture from the prehistoric age to the modern city, and it "showed the evolution of Le Corbusier's four functions with respect to zoning conditions, historical development and class relation" along with social and economic analyzes.[69] Van Eesteren was uplifted by these developments and wrote to Steiger that Neurath's "suggestions seemed sensible."[70] Everything was fine

until Neurath gave another lecture at Van Eesteren's request. The lecture was held in anticipation of "The Functional City" exhibition for the architecture collective "de 8," of which Van Eesteren was part. The meeting however drew little attention and left architects displeased.[71] Neurath was highly disappointed that Van Eesteren personally did not show up. He wrote a last letter stating that he was very sorry about his absence, since Van Eesteren "was always so mediating."[72]

Neurath declared he had known for a long time that picture education often was not recognized as a real specialty. In conclusion, he gave Van Eesteren some final pieces of graphic advice, and ended his letter by saying: "Everything can be solved given some consideration, but it is as little a graphic task it is that of an architect. It requires ... TRANSFORMATION... But this is an old song I have already whistled and jingled to you in different variations."[73]

We have no evidence of any further correspondence.

"The Functional City" exhibition in Amsterdam opened in July of 1935. Neurath was never credited anywhere and the historical chart for which he had shown most enthusiasm was taken down on Gropius' order. Gropius feared that a chart incorporating social data could lead to political polarization, which was to be avoided in an already politically charged environment.

A publication of the full CIAM material of 1933 and its resolutions were never published, until the appearance of José Luis Sert's *Can Our Cities Survive?* in 1942. In it, Sert used CIAM's material, but the text was his own creation. Although Sert even used some of Neurath's images, he was never mentioned.

Analysis

Why did this collaboration between Neurath and CIAM fail so catastrophically?

Certainly much of it, especially the things that happened after the CIAM congress, can be attributed to Van Eesteren's sickness and Neurath's sudden immigration to Holland, after which he dedicated a lot of time to moving what was left of the Museum to the "Mundaneum" in The Hague. Another contributing factor, is Neurath's inability to make spatial enhancements to his system, which was generally perceived as reluctance, but which might have had to do with the fact that he was not a graphic designer. In the years before 1934, Arntz, who lead the graphic department, and another talented designer, Peter Alma (1896 – 1969), spent half of their time in Moscow and could probably not dedicate much time to CIAM's causes. Given the fact that Neurath theorized the picture language, but in later years neither made transformations, nor drew symbols, and in fact completely lacked artistic talent, it seems likely that he would have been unable to make spatial adaptations to it.

Given that scholars have argued that Neurath's dissatisfaction with CIAM was induced by the architects' objective to do "scientific" town planning, and the fact that Neurath, the logical empiricist, did not believe that such a thing existed, I would like to shift the focus toward why CIAM was displeased with Neurath.[74]

After all, Neurath wanted the collaboration with CIAM. If he did not deliver what the

CIAM architects wanted, then it was only because he really could not see their point of view. The question therefore is why the CIAM architects did not want to work with Neurath.

Besides the disagreement over the "science" of town planning, I would like to advance three major objectives that likely made a collaboration with Neurath difficult, which have in part been noted by other scholars.

For one, Enrico Chapel, has very precisely formulated the complication of Neurath targeting a different audience than CIAM. He stresses that from the beginning, Neurath and the CIAM architects aimed at diverse target groups and they also "expected totally different reactions."[75]

Chapel continues:

> *Neurath invented his system within the framework of a global visual communication programme, with a view to "humanize" knowledge for the greater benefit of the general public; the architects sought to internationalize an established body of knowledge; their principal targets were the decision-makers in the field of urban production.*[76]

This accurate assessment is supported by the fact that Van Eesteren, who executed the extension plan of Amsterdam on the basis of his model maps, worked for a governmental institution and knew what the maps of other cities had to entail for institutions to use them. Le Corbusier, on the other hand, had his own agenda in this respect. He did not only think about singular government institutions, but conceived the purposes of CIAM IV transnationally. In order for the new architecture to gain ground he knew that it had to be welcomed on a larger scale, which "meant working closely with large interests with the capital to implement his overarching vision of social and architectural transformation" as Mumford has argued.[77]

But even for the exhibition "The Functional City" in Amsterdam, where attendees other than government officials and executives of corporations were expected, the CIAM architects did not alter their graphic strategy. They prided themselves with their technical expertise and with the fact that they had found means of representation that were specific to their discipline. Their instincts were not bad: "The Functional City" was well attended.

More questionable, however, is why Neurath did not take note that the CIAM architects wanted to target a more specialized audience. Reiterating in his speech on the Patris that "each child recognizes the object indicated by the symbol, even if he has never perceived it in reality," which he meant literally, seems strange, since he knew that CIAM really was a congress of specialists.[78] In assembling the images and a more detailed account on Neurath and his efforts in testing different target groups for his picture education, I hope to have cast some light on why Neurath might have been so dismissive of CIAM's expectations. In the early 1930s, he was focussed on the question of how to create an equal basis of knowledge for everyone and did not want to prioritize CIAM's goal of specialized representation.

The question of audience was naturally intertwined with the question of graphics. The reason why Neurath's graphics were as simple as possible and CIAM's were more technical, clearly has to do with their intended audiences. However, there is another underlying issue and that is, as I have argued previously, the question of inherent spatial strategies and the possibility of creating operative moments.
Again, I find that Enrico Chapel has put it precisely in saying:

> *In the first place, one should not underestimate the difficulty of applying a pictorial method that was not designed with town planning in mind... This system, which visualized social phenomena and economic data, failed to account for a whole range of dimensional and more generally spatial parameters, which are nonetheless indispensable to any study carried out prior to intervention of urban space.*[79]

But why are various spatial components and their overlap important when it comes to urban interventions? Neurath did not seem to have been fully aware of the fact that a map can only become a tool for architecture if it has an operative quality to it; a quality that results from spatial analysis.
Kees Somer emphasizes the notion of the map as a tool, stating that the CIAM architects saw their maps "as practical instruments" and "their attention remained focused, however, on the reality of urban planning, which they had investigated with an immediately operational purpose: the improvement of the planning and design of the environment in which people live."[80]
It needs to be added that the notion of the map as a tool precisely posed the underlying difference to Neurath, who never perceived maps as a means of asking questions, but as ends to making short precise statements.

However, this operational aspect of mapping is not a matter of specific symbols, nor even a certain level of precision. After all, the CIAM maps were able to create an operative moment, as were maps with a much larger level of abstraction, which followed Otto Neurath's graphic rules and that exist in the contemporary discourse. The most important issue for creating generative maps really is that the necessary information is drawn out and that an obvious collision of two or more factors in the same map create a design strategy. This is why Neurath's maps at first did not lend themselves well to design, because they always aimed at avoiding such overlap. Proof of this is that Neurath generally demonstrated densities in secondary charts or illustrations, which well served the purpose of legibility, but actually hindered potential design conclusions. His suggestion in his last letter to Van Eesteren that "if one wants to indicate, that in a certain block inhabitants of a certain income group live, one should not color the block, but put little discs or figures on the block" must have seemed utterly strange to Van Eesteren the planner.[81] It exemplifies that Neurath did not take into consideration how design strategies come into being and that he did not grasp the scale at which CIAM dealt with space. His insistence on small cut outs of the CIAM maps, which would only show one aspect of the city, was in this line of thinking as well.

But Neurath was also reluctant to accept that in a discipline that dealt with sun, light, water or wind, it was sometimes necessary to make use of precise indicators like flow directions, or that a map that dealt with traffic could not only show the same dotted line, but it had to reveal more about the weight of traffic etc.
In Neurath's defense, two things must be said: One is that whatever Van Eestern took from Neurath's illustrations was clumsily adapted. For example, Van Eesteren took the symbol "The Man with The Hat" from Neurath to illustrate commute.
Having seen the chart "Density on Berlin's Highways" at the exhibition in Berlin, which is extensively discussed in chapter two for its erroneous graphic design, Van Eesteren employed exactly this weakling in his prototypical maps.
Secondly, Kees Somer has justly noted that Van Eesteren incorporated only in part what Neurath established as ISOTYPE.[82] The maps did not, however, incorporate Neurath's ideas in a systematic way.

A further problem, according to Somer was the mixture of symbols and the difficulty reading them: "This cartographic eclecticism was also expressed in a free interpretation of the Viennese principles... Their programmatic attitude towards Neurath's principles was the product of differences in background and purpose that eventually thwarted attempts to arrive at a cooperation between Vienna and Amsterdam.[83]
In connection to this, the second issue contributing to Neurath's defense is that he understood some of the CIAM plan's shortcomings and precisely pointed them out. In his last letter to Van Eesteren, he wrote "one should not write numbers into plans and make connections with arrows. Numbers are dead and the arrows will remain railways tracks in (people's) memory or such like."[84]

Admittetly, Neurath did not understand how, or consciously omitted, the possibility that, maps could become generative instruments. Van Eesteren was unable to maximize the possibilities of Neurath's abstraction and his suggestions for the sake of urban planning. The 1937 map would finally make a step in combining the two.
Together Van Eesteren and Neurath might have held the key in the early 1930s to a problem we are still dealing with in urban planning today; how to use diagrams and translate them into design. In part, I believe Neurath and Van Eesteren knew this and that is why they were so reluctant to give up on each other.
On this note – what could have happened – I would like to introduce the third, and last issue concerning Neurath and CIAM: their divergent views on urbanism.

In the introduction, it was mentioned that Neurath's theorizing on urbanism ceased with his participation at CIAM, with the exception of his 1937 text *Visual Representation for Architectural Problems* and its accompanying map, which will be discussed in the conclusion.[85] Although there is no evidence that Neurath objected to any of the design proposals, mainly advanced by Corbusier, at CIAM IV, I would like to argue that he did, if only subconsciously. Considering that Neurath had spent almost the same time theorizing the city as he had writing about graphics, it would be almost uncanny if he did not object to CIAM's design proposals, in particular the Athens Charter. Especially,

since the Charter of Athens prescribed a way of building that was so diametrically opposed to almost everything Neurath believed in.

Not only was Neurath always in favor of pluralistic approaches when it came to urban strategies for the manifold city, while the charter fostered a certain typology, he also never abandoned his notion of *Gemeinschaft*. Community concerns also stood in strong opposition to CIAM VI's final resolution, a fact that Neurath must have noticed. Constituting the strong division between housing, work zones and leisure activities basically ruled out the emergence of a strong community in Neurath's mind. To understand transportation only as the rational connection between those zones, must have baffled Neurath, who had been so proud that interaction could take place in courtyards and on roads and paths in the settlements and communal buildings in Vienna.

"I believe that the Viennese dwellings really enhanced the possibility of happiness," he wrote to Josef Frank in the last year of his life, 1945, after complaining at length about Corbusier.[86] But today "much city planning is full of pomposity, with totalitarian undercurrent, pressing forward some way of life,"[87] he wrote in the same year.

And then in another letter to Frank:

> *I am [still] for a lot of plazas, which are like coffee houses and for many spaces where one can hang out, play, etc, chit chat, and not for carefully prepared huge community centers which are now often proposed. This is a way of coerced community creation... that I even think is dangerous... The free choice of encounter is important, therefore plurality.*[88]

Even if the Neurath of 1933 was really only subconsciously aware of what was happening in front of his eyes, namely a strong divide between architecture and community, he clearly voiced this concern in 1945, when he saw some of its worst repercussions materialized. Remarkably, Neurath also did not object to Corbusier's *a priori* design proposals, which were rooted in the architect's urbanistic philosophy "that physical design rather than political action could provide solutions to the poor living conditions of industrial cities," as Eric Mumford noted.

This is striking since Le Corbusier's position completely negated Neurath's formula: urbanism + organization = urbanistic progress = a greater chance of happiness.[89] Neurath went so far as to sometimes even reduce the progress of urban planning to organization alone. "Not via the most modest building strategy will we come to a reform in housing, but by political success, which benefits the construction of communal dwellings," he wrote in an article on the Austrian Werkbund's exhibition in 1932.[90]

And lastly, and also in response to Mumford's observation on Corbusier, it is questionable if Neurath, the fiery social democrat, who had done everything in his power to retain self-help and autonomy for the settlers, was not at least a little sobered in his enthusiasm for CIAM, since "throughout the 1920s, Le Corbusier maintained that he was an apolitical technocrat seeking only to apply the lessons of Frederik Winslow Tayor and Henry Ford to the production of housing and cities."[91]

1 Kees Somer, *The Functional City: The CIAM and Cornelis van Eesteren, 1928 – 1960* (Rotterdam: NAi Publishers, 2007), 167.
For him [Le Corbusier], however the outcome was already known; in a lengthy discourse on the principles that should be elaborated in the congress resolution, Le Corbusier summed up the ideas behind his Ville Contemporaine and Ville Radieuse.
2 Otto Neurath, *Bildstatistik nach Wiener Methode in der Schule* (Vienna and Leipzig: Deutscher Verlag für Jugend und Volk, 1933), 23.
Ein Universallexicon aller Zeichen muß zentral ausgearbeitet und international verbreitet werden. Es empfiehlt sich, möglichst dieselben Zeichen für Mengenbilder, Kartogramme und Landkarten zu verwenden, soweit man nicht unterscheiden will: statistische Einheit und bloße Sachbezeichnung. Auf diese Weise würde eine Art internationaler Sachschrift entstehen, die den internationalen Verkehr wesentlich erleichtern würde.
3 Otto Neurath, "Visual Autobiography: From Hieroglyphics to ISOTYPE," *Future Books III*, (1946): 100.
When controversial problems are presented in print, people expect some kind of bias… in a way which they would not expect from looking at geographical maps. Isotype is bound to be as neutral as maps and to provide material for free discussion from any point of view. Isotype symbols have fewer positive or negative associations than the printed or written words of a language. You cannot write in a neutral way without being boring, but you can present a neutral picture which is nevertheless attractive.
Otto Neurath, "Bildstatistik und Arbeiterbildung," *Bildungsarbeit*, (1929): 8.
So wie auf einer Landkarte eine Postanstalt, eine Brücke, eine Ruine, ein Wald sein bestimmtes Zeichen hat, hat in der Bildstatistik der Arbeiter, der Selbstständige, der Kleinbauer, das mit Kohle geheizte Schiff, das Segelschiff, das mit Erdölfeuerung versehene Schiff sein bestimmtes Zeichen.
4 Cornelis Van Eesteren, "Letter to Otto Neurath, 21.10.1934," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.
Ich wuerde mich sehr freuen, wenn aus unserer Zusammenarbeit eine richtige staedtebauliche Zeichensprache wachsen koennte.
5 I agree with Enrico Chapels analysis that one of the major problems Neurath ran into with the CIAM architect was the task of adjusting the Isotype for a spatial discipline.
Enrico Chapel. "Otto Neurath and the CIAM – The International Pictorial Language as a Notational System for Town Planning," in *Encyclopedia and Utopia, The Life and Work of Otto Neurath (1882 – 1945)*, ed. Elisabeth Nemeth and Friedrich Stadler (Dortrecht, Boston and London: Kluwer Academic Publishers, 1996), 173.
In the first place, one should not underestimate the difficulty of applying a pictorial method that was not designed with town planning in mind. A close reading of Neurath's lecture at the CIAM IV reveals that the idea of using graphic images as an instrument for the analysis and planning of cities had not yet been envisaged for Isotype.
6 General History of CIAM see Kees Somer, *The Functional City: The CIAM and Cornelis van Eesteren, 1928 – 1960.* (Rotterdam: Nai Publishers, 2007)
Eric Mumford, *The CIAM discourse on Urbanism, 1928 – 1960.* (Cambridge and Massachusetts: MIT Press, 2000)
Martin Steinmann, *CIAM Dokumente: 1928 – 1939.* (Basel: Birkhäuser, 1979)
Ulrich Conrads, *Programs and Manifestoes on 20th-century Architecture.* (Cambridge and Massachusetts: MIT Press, 1970)
For Otto Neurath and CIAM see
Enrico Chapel, *L'œil raisonné*, (Geneva: MetisPresses, 2010) This book is in the process of being printed as I am handing in this Masters essay.
Nader Vossoughian, *Otto Neurath: The Language of the Global Polis*, (Rotterdam: NAi Publishers, 2008)
Nader Vossoughian. „Mapping the Modern City: Otto Neurath, the International Congress of Modern Architecture (CIAM), and the Politics of Information Design." *Design Issues, Summer 2006*, 48–65.
Andreas Faludi. "Otto Neurath and Planning Theory," in Encyclopedia and Utopia, *The Life and Work of Otto Neurath (1882 – 1945)*, ed. Elisabeth Nemeth and Friedrich Stadler (Dortrecht, Boston and London: Kluwer Academic Publishers, 1996), 201 – 213.
Enrico Chapel. "Otto Neurath and the CIAM – The International Pictorial Language as a Notational System for Town Planning," in Encyclopedia and Utopia, The Life and Work of Otto Neurath (1882 – 1945), ed. Elisabeth Nemeth and Friedrich Stadler (Dortrecht, Boston and London: Kluwer Academic Publishers, 1996), 167 – 182.

7 Otto Neurath, "Das Neue Bauhaus in Dessau," *Der Aufbau, Osterreichische Monatshefte für Siedlungs und Städtebau* (1926), 209 – 211.
8 Herbert Bayer, Walter Gropius, Ise Gropius, ed. *Bauhaus*, 1919-1928. (New York: The Museum of Modern Art, 1938)
9 K. Somer, footnote 92, Chapter 4, K. Somer, *Cornelis van Eesteren.*
10 Mumford argues, that the first CIAM congress was really not its first, since the organizational structures had not been put in place yet. However, the first meeting in La Sarraz in June 1928 is perceived as the first CIAM congress and was titled as such by the later organization.
11 Christopher Long, *Josef Frank, Life and Work*, (Chicago: The University of Chicago Press, 2002), 113.
12 C. Long, *Frank*, 111.
13 Kenneth Framton, introduction to *The CIAM discourse on Urbanism, 1928 – 1960*, by Eric Mumford (Cambridge and Massachusetts: MIT Press, 2000), xii.
14 K. Framton, introduction to *CIAM*, xi.
15 K. Framton, introduction to *CIAM*, xi.
16 Otto Neurath, "L' Urbanisme et le Lotissement du Sol en Représentation Optique d'après la Méthode Viennoise," *Technika Chronika* (1933): 1154.
Tout cela importe puisque les problèmes d'urbanisme sont à la fois des problèmes d'ordre social. Mais ceux-ci sont plus utilement représentés par des schémas de "statistique imagée" que par des cartes géographiques.
17 Otto Neurath, *Österreichs Kleingärtner- und Siedlerorganisation*, (Vienna: Kommissionsverlag der Wiener Volksbuchhandlung, 1923), 5.
...aber daß Spekulanten Boden brachliegen lassen durften, weil einmal damit Geschäfte zu machen seien, das wurde nicht mehr anerkannt, solange der Druck des Krieges stark war. So kam es, daß auf brachliegendem Land, auf Bauplätzen, aber auch auf anderem landwirtschaftlich ungenügend genutzten Boden mit und ohne Zustimmung der Eigentümer Kriegsgemüsegärten entstanden.
18 E. Mumford, *CIAM*, 20.
19 E. Mumford, *CIAM*, 19.
20 K. Somer, footnote 92, Chapter 4, K. Somer, *Cornelis van Eesteren.*
I am using Mumford's translation.
E. Mumford, *CIAM*, 30.
21 The CIAM statutes were approved at the second congress in Frankfurt.
Van Eesteren, "Ciam Documents" Archive Cornelis Van Eesteren, EEST IV. 103, Nai Archiv, Rotterdam, NL
22 K. Somer, *Cornelis van Eesteren*, 54.
23 K. Somer, *Cornelis van Eesteren*, 84.
24 K. Somer, *Cornelis van Eesteren*, 84.
25 K. Somer, *Cornelis van Eesteren*, 84.
26 For a detailed description of how the three CIAM model maps came into being see K. Somer, *Cornelis van Eesteren*, and E. Mumford, CIAM.
27 E. Mumford, *CIAM*, 62 – 63.
28 Sigfried Giedion, "Letter to Cornelis Van Eesteren, 21.12. 1931," CIAM Archiv, 42-K-1931, Eidgenössische Technische Hochschule, Zürich, Switzerland.
Vielleicht ist die erste Karte mit den Verkehrszeichen, die sich oft ähnlich sehen, nicht ganz leicht lesbar. Die zweite Karte jedoch ist beim ersten Anblick klar. Vielleicht sollten wir in Zukunft mit Spezialisten von Zahlenzeichen und Statistiken zusammenarbeiten. Wir wollen den Direktor des Wiener Gesellschaftsmuseums, Dr. Neurath, nach Zürich kommen lassen, da er meines Wissens über die grösste Erfahrung auf diesem Gebiete verfügt (erinnerst du dich an die Wandtafeln der österreichischen Abteilung der Berliner Bauausstellung?)
29 Otto Neurath, "Letter to Cornelis Van Eesteren, 5.12.1933," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.
Im Jahre 1932 haben sich russische und ausländische Architekten in der UdSSR an mich um ein Gutachten über Darstellungen gewendet, die für die geplante internationale Ausstellung in Moskau bestimmt waren. Ich hatte darauf hin im einzelnen gezeigt, weshalb die vom CIRPAC gemachten Vorschläge für Ausstellungszwecke nicht sehr geeignet seien und wie man sie auch für Druckzwecke logisch einheitlicher, inhaltlich klarer, optisch wirksamer gestalten könnte. Ich besuchte in dieser Angelegenheit Prof. Gropius im Frühjahr 1932 und legte ihm dar, welche grundsätzlichen Bedenken dagegen bestünden, dass Architekten ohne Verbindung mit Wirtschaftsgeographen, Nationalökonomen usw Fragen des Städtebaus und der Landesplanung

behandeln, die speziell bei einem Kongress in Moskau vor allem auch ökonomisch und sozial diskutiert würden. Ich berichtete ihm über meine Kritik und meine Vorschläge.
Es folgte Ihr und Giedions Besuch im Dezember 1932 in Moskau. Die Aussprache zeigte Ihre Bereitwilligkeit sich mit unseren Vorschlägen zu befassen, auch machten Sie uns Ihre Vorschläge vollständig zugänglich.
30 Cornelis Van Eesteren, "Letter to Sigfried Giedion, 4.2. 1933," CIAM Archiv, 42-K-1933, Eidgenössische Technische Hochschule, Zürich, Switzerland.
Angelegenheit Neurath.
Ein vertreter (dr. bauermeister) von neurath war im januar bei mir. Ich habe ihm unser kartenmaterial erklärt u. er hat sämtliches material nach wien mitgenommen. Die drei karten amsterdams werden nun dort nach der methode neurath bearbeitet. der vertreter war sehr interessiert.
Neurath selbst war 28 jan. hier, ich sprach näher mit ihm über diese sache habe ihm vorgeschlagen, dass die Wiener resultate in unserer ausstellung in moskau gezeigt werden und dass wir uns über ein referat worin er seine methoden und ansichten erklärt freuen würden. bist du einverstanden - ? es bliebe dann noch zu regeln, wann wir dieses referat einschieben, ferner solltest du brieflich diese sache mit ihm festlegen.
31 Cornelis Van Eesteren, "Letter to Walter Gropius, 26.3.1933," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.
Ich lege ihnen eine abschrift aus einem brief an giedion wegen angelegenheit neurath bei, ich hoffe, dass neurath uns in der zukunft bei der weiteren verarbeitung unterstützen kann.
32 Otto Neurath, "Letter to Cornelis Van Eesteren forwarded to sigfried Giedion, 9.5.1933," CIAM Archiv, 42-K-1933, Eidgenössische Technische Hochschule, Zürich, Switzerland.
Lieber Herr Van Eesteren
Besten Dank für die Sendung. Wird gleich verarbeitet werden. Wir haben die Entwürfe, die wir bereits in Wien machten, im Kopf.
Da am Montag vielerlei erledigt werden soll, kämen wir gerne etwas früher zu Ihnen, wenn Ihnen das passt, sagen wir etwa um 11 Uhr Vormittag.
Ich freue mich aufrichtig mit Ihnen zusammen all das überlegen zu können. Die umfassenden Pläne, mit denen wir beschäftigt sind, können nur gewinnen, wenn jede Einzelfrage mit einem aktuell interessierten Fachmann erörtert wird.
Grüssen Sie Ihre Frau bestens
Mit guten Grüssen Ihr
Neurath [signed]
Note Esteren to Giedion: Giedion, sende Dir diese abschrift, damit du siehst dass wir sofort nachdem wir wussten dass Neurath hier wohnt mit ihm in Verbindung getreten sind. Die neue adresse von Neurath ist unterstrichen. Teile auch Steiger mit, dass ich mit Neurath wieder in Kontakt bin.
33 Cornelis Van Eesteren, "Letter to Sigfried Giedion, 28.5. 1933," CIAM Archiv, 42-K-1933, Eidgenössische Technische Hochschule, Zürich, Switzerland, 1.
statuten kongres
in paris haben wir nächst den actuellen kongres-abhaltungsfragen u.a. noch besprochen die frage der mitarbeiter d.h. den nachwuchs betr.
Der entschluss ist gefasst die statuten so zu vervollständigen, dass es möglich ist diese mitarbeiter in einer besonderen from in den kongres aufzunehmen. du hast die statuten mitgenommen, wir hatten sie schon ziemlich genau formuliert, wir müssen dies nur jetzt in eine form bringen dass wir sie dem kongres vorlegen können. die sache ist wichtig, überall sitzt man mit dieser frage du erinnerst dich, dass die französische gruppe eine lösung dieser frage und eine teilnahme der spezialisten sehr befürwortet hat. nach meiner meinung wären nun endlich diese beiden fragen durch junge leute u. specialisten gelöst u. wird es nun von der activität der gruppen abhängen was nun daraus wird.
Specialisten auf dem nächsten kongres.
wir werden für den nächsten kongres specialisten einladen müssen, als erstes nenne ich: neurath, der jetzt die karten von amsterdam bearbeitet u. der für uns auf dem schiff einen vortrag über die kartenbearbeitung halten sollte, er soll diesbez. umgehend einen brief (offiziel) vom kongres erhalten, die gruppen sind bei ihren vorbereitungsarbeiten von specialisten unterstützt worden, diese sollen von den betr. Gruppen aufgefordert werden dem kongres beizuwohnen...
34 Cornelis Van Eesteren, "Letter to Sigfried Giedion, 10.5.1934," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands

Ich halte es für wichtig zu versuchen, dass wir mit ihm zu etwas kommen, du weißt aus barcelona wie kritisch ich seinen damaligen vorschlägen gegenüber stand, aber persönlich mit ihm zu etwas zu kommen, halte ich für möglich.

35 N. Vossoughian, *Global Polis*, 113.

36 N. Vossoughian, *Global Polis*, 121.

37 E. Chapel, "Town Planning," 168.

38 K. Somer, *Cornelis van Eesteren*, 167.

39 For a detailed account, see N. Vossoughian, *Global Polis*.

40 N. Vossoughian, *Global Polis*, 121.

41 Le Corbusier, "Air – Son – Lumière," *Technika Chronika* (1933): 1140 – 1143.

42 Cornelis Van Eesteren, "Methoden des Funktionellen Städtebaus," Technika Chronika, (1933): 1150.
Über die Methoden städtebauliche Erscheinungen zu fassen, über die Erscheinung an sich und über Wege, welche zum städtebaulichen Entwurf der Stadt der Zukunft führen, werde ich jetzt sprechen.

43 C. Van Eesteren, „Funktioneller Städtebau," 1152.
Im Generalplan hat man nun die Lage der grossen Einheiten anzudenken, welche eine gute Situation im Bezug auf den ganzen Stadtkörper verlangen. Es sind dies Objekte, die in jeder Stadt vereinzelt vorkommen wie: Krankenhäuser, Irrenhäuser, Friedhöfe, Krematorien u.s.w.

44 C. Van Eesteren, „Funktioneller Städtebau," 1152.
Man stelle sich nun nicht vor, dass diese Studien zu starren unabänderlichen Plänen führen, im Gegenteil. Diese Studien und Schätzungen sind für den Städtebauer das, was der Kompass und die Sterne für den Navigator sind. Principiell ist überhaupt davon auszugehen, dass alles sich weiterentwickeln können soll.

45 C. Van Eesteren, „Funktioneller Städtebau," 1152.
Ausführliche demographische Studien wurden gemacht. Über technische Einzelfragen, wie Eisenbahn, Uferverbindung, kam man zur Lösung und wurden ausführliche Bericht aufgestellt. Für die zu erwartende Bevölkerungszahl wurde eine Prognose aufgestellt und ein Minimum und ein Maximum festgestellt, für welche beiden Annahmen der Plan Wohnmöglichkeit bieten soll.

46 Since Neurath's speech for CIAM has never been printed in full length in English and is only available in Technika Chronika in French and Greek, which is exceptionally hard to obtain, I am showing a fully translated version in Appendix A of my Masters Thesis.

47 O. Neurath, "L'Urbanisme", 1153.
Si l'on veut montrer la densité d'habitation dans les grandes villes mondiales d'après notre méthode, celles-ci seront caractérisées par des médaillons, p.e. Paris par la tour Eiffel et Notre Dame, Londres par le pont sur la Tamise, etc. La densité d'habitation sera représentée par de figurines noires ou colorées. A première vue on constatera alors que dans les villes anglo-saxonnes p.e. 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.

48 O. Neurath, "L'Urbanisme", 1153–1154.
Il n'est pas tourjours necessaire de présenter ces graphiques sur des cartes géographiques; il suffit souvent d'employer des schémas géographiques… Le schéma facilite l'observation. Je pense que nous pourrions mieux représenter une quantité de faits étudiés à ce Congrès par des schémas semblables, plutôt que par des plans et des cartes géographiques.

49 O. Neurath, "L'Urbanisme", 1154.
Maintenant je vais montrer encore quelques villes, notamment le développement d'une ville d'oasis, Damas. Nous voyons tout d'abord la petite oasis, ensuite le rigoureux 'castrum, romain, à la péripherie, de quartiers modernes orthogonaux. En même temps on constante le refoulement du désert, la victoire de l'eau sur la sécheresse, et les fluctuations du nombre des habitants.

50 "Meeting from the 13th of August 1933 (11.30 – 13.30)," Technika Chronika, (1933): 1181.
In Zusammenarbeit mit dem Mundaneum Wien soll eine ständige Kommission zur Sammlung, Sichtung und Aufarbeitung des nötigen statistischen Materials geschaffen werden, das von den einzelnen Ämtern zu Handen des Kongresses eingefordert werden soll.

51 "Meeting from the 13th of August 1933 (11.30 – 13.30)," Technika Chronika, (1933): 1181.
Es soll versucht werden, die Zeichen zur Darstellung der Städtebaupläne für die entsprechenden Ämter und Schulen als international einheitliche zu vereinbaren, nach vorgängiger sorgfältiger Bereinigung.

52 "13th of August," 1181.

53 Sigfried Giedion, "Meeting from the 12th of August 1933 (11.30 – 13.30)," Technika Chronika, (1933): 1180.

Es kann nicht die Aufgabe dieser Architekten sein, letzte Genauigkeit zu liefern, sondern Richtlinien aufzustellen.

54 Cornelis Van Eesteren, "Meeting from the 12th of August 1933 (11.30 – 13.30)," Technika Chronika, (1933): 1180.

Ohne Resolutionen haben unsere Arbeiten keinen Sinn… Der Kongress hat sich nie vorgenommen und sich nie eingebildet, wissenschaftlich exakte und endgültige Arbeiten zu liefern. Sinn und Geist unserer Kongresse ist es, alles auszuschneiden, was bisher noch nie oder nie auf solche Art angeschnitten worden ist. Diese intuitive Arbeitsmethode bedingt die Sprunghaftigkeit unserer Sitzungen. Wir sollen das dadurch entstehende Chaos empfinden, aber wir sind…

55 Le Corbusier, "Meeting from the 12th of August 1933 (11.30 – 13.30)," Technika Chronika, (1933): 1180.

Nicht in einer Kaserne!

56 Cornelis Van Eesteren, "Meeting from the 12th of August 1933 (11.30 – 13.30)," Technika Chronika, (1933): 1180.

Hauptsache sind unsere Zusammenfassungen. Lieber soll der Kongress eine falsche Aussage riskieren, als sich in endloser Analyse verlieren.

57 Marie Reidemeister, "Protocoll of the Publication comissions' meeting 12.8.33., Attachment Otto Neurath Letter to Sigfried Giedion, 19.8.1933," 1—2, CIAM Archiv, 42-K-1933, Eidgenössische Technische Hochschule, Zürich, Switzerland.

aussprache ueber die veraenderung der bisherigen karten. M sehr dafür, weil eindrucksam und werdeprozess steigend. N sehr dagegen, weil vollkommenstes gezeigt werden soll einfache relationen der resolution an vereinfachten ausschnitten besser demonstrierbar. Zusammenarbeit zuerich, amsterdam, wien mit M., G., vE vermitteln, man einigt sich darauf, dass entwicklung der arbeit gezeigt wird mit beispielen aus karten, und zwar faelle groesster mannigfaltigkeit und faelle, die zu besonderer kritik anlass geben, um eventuell die notwendigkeit der mundaneumsarbeit zu entwickeln. M und vE betonen, dass das chaotische der stadt gezeigt werden soll.

58 M. Reidemeister, "Protocoll," 2.

Die grosse publikation nach gruendlicher durcharbeitung mit vollkommener optischer darstellung.

59 Otto Neurath, "Letter to Sigfried Giedion, 19.8.1933," CIAM Archiv, 42-K-1933, Eidgenössische Technische Hochschule, Zürich, Switzerland.

60 Otto Neurath,"Letter to Cornelis Van Eesteren, 21.8.1933," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.

61 Cornelis Van Eesteren "Letter to Lazlo Moholy-Nagy, 4.9.1933," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.

Ich bin wirklich sehr froh darueber dass du den congress mitgemacht hast, nicht nur weil du einen schoenen congress-film gemacht hast und die schoenen fotos die wir noch zu sehen bekommen werden, aber vor allem weil du an der congressarbeit so activ teil genommen hast. Von neuem hat es sich bewiesen, dass an unserm congress auch uns nahestehende nicht-architekten teilnehmen muessen.

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 waeren wir sicher zu viel dem etwas begrenzten system Neurath's zum opfer gefallen. Du wirst bemerkt haben, dass ich waehrend den ganzen verhandlungen versuchte deine und Neurath's ideen fruchtbar aufeinander einwirken zu lassen, da ich davon fuer die publikation dieser congres-arbeit viel erwarte. Ich hoffe auf deine weitere schoepferische mitarbeit an der congressarbeit.

Es wird noch viel noetig sein um mittel und wege zu finden um die wuensche zu verwirklichen.

62 Cornelis Van Eesteren, "Letter to Neurath, Copy to Sigfried Giedion, September 1933, Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands

Wie sie ahnen haben die congressresolutionen noch allerhand debatten erzeugt, man hat sich aber in marseille geeinigt, die resolutionen werden jetzt in der schweiz auf grund der in marseille noch festgelegten punkte ausgearbeitet. Bei meinem aufenthalt in der schweiz werde ich auch in zuerich sein, u. hoffen wir dann die resolution in eine endgültige form zu bringen. Sie werden diese dann baldmoeglichst zugeschickt bekommen. Es ist mir nicht ganz deutlich was sie mit der vollstaendigen serie (zweite fassung) der plaene u. zeichen meinen - ? Dr. brauermeister hat damals das vollstaendige planmaterial von amsterdam bekommen – am 14. 1. 1933.

Ich sende ihnen noch separat die zeichenerklärungen I, II, u. III soweit diese nun mit den zeichen der anderen staedte ergaenzt sind.

63 Otto Neurath, "Letter to Cornelis van Eesteren 5.12.1933," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands

64 Otto Neurath, "Letter to C.I.R.P.A.C., 24.11.1933," CIAM Archiv, 42-K-1933, Eidgenössische Technische Hochschule, Zürich, Switzerland.

65 Otto Neurath, "Letter to Cornelis van Eesteren 5.12.1933," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands

Bitte sagen Sie mir wie das alles Ihrer Meinung nach zu verstehen ist. Wenn prominente Mitglieder Ihres CIRPAC auf die Zusammenarbeit mit uns keinen Wert legen, würde ich es vorziehen, mit meinem Institut auszuscheiden, nicht ohne Ihnen und Ihrer liebeswürdigen Art des Verkehrs mit uns eine persönliche freundliche Erinnerung zu bewahren.

66 Cornelis Van Eesteren, "Letter to Otto Neurath, 2.5.1934," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.

67 Cornelis Van Eesteren, "Letter to Sigfried Giedion 10.5.1934," Vienna Circle Archive, inv.nr. 232, Noord – Hollands Archief, Haarlem, The Netherlands.

Neurath, beiliegenden brief habe ich an neurath geschrieben, anlässlich eines persönlich an mich gerichteten briefes, worin er sich beklagte über den geringen kontakt mit dem kongres und die späte einladung zur letzten sitzung in paris. Daraufhin habe ich am letzten Sonntag mit ihm eine unterredung gehabt und habe ihm nochmals unsern standpunkt klargelegt. Montag den 14.5., kommt er zu mir ins rathaus und wollen wir noch mal genauer über unsere genauere zusammenarbeit sowie publikationsmöglichkeit des materials reden. Ausgangspunkt ist immer noch, dass aus der zusammenarbeit zwischen kongres – und neurath etwas wachsen muss, sei es dass ... neurath so vollständig ist, dass wir damit erreichen (wovon ich noch nicht ueberzeugt bin) was wir vorhaben – oder dass daraus etwas neues wächst.

Neurath hat die absicht nach london zu gehen und ich würde es begrüssen, wenn in diesem sinne mit ihm umgesprungen würde. Ich halte es für wichtig zu versuchen, dass wir mit ihm zu etwas kommen, du weißt aus barcelona wie kritisch ich seinen damaligen vorschlägen gegenüber stand, aber perönlich mit ihm zu etwas zu kommen, halte ich für möglich.

68 *Otto Neurath, "Letter to Vornelis Van Eesteren 21.11.1934," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.*

Wir haben die Zeichensache nun wieder um einiges gefördert. Die Schwierigkeit beruht darauf für eine bestimmte Art der Darstellung die Zeichen festzulegen, also damit Zeichen zu bekommen, die auch für andere Plandarstellungen verwendbar sind. Man soll womöglich Bevölkerungsdichte, Wohnungsanzahl, Stockwerkshöhe usw kombinieren können und sowohl für jede Kombination zu Zweien, als auch zu mehr ein brauchbares Bild bekommen, das optisch orientiert.

Aber auch eine „erste Annäherung" wäre ein Fortschritt und wir werden wohl jedenfalls diese bald mit Ihnen besprechen können. Wie London endete habe ich nicht erfahren – bin überhaupt von Gideon ohne jede Nachricht.

Es wäre sehr erfreulich, wenn unsere Zusammenarbeit eine konkrete Konklusion ergeben sollte. Sie hängt ja eng mit unseren sonstigen Bemühungen zusammen.

69 N. Vossoughian, *Global Polis*, 135.

70 Cornelis Van Eesteren, "Letter to Steiger 31.1.1935," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands, 2.

Neurath.

Hess wird inzwischen dort zurueck sein u dir ueber seine unterhaltung mit neurath berichtet haben. Copie brief vom 6.2.35 an mich, wirst du auch erhalten haben. Ich finde neurath's vorschläge sehr vernuenftig. Die schweizer gruppe muss sich aber selbst darueber klar werden, wie sie diese vorschlaege verwenden will-.

ich rate dir, selbst mit neurath darueber zu correspondieren.

Seit neurath nun hier in holland ist bin ich mit ihm mehr in verbindung getreten, um aus unserer zeichensprache fuer die analysen, moeglichst eine einwandfreie zeichensprache fuer die staedeplanung wachsen zu lassen. Neurath hatte bis jetzt noch nicht sehr viel zeit, da ihm die uebersiedlung Wien – den Haag ziemliche sorgen bereitete. Er hatte immer grosse kritik – es scheint ihm aber nicht so einfach zu sein mit besseren vorschlaegen zu kommen. Er hat mir aber versprochen bis zur ausstellung in amsterdam an pfingsten eine probekarte fertig zu stellen.

Hoffen wir also auf gutes gelingen!

71 K. Somer, *Cornelis van Eesteren*, 179.

72 Otto Neurath, "Letter to Cornelis Van Eesteren 20.2.1935," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.
Es war mir sehr leid, dass sie nicht kamen. Sie sind immer so sänftigend. So vertrat ich mit freundlicher Unerbitterlichkeit das Prinzip, man müsse alles, was der Darstellung für eine etwas breitere Oeffentlichkeit dient, so gut pädagogisch bearbeiten, als es möglich ist. Die zögernde Zustimmung und geringe Bereitschaft BILDPÄDAGOGIK als eine Spezialität anzuerkennen ist mir vertraut.
73 Otto Neurath, "Letter to Cornelis Van Eesteren 20.2.1935," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.
Es lässt sich bei einiger Überlegung alles wirksam lösen aber das ist nicht nur eine graphische Aufgabe, so wenig es nur eine Architektenaufgabe ist, es bedarf der Dazwischenschaltung der TRANSFORMATION, das ist der bildpädagogischen Analyse und Richtunggebung. Die Bemerkung, dass der Architekt nicht so viel Zeit für solche Sachen haben könne, beantworte ich mit dem Hinweis darauf: er solle auch die Zeit nicht auf so was verwenden, sondern das eben hiefür ausgebildeten Spezialisten überlassen. Das ist aber das alte Lied, das ich Ihnen in verschiedenen Variationen schon vorgepfiffen habe und vorgeklimpert habe.
74 A. Faludi, footnotes 35 and 36, "Planning Theory," 207.
The fundamental misunderstanding between Neurath and CIAM was this: The planners wanted to ground their proposals on a scientifically sound basis. Neurath could neither have felt much sympathy for the quest for such a basis, nor could it have seemed attractive to him to do the graphic work for the exhibition without the transformations which he regarded as essential.
75 E. Chapel, "Town Planning," 175.
76 E. Chapel, "Town Planning," 175.
77 E. Mumford, *CIAM*, 20.
But avoiding revolution, of course meant working closely with large interests with the capital to implement his overarching vision of social and architectural transformation. Such interests transcended national borders, and he was prepared to welcome capitalist internationalism in the service of social rationalization and reform along Taylorist lines.
78 O. Neurath, "L'Urbanisme", 1154.
Chaque enfant retrouve l'objet indiqué par le symbole, même s'il ne l'a jamais aperçu dans la réalité.
79 E. Chapel, "Town Planning," 173.
80 K. Somer, *Cornelis van Eesteren*, 179.
81 Otto Neurath, "Letter to Cornelis Van Eesteren 20.2.1935," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.
Wenn man angeben will, dass in einem Block Einwohner bestimmter Einkommensstufe wohnen, soll man nicht den Block einfärben, sondern Scheibchen (oder Figuren) in bestimmten Farben daraufsetzen. Dann hat man überdies ohne vermehrte Bemühung angedeutet, wie viele Menschen dieser Einkommensklasse den Block bewohnen.
82 K. Somer, *Cornelis van Eesteren*, 147.
Although there is no tangible evidence for this, it is likely that (the maps) partly followed the graphic methods of the GWM... In particular, the man walking and wearing a hat on the definitive map III to symbolize the commoner seems to have walked straight out of Neurath's visual statistics or woodcut by Arntz.
83 K. Somer, *Cornelis van Eesteren*, 147
84 Otto Neurath, "Letter to Cornelis Van Eesteren, 20.02.1935," Vienna Circle Archive, 232, Noord – Hollands Archief, Haarlem, The Netherlands.
85 O. Neurath, "Architectural Problems."
86 Otto Neurath, "Letter to Josef Frank, 5. 11. 1945," Nachlass Otto Neurath, Sig. 1216/5-7, Österreichische Nationalbibliothek, Vienna, Austria.
Ich glaube, selbst Sie werden zugeben, dass der Wiener Wohnungsbau Gluecksmoeglichkeiten erhoehte.
87 E. Chapel, footnote 38, "Town Planning," 175.
88 Otto Neurath, "Letter to Josef Frank, 9. 10. 1945," Nachlass Otto Neurath, Sig. 1219/5-6, Österreichische Nationalbibliothek, Vienna, Austria.
Ich bin fuer viele Plaetze, die kaffeehausartig sind, und fuer viele Orte, wo man herumlandeln kann, spielen, etc tratschen, aber nicht fuer die sorgsam vorbereiteten riesigen community centres die jetzt hier vielfach vorgeschlagen werden. Eine Art gewaltsamer

Gemeinschaftsbildung, mit Selbstverwaltung von Gruppen lokaler Art. Das denke ich mir sogar gefaehrlich. Abgesehen davon, dass der Vorteil der Grossstadt darin besteht, dass man sich seine Gesellschaft waehlen kann – und man nun sozusagen Provinzialismus mit lokalem Gossip kuenstlich zuechten moechte. Sozialisten, wie Cole, haben diese Art Demokratie im Auge. Die freie Wahl des Treffpunkts ist wichtig – daher Vielheit... Ich habe einen Plan mir naeher angeschaut mit Kirche, Community Centre, Health Centre, Old Aged people settlement etc auf einem Platz, in der Mitte das community centre, rechts die Kirche, links das Health Centre... wie der große Platz in Muenchen. Vielleicht bin ich geschreckt durch die vielen centres des FASCIO, die ich in Italien gesehen habe. Das waren ja auch neue Zentren.

89 E. Mumford, CIAM, 20.

This attitude lay behind his basic premise of his urbanistic philosophy, that physical design rather than political action could provide solutions to the poor living conditions of industrial cities: "Architecture or revolution. Revolution can be avoided."

But avoiding revolution, of course meant working closely with large interests with the capital to implement his overarching vision of social and architectural transformation. Such interests transcended national borders, and he was prepared to welcome capitalist internationalism in the service of social rationalization and reform along Taylorist lines.

90 Otto Neurath, "Internationale Werkbundsiedlung, Wien 1932 als Ausstellung," *Die Form*, July 15, 1932, 215.

Nicht durch sparsamste Bauweise kommen wir zur Wohnungsreform, sondern durch politische Erfolge, welche den öffentlichen Wohnungsbau begünstigen.

91 E. Mumford, CIAM, 20.

Chapter 5

The 1937 Map – City Planning





Figure 5.1: The 1937 Map, 1937

5.1

In 1937, two years after the end of his failed collaboration with CIAM, Neurath published his first socio-political map of a town, originally titled "City Planning." The title is more charged than one might assume at first glance, as it suggests a concern with actual "planning" rather than just a sober analysis. In the context of Neurath's work, this signified a major shift: after years of making neutral statements about the world, Neurath finally gave in. He moved towards the operative approach, one that would enable urban design or "city planning."

In the aftermath of CIAM, Neurath had thought a great deal about signs. His books *International Picture Language* and *Basic by ISOTYPE*, published by Kegan, in 1936 and 1937 respectively, were instrumental in perfecting the sign language, since they were manifestos of the whole ISOTYPE legacy.[1] While *Basic by ISOTYPE* established a comprehensive vocabulary, *International Picture Language* presented an elaborate visual syntax. Integrated in the larger project of Charles Kay Ogden's series for *Basic English*, these new contacts and their results gave Neurath new hope for a city-planning project.[2] Both books were also a step in the direction of developing an international encyclopedia of signs, which Neurath had always planned to publish.[3] But as long as



Figure 5.2a and Figure 5.2b Comparison: Map City Planning and 1937 Map, Architectural Record



Fragment 5.3a and Fragment 5.3b Comparison: Hatches, Map City Planning and 1937 Map, Architectural Record

they were not applicable to the spatial discipline, they were not fully successful. Only if they could describe railway stations, hospitals or schools in an international manner in every city, much like the commonly understood signs for churches and mountains in geographical maps, would Neurath have reached his goal. This is why Neurath turned back to work on his map "City Planning" despite all the battles he had fought when involved in CIAM. It gave him the chance to do two things at once: prove his point to the CIAM architects and apply his socially significant signs to the spatial domain, making his language an integral part of common culture.

The great breakthrough of the 1937 map came with the combination of spatial maps with hatches and pictograms. Neurath's speech on board the Patris and his demonstration of the development of the city of Damascus testified that he was not capable of illustrating cities in combination with their social implications during his time with CIAM. For the 1937 map, he therefore consciously made the decision that he was willing to work with spatial parameters on a city scale. While the ISOTYPE symbols presented their altered



Fragment 5.4a and Fragment 5.4b: Comparison: Symbols

concise syntax, the 1937 map also effectively clarified how to successfully employ "wallpapers" and how to abstract spatial implications.

5.2a, 5.2b Originally published in full-color, the limits of *Architectural Record's* publication allowed the map to be printed in black, white and red. This limitation, however, actually served the point of proving what could be achieved when applying hatches effectively. Given a close look, one can see that the 1937 map does not even rely on saturations. What

5.3a, 5.3b seems to be pink color are actually fine red lines.

In comparison to the full-colored "City Planning" map, Neurath elaborated in his accompanying text "Visual Representations of Architectural Problems," that by using solid and dashed hatches one could also imply whether the city blocks consisted of existing or projected buildings. This alteration also implied that Neurath had planning in mind. The resulting white void could thus easily be indentified as streets and open plazas, which left black lines indicating more important routes of transport.[4]

5.4a, 5.4b On a second level, the symbols' comprehensiveness was also greatly improved, since a way was found to differentiate various types of buildings by simple means. Houses, factories, and big halls like railway stations could be distinguished by the basic shape of their symbols. Whether a space was located outdoors or indoors was indicated by black and white backgrounds.[5]

Thirdly, although Neurath's thought about spaces on a city scale was still at its inception, he stated clearly in Architectural Record that he sometimes felt their precision had to be sacrificed for the sake of their correspondence with iconic indicators.[6]

Otto Neurath and Cornelis Van Eesteren

5.5a, 5.5b Admittedly, when comparing Neurath's map to Van Eesteren's model map I of Amsterdam, the former looks almost too abstract. However, Neurath's systematic simplifications also superseded Van Eesteren's map in many ways.

Since Neurath found the black, white and red 1937 map appropriate to make his statement in an architecture magazine on how to illustrate the city, I chose this version of Neurath's map over the full-color one for making a comparison to Van Eesteren's.



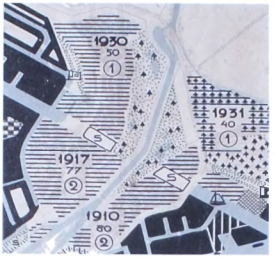
Figure 5.5a and Figure 5.5b: Comparison: Model Map I, Cornelis Van Eesteren and 1937 Map, Otto Neurath



Fragment 5.6a and Fragment 5.6b: Comparison: Hatches

Among CIAM's three model maps, Van Eesteren's model map I of Amsterdam seemed to be the one that lends itself best to this comparative study, since it was also limited to the use of only one color, and because it maps out existing conditions in a city and accounts for housing, work and leisure zones in a manner closest to the content of Neurath's map. Despite apt criticism that will be discussed later, Neurath's map solved many problems not addressed by Van Eesteren. For one, Van Eesteren never managed to solve the illustration of hatches in a systematic way. His hatches, which are a compound of the same tree symbol, lines and dots, are hard to read, since one has to look at the index to actually understand what they mean. **5.6a, 5.6b**

In contrast, Neurath, limited himself to the most necessary types of landscapes, defining the nature of them clearly by the symbols employed: water, ploughed fields, grassland, deciduous woods and evergreen woods.[7] Additionally, Van Eesteren's indication of different densities of trees might even lead one to assume that they could be drawn to scale. Neurath's abstract employment of grass and trees at the same size stresses: this is not a tree, this symbolizes trees. When looking at the caption of both maps another fact about the hatches becomes apparent.



Fragment 5.7a and Fragment 5.7b: Comparison: Density



Fragment 5.8a and Fragment 5.8b: Comparison: Background of Symbols and Use of Color

Due to their simplicity, ISOTYPE hatches could be inverted and indicate two different things in one map. Van Eesteren, to the contrary, used the hatches as itemized solids and as outlines at the same time, making their legibility even more difficult.

Neurath made only one such exception, but for a good reason: trees, aligned at avenues. In this case, the symbol underscores the linearity and the familiar grandeur associated with trees along boulevards.

5.7a, 5.7b

What was not successfully addressed by either map was the indication of density. Van Eesteren used numbers to indicate additional social factors in the plan, but they did not provide a general understanding of the relationship between statistics and space.

Neurath, on the other hand, did not even try to address this issue, since he stayed true to his principle that quantitative information should be kept separate from the map. "Architects who are always closely connected with making floor plans and maps mostly intend to show social facts on maps, but in a great many cases we have to give preference to other methods of representation," he criticized in *Architectural Record*.[8] In his text Neurath reiterated this by showing the densities of different cities again, which he had already demonstrated on the Patris.



Fragment 5.9a and Fragment 5.9b: Comparison: Rotation of Symbols

The last fundamental difference in terms of the hatches is the employment of color. In order to indicate what the eye would see on first, second, and third sight, Neurath employed the strong color red for his most important component, housing. By additionally applying the red as a lined hatch, to help indicate projected buildings, an additional layer was introduced. The other strong color, black, was used to show transportation routes and especially the symbols, which to Neurath indicated the most necessary institutions in the city.

It is curious that Van Eesteren used color as an indicator only for water. Water however, was not important for every city mapped by CIAM, because this made the grey hatches, which were essential to the study, look weak. Using light blue as a literal reference to water is especially disappointing, since a strong color could have been used to emphasize crucial aspects of the city. **5.8a, 5.8b**

The superiority of Neurath's symbols due to their systematic has often been mentioned throughout this text. However, Van Eesteren's clumsy employment of Neurath's symbols in elevation could have been easily solved in a more elegant way by providing a proper background for them.

Neurath did that, by the schemes of buildings, which made the elevation of a figure in plan, seem more abstract. As an exception, I am including the walking man from Van Eesteren's model map III here, since it lends itself best in comparison to the female kindergarten girl; however the same point could be made with the airplane and the ship which appears in model map I. **5.9a, 5.9b**

The rotation of Van Eesteren's symbols along the lines "walking", "driving", or "floating" makes it especially difficult to understand what the symbols imply.

Finally, there is the issue of spatial abstraction, which had always been Neurath's weak point. Clearly, there is a huge difference in scale and certainly Neurath's maps lack spatial precision. While Van Eesteren's map shows great detail, Neurath's map seems oversimplified, since it depicts a town of an unspecified size. Street widths do not vary and the river seems to be too smoothly shaped; it is uncertain if it shows actual city blocks.

Additionally, the "social indicators" suggest that one is looking on a fully grown city, with an airport, a railway station, hospitals and factories, yet the sum of all city blocks cannot possibly deliver the critical mass of people living in a city with such extensive private and public infrastructure. Thus, the city blocks seem so organic that one would assume they could be have been drawn on the basis of an existing city, yet their scale and the institutions they hold do not quite make sense.

Otto Neurath and his 1937 Map

This discrepancy in scale is unsettling, and there is no hint in the literature that the 1937 map derived from a real city. The general assumption has always been that it is a generic. This is logical, since Neurath argued for years that rules in city planning were best illustrated by means of showing small generic parts or cut-outs.

What counters the generic theory is that Neurath usually drew from social and economic facts. So why would he not treat the city as a spatial social fact? Additionally, the fact that the map was "Neurath's attempt at [contrasting] the language of 'The Functional City'" suggestes working with an actual place.[9] So, if Neurath published a map in response to CIAM in 1937, it would have been awkward had he not done it on the basis of a real city. After all, CIAM specifically set out to map more than thirty actual cities in the world. But for being the illustration of a real city, the 1937 map was too out of proportion, while for being a generic it was too specific.

After so many years of emphasizing general indicators in a city, it would have been too huge of a break with his own tradition for Neurath to have made an exception of the spatial domain – he still emphazised facts that were generally applicable. Yet, it would have been difficult to invent a city from scratch, especially for someone who had no such specific training. So what was it?

It seems that it is both. The 1937 map is indeed generic, but there is reason to believe that the generic cut-out was drawn on the basis of a significant city. It was a city significant to Neurath, a city that made sense in contrast to Van Eesteren's Amsterdam: The Hague, Neurath's new city, the city where he continued his legacy.

It seems that in the end Neurath realized that spatial givens were important to take into consideration, even when depicting the city. However, he kept this realization a secret, because it was most important to emphasize that such infrastructure could exist with slight differences in every city in the world. To arrive at such an abstract level, however, many modifications had to be undertaken.

5.10

5.11 Once the city was chosen, it had to be decided which part of it could be depicted. Thus, according to Neurath's rules, it could not be drawn to a large scale.

In order for the map to be a valid response to CIAM it needed to be a place that possibly incorporated all aspects of "The Functional City:" housing, workplaces, recreational areas and various transportation networks.

Obviously, such a place was hard to find in only a small cut-out of a city. Therefore modifications had to be made.



Figure 5.10: The Hague, Zoom In: 1, 2, 3: Regional Map, multiple sources;[10] Railway Station, multiple sources[11]



Figure 5.11: Comparison: The Hague, Google Earth, 2010 and 1937 Map

5.12

From the actual city, a good *transformer* would move on to draw out a larger city block and scale it down.[12] Then the *transformer* might morph a river into a sidewalk and some housing blocks into a river. The *transformer* might also copy an airfield from the far south of the city and insert it straight up north into the fictional city, where it fit best alongside a major transportation route. Then, he might also do the same with a lake from the outskirts of the city. Finally, the *transformer* could start drawing out actual greenery in the city. He might also invent some greenery and reshape some housing blocks and move them where they fit best. And if he is a gifted *transformer*, he will eventually arrive at a generic city.

Van Eesteren was never able to improve his symbol dictionary despite his dedication. Neurath alone did make a step forward: he started to map out his first and last map of a city and moved torward operative *city planning*.

The combination of spatial implications and socio-political factors alone was one big step, but also the demonstration of projected buildings, some of them located along the main lines of transportation, tried to make an operative suggestion. And while its extreme abstraction could have possibly caused problems when applied for planning purposes, it is also this degree of simplification that would allow for a completely new reading of the city, possibly the reading of a global generic city. And maybe this is why today this map seems so contemporary.



Figure 5.12: Transformation, All figures drawn on the basis of the plan in Figure 5.10, 2010

I think that Van Eesteren and Neurath both held one key to the world of graphic information and that their struggle against all obstacles to hold on to their collaboration proves that they must have realized this. Both were equipped with a skill that the other did not posess. Van Eesteren knew how to draw maps with precision from which actual urban strategies could be derived, and Neurath knew how to unite symbols and space into an abstracted generic place that could easily be assessed. But rather than bringing them together, the intended degree of graphic simplicity divided them.

"The ISOTYPE method of visual education," Neurath reiterated in 1937, "is intended to bridge the gap between more or less purely conventional symbols for the orientation of specialists, and more or less self-explanatory symbols destined for general enlightenment."[13] To him, the application of signs to the spatial discipline was fundamentally shaped by the fact that "city planning and home planning were concerned with life planning in general."[14]

This was what drove all of Neurath's urban endeavors and it was the first point he made in *Visual Representation of Architectural Problems*, the text that would be his last dedicated to urbanism.[15] "The reason for this" he wrote, "is that architects are people whose profession it is to make the entire lives of human beings as happy as possible."[16] One wonders if he thought of some CIAM architects.

The architects had failed to illustrate the city so that everybody could participate in discussion about it, and they had also failed to deliver for the common man what Neurath wanted every city to have. For these reasons, he illustrated in a generic map of The Hague how he envisioned it – a small town by the water, fifty percent greenery, fifty percent urban fabric. While greenery was certainly central to the Athens charter and Neurath might have made it a big part of his map because he wanted to speak to the CIAM architects, the balance of greenery and urban fabric is also reminiscent of the *Viennese settlement movement*.
This is especially true because in an abstract way, the orchards, forests and lakes Neurath depicted might be a reference to the latter. But Neurath also stressed the city's important institutions, which was antithetical to the Athens Charter: working areas and leisure zones, hospitals, kindergartens and playgrounds as well as factories, were integrated in housing zones. More than only creating an altered illustration of the city, Neurath also displayed a piece of the city as he envisioned it. And by making its legibility accessible, he maybe hoped that people would be able to demand that city, a better city, a better life at large.

Neurath referenced the CIRPAC in this text only once, in a footnote. He stated that ISOTYPE standardization could be compared "with various attempts at architectural representation, e.g. with the stimulating proposals of the CIRPAC made by Van Eesteren."[17] It is unclear if that mention was really meant as a tribute to the "stimulating proposals," or if it was meant to parallel his own work to that of CIAM, a mention he felt was long overdue.

1 Otto Neurath, *Basic by ISOTYPE* (New York: Kegan Paul, Trubner & Co., 1937)
Otto Neurath, *International Picture Language* (New York: Kegan Paul, Trubner & Co.,1936)
2 Basic English promoted a simplified verbal grammar and a dictionary compound of 850 English words.
3 Charles Kay Ogden, introduction to *Basic by ISOTYPE*, by Otto Neurath (New York: Kegan Paul, Trubner & Co., 1937), 5.
4 Otto Neurath, "Visual Representations of Architectural Problems," *Architectural Record* (1937): 59. *In this map we differentiate different kinds of areas: actual and projected buildings, grassland, woods, plowed land, waste land. If we always use shades of colors to represent city areas we can separate the city region from the rest of the map which we can leave white such as on our map, areas occupied by streets, squares or airports.*
5 O. Neurath, "Architectural Problems," 59.
The symbol, representing stations, factories, kindergartens, and other buildings are in black with a white design in the middle.
6 O. Neurath, "Architectural Problems," 58.
We cannot show all these social and economic details and also maintain the correct shapes of all architectural elements. We must always choose between representing exact architectural data in a narrow sense, and social information.

7 O. Neurath, "Architectural Problems," 57.
These are the titles Neurath uses for the hatches.
8 O. Neurath, "Architectural Problems," 58.
Architects who are always closely connected with making floor plans and maps mostly intend to show social facts on maps; but in a great many cases we have to give preference to other methods of representation. We must avoid accumulating maps showing social data; it is more instructive to combine maps and pictographs. This leads us to a use of a symbol dictionary which contains symbols applicable to both maps and pictographs. This is the basis of visualization more widely applied.
9 Nader Vossoughian indicated that the 1937 map was Neurath's way of illustrating the functional city in his subtitle to 4.4., N. Vossoughian, *Global Polis*, I however think Neurath really wanted to contrast the Functional City.
10 Map drawn on the Basis of Two Maps: Main map: "Gemeente s Gravenhage Schaal 1:10,000," 1957, showing The Hague. Source: Cornell Library Maps Devision, G 6004 H9 1957 64. South of The Hague: Historische plattegronden van Nederlandse Steden, del 10. Den Haag, Kaart xxiv.4. Dienst S&V, 1948; uitg. Gemeente's Gravenhage. Source: Cornell Library Maps Devision. MAPS G 1864. A1 H67 1978 +++ d.10. I have worked off of two maps, because Neurath used an airport in his map that was indicated for The Hague in Berlage's extension plan for The Hague.
11 Map of Railway Station: "The Hague (s'Gravenhage)," Albert Goldschmidt, Berlin, 1930, 1:14,300, Source: Cornell Library Maps Devision: G 6004 MAPS H3 1930. General Map: Gemeente s Gravenhage Schaal 1:10,000," 1957, showing The Hague. Source: Cornell Library Maps Devision, G 6004 H9 1957 64.
12 See page 50 of this thesis for the explanation of the transformer.
13 O. Neurath, "Architectural Problems," 57.
14 O. Neurath, "Architectural Problems," 57.
General Architectural Problems:
City planning and home planning are concerned with life planning in general, and architects must often cooperate with technicians such as builders, carpenters and plumbers on the one hand and, on the other, with specialists in social sciences, with social workers, physicians interested in public and individual health, geologists, meteorologists and other people who deal with the environment of our social life and private life.
15 Neurath continued to theorize architecture in private – the letters to Josef Frank, most of which are in the Austrian National Library are prove of that. In 1945 he participated in the architectural Bilston experiment, however he still was disappointed by the urban planers.
See footnote 41, A. Faludi, "Planning Theory," 209
16 O. Neurath, "Architectural Problems," 57.
The reason for this is that architects are people whose profession it is to make the entire lives of human beings as happy as possible and that their theoretical view is not only founded on principles which determine certain technical functions but also on ideas of happiness of human beings as a function of architectural activity.
17 See footnote to O. Neurath, "Architectural Problems," 57.

See examples in Otto Neurath, Basic by Isotype, Kegan Paul, London, 1937, We can couple ISOTYPE standardization with various attempts at architectural representation, e.g. with the stimulating proposals of the CIRPAC made by Van Eesteren.

Chapter 6

Conclusion

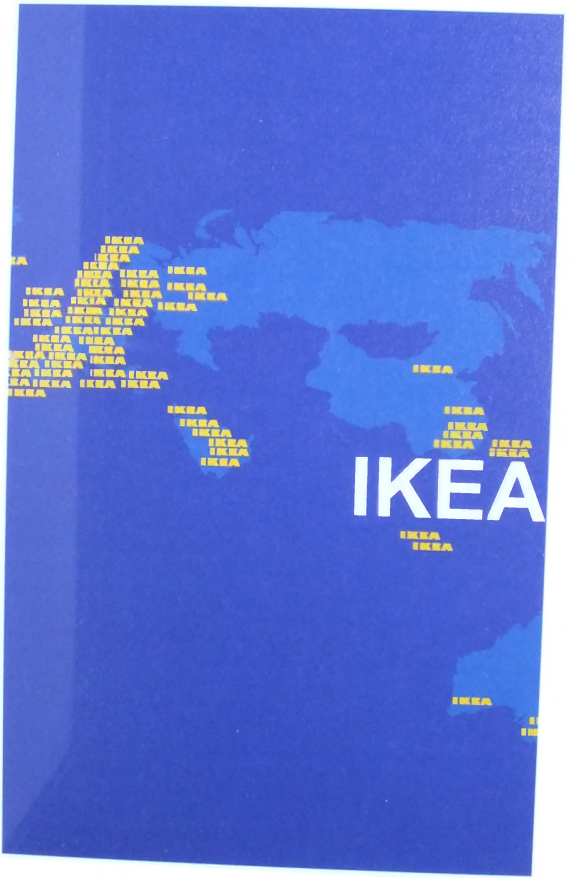




Figure 6.1 "IKEA Warehouses in 34 Countries." Image Courtesy OMA, ca. 2004

6.1 Images are easy to copy and hard to cite, especially if they are created with mass production and easy replication. Tracing a precise trajectory from Neurath's map until today is something that cannot be done. However, some remarkable samples have relevance in the context of Neurath, if only to show that references exist. This is by no means to try to make a historical chronology, but only to point out that even today we are surrounded by images that have some relation to Neurath. In fact, Neurath's pictograms greet us from doors and signs no matter where we go in the world.

Therefore, in this sense, there is the vernacular part of Neurath's legacy: the big, ubiquitous Neurath legacy.
His work was always meant to serve the masses and it did. Created to neutrally inform, ISOTYPE pictograms were soon taken over by mass media, which Neurath himself had started to propagate in the late 1930s.[1] In the following decades, the signs were used for every possible cause, ranging from advertisement to international travel, teaching and pop culture. They took on a life of their own, they were rediscovered, recycled, reapplied and reinvented, sometimes in the lines of Neurath's thought, but more often against all of his rules. They became so international, transcultural and transhistorical that it was soon completely impossible to say where they were first seen and who copied them from whom.

6.2 The ISOTYPE pictogram for "Where to get your boxes," for example, has become the international sign for the baggage claim, although it might vary slightly in its details. What is curious, however, is that the leather straps, which were commonly used in the first decade of the 20th century to hold a stuffed suitcase together, have survived in the official sign for the baggage claim, although today one would rarely see such a suitcase in the airport.

6.3a, 6.3b, 6.3c

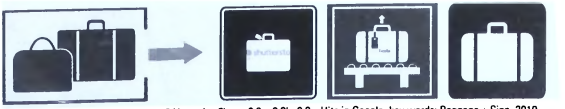


Figure 6.2: "Where to get your Boxes," Neurath Figure 6.3a, 6.3b, 6.3c: Hits in Google, key words: Baggage + Sign, 2010

Although today some of these signs are internationally understood, many of them are not inherent to the culture where they were applied. For instance, the suitcase might be spotted in train stations and airports in countries where many people travel with backpacks, baskets or boxes. This means that these Europan symbols of the early 20th century colonialized the world, whether or not they were apt for their audience.
This is due to the fact that many of them were unified and codified for the purpose of international traffic or manuals. When "ISO (International Organization for Standardization)" and "DIN (*Deutsches Institut für Normung*, German Institute for Standardization)" started to standardize almost all parts of everyday life, signs were one of the first to be standardized. Visual globalism worked against such individualism. One of the first people to point out this problematic was Rudolf Modley, an employee of the "Museum for Society and Economy," who argued that every country had to find its "dialect" of ISOTYPE; an "Americanized" version of ISOTYPE, one understandable in its specific cultural context, to carry on its legacy in the United States.[2]

Much of Neurath's legacy in terms of every day usage of symbols can be attributed to the tireless effort of numerous graphic designers, who cannot be credited here. However, in conclusion, it has to be mentioned that the work of Neurath's collaborators like Modley, but mainly Gerd Arntz and Marie Reidemeister, contributed enormously to the circulation of ISOTYPE around the world, as well as the variety of dialects it would eventually develop. While Arntz carried on the graphic work of ISOTYPE in the form of magazines, exhibitions and books in Holland, Marie Reidemeister did the same in England with the addition of her vast investment in children's books with visualizations based on ISOTYPE. And although today it might sometimes appear to us that they are a product of the masses, one must not forget that they were initially authored for the masses, congested by them and reappropriated.
But apart from the broader trajectory of Neurath's ISOTYPE, there are also case studies of its use within the realm of architecture and urbanism. These are easier to highlight as cases in point.

Whether or not the The Hague Map can be credited in part for this use is hard to say, but it is not likely. Although the map marked the culmination of Neurath's urban endeavors and was a serious answer to questions posed by CIAM, it was still only one map in the context of hundreds, even thousands, of quantitative charts produced over the years. This map, which marked the end of Neurath's active involvement with illustrating and theorizing the city, foreshadowed the visual clarity that entire generations of architectural maps after it strove for, whether the people making them even knew of Neurath and his endeavors.

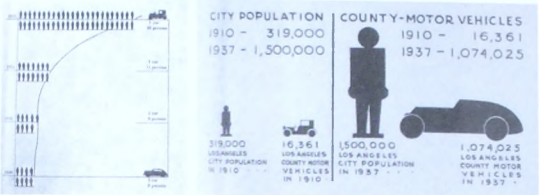


Figure 6.4a, 6.4b: Bad Examples in Sert's Book, "Ratio of Automobiles to Habitation" and "City Population, Motor Vehicles"

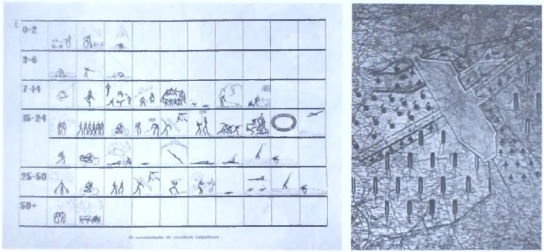


Figure 6.5a, 6.5b: Misinterpretations, "Recreational Needs," and "Functional Warshaw," 1935 – 1936

In the realm of urbanism, Neurath's work lived through CIAM's maps of 1933, and also from later works. But Neurath's original charts also appeared next to good imitations and more clumsy ones in Sert's *Can our Cities Survive?*.

6.4a, 6.4b

6.5a

Even at the following CIAM congresses, references to Neurath's symbols and hatches surfaced, some of them illustrated in their own continuous logic, while others made Van Eesteren's worst urban nightmare come true by interpreting Neurath all too literally.

6.5b

An example was "Functional Warshaw," in which Neurath's trees, apples and ears, formally employed to symbolize certain types of landuse, appear to be almost literal interpretations. Sloppily adapted, the ears seem to become towers or something similar.

The first extensive independent contribution in the lines of Neurath's thought was the *World Geo-Graphic Atlas* by Herbert Bayer, published in 1953. The capitalization of the word "Geo-Graphic" already signaled that the Atlas did not only intend to depict geography alone, but it did so with an additional dedication to graphics. This study is relevant in terms of Neurath's mappings since it not only collected geographical data by means of images, but showed them in correlation to sociological and anthropological components.

Bayer, first a student at the Bauhaus and later the master of its typography workshop, is an interesting figure, since he simplified and standardized the Bauhaus' typography by using only lower-case letters and was instrumental in founding the DIN formats.[3]

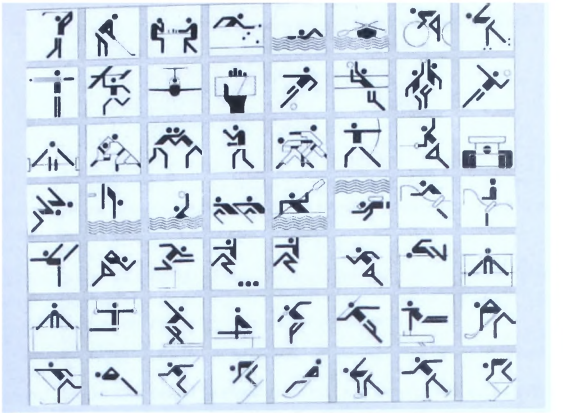


Figure 6.6: Otl Aicher's Stick Figures for the Olympic Games in Munich in 1972. ca 1972

In the late 1960s and early 1970s, a comprehensive large scale project was undertaken that would trigger a further usage of symbols world wide: the design preparations for the Olympic Games in Munich in 1972. During this time the lead designer, the German Otl Aicher, developed an elaborate directory compiled by a new set of pictograms. **6.6**
His stick figures became instrumental as sign language of circulation and activities all around the world. Trained as a sculptor, but active as a graphic designer throughout his life, Aicher contributed regularly to the German architecture magazine *Arch+*,stressing the relationship of architecture and typography.

Mapping saw its rebirth in architecture in the late 1990s and in the early years after the millenium. Main factors that might have contributed to its revitalization were the internet-boom, the adoption of network theories and the emergence of new computerized tools specific to the field. During a new awareness of global forces it became increasingly interesting to understand and map them onto space.

And it was Rem Koolhaas who, with the founding of OMA's (Office for Metropolitan Architecture) research division AMO, institutionalized the use of the map for the disciplines of architecture, urbanism and globalism anew. In an interview conducted for this research on Neurath, Rem Koolhaas confirmed that he was familiar the work of Arntz and Neurath and that he had been influenced by it.[4] However, he also stressed **6.7**
that more complex rules were generated by AMO, for a more complex world and for the more diverse cultures that exist today.
"Although one would initially think that a diagram speaks a universal language, I do not think so," Rem Koolhaas said. "I think that a diagram... means totally different

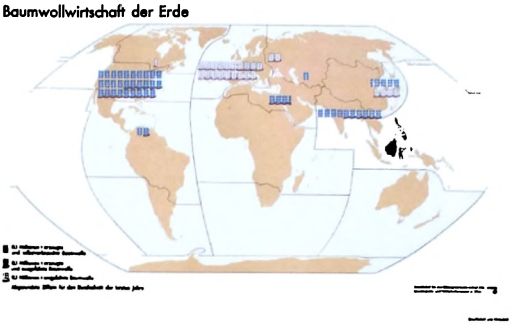


Figure 6.7: Mapping Neurath: "Cotton Economy in the World, Chart 44" in Gesellschaft und Wirtschaft, ca. 1929 - 1930

things in the Islamic world or in China or in America." I asked him if this was because of the symbolism that accompanied the diagram. "Yes, but also because the way of looking at figurative things does not have the same history in every country," he added.

"And doesn't a liquid, completely globalized world, also require more liquid maps?" I asked Koolhaas "ones that apply a fundamentally different logic, than the ones from the 1920s and 30s." "How would you imagine that?" he asked me and then more rhetorically "are they in real time, are they alive?" "Yes," I said.
And then he answered:

> *The promises of the digital are short-lived. In many cases before the promise can establish itself, the decadence of it already prevails, or the commercial prevails, or the trivial prevails. It has been an incredibly difficult domain in which to retain precision and to retain integrity. In certain cases exactly against this fluidity and against this immediate abuse of every idea, that the Internet [...] seems to suggest, [we create maps that are] at least momentary freeze frames of particular conditions.*

AMO's maps therefore do have something in common with Neurath's.
But Koolhaas finally brings together what Neurath and the CIAM intended to do: using operative maps with an elaborate grammar and syntax as a means of designing, and utilizing others to communicate precise statements about the world. This duality of the map as a statement and the map as tool exists in his practice.

"Sometimes," Rem Koolhaas said, "the diagram is an attempt to document and interpret an existing situation and at other times the diagram is a tool to trigger a project. I think we use them in both directions."

I think we [make maps] ... as interpreters at a moment of great political and ideological confusion. To some extent we adopt a language, not so much ironically, as a statement that there once was clarity, but the clarity is currently gone. [But] most of the diagrams we make try to clarify our own confusion. So they are fundamentally engines to create clarity for ourselves.

So Neurath persists. Not only in mass culture and in the way architects design and illustrate the contemporary city but also in the generation of critical thinkers, being educated at this very moment, equipped with the generative tools to discover political clarity anew.

Sometimes I wonder what Neurath and Van Eesteren would say, if they saw that "their maps" have finally been altered for making precise statements, while at the same time being effective design tools. I think they would be very satisfied.
Only Otto Neurath might ask Rem Koolhaas, what his ulterior goal was.

1 Otto Neurath, *International Picture Language – The first Rules of ISOTYPE*, Kegan Paul, (London: Trench, Trubner & Co, 1936), 7.
2 Rudolf Modley, introduction to *How to use Pictorial Statistics*. (New York and London: Harper and Brothers, 1937), xiii.
3 Herbert Bayer, Walter Gropius, Ise Gropius, eds. *Bauhaus*, 1919-1928. (New York: The Museum of Modern Art, 1938)147.
4 Interview with Rem Koolhaas, April 13, 2010, see Appendix B, Sophie Hochhäusl, Otto Neurath – The Other Modern: Proposing a Socio-Political Map for Urbansim', (MA Thesis, Cornell, 2010).

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Austrian philosopher, economist and member of the Vienna Circle, Otto Neurath (1882–1945) investigated representational maps for more than two decades of his life. In search of "humanizing knowledge" he revolutionized the discipline of chart making by quantitative maps (picture statistics) accessible to a large public. In this book, Sophie Hochhäusl argues that Neurath's map "City Planning" served not only as one of the first accessible socio-political maps of a city, but it was in effect also a heuristic architectural device. Hochhäusl also explores the extent to which Neurath perceived of the city as an agglomeration of social facts, and how far his socio-political map contributed to planning the city on such basis.
With a preface by Bart Lootsma.

Sophie Hochhäusl studied architecture at the Academy of Fine Arts in Vienna, and is currently a PhD candidate in the history of architecture and urbansim at Cornell University in Ithaca, NY. Her previous work includes the architecture children's book "Pinsel, Paula und die Plaudernden Häuser," co-written with James Skone and Alexander Mayer (2006). Her exhibition "Master Planning Paradise" which dealt with 110 years of communal housing in Vienna, was shown in cooperation with the Austrian Museum of Architecture, Az W (2008).

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