Poetics of assembly Albert Kahn and D.W. Griffith in the birth of the Machine Age

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1. Coincidimos en esto con Reyner Banham, aunque no en su pobre valoración de la importancia de Albert Kahn. BANHAM, Reyner. La Atlántida de hormigón. Nerea. San Sebastián, 1989.

2. WALTER, BENJAMIN, "París. Capital del Siglo XIX". En: BENJAMIN, Walter. Libro de los Pasajes. Akal. Madrid, 2005. Pp 544. Citado en: DIDI-HUBERMANN, Georges. Ante el tiempo. Adriana Hidalgo Editora. Buenos Aires, 2011. P 181.

3. En palabras de Mies van der Rohe: '*Nuestra época no es enfática, no apreciamos el vuelo de la imaginación sino la razón y el realismo (…) Se han de satisfacer las actuales exigencias de objetividad y funcionalidad. Si además se cumple con sensibilidad, entonces las construcciones de nuestros días tendrán toda la grandeza de la que es capaz nuestra época (…) En todos los campos, las realizaciones decisivas llevan la impronta de un carácter objetivo y sus autores suelen ser desconocidos (…).* MIES van der ROHE, Ludwig. Baukunst und Zeitwille. (Arquitectura y voluntad de época 1924). Editado en: NEUMEYER, Fritz. Mies van der Rohe, La palabra sin artificio. Reflexiones sobre arquitectura 1922/1968. El Croquis editorial. El Escorial, 1995. pp 371-375.

4. Este surgimiento se encuentra estudiado exhaustivamente en el libro: DOANE, Mary Ann. La emergencia del tiempo cinemático. La modernidad, la contingencia y el archivo. CENDEAC. Murcia, 2012.

5. GUARDINI, Romano. Cartas del Lago de Como. EUNSA. Pamplona, 2013. P 34

6. DELEUZE, Gilles – GUATTARI, Felix. Anti Edipo. Paidós Ibérica. Barcelona, 1998. p 42.

7. EISENSTEIN, Sergei. Reflexiones de un cineasta. Lumen. Barcelona, 1988. Pp 55 y 123.

8. Esta caracterización del cine como arte espacial, como la arquitectura es compartida por autores como Noël Burch, Eric Rohmer o José Manuel García Roig cuando nos cuenta que: '*Heinrich De Fries en un pequeño ensayo de 1921, (…) afirma que la expresión del espacio en el cine se convierte en algo tan importante como el contenido narrativo de las imágenes, argumentando que el espacio es el problema principal tanto en el cine como en la arquitectura, el arte del espacio, aunque se vea obligado, a diferencia de ésta a trabajar con ficciones en vez de crear espacio real*'. GARCÍA ROIG, José Manuel. Mirada en off. Espacio y tiempo en cine y arquitectura. Mairea Libros. Madrid, 2007. P 17.

9. En consonancia de las teorías sobre el montaje del montador Walter Murch. MURCH, Walter. En el momento del parpadeo. Un punto de vista sobre el montaje cinematográfico. Ocho y Medio. Madrid, 2003.

10. GUBERN, Román. Mensajes icónicos de la cultura de masas. Lumen. Barcelona, 1988. pp 71.

11.SÁNCHEZ-BIOSCA, Vicente. El montaje cinematográfico. Teoría y análisis. Paidós ibérica. Barcelona, 1996. p 20.

12. Estas dos categorías de influencias y sus categorías subsidiarias se encuentran pormenorizadas en un artículo de los autores: PANCORBO, Luis: MARTÍN, Inés. "La arquitectura como objeto técnico. La arquitectura industrial de Albert Kahn". En: VLC Architecture Research Journal. Universidad Politécnica de Valencia. Nº2. 2014. Pp 1-31.

13. Le Corbusier citado en: DARLEY, Gillian. La fábrica como arquitectura. Reverté. Barcelona. 2010. p 152.

14. FORD Henry; CROWTHER, Samuel. My life and work. Garden City Publishing Company. Nueva York, 1926.

15. Entre los más sobresalientes estudios en este campo, podemos citar: GARTMAN, David. From Autos to Architecture: Fordism and Architectural Aesthetics in the Twentieth Century. Princeton Architectural Press, Princeton, 2009. GUILLÉN, Mauro F. The Taylorized beauty of the mechanical: scientific management and the rise of modernist architecture. Princeton University Press. New Jersey 2006. HILPERT, Thilo. La ciudad funcional. Le Corbusier y su visión de la ciudad. Instituto de Estudios de Administración Local, Madrid, 1983.

16. Son numerosas las publicaciones de los pioneros del movimiento Moderno europeo que toman los objetos técnicos: aviones, automóviles, barcos, grúas y máquinas en general como nuevos modelos para la arquitectura. Como por ejemplo: 1913. Jarhbuch des Deutschen Werkbundes. Walter Gropius, 1923. Vers une architecture. Le Corbusier, 1923. Der moderne Zweckbau. Adolf Behne, 1926. Funktsionalnyi metod i forma. Moisei Ginzburg, 1926. Amerika. Erich Mendelsohn, 1929. Von_Material zu Architektur. Laszlo Moholy-Nagy. En todos ellos está representada fotográficamente la obra industrial de Albert Kahn.

17. SMITH, Terry. Making the modern. Industry, art and design in America. The University of Chicago Press, Chicago, 1993, p 92.

18. Aunque Albert Kahn nació en Prusia, emigró a Estados Unidos con 11 años.

19. Este hecho se explica detalladamente en el capítulo titulado "Tempos and methods of the creative process", del libro: BUCCI, Federico. Albert Kahn. Architect of Ford. Princeton Architectural Press. Princeton, 2002. pp123-140.

20. MARZAL, José Javier. David Wark Griffith. Cátedra. Madrid, 1998. Pp 331-441.

Cinema and modern architecture

First, we want to put forward our interest in establishing a relationship between cinema and modern architecture beyond the obvious coincidences in time that the usual historical records of these disciplines explains and that place the birth of both in a very limited temporary parentheses. Although in both cases the existence of predecessors is common knowledge; the Lumiere and Melies, Muybridge, Edison and Porter brothers in cinema or Adolf Loos, Perret and Behrens in modern architecture, their disciplinary origins can be located with certainty in the first two decades of the twentieth century. All Film historiography coincides in considering DW Griffith as the true initiator of cinema as a discipline with its own means of expression, which is independent of theater and the pictorial or documentary shots of the pioneers of American and French cinema and which is beyond the simple discovery of technical innovations necessary for their development.

This role as the founder of a new discipline, which in the case of cinema is little discussed, presents numerous questions and ambiguities when we are speaking of modern architecture. The names of Gropius, Mies and Le Corbusier immediately appear in our memory, but in none of them can we find the seed that can explain the subsequent evolution of architecture as a whole. We realize that there are branches, vigorous and principal, which must arise from a common trunk. This article presents the hypothesis that,without underestimating the role of architects like Wright and Behrens, this common origin comes from the American industrial architecture of the early twentieth century, specifically the industrial work of Albert Kahn, and that it is due to certain characteristics that bring it close both conceptually and procedurally to the nascent film industry.

We also believe, as does Walter Benjamin that cinema unravels - dismantles and remounts-all forms of vision, all rhythms and all the preformed timings of contemporary machines in such a way that all the problems of contemporary art can only find their final formulation in correlation with cinema. That is, cinema has produced a new conception of temporality and of the procedures of artistic production, its birth revolutionized in such a way the contemporary world that it produced an alteration in all creative disciplines including architecture.

This influence is expressed in a number of common conceptual characteristics between cinema and modern architecture as we try to summarize below. First, the birth of both fields very significantly coincides with the establishment of Fordism as a new industrial religion and with its expansion to other areas of human life . This includes and explains other disciplinary coincidences that are based on the conception of the importance of technology and the establishment of a new type of temporality, one of a purely Fordist filiation. Cinema and modern architecture are two activities based on the use of technology. The existence of cinema is not possible without machines and is very difficult to escape the modern movement of the main flow of technical developments. It is widely known that architects like Le Corbusier or Mies considered technique, industry and specifically the machine as the fundamental principle and the fundamental environment of architectural activity. On the other hand the new Fordist time concept exports to both activities a kinematic concept. Movement becomes both in architecture and cinema the essence of activity. It involves the immersion of both disciplines within the emergency of kinematic time in modern times.

We will try to describe through one sole notion the conceptual overlap between cinema and modern architecture. This concept that derives from the historic conditions established in the text above is presented as the new core for both disciplines: assembly.

The birth of kinematic time and the mechanical paradigm

Film editing involves the manipulation of a raw material consisting of a continuum in which different events unfold in a sequence that does not necessarily have a spatial or temporal coherence (within the inner temporality of film narrative). The assembly operation is based on the division of this continuum in basic parts which have a meaning in themselves and that once recomposed into a new object in which its spatial and temporal meaning is recovered with a particular purpose. It is therefore a conceptual operation, and therefore mechanical, because as Romano Guardini warns:

'*What the concept is to the knowledge of things, the mechanism, the instrument, the machine, are to practical business. What the concept provides to knowledge as a mean to understand many objects and as a sign that accurately reflects all common features, is the same function performed by the machine in regard to action. The machine is a concept of steel. This is applied to many objects without taking into consideration their unique and specific character, considering them all identical. The processes of a machine provide a similar character to conceptual thinking. Both dominate things, breaking their vital relationship with the individual, framing everything in signs, creating an artificial life in which all things seem similar.* '

It is also mechanical in its technical procedure, based on capturing the continuity of life through a machine, the movie camera , that brakes it into small units , the frames , and that composes a new continuum, the film stock, which will in turn be cut up again and rebuilt by editing it which also involves other machines such as the moviola and the assembly table . It is a process that is perfectly suited to Deleuze's definition of machine: '*A machine is defined as a system of cuts. In no way is the meaning of cut considered a separation with reality; cuts operate in variable dimensions in accordance with the traits considered. Any machine is related with a material flow (Hyle) in which it cuts ... Hyle designates, sure enough, pure continuity that a material ideally possesses... the cut is not contrary to continuity, it is conditioned by it , it implies or defines what it cuts as an ideal continuity. As we have seen, every machine is a machine of a machine. The machine only produces a flow cut when connected to another machine that is supposed a flow producer. And no doubt, this other machine is actually in its turn a cut*'. Although D.W. Griffith was the creator of most cinematographic operations traditionally associated with the term assembly it was Eisenstein (with a previous training as an engineer) who imported the term from the field of engineering and industry. Einstein recalled that assembly was not an exclusive tool of film production, it is a phenomenon that '*invariably happens in all cases where two events, phenomena or objects are juxtaposed*'. The segmentation of the assembly is therefore an idea that is specifically Fordist it has an industrial origin and it has been exported to all areas of artistic creation which is essentially: '*A phrase operation carried out by a process of analysis based on the fragmentation and site selection (which also have a time dimension) and the fragmentation and selection of times (they also have a spatial dimension) (...) based in turn on the discontinuity and the selectivity of memory and human memories (...) that are discontinuous and favor some significant space-times , to the detriment of other intermediate areas of more significant poverty*' Thus, the mechanical and fordist filial relation with cinema is clear through space tensed by movement, which is shared, as discussed below, by modern architecture. We can say therefore, with Sanchez - Biosca that film editing is a mechanical activity:
'*When science begins the decomposition of movements, when Taylor studies the temporal organization of business and streamlines the human labor of the workers through their assimilation into machinery, when artists celebrate the superiority of automobiles, railways, cameras and the*

21.Información extraída de: Albert Kahn Papers. Bentley Historical Library. Universidad de Michigan. http://quod.lib.umich.edu/b/bhlead/umich-bhl-0420?view=text).

22. CODY Jeffrey W. Exporting American architecture.1870-2000. Routledge, Nueva York, 2003. P 38-39.

23. Este fenómeno de la reproducibilidad técnica, clave para entender la modernidad, se estudia, apoyándose significativamente en conceptos derivados de la actividad cinematográfica en: BENJAMIN, Walter. "La obra de arte en la época de su reproducibilidad técnica". En: BENJAMIN, Walter. Obras. Libro I/vol. 2. Abada editores. Madrid, 2012. Pp 7-49.

24. Es interesante la valoración que hace Mies de esta característica de la arquitectura de Albert Kahn, y que también él utilizó de manera consciente en el proyecto de las oficinas de Bacardí en Cuba. Como cuenta un estrecho colaborador de esa época: . LAMBERT, Phyllis. Mies in America. Harry N. Abrams. Nueva York. 2001. P 519 cita 245. Summers, interview with Kevin Harrington, CCA, Tape 5: side 1.

25. Existen numerosos ejemplos de películas con varios montajes alternativos; montaje del director, montaje comercial, o montajes distintos para diferentes mercados.

26.El ejemplo más claro de esta situación es el edificio B de River Rouge, que primero produjo en serie barcos para la marina norteamericana y, mientras se acababa de construir el último de ellos iba siendo acompasadamente reconfigurado para acoger las líneas de montaje de carrocerías del Ford T.

27. BARRY, Iris. D.W. Griffith: American Film master. MOMA. Nueva York, 1965. Citado por: SÁNCHEZ-BIOSCA, Vicente. El montaje cinematográfico. Teoría y análisis. Paidós ibérica. Barcelona, 1996. P 98.

28. Según numerosos investigadores, este punto se acerca más a la realidad que a la leyenda. Por ejemplo. MARINELLO, Silvertra. "Cine y sociedad en los años de oro del cine soviético". En: V.V A.A. Historia general del cine. Volumen V. Europa y Asia (1918-1930). Cátedra. Madrid, 1997. Pp 220-224. O también en: KEPLEY JR, Vance. "Intolerance and the soviets: a historical investigation". En: CHRISTIE, Ian; TAYLOR, Richard. Inside the Film Factory: New Approaches to Russian and Soviet Cinema. Routledge. Nueva York, 1994. Cap 3.

29. SÁNCHEZ-BIOSCA, Vicente. El montaje cinematográfico. Teoría y análisis. Paidós ibérica. Barcelona, 1996. P 98.

30. '*Soviet engineers builders architects send you their sincere sympathy in connection with the death of your husband Mr. Albert Kahn, who rendered us great service in designing a number of large plants and helped us to assimilate the American experience in the sphere of building industry.*' BUCCI, Federico. Albert Kahn, Architect of Ford. Princeton Architectural Press, Princeton. 2002. p 93.

31. BLAKELEY, Thomas J. La escolástica soviética. Alianza Editorial, Madrid 1969.

32. Estudiado en el libro: COHEN, Jean-Louis. Scenes of the World to Come. Canadian Centre of Architecture. Montreal, 1995.

33. El primero firmado el 8 de mayo de 1929, el segundo el 9 de junio de 1930. En un documentado artículo, la investigadora Sonia Melnikova-Raich, explica el desarrollo posterior de los trabajos.

34. Kopp destaca tres aspectos característicos de la arquitectura industrial de la época: La importancia de los centros industriales para el paisaje urbano, la posibilidad de crear estos complejos totalmente completos de una vez, en cualquier lugar y de cualquier tamaño y, la participación masiva de los arquitectos en los proyectos industriales en colaboración con los ingenieros. KOPP, Anatole. Arquitectura y urbanismo soviéticos de los años veinte. Editorial Lumen. Barcelona 1974. p188.

35. '*La Gosproektstroi formada por los americanos y miles de arquitectos, ingenieros y delineantes soviéticos se convirtió en la mayor organización dedicada a la arquitectura del mundo, ocupando cinco plantas completas y sobrepasando a las oficinas de Kahn en Detroit. Además de su trabajo diurno, los arquitectos e ingenieros americanos debían proporcionar formación en cursos nocturnos a los arquitectos soviéticos*'. MELNIKOVA-RAICH, Sonia. '*The soviet problem with two "unknowns'; how an American Architect and a Soviet Negotiator jump-started the industrialization of Russia. Part I: Albert Kahn*". IA. The Journal of the Society for Industrial Archeology. Volumen 36, número 2, 2010.. pp 62-64.

36. Ibid. p 75.

37. MILIUTIN, Nikolai. Sotsgorod: The Problem of Building Socialist Cities. The MIT Press. Massachusetts, 1975.

38. Extraemos la siguiente definición fragmentaria de "medio asociado": SIMONDON, Gilbert. El modo de existencia de los objetos técnicos. Prometeo. Buenos Aires, 2008. pp 76-77.

39. Derivadas según reconoce el propio Miliutin de la producción en cadena de Ford. HILPERT, Thilo. La ciudad funcional. Le Corbusier y su visión de la ciudad. Instituto de Estudios de Administración Local, Madrid, 1983. P 256.

40. Como en otras propuestas utópicas de la misma época en la Unión Soviética y en las ciudades y fábricas retratadas por los directores de cine como Eisenstein ("La línea general"), Vertov (en el tercero de sus '*Tres cantos a Lenin*"o en '*El Hombre con la cámara de cine*') y Dovzhenko ('*Arsenal*' o '*Tierra*')

41. No en vano hay numerosas utopías urbanas soviéticas basadas en cápsulas móviles que asumen los usos de transporte y alojamiento. Véase el ejemplo de Krutikov o Iozefovich. KHAN-MAGOMEDOV, Selim O. Pioneers of Soviet Architecture. Rizzolli. Nueva York, 1987

42. DOANE, Mary Ann. La emergencia del tiempo cinemático. La modernidad, la contingencia y el archivo. CENDEAC. Murcia, 2012. P 15

43. VERTOV, Dziga. El cine ojo. Editorial Fundamentos. Madrid, 1973. Pp 18-19

mechanical in general in regard to all that is human, assembly presents its user as an engineer or as a worker, art assimilates the factory ,the production of material goods. In conclusion the assembly had to find in the film maker, after all a machine, the ideal place to express itself, as they had also done with photography, urban planning and engineering. Therefore, assembly embodies the quintessential characteristic of the modern world'.

In architecture, the adoption of the mechanical paradigm by the pioneers of functionalism produced the birth of modern architecture. This led to the adoption not of science but of technology as a new leader and guide of the destiny of architectural activity. Technique becomes the most important driving force behind architecture and in general of the twentieth century European society. The main influences that acted to impose this on the architectural discipline, most preeminently the figure of Albert Kahn, can be divided into two main categories: the supra- disciplinary influences and the inter–disciplinary categories. .

The first category of influences refers to the global adoption of Fordism as a theoretical framework with a larger scope than architecture. This influence, at first limited to the organization of industrial production and that would later be extended to all areas of human activity, would be critical in the case of modern architecture. All pioneers of European modernism eventually defined themselves as Fordists or at least widely quoted Henry Ford in their writings. A quote from Le Corbusier is enough to estimate the importance of Ford in the modern world: '*With Ford all is cooperation, unity of vision, unity of purpose, the perfect convergence of all thought and action*'.

Fordism is adopted as the new industrial religion in such diverse places as Western Europe and the newly created Soviet Union, where Stalin regarded Ford as '*the world's largest industrial*' and the Russian translation of the fourth edition of the memoirs of Ford included an introduction stating that; '*Fordism is a system whose principles have been known for some time, and that had already been established by Marx*'. The study in depth of the relationship between Fordism and architecture has no place in this article , on the other hand it has been detailed in numerous publications , leading to the formation of the concept of functionalism and the adoption of the technical object as a model for the modern architectural project.

Interdisciplinary influences however, account for the different ways in which the engineering values are transferred to the domains of architecture, whose main leader, as the expert Terry Smith says , would also be Albert Kahn.

Albert Kahn and D.W.Griffith

Thus we come to the arrival on scene of the two main characters of this research: David Wark Griffith (1875-1948) as the undisputed initiator of film discipline and Albert Kahn (1869-1942) as a hypothetical pioneer of architectural modernism.

Both characters, contemporaries and countrymen, have certain features in common besides their professional biography. If Griffith introduces the Fordist assembly system as the tool for building film syntax, Kahn is the creator of the buildings where Fordism first took shape: Ford's Highland Park and River Rouge factories. Kahn is not only the author of some of the buildings that came to function as real machines (comprising the building, workers and machinery in a total symbiosis) and in which technical objects were mass produced (the car at that time was still considered a simple element and was not loaded with the current symbolic, cultural and social overdeterminations) paradigms of modernity and shapers of a new urbanism. He is also the creator under his client´s requirements of the first architectural firm with a Fordist functionality.

They both have an extremely profuse production. If in monographs about Griffith , a total of 496 films belonging to the period between 1908 and 1931 are listed, Kahn´s numbers are even more overwhelming: more than 400 buildings only in the city of Detroit, more than 2000 projects built during his life, including 521 factories in the Soviet Union between 1929 and 1932, in 1938 he had built 19% of all the industrial facilities in the United States, only until 1907 the reinforced concrete system '*Kahncrete*' had already been used in more than 1,500 buildings in the United States and 90 in the UK, system that was exported from that year on around the world. We believe that in both cases this huge productivity has a common cause and a common consequence. The cause can be found in the Fordist organization of both production systems and in the assumption of industrial processes for both disciplines that did not exist before (architecture was until then an activity of an artisanal and artistic character, and the film was associated to this until the arrival of assembly with the documentary activity or the fairground). The consequence is that a duplication of results occurs due to the standardization of elements, materials and procedures of both constructions; in architecture and cinema. This new ease to technically reproduce a film and an architectural object, leads to the standardization of many films of Griffiths early days and to the reproduction of Albert Kahn´s Ford factories throughout the United States. This replicability, which is a key feature of technical objects and implies the total independence from the constraints of the implantation site, is inherited by architectural modernism and ends up being one of its most criticized features by the next generation of architects.

Film editing in Griffiths case is done with tools created by himself such as close ups , the American shots and detail shots, the '*flashback*', the suspense of the '*last minute rescue*' and the parallel and alternate editing. Kahn´s assembly is expressed in several ways. First Kahn produces a dismantling of the load bearing and enclosure functions that anticipated the Modern Movement in its industrial constructions with concrete or metal structures where the former load bearing facade that alternated solid and void becomes a continuous and light membrane, a light collector and a dissipater of gas and hot and flawed air produced by internal activity. On the other hand, he produces a dismantling and subsequent reassembly of the industrial sites functions. Highland Park '*assembled*' at the same time several factories with different functions in a compact whole. In River Rouge, fitting parts separated by functions resembles an industrial city where the constraints arising from the movement of materials and people predominate. In the field of his architectural syntax, Kahn produced an assembly of sections, freeing the plant of any functional binding and making it a mere scheme, a score in which to place, with the right rhythm for production, the different necessary sections. Kahn´s assembly of sections comes as an inverted mirror in comparison to Le Corbusier´s free plan assembly. This assembly in both disciplines is produced by having to introduce a time factor in the overall planning of both objects, film and building. This new temporary preponderance manifests in two ways. Firstly this new temporality is demanded by the need to maintain a constant movement in both areas: the film is an expression of movement and materially consists of a continuous tape movement; in Kahn´s architecture the primary requirement is to maintain the constant movement of Ford´s assembly lines uniform speed. Any interruption of the movement involves the immediate collapse in both activities. Moreover, both the film, with its infinite possibilities of refitting and reconstruction as Kahn´s factories, represent an object in constant evolution, which is only grasped at an intermediate stage of development. Kahn's buildings were designed to be modified, expanded and rebuilt constantly.

In this use of assembly a paradoxicical situation occurs, both Griffith and Kahn from a discontinuous cut and assembly system, intended to restore continuity and spatial flow by smoothing the cuts themselves. In Griffith's case the aim was to manage a continuous assembly that prefigured the classic American invisible cinema editing (in contrast to the expressive Soviet editing). For Kahn, the assembly of sections is smoothed using a continuous skin where there is no longer the solid and void rhythm of traditional architecture and with the use of spaces that are willing to be traversed linearly, as in a "travelling "by the factories dynamic elements : overhead cranes, railways, slides for small parts and automated assembly lines.

A revolutionary offspring

But the parallelisms between Griffith and Kahn extends from their role as pioneers with a huge production, from their use of the assembly, since their creation of a new cinematic concept of time and from their relation to the mechanical and to Fordism, to a next generation of filmmakers and architects who paradoxically are not found, as expected, in the American context but precisely in the embryo that in the near future would be his political opponent in the international arena; the nascent USSR.

Griffith's influence on Soviet cinema is widely documented. Only one letter from Leonid Trauberg to Griffith himself, dating from 1936, gives an idea of the intensity of this influence:
'*You certainly know how important the effect of your films was on Soviet directors and actors. We saw your films in 1923-1924 with the exception of 'Intolerance', which we saw in 1919-, in that time in which we all -Eisenstein, Pudovkin, Ermler, Vassilieffs, and we two (Trauberg and Kozintsev) - had just started working as directors. Under the influence of his films (...) we created our style.*'
This letter is backed by countless material written by the directors of the Soviet era who recognized Griffiths influence, especially in his film '*Intolerance*'. As Sanchez-Biosca account´s:

'*Legends soon circulated around the reception of*' Intolerance "from the Soviets. It is claimed that Lenin offered Griffith the USSR film direction, it is also said that the film was studied at the Film Institute in Moscow, experimentally manipulating it to reverse its ideological message (...) In any case there is no doubt in the authenticity of Kuleshov, Pudovkin and Eisenstein's statements on the revelation that Griffith´s film '*enthusiastic*' was for them-and for the rest of their companions.

This same process of transmission and training, but with an amazing change in scale took place in the field of architecture, during Albert Kahn´s stay in the USSR, during which one can say that under his tutelage, an entire generation of Soviet architects was formed. As in the previous case on Griffith, this influence is recognized in a letter he wrote to Viktor A. Vesnin Albert Kahn's wife on the death of the architect in 1942:

'*Soviet engineers builders architects send you their sincere sympathy in connection with the death of your husband Mr. Albert Kahn, who rendered us great service in designing a number of large plants and helped us to assimilate the American experience in the sphere of building industry*'.

This situation is part of the emergence of a pre-culture that included the programmatic acceptance from the Soviet scholastic of Taylorism and of Fordism and add to this Americanism, technicality and militant mechanization of the Soviet vanguard. Also at the same time it presents the need for massive industrialization, framed in the First Five-Year Plan, it entailed the planning and construction of many industrial compounds. All these prior components reacted having as a catalyst the presence of Albert Kahn Inc. in the USSR, which came with the signing of two contracts with the Soviet state, one to

design the Stalingrad tractor plant and a later contract that made them consultant architects for all industrial buildings of the USSR. This industrial construction volume and investment is the main constructive activity of the USSR at that time. It was managed by huge specialized agencies that were '*real offices of engineering*', with the participation of architects.

The importance and extent of the influence of Kahn in Soviet architecture can´t be undervalued if one takes into account the balance offered by Sonia Melnikova-Raich:

'*When Albert Kahn´s architects and engineers left Moscow (in 1932), they had designed and built (or were still under construction) hundreds of plants and factories in 21 cities. About 4,000 Soviet architects, engineers and draftsmen had been trained in Kahn´s offices (...) This left behind Soviet architects trained and able to develop similar facilities throughout the country (...) It is estimated that more than 500 built industrial structures later on using Kahn´s projects (...) In addition, Kahn's ideas formed the basis of the Soviet school of standardized and prefabricated industrial design. His 'assembly chain' design process became the universal method of work for all Soviet organizations dedicated to architecture.* '

Importance otherwise undervalued in modern historiography, in which it seems that only Russian architects committed to the socialist cause as Mendelsohn, Ernst May, Mart Stam or André Lurçat, worked, forgetting the main actors of this episode and the authors of the most important Soviet-era" social condensers": factories.

But it is in the urban area where you can better appreciate the consequences of the use of the assembly concept on architecture and the influence of the industrial experience transferred by Kahn to Russian soil. The implications of their application in the field of urban design are extremely important producing theoretical proposals that dismembering the traditional continuity of human life, turn the inhabitant into a spectator rather than an actor in the city. Life in the new towns designed from Fordist principles reach their peak in the functional breakdown proposed by the Charter of Athens, in Le Corbusier´s urban proposals and the utopian proposals of Soviet de-urbanists, which as discussed below are closely related to Kahn´s presence in the USSR. Life in these new urban centers paradoxically reaches a level of individual immobility that resembles the one demanded by film projection.

Soviet cinematographic city

Simultaneously to kahn´s presence in the USSR, and as explained above, most likely due to its direct influence, the problems of an urbanism directed at the creation of new '*servant*' cities of industrial facilities are raised and the new conviction that the new socialist city should be completely different from the old capitalist city appears. We find great similarities between the soviet cities that where planned at that time and the industrial complexes that where associated to them, analyzing these through the comparison of two paradigmatic cases: River Rouge factory and the proposals for the Soviet city (Sotsgorod) of Nikolai Milyutin published in 1930.

First, there is a huge overlap in the prior conceptual framework used in both actions, which is framed in the acceptance of Fordism and Taylorism and in its application both in industry and labor as in all other aspects of public and private city life. The new socialist way of life is based on an extensive division of human activities, equivalent to the Fordist division of labor, and in the maximum collectivisation of private life. Like Fordism, the individual is treated as a whole, losing much of its identity and automating their behavior to suit the smooth functioning of the global mechanism (in the case of Ford, the factory-city, in the case of Sotsgorod, the city-factory). The design strategy also coincides in both cases, getting close in its approach to the one used in the design of a pure technical object. The design of both bodies is based almost exclusively on criteria that are inherent to its own operating system, turning its external conditions into accessories or into nonexistent for the project. Thus, the implementation strategy, that in both cases includes the presence of a navigable river, is not architectural, it does not include the place and the landscape as a backdrop, it does not attend cultural, terrain and climate conditions of any kind. The context becomes in both cases a new '*associate tool*' hybrid in its technical and geographical character, in which only the main direction of the prevailing winds appears, responding to the technical need to prevent industrial fumes contaminating the rest of the city.

These internal conditions that were used in the project of the cities of Miliutin, in the same way as was done in Ford´s factory-city are summarized in the smooth flow of transport (whether of materials, people, information or energy) and in the search of the flexibility that allows modification and growth. Miliutin cities are also planned in the same way as River Rouge, as nodes within a wider system of a territorial and decentralized nature, also bound by larger scale transport lines.

These convergences at the conceptual level and in the design strategy produce a morphological coincidence between both systems. The Sotsgorod of Miliutin take the appearance of a films footage '*mechanical River,*' of a huge assembly line, capable of infinite linear growth. In both, everything is designed so as not to interrupt the flow of the line: transverse circulations always occur at different levels, no crossings. All components of the city-factory are strictly separated, uses do not overlap in time, people also serve as a viscous fluid mass which travels in a synchronized way from one functional area to another .The modular and prefabricated elements, that come from Kahn´s experience is total. These parts are distinctly spaced to allow maximum flexibility in growth and change, and are willing to act as real technical items intended to accomplish one simplified task: sleep, eat, educate, raise children and build social relationships.

Both in the city-factory and the factory-city, the ground plan, as an element which details human activity ,disappears, giving way to the flow scheme that articulates the assembly structure from a simplified and '*scientific*' point of view from which all the complexity and unpredictability that derives from individual behavior has been removed. Soviet planners translate Kahn´s factories in proposals for the new socialist cities, always associated with centers of industrial production, which morphologically replicate Detroit´s architect´s buildings. In the case of Sotsgorod in Miliutin the whole city started to function as a Fordist factory, with a banded linear organization that required the mechanization of all aspects of human life, and that would lead to a new way of communal Soviet life , which involves disassembly and reassembly of the capitalist way of life.

This produces the first film scheme for a city in history. A utopia in which like in the verse making machine or the '*Poetic Aristón*' of Machado´s Juan de Mairena , '*on the one hand the world enters , on the other leaves poetry.*' In Sotsgorod of Miliutin, life comes in on side and on the other side industrial production goes. What is between is the machine, which already comprises the entire city. The result is mechanical because it´s elements are. The result is that the assembly line occurs following the outline of a single dominant feature: the mechanized movement. This kinematic predominance also becomes cinematographic because it turns the inhabitant into a viewer.

The film makes the world go while we remain static, in the same way that it happens with an assembly line. The city moves in front of the inhabitant that remains still and encapsulated. As happens with the film viewer, life goes on '*in a room that seems out of time and space*'characterized by its standardization and by its otherness with the outside world. The new Soviet man sees life pass framed; on the screen, in the window of the club of workers in the public transport stop. He no longer walks, circulation is fully mechanized in the film city, where the traditional continuity to cut and be assembled is broken in a standardized and automated way. As in 1923 Dziga Vertov would say:

'*We do not want, for now, to film more than man because he does not know how to direct his movements (...) We direct ourselves through the poetry of the machine , from the slow man to the perfect electric man (...) We relate man to the machine, we educate new men (...) We greet the fantastic regularity of his movements.*'

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KINEMATISM
REPLICATION
FILM
ASSEMBLY
FORDISM