The Triumph of Function over Form:
The Role of Analytic Philosophy in Planning and Analysing Modern Architecture

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Introduction

The first appearance of connections between analytic philosophy and modern architecture was after the First World War, especially in the work of Le Corbusier, the Bauhaus and the professional framework provided by the CIAM (*Congrès International d'Architecture Moderne*).[1] These antecedents would prove to be important in the later history of architecture, because they served as a reference for the most dominant architects.

In order to understand tendencies in socialist architecture in the second half of the twentieth century in eastern Central Europe, it is necessary to study the early analytic philosophy of the 1920s.[2] Historical architectural ornaments returned to the language of architecture with the appearance of the classicism of the Marxian Socialist realism, but the Khrushchevian architectural turn in the 1960s grounded a new way of architectural thinking, with an emphasis on social responsibility. This was the age of house factories and house blocks, and it was based on scientific planning and the fight against individualism. The ground of these changes was found in Le Corbusier's architectural theories, specifically his structural plan for the Dom-Ino house (1915).[3] In architectural terms, one could find in these Dom-Ino elements a reference to Wittgensteinian language games. In his *Philosophical Investigations,* Wittgenstein emphasised the context-sensitivity of the language.[4] His famous duck-rabbit example shows how we may perceive the very same form either as a duck or as a rabbit, depending on our perspective. *Domus* means house in Latin; dominoes are units designed as a common industrial module that can fit into one another precisely. Le Corbusier's Dom-Ino is a house and a game of dominoes at the same time, depending on our perspective. This double perceptability is inherent in the design of both Wittgenstein's duck-rabbit and in Le Corbusier's Dom-Ino. All the elements of a house of cast concrete are mass-produced, therefore, it already inherently owns an appropriate system of proportions.[5] Here we can most plainly observe that object-type, foreseen by Adolf Loos: a reinforced concrete structure suitable for mass production.[6] Houses, mega-structures and complete vertical cities could be built from these Dom-Ino elements. This kind of planning applies the criteria of the Vienna Circle: house blocks are perspicuous, transparent and calculable systems.[7]

There are many similarities between the city of the first machine age and the socialist house block system. Le Corbusier's 'machinised city' is called Ville Radieuse, where both the districts and use of the buildings were inscribed in the plans. The ideal block house was a type of Unité d'Habitation, leading in turn to the New Brutalist style, resulting in functional and objective socialist house blocks. The term New Brutalism was first applied to Le Corbusier's post-1930 style by the English architects Peter and Alison Smithson in 1954.[8] The rooms in a house were scientifically calculated according

to their use. It is important to note that habitants were called 'users' and their lifestyle constituted adequate use: a method.

In the twentieth century, modernist architecture tendencies were dominant in the entire territory of Europe. But after the Second World War, a break with this trend appeared, especially in the countries of eastern Central Europe. The era of socialist realism in art, design and planning was dominant there in the 1950s only. After that, a new age emerged: the era of house blocks. In this article I will argue that the ideology of house factories constitutes exactly the return to the science-based modernist architecture theory trends of the interwar period.

The restructured power relations in this region after the Second World War also left their mark on architecture. After the modernism of the interwar period, historical forms returned to the language of architecture. The Soviet worldview was the dominant ideological system, summed up in Stalin's maxim: 'socialist by content, national by form'. It resulted in an architectural neoclassicism renewed with decorative elements borrowed from Russian folk or nation-specific traditions. In Hungary, architects chose the original classicist architecture, gently mixing it with the modernist approach of the interwar period. A specific type of building of the era was the neoclassical façade, with a modernist structure 'below the surface': party houses, university buildings and complete Potemkin cities were built in this way; the trend is called façadism. One of the most important projects of the era of dogmatism was the building of People's Stadium by Karoly David in Budapest. David had worked in the office of Le Corbusier, and after his return to Hungary he started to orient his architectural practice toward the ideologist and dogmatist atmosphere dominating Hungarian architecture at the time.[9]

The end of the Social Realist era is bound to Nikita Khrushchev's 1954 speech: building with bricks was expensive and slow, thus the new way of architecture was thought to be the wall block system.[10] The Khrushchevian architectural turn with its house block systems signals the renewal of modernist architecture theory, based on a scientific method of building. The experimental housing estates were built explicitly involving science. This was a common approach of the age internationally. For example in 1964 the city centre of the heavy industrial Hungarian city Salgotarjan was built, inspired by the late ferro-concrete architecture of Le Corbusier; at around the same time, the buildings for the Tokyo Olympic Games by Kenzo Tange were realsed as well. Both plans entailed a renewal of the international character of the modernist era, the use of exposed concrete as a construction method and referred to intellectual heritage of the CIAM.

Between form and function – grounding the architecture theory of the twentieth century

The starting point of the debate between form and function that resulted in the polemic in the whole twentieth century was the canonical trope once expressed by Vitruvius and later renewed by the American architect Louis Sullivan in the following words, first printed in 1896:

> Whether it be the sweeping eagle in his flight, or the open apple-blossom, the toiling work-horse, the blithe swan, the branching oak, the winding stream at its base, the drifting clouds, over all the coursing sun, form ever follows function, and this is the law. Where function does not change, form does not change. The granite rocks, the ever-brooding hills, remain for ages; the lightning lives, comes into shape, and dies, in a twinkling.

It is the pervading law of all things organic and inorganic, of all things physical and metaphysical, of all things human and all things superhuman, of all true manifestations of the head, of the heart, of the soul, that the life is recognizable in its expression, that

form ever follows function. This is the law.[11]

It was manifested first of all in the opposition of ornamentation and functionality. The historic preference was questioned as early as the 1890s by Adolf Loos:[12] 'Since ornament is no longer organically linked with our culture, it is also no longer the expression of our culture.'[13] In his lecture *Ornament and Crime* of 1913 he turned against the aesthetic principles of the Vienna Secession. Loos's most important argument against the use of ornamentation was its wastefulness, squandering both labour and material, leading to the enslavement of the craftsmen, which he condemned as a crime. He criticised the use of ornament on both ethical and aesthetic grounds. Loos said that 'the evolution of culture is synonymous with the removal of ornament from utilitarian objects'.[14]

After the First World War, advancements in science had a pronounced influence on art and architecture. In the architectural schools operating at the time, especially the Bauhaus, it was felt that the response to the fundamental changes after World War I needed to be a revolutionary movement. Tension as a result of the emptiness of old values, demanded reforms; the new needs (building a new kind of cheap and utilitarian flats for workers instead of large and imposing appartments for the former middle classes) could not unfold as there was no appropriately constructed environment. The view of environmental determinism entailed that architects aimed at changing lifestyle by transforming the living environment of the inhabitants. The emerge of this new architecture gave rise to a modern, unified material culture and novel style of a new era. The most important features of these were cosmopolitism and scientific objectivity.

After World War I – the first connection between analytic philosophy and modern architecture

After World War I, in the Europe of the 1920s, a common intellectual, scientific worldview seemed to develop, influencing thought as a whole. Due to these common roots, several points of similarity may appear between architecture and philosophy. From the worldview of the era, a movement was unfolding with the mission to improve society. For expressing such ambitious objectives, the manifesto or proclamation is the characteristic medium. Among the manifestos, we can count Le Corbusier's *Towards a New Architecture* and Rudolf Carnap's *The Scientific Conception of the World: The Vienna Circle,* both of which reacted to the problems of society and intended to cure them. As Carnap puts it in 1929 in his manifesto:

> We witness the spirit of the scientific world-conception penetrating in growing measure the forms of personal and public life, in education, upbringing, architecture, and the shaping of economic and social life according to rational principles. The scientific world-conception serves life, and life receives it.[15]

One of the core ideas of the Vienna Circle is verification. In modern architecture, several understandings of science can be distinguished, but a common attribute among them is the use of the method of verification. One approach is attached to the name of Le Corbusier. In his *Towards a New Architecture* he unveiled his thoughts about verification and language, together with the five points of modern architecture. In Le Corbusier's writings, the aesthetic of the machine is based on an analogy with ships and automobiles. He held that a house should function as a perfect machine, serving its user. In this view the house was interpreted as the basic unit of architecture that must be constructed scientifically.

Le Corbusier used the automobile to illustrate the new aesthetic of the machine age. With the cessation of decoration, a new idea would control contemporary architecture and systems of thought, namely machinism.[16] In order to achieve a concept,

norms regulated by strict principles are required. According to Le Corbusier, the problem of a house should be approached in a similar way to that of an automobile, which has the virtue of standardisation.[17] The automobile is the top achievement of the aesthetics of engineering, the direct Le Corbusierian analogue of which is Maison Citrohan.[18]

In Le Corbusier's vision, the plan of Maison Citrohan would accurately define the criteria of a modern house.[19] Using a car brand name, the architect wishes to indicate that the house needs to be as standardised as an automobile. The house that is regarded as a tool is opposed to old concepts of a house, which according to Le Corbusier used space in an inappropriate way. An automobile or a ship cabin would be the ideal model for a house in both the planning and the building process. The means of technical and industrial development would have to be applied, by virtue of which outdated ways of thinking could also be changed. According to the architect, it was no longer ornamentation but instead the proportions that carried beauty which would be present in each part of the building, shaped by modules.[20] This resulted in 'the house [that] is a machine for living'.[21]

A more detailed explanation of the machine paradigm can be found in the third chapter of Le Corbusier's *The City of To-morrow and Its Planning*. According to Le Corbusier, the coming of machines in great numbers induces moral changes. Ships, automobiles and planes do not only change our aesthetics but they also change our rhythm of life. Industrial development and the mass influx of materials eliminate manual production methods.[22] Le Corbusier's reaction to the development of scientific technique is analogous to the scientific concept of the Vienna Circle.

Another approach came into being at the functionalist school of the Bauhaus. In the Bauhaus, led by Hannes Meyer, Rudolf Carnap's direct influence

dominated by virtue of emphasising scientific criteria, while denying the *raison d'être* of the aesthetic at its very ground.[23] The major difference between the two approaches is that while Hannes Meyer rejects all forms of aesthetics, Le Corbusier attempts to unite engineering and artistic approaches since, in his opinion, an architect is pursuing artistic activities. In my essay I will focus on Le Corbusier's theory, because science-based machine aesthetics and social responsibility work together in his work; and this way of architectural thinking can be considered a precedent for the socialist house block systems after WWII all over central Europe.

The scientific-technological view appears in such a way that automatism and operationalism influence the architecture of Le Corbusier, too. The engineer's view is dominated by mass production and industry. This needs the development of scientific criteria with which generally valid answers can be given. Thus the architect's activity becomes similar to that of a scientist working in a technological laboratory, in that the method of verification originates from the quantitative methods of natural sciences.

Le Corbusier's *Towards a New Architecture* has to be interpreted within this social-scientific context.[24] At the start of the book, Le Corbusier contrasts architecture with the aesthetics of the engineer; the latter is thought to hold true by virtue of its analytical method. According to his view the architect creates a world, relying on the laws of nature. His task is to find the line of force and the directional vectors of a form based on pure geometry. It is the engineer who is creating the means of our era in the spirit of thrift, sanity, sturdiness, usefulness, morality and harmony.[25] Therefore, the role of the architect is changing: no longer are the artistic products, the satisfaction of visual desires and the questions of emotional phenomena merely the standard. It becomes increasingly necessary to arrange more primary forms, the dominant contemporary genre of painting according to geometrical rules, and to

apply simple mass and town planning based on it.[26]

In her monograph on Le Corbusier, Christine Boyer describes the main objective of his work as the development of a language of modern architecture and urbanism; its result is the well-known five points of modern architecture. The main issue is how an architect should shape a house so that it can be like any other machine designed for transportation such as an automobile, a plane and an ocean liner. It is known that Le Corbusier had read two of Loos's significant essays (*Ornament and Crime* and *On Architecture*)*,* and that they had a great impact on him.[27] In his theory of the machine age, Le Corbusier further improved the 'Loos paradox' according to which modern ornamentation no longer included ornaments, so that we can speak of the aesthetic of the engineer based on scientific criteria.[28]

Boyer enriches the research with a new aspect, since she also analyses what writing meant for Le Corbusier. In writing, as a way of thinking, the architect's work can be compared to that of a scientist working in a laboratory: they both carry out research, justify it and finally fit the findings into their system of thinking.

I claim that a need for scientific foundations in architecture reappear after World War II, just as they had after World War I. There are three reasons for this: (1) social housing, (2) happiness for the greatest number, and (3) scientific criteria in planning, because architects were faced with the problem of building houses as quickly and cheaply as possible and for everyone. The same process started after both world wars, thus the role of analytic philosophy in house and city planning was equally great in both periods. In eastern Central Europe, the revival of modernism was interrupted by socialist realism.

The Marxist worldview in architecture and the Khrushchevian architectural turn

The architecture of Marxism combined gigantism with a neoclassical style – columns, arches, and decorative façades on an enormous scale. There were four criteria for the architectural design: it must be (1) understood by workers; (2) realistic; (3) revolutionary and (4) it must find its theme is scenes from the everyday lives of ordinary people.[29] The socialist realism fight against the clarity of modernism was expressed in figurative illustration, for instance in realistic worker-scenes, and in ornamentation, where motifs from national folklore and from ancient Roman culture were emphasised. A visual memento of the founders of the socialist worldview was always desirable. This glamourous architectural language appears in the Moscow subway stations, but in the Stalinist baroque-style skyscrapers and the urban design as well.

In eastern Central Europe, socialist realism was dominant in the 1950s only. There are lots of differences in the architecture of this era and the original Soviet version of the new style. In Hungary, Czechoslovakia and Poland, a colourful version of socialist realism emerged – of course within a given framework – which is different from the megalomania of the Stalinist baroque in Moscow. The new style was evolved by the modernist architects of the interwar period, but they were under pressure: they were not allowed to plan what they really wanted.

Complete districts and whole cities were built in this renewed historical style, but not consistently. The core structures of the houses and the cities were built on a classical modernist plan, but the architects had to use the required historical ornaments. Thus this tendency, called façadism, resulted in the building of socialist realist Potemkin cities across eastern Central Europe. [Fig. 1]

The end of the era of socialist realism was bound to an exact day: 31 December, 1954. On that day

Nikita Khrushchev held his famous speech at the Conference of Construction in Moscow. There was a housing shortage in the Soviet Union, thus to solve the demand for cheap housing was the most urgent problem. Building with bricks was very expensive and slow, thus the new way of architecture was thought to be the wall block system.[30] This is why, in the Soviet Union, the focus shifted from form-based socialist realist architecture (*Stilarchitektur*) to the function-based late or Soviet modern planning method.

> Extensive expansion of manufacture of prefabricated reinforced-concrete structures and parts will give enormous economic benefits. Our builders know that until recently there was debate over which of two paths we should take in construction – use of prefabricated structures or monolithic concrete. We shall not name names or reproach those workers who tried to direct our construction industry towards use of monolithic concrete. I believe these comrades now realise themselves that the position they adopted was wrong. Now, though, it's clear to everyone, it seems, that we must proceed along the more progressive path – the path of using prefabricated reinforced-concrete structures and parts.[31]

It is necessary to distinguish socialist realist architecture from late modern on the one hand, and façadism from standardisation on the other hand.[32] This constituted a paradigm shift in the nature of architecture theory in eastern Central Europe in 1954. This paradigm shift could be represented by a case study: the socialist realist building R and late modernist building E of Budapest University of Technology and Economics in Hungary.

The university campus is divided into three parts: the old part with historicist-style buildings, the modern, postwar block and the newest part, built in a contemporary style. The buildings R, T, H and E are located in the middle block. Their names are thought to be abbreviations of the following Hungarian words: R from the name of the Communist Party leader Matyas Rakosi, T from knowledge (*tudás*), H from progress (*haladás*), E from 'go ahead' (*előre*). According to another explanation, the names came from the appellation of the departments and institutes in the building.

Building R is situated on the riverside. It was built in 1951–1955 by Gyula Rimanoczy and Janos Kleineisel. [Fig. 1] The building (as well as the others mentioned) were located parallel to the river Danube and connected to one another by a covered walkway. The two rear blocks, built in late modern style, were not decorated, but the main façade was decorated in the required neoclassical style. Brick-covered walls can be seen, with a tent roof and pronounced classicist decorations. It creates an interesting unity with the late modern block buildings and the late modern cupola of the training reactor. [Fig. 2]

The main goal of building this socialist realist university block was to create a counter pole to the central building, which was built in historic style. These two buildings dominate the river bank, between two bridges of the Danube. The front of building R shows the influence of Scandinavian design, in contrast with the interior, where the characteristics of the Stalinist style are dominant. Several films have been recorded there, because this is one of the authentic socialist realist buildings in the Hungarian capital.

After the architectural paradigm shift, building E was built in the 1960s. The white, steel frame building with a flat roof has two parts: the tower and the section of enormous lecture halls. In style, it signals a return to Le Corbusier's modernism. In accordance with Le Corbusier's five points, reinforced concrete columns, horizontal windows and a flat roof are used in the building.
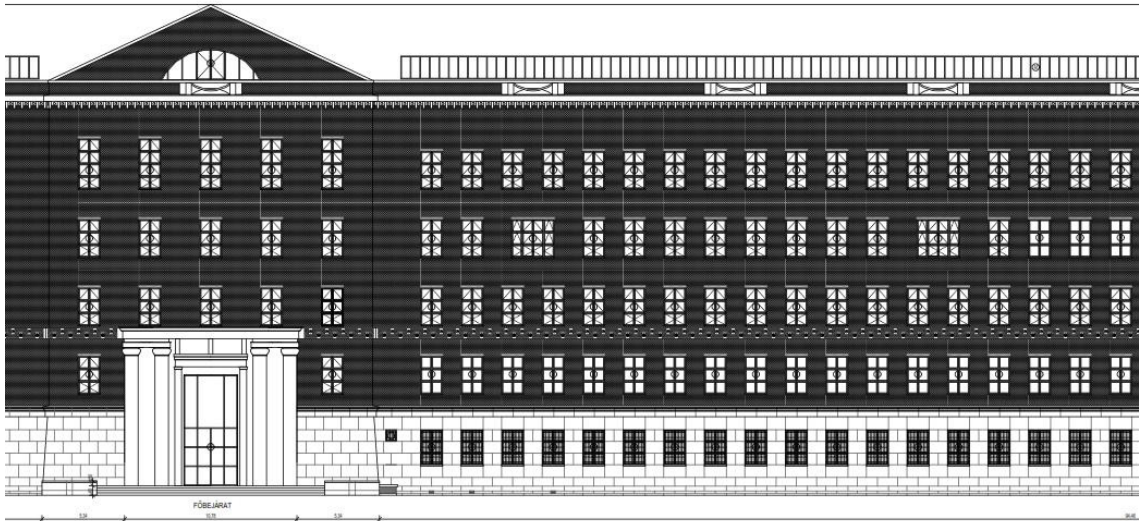
FŐBEJÁRAT

Fig. 1: Façade of Building R, Budapest University of Technology and Economics (detail). Plan: Plan Archive of Budapest Technology and Economics.

Fig. 2: The new campus and the façade of the training reactor, Budapest University of Technology and Economics.

Source: www.reak.bme.hu

These two university buildings, which are landmarks on the river bank, largely determined the cityscape; therefore, the difference between socialist realism and late modernism is clearly visible. In the collective consciousness, these two styles are often confused; laymen (and sometimes experts too) do not make the distinction: although there was a change of style, the political regime, socialism, had not changed. The architectural paradigm shift was not realised, because there was no paradigm shift in the government. [Fig. 3]

Renewing the machine age in city planning
After the Second World War, the most dominant problem in Europe was a housing shortage due to damage caused by the war and the social transformation that followed. In Hungary, the 1950s was characterised by the style of the Matyas Rakosi regime: socialist realism. The way of official, officially sanctioned socialist realism proved impracticable, therefore the housing issue had to be reinterpreted in a new way. An architectural change happened at the end of the 1950s, after the death of Stalin and the fall of the Rakosi regime. The housing estate in Obuda was built at this time, when a new ideological system emerged: the era of Janos Kadar.[33] In the meantime, the issue of housing recurred as an important theme.

City planning, too, followed the socialist realist pattern. Although Budapest avoided the total socialist reconstruction of other East-European capitals like Moscow, East-Berlin, Warsaw and Sofia, new, socialist cities appeared in Hungary, for example Stalin City (*Sztálinváros*) in 1952, as a parallel to Stalingrad in the USSR. First the city was planned in modern style by Tibor Weiner, a former Bauhaus student during Hannes Meyer's directorate. Because of the architectural paradigm shift, the whole city was built with grand avenues and row houses.[34] After the Khrushchevian turn, new trends inevitably arose in city planning as well: the return of modern elements from Le Corbusier's theory and

practice signalled the start of the second machine age began.

> From Marxism and semiotics to psychoanalysis and rhizomatics, architecture theory has freely and contentiously set about opening up architecture to what is thinkable and sayable in other codes, and, in turn, rewriting systems of thought assumed to be properly extrinsic or irrelevant into architecture's own idiolect. And while it is correct to point out that today there still remain vestiges of older, "philosophical" criticisms that simply apply various philosophical systems to architecture in occasional and opportunistic ways, architecture theory has been, in part, a displacement of traditional problems of philosophy ("truth", "quality", and the like) in favour of attention to distinctly and irreducibly architectural ideas, and an attempt to dismantle the whole machinery of master texts, methods, and applications, putting in its place concepts and codes that interpret, disrupt, and transform one other.[35]

So begins K. Michael Hays' book entitled *Architecture Theory since 1968*. This work continues where Harry Francis Mallgrave's *Modern Architectural Theory: A Historical Survey, 1673–1968* left off. Both works develop a theory behind the history of modern architecture including the influence of Marxism in the utopian planning method. Socialist Realist architecture emerges as a new paradigm (1951–54) between the two phases of post-WWII modernism.

In the public awareness, there is a false idea about socialist realism: people used to think that socialist realism is merely something that is somehow connected to concrete and is thus unnatural, cold and simplistic. In fact, people confuse socialist realism with the late modern style. I have found that people prefer socialist realism, because it uses elements from classical architecture. There is a conceptual confusion because there was an architectural shift, but there were no changes in the political system: the ideology survived the
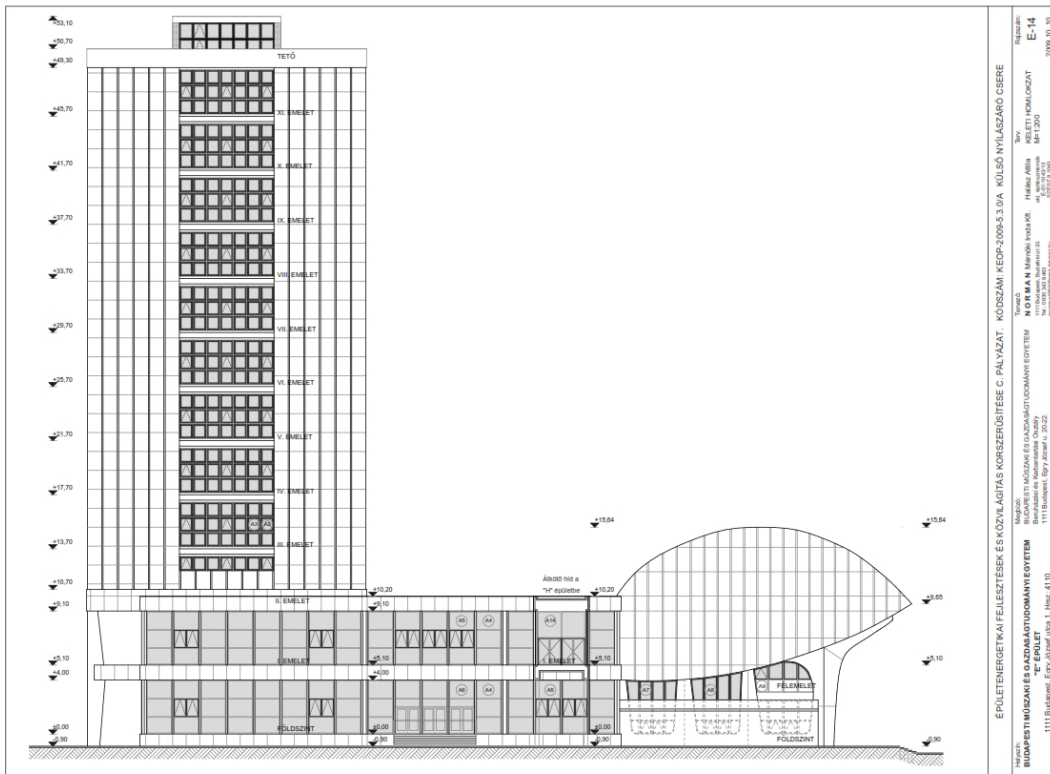
Fig. 3: Façade of Building E, Budapest University of Technology and Economics. Plan: Plan Archive of Budapest Technology and Economics.

architectural transformation. The complex house block systems could almost be classified as brutalist: because of their raw concrete surfaces, the type of housing they provide, the artificial environment they create, and their planning method – from the air.

After a break from socialist realism for a few years, the science-based idea of the house machine returned to architectural thinking in Hungary with the birth of the experimental housing estate in Obuda.[36] Like after the First World War, the principles of Le Corbusier dominated in the building of houses and in urban planning as well; thus the short triumph of the decorative socialist realist was succeeded by a Le Corbusier-style, science-based, analytic architecture. [Fig. 4]

Obuda is a part of Budapest. Aquincum, the capital of province Pannonia province, was built by the Romans and on this Roman architectural base, one-storey baroque private houses were built. This way of building determines the typical network of roads in Obuda, which was retained in the era of wall block system building.

After World War II, circumstances were similar to those after the First World War: new houses had to be built in the spirit of expediency, utility and rapidity. The difference with the period after the Great War was the interstitial socialist realism. The new style of housing (wall block systems) generated the same reactions as in the period after World War I: increased propagandistic advertising of the new lifestyle in the new housing estates in print media, films, and exhibitions. Under these conditions, an interesting episode of the history of Hungarian architecture was built: the experimental housing estate in Obuda, which provided a modern architecture alternative to wall block houses.

The Hungarian Ministry of Residential Construction organised an architectural competition in 1958 that promoted the new style of architecture.

Prefabricated wall segments, raw concrete and a clear construction style would be used. This new estate in Obuda was one of the most significant experimental projects where new prototypes of flats were tested. The main goals of the construction were dual: to try out the viability of the designed flats, including new building materials and furniture, and to demonstrate the ideological message of a new, modern way of life.[37]

There was a call for designers, listing the following criteria:

> small, well equipped flats of six kinds, in brick-built buildings of two and four storeys. This was called Plan C, a program of housing construction and development. The flats were to have built-in kitchen furniture and a built-in wardrobe of 60x60 cm designed in previous competitions, as the prescribed floor areas were tiny, averaging only 43 square meters.[38]

With the experimental program in Obuda, 21 houses were built and a National Flat Furniture Design Competition was held in 1959 to make furniture for the new type of flats. The exhibition of the estate worked like the housing exhibitions of the *Werkbund* after the First World War.

The result of this experiment was a commitment to house block building in Obuda and in the whole of Hungary. The old baroque houses were demolished and Le Corbusier-type complex house blocks were built in the name of the new lifestyle. A renewed concept of vertical cities was created, based on the approach of the neopositivist philosophy, like it had been after the First World War. [Fig. 5]

In Hungary, block house systems were built from the 1960s until the change of the regime in 1989. In the Socialist Bloc, a lot of propaganda films were made to show the correct method of using these flats in the name of the new way of life. It is no coincidence that life in the house block was also a

Fig. 4:   The experimental housing estate in Obuda, photo from the 1960s. Source: Fortepan Archive (18458).

Fig. 5:   The new house block system under construction in Obuda in the 1970s. Source: Fortepan Archive (47357).

Fig. 6:   Life in the house block with the washing machine – poster for *The Prefab People*, film by Bela Tarr, 1982.

popular topic in films and television series. In 1982, the internationally known Hungarian film director, Bela Tarr, made a film entitled *The Prefab People* about the special life forms in block houses.

After the change of the regime in 1989, a huge rehabilitation programme started, to make the milieu of the house block systems liveable, for instance by installing insulation. The main goals of this 'panel program' other than modernisation were the elimination of the raw concrete surfaces, and to make the city liveable and enjoyable by using colours, planting trees and constructing parks. [Fig. 6]

Conclusion

In this essay I have reviewed the dominant twentieth century dialectical succession of architectural thinking between form and function. The latter of these two modern ways of architectural thinking is based on the results of Carnapian Neopositivism, and I have also identified later elements from the Popperian and Kuhnian philosophy of science. I used the conceptual tools of analytic philosophy not only in analysing architecture, but for analysing buildings as well.

The first stage of the form-function debate manifested by the end of the First World War, when historical forms were replaced by the new, scientific objectivity-based architecture. In the era between the two world wars, a common intellectual, scientific worldview was dominant. This interdisciplinary effect was important to analyse, because my preconception is that the need for scientific foundations in architecture reappeared after the Second World War just as it appeared after the WWI. This phenomenon was especially apparent in eastern Central Europe. The main reason for this is that architects realised the problem of building houses as quickly and as cost effectively as possible and for everyone.

It is important to distinguish the façadism of

socialist realist architecture from both late and Soviet modernism. This signaled a paradigm shift in the nature of architecture theory in eastern Central Europe in 1954: the Marxist worldview in architecture and the Khrushchevian architectural turn. After the socialist realist break, the science-based idea of house-machine returned to the architectural thinking in eastern Central Europe. The main goal of architecture after both WWI and WWII was to work out a programme for existence minimum housing. This was interrupted by the glamour architecture of socialist realism.

This essay presented a case study of how architecture and to some extent urbanism was influenced by early analytic philosophical ideas. I have argued that these ideas served as a foundation to both post-WWI and -WWII developments in architecture and urban planning.

Notes

1. Eric Mumford, *The CIAM Discourse on Urbanism, 1928–1960* (Cambridge, MA: The MIT Press, 2000).

2. Poland, Czechoslovakia, Hungary, Romania, the former Yugoslavian states.

3. H. Alien Brooks, *Le Corbusier's Formative Years: Charles-Edouard Jeanneret at La Chaux-de-Fonds* (Chicago, The University of Chicago Press, 1997), 384.

4. Ludwig Wittgenstein, *Philosophische Untersuchungen* (Frankfurt: Wissenschaftliche Buchgesellschaft, 2001).

5. Le Corbusier et Pierre Jeanneret, *Oeuvre Complète de 1910–1929* (Zurich: Les Éditions d'Architecture Artemis, 1974)*, 23–26.

6. Reyner Banham, *Theory and Design in the First Machine Age* (Cambridge, MA: The MIT Press,1980), 242.

7. The Vienna Circle of Logical Empiricism (1924–1936) was a group of philosophers and scientists, drawn from the natural and social sciences, and the fields of logic and mathematics, with the aim to reconceptualise empiricism.

8. Alison Smithson, Peter Smithson, Jane B. Drew, E. Maxwell Fry, 'Conversation on Brutalism', *October* 136 (2011), 38–46.

9. Edwin Heathcote, *Budapest: a Guide to Twentieth-century Architecture* (Michigan: Ellipsis, 1997), 280.

10. Nikita Khrushchev, 'Industrialised Building Speech, 1954', in Thomas P. Whitney, ed., *Khrushchev Speaks: Selected Speeches, Articles, and Press Conferences, 1949–1961* (Ann Arbor: University of Michigan Press, 1963), 173.

11. Louis H. Sullivan, 'The Tall Office Building Artistically Considered', *Lippincott's Magazine* (March 1896): 403–409.

12. Joshep Mashek, *Adolf Loos, the Art of Architecture* (London: I. B. Tauris, 2013), 93–115.

13. Adolf Loos, 'Ornament and Crime', in Ulrich Conrads, ed., *Programs on Manifestoes on 20th-century Architecture* (Cambridge, MA: The MIT Press, 1971), 19–24. (Loos gave a lecture with the German title '*Ornament und Verbrechen*' in 1908, and it was first published in *Cahiers d'aujourd'hui* in 1913.)

14. Ibid., 20.

15. Hans Hahn, Otto Neurath and Rudolf Carnap, *The Scientific Conception of the World: The Vienna Circle*, in. Marie Neurath and Robert S. Cohen, eds., *Empiricism and Sociology*. (Dordrecht: Reidel, 1973 [1929]), 317–318.

16. Le Corbusier, *Toward an Architecture*, (Los Angeles: Getty Research Institute, 2007), 177–191.

17. Harry Francis Mallgrave, *Modern Architectural Theory: A Historical Survey, 1673–1968* (Cambridge: Cambridge University Press, 2005), 258.

18. Le Corbusier et Pierre Jeanneret, *Oeuvre Complète de 1910–1929,* 31.

19. Ibid., 45–47

20. Le Corbusier, *Toward an Architecture*, 186–187.

21. Ibid., 160.

22. Le Corbusier, *The City of To-morrow and Its Planning* (New York: Dover, 1987), 244.

23. Peter Galison, 'Aufbau/Bauhaus: Logical Positivism and Architectural Modernism', *Critical Inquiry* 16 (1990): 709–752.

24. Mallgrave, *Modern Architectural Theory*, 255.

25. Ibid*.,* 256.

26. Le Corbusier, *Toward an Architecture*, 97.

27. M. Christine Boyer, *Le Corbusier, Homme de Lettres* (New York: Princeton Architectural Press, 2011), 347.

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Biography

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