Re-Imagining Modernization in Chile—The Active School Movement, Integral Co-op Architecture, Second-Order Cybernetics—Lessons from the Bauhaus and Beyond

David Maulén de los Reyes

Maulén de los Reyes, David, Re-Imagining Modernization in Chile – The Active School Movement, Integral Co-op Architecture, Second-Order Cybernetics – Lessons from the Bauhaus and Beyond, in: Bärnreuther, Andrea (ed.), Taking a Stand? Debating the Bauhaus and Modernism, Heidelberg: arthistoricum.net 2021, p. 247-262, https://doi.org/10.11588/arthistoricum.843.c11912

NAVIGATION

[F] What are the social, political, and economic preconditions for Bauhaus reception? And how do they vary from one period or country to another?
[G] Which ways of taking a stand can we discover in processes of Bauhaus transfer, translation, and transformation?

modernization and industrialization

architectural education reform
social relevance of design and teaching

socially engaged architecture
co-op design

bauhaus school

emigration and exile

modernization and industrialization

education reform
social housing

new architectural curriculum

integral co-op architecture

neoliberalism as a paradigm shift

co-op design
cooperative housing construction

active school

The state-supported process of modernization and industrialization in Chile appears to be entangled with similar processes in Europe. In this contribution, I will focus on the impact of the Bauhaus, especially Hannes Meyer's Bauhaus, on developing new and very fruitful ideas about architecture and design that not only changed the architectural education paradigm, but also promoted a pronounced shift towards an extremely socially oriented and committed architectural practice.[1]

The main (albeit not the only) point of reference for Co-op design in Chile was the Hungarian architect Tibor Weiner. As a graduate student he participated in two of the Co-op design projects of the Bauhaus in Dessau, under the direction of Hannes Meyer: the *Laubenganghäuser* in Dessau-Törten Housing Estate, workers' appartments with collective balcony access (1929–30), and the ADGB Bundesschule [Trade Union School] in Bernau. Weiner was also a member of the Bauhaus Brigade Rot Front (Red Front) in the USSR, between 1930 and 1937. After a short time in France, he arrived in Chile in 1939 as a political refugee of the Chilean Popular Front government. Before Weiner, other Bauhaus teachers and students had arrived in Chile as political refugees, Günter Hirschel-Protsch and Edith Rindler; Paul Linder and Jan van der Linden passed through Chile in those years.

[F] At the end of World War II, the Chilean state aimed to promote the modernization process on various levels. Industrialization, public education and social housing are the most interesting aspects of the Bauhaus' impact in Chile. However, this was not only a top-down development initiated by the state. In 1945, the University of Chile's architecture students went on strike to demand changes to the curriculum to respond to underdevelopment, and the university agreed to their demands.

Weiner, in contact with Hannes Meyer, was the main supporter of and a key figure in the architecture students' strike at the University of Chile in 1945 and managed to propose and implement a new curriculum at the University of Chile. «Integral co-op architecture» spread successfully to other countries after the Pan-American Congress of Architects that was held in Peru in 1947 and «designing the city as a living organism» was a widely shared goal before the advent of neoliberalism in the 1970s.

[G] Hannes Meyer's Co-op architecture and collective design are characterized by his experience with Swiss cooperatives. Their epistemological roots are Johann Heinrich Pestalozzi's Active School,[2] the Vienna School's logical positivism,[3] a personal interpretation

of dialectical materialism, critique of political economy, and the theory of perception (Gestalttheorie). The Active School concept seems to me particularly important in the Chilean context.

The Active School aimed to motivate the construction of knowledge recognizing and valuing one's own cultural variables in a constructive rather than illustrative fashion. It was addressed to students who were reinforcing their decision-making autonomy, who could analyse and interpret for themselves. One crucial element was an awareness of the value of teamwork, which added a new quality greater than simply the aggregate of all the students' work, along with learning through experience. Active School theoreticians besides Johann Heinrich Pestalozzi included Maria Montessori, Ovide Decroly, Adolphe Ferrière, Friedrich Wilhelm August Fröbel, and in Latin America, José Vasconcelos in Mexico, for example.

The Active School Movement as a Precondition for the Architectural Education Reform in Chile

Between 1920 and 1924, during the social and economic crisis of the oligarchic state, a movement of teachers and workers (FOCH) in Chile defended the Active School. In March 1925, they occupied the Municipal Theater building and organized a Constituent Assembly. The idea was that this new constitution had at its core an educational reform based on the ideas of the Active School.

active school

The President of Chile betrayed the Active School movement of teachers, as he promised a Constituent Assembly, but instead of carrying it out, drew up a new constitution with his own small commission; it remained in force in Chile from 1925 until 1973, when the government junta suspended it.

However, General Carlos Ibáñez who took over in 1927, was trying to copy Benito Mussolini's corporativist model of working with the unions. He gave educational power to the Active School teachers and in 1928 implemented a radical reform of education throughout the Chilean system. Between 1925 and 1927, Carlos Isamitt, the Chilean anthropologist, musician, painter, and teacher, travelled to Europe where he represented the Active School movement, and reviewed about 300 curricula of the new schools of art and technology. Some of the most interesting cases for Isamitt were *VKhUTEMAS* in the USSR and the theories of Karol Homolacs from Poland. Before this trip, between 1910 and 1918, Isamitt had already

education reform

NAVIGATION

[F] What are the social, political, and economic preconditions for Bauhaus reception? And how do they vary from one period or country to another?

developed ways and methods of using indigenous geometry in educating children. Up to that time, the culture of indigenous peoples was not valued (institutionally).

In 1928 Isamitt was responsible for designing the country's new artistic education, incorporating Active School ideas. For the main state art school, Isamitt designed a preliminary course, a *Vorkurs.* The Chilean education reform of 1928 was interrupted by violence in 1929, when the government finally understood the concepts of this proposal that strengthened the decentralized communities, reflecting their diverse cultural and social interests Fig. 1.

propaedeutics—*vorkurs*

After the fall of the dictator Carlos Ibáñez, architecture students at the University of Chile organized a strike in 1931 (which continued until 1932) to call for modern architecture to be introduced as a social project. They even managed to organize co-government between teachers and students but were punished by the central university authorities in 1933 and some of the movement's leaders were expelled. Nevertheless, connections with the Bauhaus were strengthened. The first Chilean student at the Bauhaus in Weimar was Gustavo Keller-Rueff in 1920. Roberto Dávila, who had studied urban planning under Ludwig Hilberseimer at the Bauhaus in Dessau under the directorship of Ludwig Mies van der Rohe, later became a professor and taught at the University of Chile. In 1934, the Chilean architect Guillermo Ulriksen cited the ADGB Bundesschule [Trade Union School] in Bernau and Hannes Meyer in the Faculty of Art's magazine.

architectural education reform

architecture as a social project

lessons from the bauhaus

[F] In 1938, with the election of the Popular Front government, University of Chile students tried once more to achieve changes at the School of Architecture. However, the architecture students have not been successful with their demands until the end of the Second Word War. Key factors leading to this success were: the founding of the National Production Development Corporation CORFO (Corporación de Fomento de la Producción) in 1939, to promote economic development and boost industrialization by the state; the founding of the professional association of Chilean architects in 1942, which exercised considerable power until 1973; and, last but not least, the independence that the Architecture School of the University of Chile gained from the Engineering Faculty in 1944.

In 1945, the University of Chile architecture students declared a further strike, demanding radical changes to the curriculum and technical training to reflect the needs of their social context. The young architecture students, supported by young architects from

architectural education reform

social relevance of design and teaching

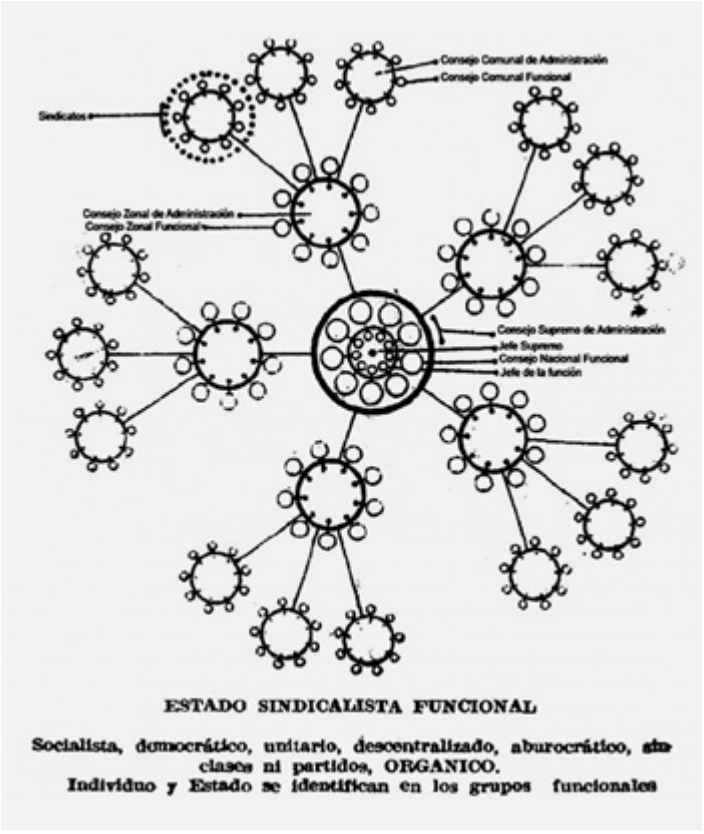


Fig. 1
Idea of decentralized administration, according to the teachers of the Active School, «Estado sindicalista funcional», in: Sindicalismo Funcional en la Teoría y en la Práctica (Revista Nervio), Curicó: 1936

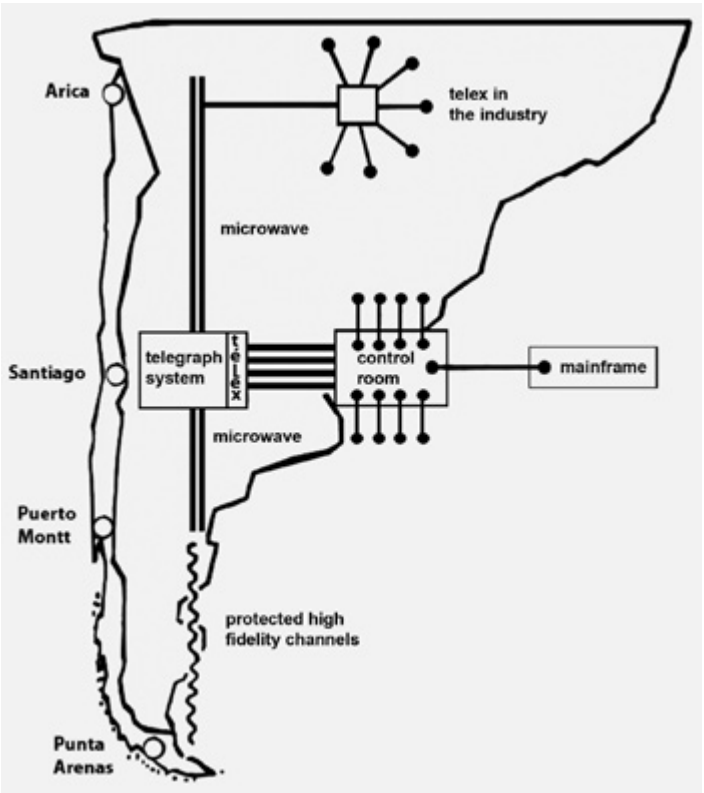


Fig. 2
The Viable System Model, applied in the Cybersyn project network, using Cyberstride software. Image from Stafford Beer's testimony, Que pasa magazine, September 6, 1973, Chile

NAVIGATION

[F] What are the social, political, and economic preconditions for Bauhaus reception? And how do they vary from one period or country to another?

the Thirties movements, aimed to address all the challenges of underdevelopment. In the end, the Superior Council of the University of Chile accepted their demands and tasked a commission of students and teachers with the project of developing a new curriculum. Thanks to the Hungarian engineer Carlos Sandor, who was a political refugee from the Spanish Civil War, the leaders of the student movements, Abraham Schapira and Hernán Behm, reached out to the architect Tibor Weiner.

active school
bauhaus school

new political, social, and architectural awakening

Although the development process of the Active School in Chile cannot be compared with that of the Bauhaus school in Germany, both were state-supported education models and their existence depended on the political will of those in power and on the *kairos*—both are deeply connected with a decisive moment of social and polical change.

Until the early 1970s, when democracy in Chile collapsed as a result of Augusto Pinochet's coup against Salvador Allende's government in 1973, attempts to absorb approaches developed by the Bauhaus and what was dubbed the «new Bauhaus»—its successor institution, the Hochschule für Gestaltung (HfG) Ulm [Ulm School of Design]—had been primarily within the state education system, or organically within the productive system of the state. This ended with the imposition of the neo-liberal economic model in 1975.

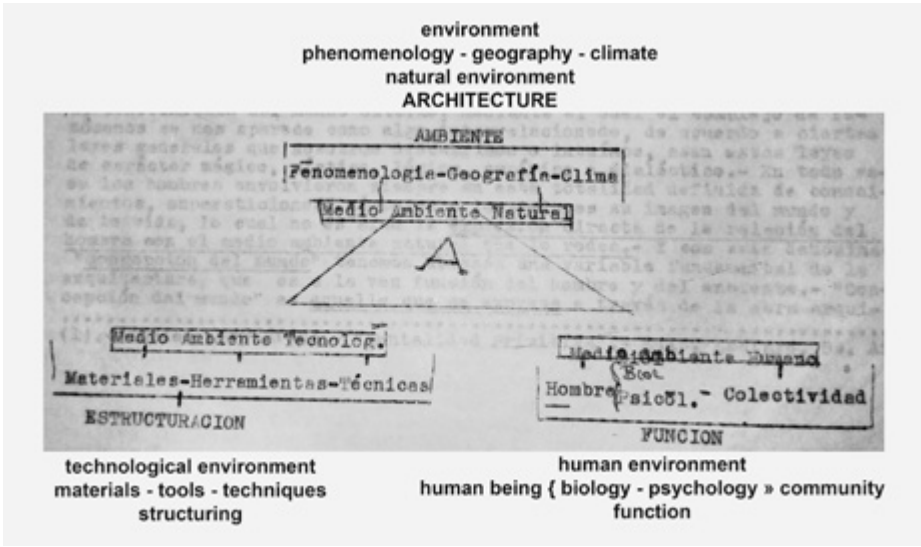
neoliberalism as a paradigm shift [F]

The New Curriculum of the University of Chile (1945–1963) from the Perspective of Second-order Cybernetics

second-order cybernetics

Between 1970 and 1973, Stafford Beer, the English second-order cyberneticist, designed his Viable System Model (VSM) in Chile for *Cybersyn* Fig. 2, a project under the aegis of CORFO (Corporación de Fomento de la Producción). It was planned as a real-time information transmission system, intended to strengthen decentralized collaborative independence (ICD) in companies and state production. Maurice Yolles, a follower of Stafford Beer, explains that, starting from the VSM, any organization model can be reduced to three basic elements: 1) The decision space (human being); 2) The environment (social and natural); 3) The technique or technology. A fourth element is extrapolated from these three basic elements: the action. In this model, the priority is the relationship between the decision space (the human being) and the social and natural environment. The technique is not an end in itself; it is only a means to an end.

environments—cybernetic visions and systemic approaches



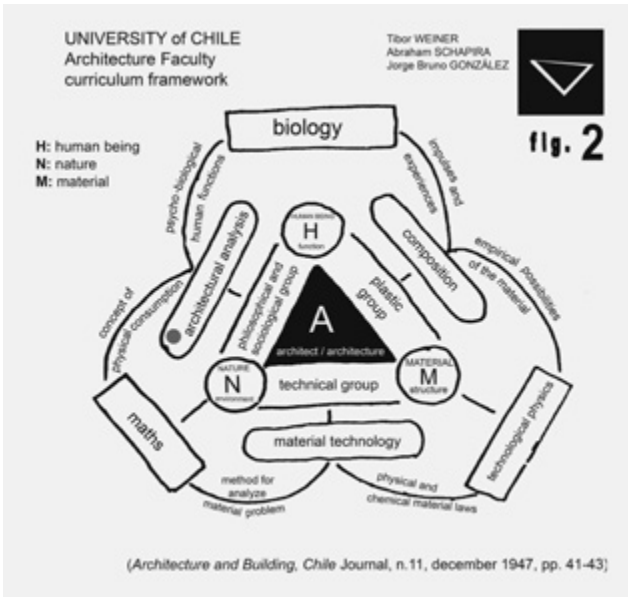


Fig. 3
The 3 elements that define architecture: human environment, natural environment and technological environment, by Abraham Schapira, Architectural and Urban Analysis course, University of Chile 1948

Fig. 4
Basis of the «Integral Architecture» curriculum at the University of Chile since 1946: Human Being: Function, Nature: Environment, and Material: Structure. By Abraham Schapira, Tibor Weiner and Jorge Bruno González, published in: Arquitectura y Construcción, Chile, n.11, 1947

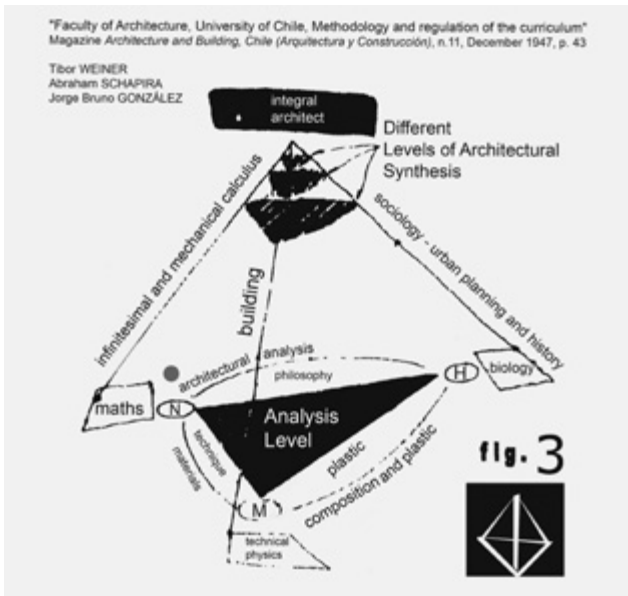


Fig. 5
Analysis and Synthesis Cycles in training of the «Integral Architect» at the University of Chile since 1946. Scheme of Abraham Schapira, Tibor Weiner and Jorge Bruno González, published in: Arquitectura y Construcción, Chile, n.11, 1947

NAVIGATION

[B] What do we understand by taking a stand regarding architecture and design, and particularly of the Bauhaus and Modernism?
[G] Which ways of taking a stand can we discover in processes of Bauhaus transfer, translation, and transformation?

integral co-op architecture

systemic approach

There are similarities between the 1970 Viable System model and the 1946 Integral Architecture model: «In retrospect, this model can be seen as compatible with that of the Integral Architecture model antecedent of 1946, which also possessed three basic elements: the human being, nature Fig. 3 and raw material (taking into account the technological possibilities—from the analogical possibilities that emerged after World War Two to the digital possibilities of the computer technology of the early 1970s).»[4]

[B]

integral co-op architecture

I think that both also adopt an approach developed by the Twenties' avant-garde, criticizing nineteenth-century technocratic modernity that established scientific and technological development as its main objective, ignoring other forms of knowledge and segmenting disciplines. Different interdisciplinary relationships are generated by combining the three basic elements Fig. 4, and through three axes, the objective of the Integral Architect was achieved in a five-year process of «analysis»[5] and «synthesis» Fig. 5.

[G]

In 1939–40 Hannes Meyer designed an Institute of Urban Studies (IPU) at the invitation of the President of México Lázaro Cárdenas. The process of initiating these studies also arose through a «cycle of analysis» and one of «synthesis». For a brief period, there was an ongoing exchange of correspondence between Hannes Meyer in México and Tibor Weiner in Chile. Weiner even tried to make Meyer one of the new teachers of the Chilean plan of 1946. In 1940, Hannes Meyer presented a workshop with his students, with the title «The family's living space», in the Mexican magazine *Edificación*.[6] In 1946 Tibor Weiner referred to «the basic molecule of living»[7] in the Architectural and Urban Analysis workshop at the University of Chile Figs. 6 a–d.

interdisciplinary approach
systemic approach

Incorporating the study of biology into architectural and urban analysis was a way of responding critically to the nineteenth-century's emphasis on division by disciplines. A new human being was imagined, connected simultaneously with sensitive and rational aspects, as well as with his social and natural environment. After the Second World War, this trend was consolidated in Chile, as can be seen by the relevance and impact of the concept of «designing the city as a living organism», while Chilean surgeon José Garcíatello, who was linked to the young architects of the Thirties, began teaching biology and anatomy in a new class called «Bio-Architecture» in 1946.[8] As a result, architecture students had to link anatomy and biology with urbanism and architecture. There was much criticism at that time of rigid divisions into disciplines, emphasizing only technical progress.

[B] What do we understand by taking a stand regarding architecture and design, and particularly of the Bauhaus and Modernism?

The influence of biology changed the concept of system, or structure, from that dominant during the Industrial Revolution in the nineteenth century, and influenced everything: teamwork models, urban planning, and design methodology.

teamwork as a concept

In a modular system, each element has a function; if one element is missing, the system does not work. For example, in a cloverleaf interchange, the protagonist is the car, not the pedestrian. In contrast, using the «nodular system», each element of a system potentially contains all the characteristics of the system, such as in a seed or in DNA. The pedestrian, not the cars, are the centre of the planning approach: For example, with roundabouts pedestrians do not lose sight of the line of the horizon, in contrast to the situation in elevated cloverleaf interchanges.

second-order cybernetics

heterarchical vs. hierarchical order

Any «nodular» system proposes alternatives to the vertical, centralized hierarchical order. Twenty years later, second-order cybernetics used the Greek word *heterarchy* to describe this process. The heterarchical order of cybernetics is reflected in the characteristic teamwork of Co-op design, which integrated elements from the cooperatives movement rather than focusing solely on the work of designers. Co-op design, like second-order cybernetics, highlighted the need for people who are going to use or receive a design to be part of the design process. This is also the perspective of the Active School, being based on the tenet that the «future users» of design know their reality, and that is why they have to be involved in the design process.

[B]

user participation in the design process

Integral Architecture in Chile

integral co-op architecture

In Chile, some of the emblematic cases of implementation of the Integral Architecture model involved cooperation with the coalworkers' union in Lota (1954–1955) to create a shared design of the theatre and union headquarters.[9] A further exemplary case is the support that young architects in the Fifties gave to the homeless, who occupied public land in the south of Santiago, Chile, to build their houses in the later called *Población La Victoria*.[10] The *pobladores* built a circular school in this neighborhood, which translated the decentralized logic of assemblies into its architecture.

When Hannes Meyer designed a circular hall for a cooperative children's home in Mümliswil, Switzerland (1938–39), we know that even the children helped him decide the final design,

NAVIGATION

[E] What are the political prerequisites for socially engaged architecture or design?
[I] What can we learn from the history of the Bauhaus and Modernism when facing current issues? And how can this enable us to gain new insights into the past?

co-op design
socially engaged architecture

in an attempt to practice the ideas of Pestalozzi in the architecture for learning. Co-op design's teaching methodology started with the organization of student groups as work teams. One way of working involved sending these groups to the edge of the city, where homeless people, arriving in the capital in search of work, lived in miserable conditions. The students did surveys and from those answers decided the important topics of the workshop.

neoliberalism
as a paradigm shift

The aim was for students within a free and public university, an educational system that no longer exists in Chile today, to focus on solving the problems within their surroundings. There are many homeless camps in Chile today, but that is not addressed as a teaching concern or a substantive issue in architecture schools which instead encourage individual success in the private market.

modern movement [E] [I]
architecture as a social project

From the Forties on, the modern movement developed in direct contact with the social organizations of the poor, who asserted their right to housing.

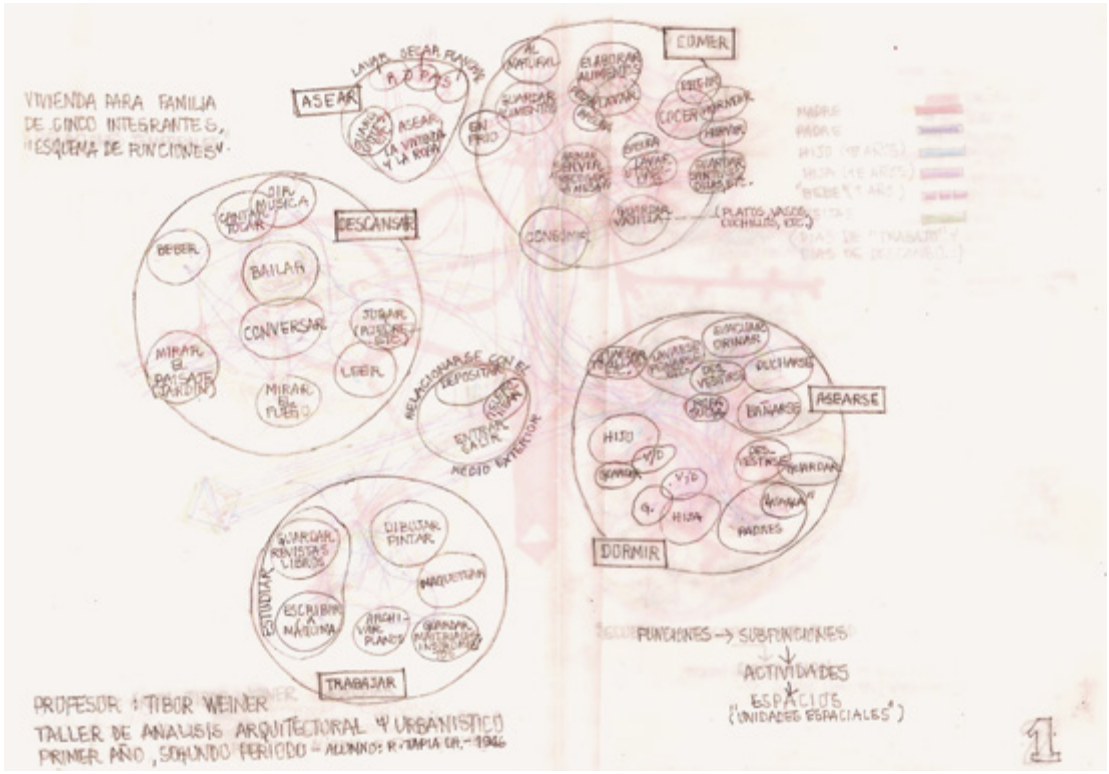
systemic approach

In 1950 the University of Chile's former School of Medicine, in the north of the capital, was destroyed in a fire. The Faculty of Architecture criticized the option of a «university city» that would isolate the university from the community and would conceive architecture as an object and not as a system. That was why the architects from the university proposed the concept of «university nodes» linked within the city framework. In 1950, Simón Perelman organized a team of students to design, as a group, a new Faculty of Medicine in the north of the city but they did not win the tender. The new faculty design was entrusted to Juan Martinez, who had visited the Bauhaus in Dessau and the VKhUTEIN, the Russian model of a progressive Art and Technical school, but rejected Modernism, leaning towards the most characteristic futuristic monumentalism of fascism. Simón Perelman wrote a paper on this planning process in which he highlighted Walter Gropius'

teamwork as a concept

concept of teamwork. In fact, Perelman became the author of the new architecture campus built in an industrial area in the south of the city, integrating applied arts and design with architecture between 1958 and 1974.

These projects were always carried out in work teams. One of the most important was: *Planning Essay of Greater Santiago* (EPGS), 1952.[11] Enrique Gebhard, one of the leaders of 1933, had managed to enter the Ministry of Public Urban Planning (MOP), and from there he managed to get the project purchased. During the development process, the development department of the Intercommunal Plans (Pris) was created. In 1957, a seminar on



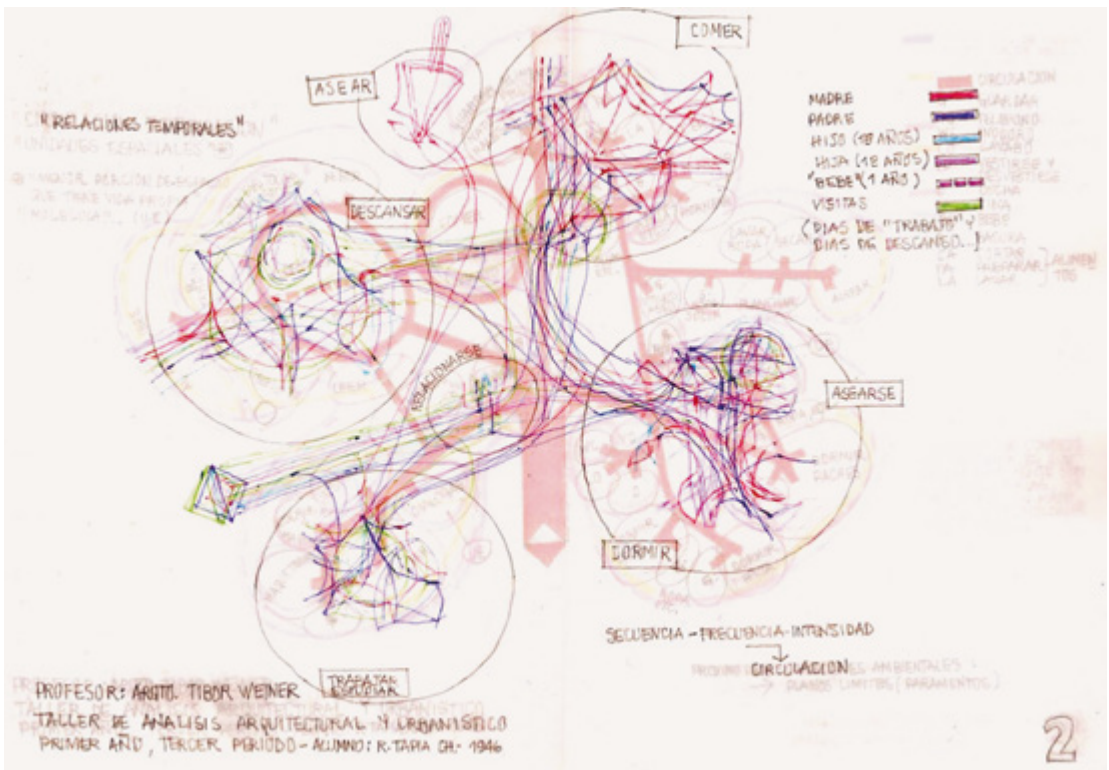
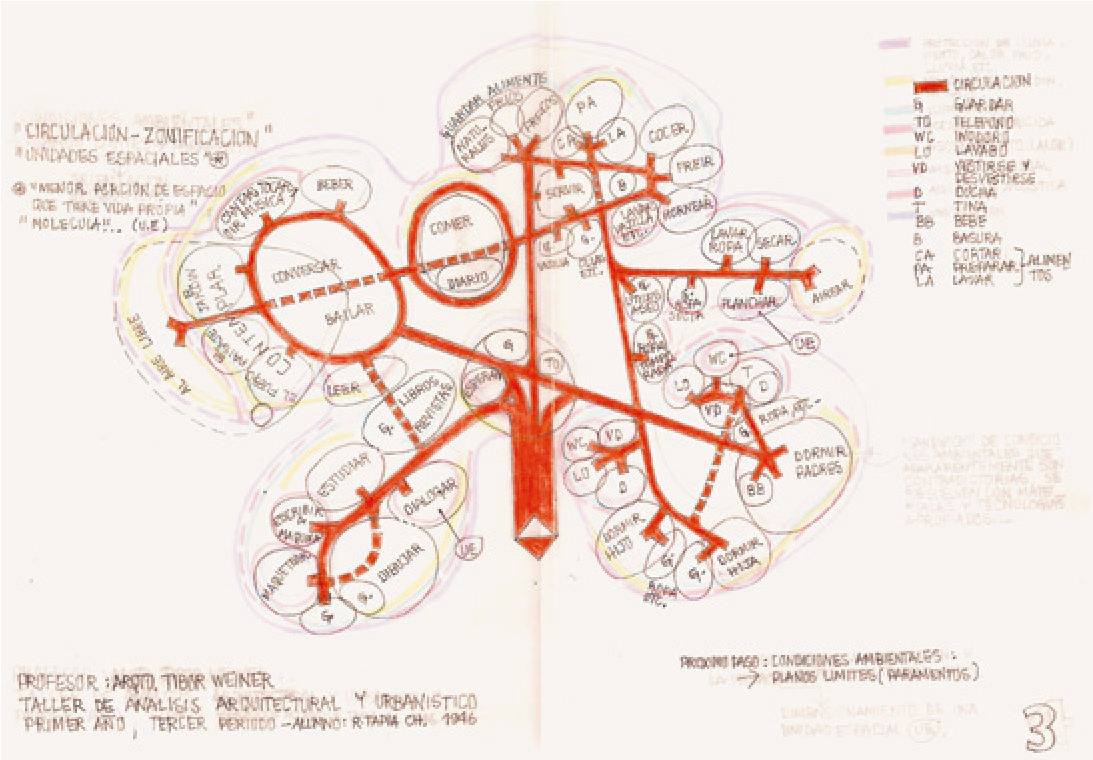
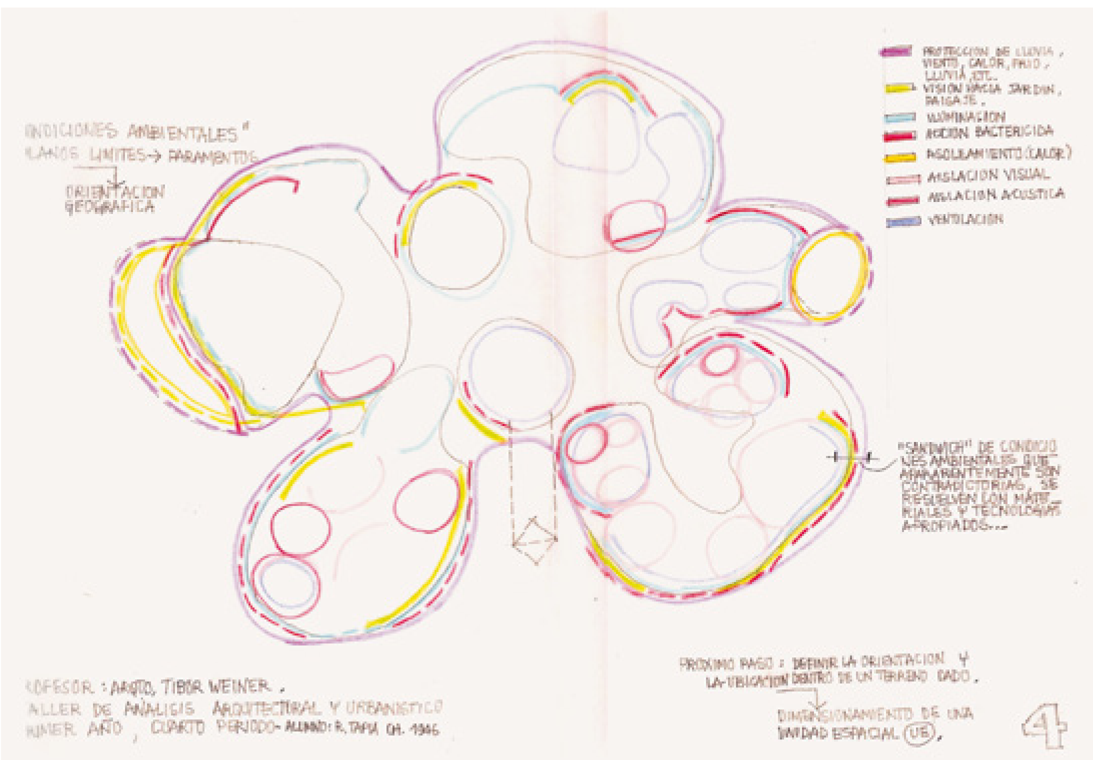


Fig. 6a–d
«The basic molecule of inhabiting», diagrams by Ricardo Tapia Chuaqui in Tibor Weiner's course: Architectural and Urban Analysis, University of Chile 1946


"CIRCULACIÓN - ZONIFICACIÓN"
"UNIDADES ESPACIALES" ⊛
⊛ "MENOR AGRUPACIÓN DE ESPACIO QUE TIENE VIDA PROPIA"
"MOLÉCULA".. (U.E)
CIRCULACIÓN
G GUARDAR
TO TELÉFONO
WC INODORO
LO LAVABO
VD VESTIRSE Y DESVESTIRSE
D DUCHA
T TINA
BB BEBE
B BASURA
CA CORTAR
PA PREPARAR
LA LAVAR
ALIMENTOS
CONVERSAR
BAILAR
COMER
DIARIO
BEBER
LEER
LIBROS REVISTAS
ESTUDIAR
DIALOGAR
DIBUJAR
SERVIR
COCER
FREIR
HORNEAR
LAVAR ROPA
SECAR
PLANCHAR
DORMIR PADRES
DORMIR HIJO
DORMIR HIJA
ROPA ETC.
PROXIMO PASO : CONDICIONES AMBIENTALES : → PLANOS LIMITES (PARAMENTOS)
PROFESOR : ARQTO. TIBOR WEINER
TALLER DE ANALISIS ARQUITECTURAL Y URBANISTICO
PRIMER AÑO , TERCER PERIODO - ALUMNO: R. TAPIA CH. 1946
3


PROTECCION DE LLUVIA, VIENTO, CALOR, FRIO, LLUVIA ETC.
VISION HACIA JARDIN, PAISAJE.
ILUMINACION
ACCION BACTERICIDA
ASOLEAMIENTO (CALOR)
AISLACION VISUAL
AISLACION ACUSTICA
VENTILACION
ORIENTACION GEOGRAFICA
"SANDWICH" DE CONDICIONES AMBIENTALES QUE APARENTEMENTE SON CONTRADICTORIAS, SE RESUELVEN CON MATERIALES Y TECNOLOGIAS APROPIADOS...
PROXIMO PASO : DEFINIR LA ORIENTACION Y LA UBICACION DENTRO DE UN TERRENO DADO.
DIMENSIONAMIENTO DE UNA UNIDAD ESPACIAL (UE).
PROFESOR : ARQTO. TIBOR WEINER .
ALUMNO: R. TAPIA CH. 1946
4

greater Santiago was held and all the protagonists discussed the future of design for the national public space.

In 1960, the PRIS law was approved, giving rise to large city plans designed as a living organism, to be implemented over a 30-year time frame. This development was abruptly interrupted in 1975, when the new neoliberal economic-politic model was applied. The legal power of the college of architects disappeared, as was also the case for the political parties and the housing cooperatives. In 1979, the new law handed over the decisions on public space to the private sector with almost no regulation. Today the negative consequences of that change are almost impossible to repair.

[E]

neoliberalism as a paradigm shift

The Co-op Design Movement: a Latin American Regional Movement

co-op design

The Co-op design movement was not a nationalist movement. In 1947, the sixth Pan American Congress of Architects was held in Lima. The representatives from schools in the process of transformation met as a Latin American regional movement. The University of Chile representative was José Garcíatello, Professor of Bio-Architecture and his presentation of the Integral Architecture model was prepared by Tibor Weiner, Abraham Schapira, and Jorge Bruno González. The presentation of the University of Chile's new curriculum was published in a special edition of the prestigious journal *Arquitectura y Construcción*. Faithful to the collectivist ideology, it had no individual signatures.

integral co-op architecture

new architectural curriculum

collectivist ethos

The University of Chile went through an internal crisis in 1963; almost all the professors who defended the model of Integral Architecture resigned and never again spoke within the university, or within the history of local architecture, about those 17 years influenced by the Co-op design model. After resigning, these teachers formed the *AUCA* Cooperative and created a very important magazine: *AUCA* means: Art, Urbanism, Construction, Architecture.[12] *AUCA's* editorial board promised to serve what they considered as a radical, political, social, and urban transformation towards social equality that would revolutionize citizens' everyday lives.[13]

co-op design

bauhaus as a collective call for action

The last chapters of that story were seen in the building of the United Nations' Economic Commission for Latin America and the Caribbean (ECLAC), designed by Chilean architect Emilio

NAVIGATION

[N] How do our own cultural, social, and political beliefs and stances affect our understanding of the Bauhaus, Modernism, and modernity?
[O] What is the significance and relevance of the Bauhaus and Modernism today—a historical phenomenon or a resource for the present? And what, if anything, constitutes their current relevance?

co-op design

Duhart—a former student of Walter Gropius at GSD Harvard in 1942—in 1965 as well as in an extraordinary case of Co-op Design in the construction of the building for the Third Session of the United Nations Conference on Trade and Development (UNCTAD III) held in Santiago de Chile in 1972[14]. Several alumni of Tibor Weiner worked on that project, as did the team of Gui Bonsiepe, a HfG Ulm designer who was in charge of the CORFO Technological Institute (INTEC). At that time, organisms such as ECLAC and UNCTAD III represented the ability to decide economic policies for this region and in the second case to find how these modernities of Latin America, which had been developing since the 1920s, sought a point of convergence with alternative modernity projects for the Third World at the 1972 conference.

[N] [O] With hindsight, the Viable System Model of the 1972 *Cybersyn* project allows us to gain a different vision of the modernization process in Chile—in the light of knowledge about the Integral Architecture model and the way in which the city was designed as a living organism in the Fifties, and about the concepts of the Active School movement of 1928. And continuing this modernization process still stands as an open invitation.

bauhaus as a collective call for action

NAVIGATION

Notes

1 David Maulén de los Reyes, «The integral architect: Co-op in Chile», in: *Bauhaus*, 7, December 2015, Kollektiv, pp. 92–100.
2 See Raquel Franklin and Werner Möller, *The coop principle – Hannes Meyer and the concept of collaborative design*, Bauhaus Dessau Foundation 2015.
3 See Peter Galison, «Aufbau/Bauhaus: Logical Positivism and Architectural Modernism», in: *Critical Inquiry*, Vol. 16, No. 4 (Summer 1990), pp. 709–752.
4 David Maulen, «Biology and educational models in the Pacific Southern Cone», in: *bauhaus-imaginista Journal,* http://www.bauhaus-imaginista.org/articles/5531/biology-and-educational-models-in-the-pacific-southern-cone?0bbf55ceffc3073699d-40c945ada9faf=1f3d-53046cf0e54616350422befc8dec (Consulted on April 27, 2020).
5 Daniel Talesnik refers to «analysis» as «the main educational legacy of Weiner in Chile». He sees the 1946 reform as an «effort to reconnect the architecture of the Modern Movement, as it had been imported to Latin America, with a social agenda. The reform attempted to correlate image and project—method and purpose.» Op. cit. Daniel Talesnik, «Escuela de Arquitectura, Universidad de Chile, Santiago, Chile 1943–1963, in: radical pedagogies, an ongoing multiyear collaborative research project by Beatriz Colomina with the PhD students at Princeton University School of Architecture, https://radical-pedagogies.com/search-cases/a25-escuela-arquitectura-universidad-chile/ (Consulted on April 27, 2020).
6 Patricia Rivadeneyra, *El arquitecto Hannes Meyer en México 1939–1949*. Tesis de Maestría. Universidad Nacional Autónoma de México, México 1982.
7 Beatriz Mella, *Taller de Análisis Arquitectural 1946–1947, Universidad de Chile, Profesor Tibor Weiner.* FADEU PUC Chile, Seminario de Investigación 2004.
8 José Garcíatello, *Bio-arquitectura. Desarrollo esquemático del curso*, Santiago de Chile: Editorial Universitaria 1958.
9 Sergio Bravo, «El edificio: Síntesis del espíritu y las necesidades de los mineros», in: *Las Noticias de Última Hora*, 18th May 1955, p. 3.
10 *Población La Victoria* is named after an event called *La Toma de la Victoria* in 1958, in which a group of 1200 families seized the land of *La Feria* farm, built it, and formed committees in charge of controlling crime and providing security to the population. The neighborhood inspired other residents of the Chilean capital to demand housing. See: Samuel Shats, *La Victoria: Resilience & Creativity*, http://urbanoproject.org/la-victoria (Consulted on August 5, 2020).
11 Pastor Correa, *Retrospectiva de un ensayo de planificación del Gran Santiago 1952: evocación de un proyecto de título en la Facultad de Arquitectura y Urbanismo de la Universidad de Chile*, responsibility: Pastor Correa P., Juan Honold D., Jorge Martínez C., Santiago: Universidad Central de Chile 2002.
12 Ana Maria Barrenechea et al., *A 53 años de la Reforma de 1946*, Santiago: Facultad de Arquitectura de la Universidad de Chile, Chile. Unpublished, report presented at the 150th anniversary of the teaching of architecture at the University of Chile 1999.
13 Camilo D. Trumper, *Ephemeral Histories. Public Art, Politics, and the Struggle for the Street in Chile*, Oakland, California: University of California Press, 2016, p. 31.
14 David Maulen, «An exceptional trajectory. Civic integration and collective design in the Unctad III building», in: *ARQ,* n. 92, (2016), pp. 68–79, https://scielo.conicyt.cl/scielo.php?script=sci_arttext&pid=S0717-69962016000100008&lng=en&nrm=iso&tlng=en (Consulted on April 28, 2020).