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TRAFFIC OF IDEAS AND  
FORMING PRACTICES:  
ARCHITECTURE AND URBANISM IN  
HOUSING ACTION OF IAPI

ABSTRACT

In Brazil, since the 1980s, in a context of growing interest in the history of housing, the city and urbanism, the investigation about the intercontinental traffic of ideas was intensified, which was evident in the publications and events of this field. In the same perspective, this paper proposes to observe the debate on housing and urbanism in Brazil, identifying points of intersection with Europe, USA and other countries in South America. In some situations, this movement was featured by influences and knowledge transfers. However, the Brazilian scenario assumed an active role in the processing and construction of its own reflections, what can be concluded by the transit of professionals and ideas linked to public housing production in the country in the 1940s and 1950s. The “Instituto de Aposentadoria e Pensão dos Industriários” (IAPI) (the retirement and pensions institute for industrial workers) excelled in the process because of the proposed technological innovations and urban projects which purpose was quality housing in series. Analyzing the action of the architects and engineers, aligned with administrative guidelines, it is expected to demonstrate how IAPI was transformed in a preferential place for the mass production of popular housing in Brazil communicating directly with the international debate.

KEYWORDS

Housing. Urbanism. Serial production. Social retirement. Engineers. Architects.

TRÁNSITO DE IDEAS Y  
FORMACIÓN DE PRÁCTICAS:  
ARQUITECTURA Y URBANISMO EN  
LA PRODUCCIÓN DE VIVIENDAS  
DEL IAPI

RESUMEN

En Brasil, desde 1980, en un contexto de creciente interés en la historia de la vivienda, de la ciudad y del urbanismo, se han intensificado las investigaciones sobre el tráfico intercontinental de ideas, lo que se hizo evidente en las publicaciones y en eventos del campo de interés. En la misma perspectiva, la propuesta de este trabajo es observar el debate sobre la vivienda y el urbanismo en Brasil, a través de la identificación de puntos de diálogo con Europa, EE. UU, y otros países de América del Sur. En algunas situaciones, este movimiento se reflejó por las influencias internacionales y la transferencia de conocimientos. Sin embargo, el panorama brasileño también tomó un papel de liderazgo en el proceso y en la construcción de sus reflexiones, que se demuestra por el tránsito de profesionales y de ideas relacionadas a la producción pública de vivienda que tuvo lugar en el país en los años entre 1940 y 1950. El Instituto de Aposentadoria e Pensões dos Industriários (IAPI) (Instituto de Jubilaciones y Pensiones de los Trabajadores Industriales) se destacó por las innovaciones tecnológicas propuestas y por los proyectos arquitectónicos y urbanísticos cuyo propósito era una vivienda en serie de calidad. Analizando los efectos de arquitectos y ingenieros, de acuerdo con las determinaciones administrativas, se espera demostrar cómo el IAPI se ha convertido en un espacio preferente para la producción masiva de viviendas populares en Brasil, en diálogo con el debate internacional.

PALABRAS CLAVE

Vivienda. Urbanismo. Producción seriada. Seguridad social. Ingenieros. Arquitectos.

TRÂNSITO DE IDEIAS E  
CONFORMAÇÃO DE PRÁTICAS:  
ARQUITETURA E URBANISMO  
NA AÇÃO HABITACIONAL DO  
IAPI

RESUMO

No Brasil, desde a década de 1980, num contexto de crescente interesse pela história da habitação, da cidade e do urbanismo, foram se intensificando as investigações sobre o trânsito intercontinental de ideias, o que se evidenciou em publicações e em eventos da área. Nessa mesma perspectiva, propõe-se aqui observar o debate sobre habitação e urbanismo no Brasil, identificando pontos de interlocução com Europa, Estados Unidos (EUA) e outros países da América do Sul. Em algumas situações, esse movimento se configurou pelas influências internacionais e por transferências de conhecimento. Entretanto, o panorama brasileiro também assumiu o protagonismo no processamento e na construção de suas reflexões, o que se comprova pelo trânsito de profissionais e de ideias vinculados à produção pública de habitação realizada no país nas décadas de 1940 e 1950. O Instituto de Aposentadoria e Pensões dos Industriários (IAPI) destacou-se nesse processo pelas inovações tecnológicas propostas e pelos projetos arquitetônicos e urbanísticos que tinham como propósito uma habitação em série de qualidade. Analisando a ação dos arquitetos e dos engenheiros, em sintonia com as determinações administrativas, espera-se demonstrar como o IAPI se transformou num espaço preferencial para a produção massiva de habitação popular no Brasil, em diálogo com o debate internacional.

PALAVRAS-CHAVE

Habitação. Urbanismo. Produção em série. Previdência social. Engenheiros. Arquitectos.

## TRAFFIC OF IDEAS: AN APPROACH

Since the 19<sup>th</sup> Century, the question of housing has had an important impact in the history of architecture and urbanism, which are understood as inseparable mainly in the architectural projects of the modern movement of the first half of the 20<sup>th</sup> Century. The discussion about minimum housing, for being an important topic for great modern masters and for occupying a central place in Congressos Internacionais de Arquitetura Moderna (International Congresses of Modern Architecture) (CIAM) in Frankfurt (1929) and Brussels (1930) (AYMONINO, 1973), was part of the majority of guidelines in the history of architecture. Some works redirected the historical construction, also incorporating the social, economic and cultural scenarios of the USA as an important reference, far ahead of the interpretations more compromised to the European architectures actions. Therefore, in order to understand the transformations that changed the thinking about architecture and urbanism from the 19<sup>th</sup> Century to the 20<sup>th</sup> Century, many authors analyzed the course of events from an exchange movement between Europe and the USA (CIUCCI, DAL CO, MANIERI ELIA, TAFURI, 1975; MANCUSO, 1980; COHEN, 1995).

Recently, a renewed approach of RIBOLDAZZI (2009) focusing on the International Federation for Housing and Town Planning (IFHTP) in the period between wars reinforced the argument that historically, once giving great importance to Corbusier and CIAM as the conceptual matrix of modern movement, and as the “center” of town planning discussions radiator, it neglected other ongoing events in the first half of the 20<sup>th</sup> Century (in this case, the ideal of the garden city).

In Brazil, since the 1980s, in a context of growing interest in the history of housing, the city and urbanism was intensified by investigations about the intercontinental traffic of ideas, which was evident in the publications and events of this field. The consolidation of this tendency can be illustrated by the publication of *Urbanismo na América do Sul* (Urbanism in South America): circulation of ideas and construction of fields, 1920-1960 (GOMES, 2009). The Congressos Internacionais de História Urbana (International Congresses of Urban History), which have happened since 2004, also stand out. The latest edition of this event resulted in the *Dossiê Cidade e Habitação na América Latina* (A Briefing of City and Housing in Latin America), number 8 of *Revista Urbana* (Urban Journal), in which the editorial clearly reveals the objective of breaking off the Eurocentric views about the constitution of the fields of architecture and urbanism. (FARIA, CERASOLI and SAMBRICIO, 2014).

This process is part of an important movement that is happening in Latin America, which analyzes the construction of the field of architecture, urbanism and planning in the 20<sup>th</sup> century. From a broader perspective, even without denying certain asymmetry of associations between these “core” countries and those “peripheral”, the works seek to disrupt with the notions of “hegemony” and “influence”. (LIERNUR, 2008; ALMANDOZ, 2002; GORELIK, 2005).

In the same perspective it demanded great effort to observe more complex reception and the exchange of international ideas in the Brazilian debate on

housing. Given the housing production undertaken by the Brazilian social security institutes during the 1940s and 1950s, widely documented and analyzed by the Grupo Pioneiros da Habitação Social no Brasil<sup>1</sup>, the specific focus on the Instituto de Aposentadoria e Pensões dos Industriários (IAPI) allowed a deeper analysis of the insertion of the technicians from public service in the international dialogue (ARAVECCHIA-BOTAS, 2011). This approach provides elements to follow the path of ideals to the consolidation of its own view about the housing issue, which was deployed in the construction of many housing projects in the period.

### TECHNICIANS, BETWEEN THE INTEGRATION IN POLITICS AND INTERNATIONAL DEBATE ON HOUSING

The contextualization of the beginning of the public housing production in Brazil relates directly to the political and economic developments taken by the country's history since 1930, considering the Revolution led by Vargas as a rupture for the establishment of a new development process. Then it starts to frame the fundamental action that the pension system had to the urbanization processes, specifically in what concerns the territorial expansion, taking several cities of the country to the metropolitan condition. In the composition of the ruling classes it opened up the decreasing panorama of a scholastic tradition in favor of technical and scientific training, symbolized by the dominance of engineers in the political and administrative fields. At the same time, the influence of the artistic community was consolidated, within the culture, through the construction of a "national identity", which in architecture primarily manifested in the Ministério da Educação building.

These changes led professional groups of the same academic origin to occupy technical positions in public institutions, and therefore in the social security agencies established at that time. IAPI was representative in this sense, with a large number of engineers in their management positions. The agency had fundamental importance in the consolidation of the meritocracy system for hiring professionals, performing in 1937 the first major civil service examination effective for the whole country. The Divisão de Engenharia (Division of Engineering) of IAPI has become a privileged space for the convergence of ideas, gathering constructive and identity bias of architects trained at the Escola Nacional de Belas Artes (National School of Fine Arts), and the more pragmatic view of engineering graduates mostly by polytechnics in Rio de Janeiro and São Paulo.

The constitution of a state bureaucracy coincided with the birth of the ideology and practice of planning as economic policy instruments of national developmental orientation (IANNI, 2009, p. 51). The technocrats graduated in the Institute, or even earlier, in the direct presence of political decisions that led to the creation of IAPI, had sufficient autonomy to direct actions related to the investment of its resources. So it was possible to advance in technological research aimed at civil construction and carry out projects that could incorporate the urban discussions.

<sup>1</sup>The group *Pioneiros da habitação social no Brasil*, coordinated by Prof. Dr. Nabil Bonduki conducted a comprehensive survey on public housing production from 1930 to 1964, and gave origin to several scientific initiation scholarship, masters and doctorates. The main product of collective research was the issue of the collection *Pioneiros da Habitação Social* (2014).

During the creation of the Ministério do Trabalho, Indústria e Comércio (Ministry of Labor, Industry and Commerce) in 1930, by Decree 19.496, it was predicted that part of the pension funds would be used for the construction of housing in the suburbs (CONNIFF, 2006, p. 126). It came from the Minister himself, Lindolfo Collor, the order for technicians to study the feasibility of residential projects. The architect Rubens Porto, from his institutional location as coach of the Serviço de Engenharia do Conselho Nacional do Trabalho (Engineering Services of National Labour Council, condensed in the book, *O Problema das Casas Operárias e os Institutos e Caixas de Pensões*, published in 1938, a number of concepts which were already in development since the late 1920s - a basic source for those who already study the beginning of the public housing production in Brazil. The book brings the study of a housing estate of two thousand units, designed by Rubens Porto in partnership with Paulo Accioly de Sa, Agostinho Sá and Affonso Visconti, his associates in the Escritório Técnico SPES, following the guidance of the Minister Lindolfo Collor. The idea of a large housing estate would be finally brought to conclusion with the construction of a residential area in Realengo, in Rio de Janeiro, by IAPI in the 1940s.

In the I Congresso Panamericano de Vivienda Popular, Rubens Porto represented the Ministry of Labour, accompanied by Plínio Cantanhede, Paulo Accioly de Sá and Francisco Batista de Oliveira. In the book as well as in several opinions issued by Rubens Porto as assistant of the Ministry, it is possible to identify a different list of references including the utopian socialists, sanitary engineers, movement of garden city, Catholic crusades, neighborhood units and also the European modern movement in the figure of Le Corbusier. (PORTO, 1938).

The first report of IAPI activities, signed by Plinio Cantanhede, president of the Institute at the time, also shows that the international ideals relating to housing and urban planning were driven directly by high state bureaucracy. To defend the rationalization of the housing problem, some experiences are mentioned:

*The direction adopted by the Institute is not innovative. The workers' garden cities of Lechworth and Welwyn in England, the great popular buildings on the outskirts of Paris and Rome, the German European cities such as Siemensstadt and Hasehorst, to name the most important, indicate the most rational solution for the problem. The US effort in recent years, through the work of the Federal Housing Administration, is remarkable. The cities that are green waterfronts, three of which are already being built: - Greenbelt in Maryland, Grenhills in Ohio and Greendale in Wisconsin show that the general solution for the home problem of the economically weak classes can only be found in large-scale construction and in areas that allow the formation of urban centers in their own living conditions (IAPI, 1941, p. 91).*

The international benchmarks are emphasized to legitimize the initiative of the Institute to produce housing. It showed, however, with a remark that such references could not be taken in their entirety, it should be aware of the need to adapt to national conditions, considering mainly the economic problem. However, it did not forget the idea of housing in its entirety, which should be conceived as a public service to be offered to members:

*In a few lines, a French technician, Maurice Rotival, determines the issue that nowadays of extreme importance for the solution of social problems disturbing the civilization: "Building affordable housing is at the same time and necessarily - urbanism." It seems inconceivable the construction of buildings whose main principles are rooted in goodness of ideas and human solidarity, as it is unbelievable that the application of new hygiene rules, without providing at the same time, open spaces, kindergartens, schools, sports fields, children meadows, pools, which should be part of any overall plan. Build affordable housing, dividing them into small plots scattered in the mass of urban buildings – is the same as aggravate the evil, to regress (IAPI, 1941, p. 92).*

The trajectory of the French Maurice Rotival shows the traffic of ideas, actions and professional interests between Europe, the USA and South America, and reveals how the intense movements in the 1930s resulted in a solid legitimacy of urban planners in the subsequent period. The urbanist quoted in IAPI report was responsible for Plano Monumental para Caracas (Monumental Plan for Caracas) in 1939, in which the monumental axis proposed for the Bolivar Avenue was similar to the proposal of Alfred Agache for Rio de Janeiro. At the end of the 1940s, Rotival would again present himself to Venezuela "with an American view," in the words of Arturo Almandoz. In the Second Postwar, as a professor at Yale University, he returned claiming the role of a "planner", much more concerned about the economic and territorial issues of the "region". He had transformed his own perception of the work of "urban planner" that used to emphasize the aesthetic and representative issues of the city in their proposals. (ALMANDOZ, 2009, p. 245). An example of that is the contact with the very questions of the American environment, the continent understood in its entirety was crucial to the significant changes in the formation and conceptions of European urban planner.

The reflections presented in IAPI report excerpts are certainly a result of the participation of Cantanhede in Congresso Panamericano de Vivienda Popular in 1939, when he came into contact with the work of the Federal Housing Administration from USA, for example. The American experience was also featured in the magazine *Urbanismo e Viação* (Urban Development and Traffic), directed by engineer Francisco Batista de Oliveira who addressed the papers of the Congresso, together with papers in Argentina, Uruguay, Chile, Mexico, Colombia and Peru (O ESTADO [...], 1940, p. 199-202) .

The precepts of urban sanitation as well as the garden city movement, emphasized in the writings of Rubens Porto, also appear in the theses of Francisco Batista de Oliveira. The engineer, both responsible for the magazine *Urbanismo e Viação*, which he directed and owned, as in other journals and conferences for associations, defended the construction of cheap houses for the poorest and treated the issue as an urban problem (OLIVEIRA, 1939, p. 27; 1940, p. 20; 1943, p. 21). Oliveira's writings, not only for being a recurrent name in the specialized field, but also for its proximity to Plínio Cantanhede, were possibly considered by designers of IAPI.

Paulo Accioly de Sá and Plínio Cantanhede actively participated in the Jornada da Habitação Econômica (Day for Economic Housing) promoted by the Instituto de Organização Racional do Trabalho (IDORT) (Institute of Rational

Organization of Labour) in 1941 and with the doctor and art historian, José Mariano Filho, gave the major conferences of the event, addressing the *Technical, economic and social development of affordable housing*. At the time there was a significant release of IAPI's work, promoting a visit to the construction site of the workers' houses in Realengo, plus an exhibition of projects and photos of the construction progress (JORNADA [ ... ], 1941, p. 21-22 , ECOS [ ... ], 1941, p. 44) .

The relationship between the housing problem and the industrial organization presented on the resolutions of the Comissão do Aspecto Arquitetônico e Construtivo (Committee on Appearance and Constructive Architectural) in the Congresso Panamericano de Vivienda Popular, which recommended the (1) mechanization of the construction with reduction of labor costs, (2) State participation in fostering manufacturing resistant, light and easy to handle building materials, (3) standardization of types of houses as an incentive to industrialization, (4) the implementation of projects with economic criteria without loss of quality (1 CONGRESSO [...], 1939, p. 707). An outcome of these resolutions in Brazil was the specific suggestion given by Rubens Porto for creating a central agency to work together with the Instituto Nacional de Tecnologia (National Institute of Technology) in solving the problem. The goal was to drive the buildings through more rational means, trying new solutions and practicing the rationalization of construction processes. (PORTO, 1938, p. 84).

The difficulty for developing new means of production in the civil construction was considered by Brazilian technicians a reflection, in that sector, of the economic conditions that hindered the development of national general industry. The organization of the construction site, using traditional means and materials, was used as an alternative for cheapening the housing, with the same importance of technological innovations as presented in the conclusions of the 4ª Sessão: Urbanismo e Habitação, in the Primeiro Congresso Brasileiro de Urbanismo in 1941 (4<sup>th</sup> Session: Urbanization and Housing, the First Brazilian Congress of Urbanism in 1941:

*That through the Institutes of Technology should the construction problems of the popular house be re-studied, in order to achieve quick and cost-effective solutions, at the cost of new construction elements or new technical processes applied to classical elements. (PRIMEIRO [ ... ], 1940, p. 45) .*

Standardization and serialization of the architecture found great defender in the engineer - architect Jayme Teixeira da Silva Telles, that between the 1920s and 1930s, developed projects for the *Companhia Construtora de Santos*, Roberto Simonsen serialization, and its main guideline to restructure the constructive process. Silva Telles came to propose to Cotonifício Rodolfo Crespi in São Paulo, as an employee of that *Companhia*, a *Vila Operária* (Workers Village) named "Projeto Ford" (Ford Project), which illustrates his posture about the productive reorganization of construction along with the lines of other industrial activities (FREITAS, 2005, p. 65-66). Roberto Simonsen was one of the great defenders of the work rationalization and also a great articulator for the creation of IDORT.

The episodes exposed here show the movement of architects and engineers among a number of public agencies and their political and institutional relations from 1930 on. These technicians participated in international urban planning discussions that, at the same time, increased the reformulation of ideas of its own discipline internationally and gained new meanings in the housing action of Brazilian public agencies.

## CONSTRUCTION PROCESSES AND BUSINESS TRANSACTIONS

In the sphere that included both the relationships between professionals, capitalists and State, and the traffic of ideas through events and specialized journals, it is certain that the technicians and administrators from IAPI were inserted in it. The combination of new technical processes with traditional constructive knowledge was already being put into practice in IAPI construction site in Realengo, since the beginning of 1940. In this case, the innovation was due to the insertion of concrete blocks manufactured in the site that dispensed plaster and paint. The masonry of concrete blocks was an innovation of the early 20<sup>th</sup> Century and spread rapidly through Europe, especially in France and Germany, but it was in the USA that it hit further development and perfection (BLOCOS [...], 1939, p. 157). New technologies applied to the concrete and the easiness of handling it allowed that its use spread worldwide from the US, either through export of building components, either through export of machines for the production of components. The concrete block machine found promising market in South America (CODY, 2003, p. 32-35).

For the housing in Realengo, IAPI imported a machine from Besser Manufacturing Co. (A CONSTRUÇÃO [...], 1941, p. 269), which shortly before had sold a similar one to Venezuela for the production of a housing in Puerto Cabello. (THE BESSER [...]). The experience was highlighted in the *Boletim de Informações da Associação Brasileira de Concretos Portland* (ABCP) (A CONSTRUÇÃO [...], 194, p. 269-275), which brought together the cement manufacturers in order to spread the use of concrete, and performed together with other institutions to promote the research to technological advances in the construction sector.

IAPI was congratulated by manufacturers of concrete block machines in Washington in 1943, a prosperous time for the trade relations between Brazil and the USA. The impact of the activities of the Institute was reported with satisfaction by revista *Inapiários*:

*And the remarkable progress made by Brazil - focused, in Washington, on the splendid contribution of IAPI in building workers' villages.*

*Our newspapers were published, and we gladly transcribe the review below, which once again show how valuable has been the contribution of IAPI to the housing problem solution for the lower classes of the country.*

*Washington, May (Inter-American) - The cement industry outbreak in Brazil, while the remarkable achievements of this country in regard to buildings for*

<sup>2</sup> In addition to the direct confrontation in the political environment, the Fundação da Casa Popular plan also suffered with potential allies opposed to creating a consistent housing policy, such as the construction industry. The fear was that a construction plan of many villas would make it more difficult to obtain building materials like cement that could harm more profitable businesses such as the incorporation to the sale of villas to high and medium classes. Along with other limitations such as the opposition of the corporate sectors on the left, which were against the housing production for sale, and the dispute over the pension funds for the implementation of major development projects and others, prevented the FCP to be actually converted in a central agency of housing policy, capable of incisive action against homelessness (Bonduki 1998: 118-119).

*workers in industrial zones, were a major topic of discussion at a meeting of manufacturers concrete block and US and foreign public figures, gathered here recently.*

*Completing a series of similar conferences in New York and Philadelphia, the Washington debates were concluded with a dinner giving a well-deserved tribute to Brazil, for its remarkable progress in the field of public housing.*

*This program, which is part of the social reform policy of President Getúlio Vargas, was cited as one of the main factors that led to extraordinary progress in the cement industry in Brazil, for local use. The latest figures indicate that cement production was almost sufficient for national consumption.*

(...)

*The cement industry in Brazil, pays, on average, more than a million dollars per year in wages to its three thousand workers in related industries (O PROBLEMA [...], 1943, p. 35).*

Since the establishment of the cement industry in Brazil in the mid-1920s, its production was in fact rising (PRODUÇÃO [...], 1935), and the passage from the 1930s to the 1940s the State action was key to increase it. IAPI, with a view to the application of social security funds to finance the economy, directly contributed to the advancement of the cement industry through its real estate investments plan. But at the end of a promising period, cement production goes into decline causing concern in all related sectors. The difficulties in getting cement and other building materials accentuated in the end of the II World War, which led to disapproval of the production of social housing, which is one of the causes of the failure of the Fundação da Casa Popular<sup>2</sup>, (Popular House Foundation), a body created to centralize the housing production in the country. However, regarding the trade relations with the US, the 1940s were decisive, and the success of diplomacy resonated in the action of government bodies, as shown in the exemplary case of IAPI. In this sense, in the continuation of the article published in the *Revista Inapiários* it is possible to see the importance attributed to Brazil by US industries that saw in the country real potential for achieving their business interests:

*The crisis of accommodation in Brazil, following the rising curve of industrialization is being addressed through an intensive building program for workers. The Instituto de Aposentadoria e Pensões dos Industriários, a body to promote the welfare of Brazilian workers, has implemented a plan of cheap housing to house some three million industrial workers.*

*American engineers collaborate in this plan by providing equipment, health experts under the auspices of the Escritório de Assuntos Inter-Americanos (Inter- American Affairs Office), are fighting against malaria. The new system of buildings and the fight to combat the fever includes the most modern equipment which is manufactured in the United States.*

*In the meeting held in Washigton, it was announced that US manufacturing were planning, especially to Brazil, a small, inexpensive and hand-operated machine to manufacture concrete blocks (O PROBLEMA [...], 1943, p. 35).*

It is true that the estimation for the construction of houses to “house about three million industrial workers” was never confirmed. All federal agencies together produced, from 1937 to 1964, just over 140,000 residences, which

according to the average of six people per family, it is not necessary to say that just over 800,000 people were benefited. That is, not even adding up all the agencies it would be possible to reach the number of beneficiaries that entrepreneurs and American professionals were expecting just for IAPI. But with regard to the *Plan A*, construction of housing for rent, all social security institutes have built together close to 50,000 units, being IAPI alone responsible for about 20,000 of them, which meant 43% of all the production. No doubt it was in this type of financing that has happened, more consistently, the dialogue of IAPI technicians in international debates of architecture and urbanism, from the US and also in Europe.

### ECHOES OF THE HOUSING DEBATE IN ACADEMIC AND PROFESSIONAL FIELDS

In order to compose a list of its own guidelines, the staff of the Institute tried to find guidance in specialized discussions, studies developed by Brazilian professionals already recognized and in national and international experiences. In an article for revista *Inapiários*, one IAPI employee, engineer Francisco de Paula Dias de Andrade, graduated at the Polytechnic School of São Paulo, develops an argument on *Higiene e Diretrizes Técnico-Construtivas* (Hygiene and Technical-Constructive Guidelines) for workers' houses. It uses several references advocating for the establishment of minimum health standards, regardless of residents financial conditions. A doctor from health records in Paris mentions sunstroke, the discussions of the Congresso de Habitação (Housing Congress) held in Geneva in 1906, and the book's "Sunstroke" written by engineer Alexandre Albuquerque and which foreword is signed by São Paulo engineer Victor da Silva Freire. A Larger range of references are used to reflect on aspects of thermal comfort:

*One solution would be the construction of terraces around the house or at strategic places. It is, moreover, the method used by the Italians in rebuilding Addis Ababa; by the French and English in the colonial buildings in the tropics and even by the Americans, in healthy cities in Florida, New Mexico, Texas and California ("Urbanística" Jan.- Dez. 1938 e "American Architect" Jan.- Fev. 1938).*

( ... )

*Another widely used solution across Europe, especially in beachfront Mediterranean and E.E.U.U.A., where reached a huge acceptance, is intense landscaping and afforestation. Even among Germans it is adopted, although taking advantage of other benefits than the refrigeration (ANDRADE, 1939, p. 12, emphasis added).*

*Urbanística*<sup>3</sup> and *American Architect*<sup>4</sup> are Italian and American journals respectively, which are found at the Polytechnic School of São Paulo where Andrade graduated. In specialized periodicals, many articles supported the standardization as a mean of saving time and materials, as in the magazine *A Construção São Paulo*, that with no intention of transforming the architectural language, advocated for the reorganization of the construction process up to the ornamental elements. (FREITAS, 2005, p. 63). In the newsletter *O Construtor* from September 1944, there is a close examination of the

<sup>3</sup> *Urbanística* Instituto Nazionale de Urbanistica. Torino, Itália: L'istituto, 1932-. At Polytechnic School os São Paulo there are journals from 1932 to 1950.

<sup>4</sup> *American Architect*. New York: [s.n.], 1876-1934, Cont. como: American architect and architecture, 1936-1938. At Polytechnic School os São Paulo there are journals from 1909 to 1936.

movements of a stonemason in placing the bricks, in which Fordism fans try to shift the concepts until now applied in the factories to the construction site. It is important to prove that the simple alteration of an ancient activity, such as bricklaying, could be designed to save time and therefore produce greater efficiency. (RACIONALIZAÇÃO [...], 1944, p.2).

In the *Revista de Arquitetura da ENBA*, a publication of the Diretório Acadêmico da ENBA (Academic Board of ENBA), affordable housing solutions studied by the Americans are presented for several times. (PEQUENAS [...], 1936; A CASA [...], 1937; A CIDADE [...], 1938; LIBERTY [...], 1938). In n. 37, from February 1938, for example, there is a publication of a residential complex in Miami, called *Liberty Square*, where four types of blueprints for economic residential units are presented. (LIBERTY [...], 1938).

The *Revista de Arquitetura* (Architecture Magazine), as an entity under the responsibility of the students of architecture from ENBA, allows to discern the variety of allusions to the housing issue that took place in the scenario where there were the most important discussions for the transformation of Brazilian architecture in the 1930s. In addition to the projects developed in the US, the journal had a look on the European production, which went from the Nazi Germany to the Communist Russia. (AMORA, 2009, p. 7-8). Among these articles, two stand out in editions 14 and 15 from 1935, the reproduction of articles by German critic Max Osborn on the German *New architecture*. (OSBORN, 1935). The cover of number 14 brings a picture of the leisure courtyard of Siedlung Bruchfeldstrasse, a project by Ernest May, which was part of his housing plan for Frankfurt. It is important to notice that it is given great significance to that experience as to highlight it on the cover. This and other publications show that European production of social housing in the 1920s was already being widely.

In three copies of the magazine *Arquitetura e Urbanismo* (Architecture and Urbanism) from 1936, several pages are devoted to the German architecture signed by the architect A. Monteiro de Carvalho. Most likely it referred to the engineer-architect Alberto Monteiro de Carvalho e Silva, representative of Minister Capanema during the Le Corbusier visit to Brazil in 1936. Monteiro de Carvalho was also known for his success as an entrepreneur (FISCHER, 2005, p. 134), which certainly contributed to its transit among European professionals. The article in the magazine was a result of his trip to Germany, where he recorded the various architectures, without defending any of them. The first article explains the opposition between tradition and modernity, illustrating it from the dispute between the "terraces" and "sloping roofs" (CARVALHO, 1936, p. 39). At the same time that Monteiro de Carvalho makes an extensive exhibition of photographs of "siedlungen" designed by modern architects, he also shows some examples of houses with "sloping roof".

The architect cited Henrich Tessenow as the great counselor of more traditional architecture, which should awake "the love of home, family and homeland". Among architects like Adolf Loos, Peter Behrens, Tony Garnier and Auguste Perret, Tessenow composed a part of modern architecture that

is not founded on the vanguards roots. Along with Hermann Muthesius and Richard Riemerschmid, Tessenow is the author of one of the first experiences of ideal of the “garden city” in Germany, called Hellerau, built by Schmidt furniture industry. The three architects conducted their search by looking for a return of forms to their basic principles. Under the German Werkbund<sup>5</sup> coexisted in his works both purist tendencies (of pure visibility) and expressionists, linked to the romantic exaltation of the idea of people and nation (TAFURI and DAL CO 1978, p. 78-79). For his work and its relationship with Werkbund, Behrens and Tessenow caught the attention of the young Le Corbusier, who was assistant to both.

The conflict between modernism and traditionalism, which metaphorically can be linked to the dispute between terraces and sloping roofs, was felt with more intensity in Nazi Germany and Fascist Italy, and manifested in each country in different ways, including the nationalist character of political schemes. The events that marked the forwarding of these locations, according to the transcribed narrative, questioned as elucidated by Carlos Martins a “decisive element to think about the relationship between architecture and State: the possibility of links between modernity and national tradition”. (MARTINS, 1987, p. 86).

As confirmed by Monteiro de Carvalho narrative, this conflict between modernism and traditionalism, which took place in Europe, was not ignored by Brazilian architects. As one may know, this discussion generated Lucio Costa’s formulations about a “modern Brazilian architecture”, based on the reference of Le Corbusier.

The engineers were not unknown to this discussion. The urban experiences undertaken in Europe by the end of the 1920s, when it triggers the modern movement, have reverberated internationally and found their points of dialogue between professionals dealing with urban reforms in Brazil of the First Republic. Before the 1930s, the scientific urbanism currents of the 19<sup>th</sup> Century merged with the ideal of the garden city already spread interventions in Brazilian cities, conducted mostly by engineers. (SIMÕES JR, 2008; ANDRADE, 2009). Finally, in the housings produced from 1940 on are the theoretical formulations made either by engineers or by architects around the urban question. From the point of view of the relationship between urban planning and housing, projects financed by social security are the great practical realization, which considered all this theoretical framework built in previous years.

### TANGIBLE RESULTS: THE HOUSINGS OF IAPI

The housing production of IAPI adopted a hybrid model in which both the technological and aesthetic issues discussed were present. The relationship between State and academics, present in the mutual and various conceptions of engineers and architects, contributed to the housing image consolidated in the late 1940s

<sup>5</sup>The movement that started in Germany in 1907 brought together architects and intellectuals in order to improve the German industrial output escaping from vulgar features of objects produced by the industry at that time, and reaching conditions to compete in international markets as countries where the industrial production was already in an advanced level (BENEVOLO, 1976: 376; TAFURI and DAL CO, 1978: 78).

The group of Divisão de Engenharia of IAPI (Engineering Division) led to a collective process of housing project types involving directly the performance of teams in the construction sites where they could apply the concepts discussed in the national and international scene. The technical skills and political integration of the involved professionals enabled the project meeting and production process, from their academic backgrounds and transit between decision spaces. The combination of these factors allowed the typological research and the construction of housing, which, even considering the theoretical diversity, can be considered the most experimental field of architecture and urbanism, understood beyond their formal solutions preceding Brasília.

The first experiment was the Conjunto Residencial Operário in Realengo, in the suburb of Rio de Janeiro. During the various stages of the work, from 1940 to 1949, they built from isolated single-family homes in the lot, semi-detached and assembled in rows, until blocks of collective housing, including a large laminar building with a small one-dorm apartment (Picture 1).

Considering the housing types tested in Realengo several were used in other housings. In the Moça Bonita housing, also located in the west area of Rio de Janeiro, the residential buildings repeat the kind that was built in the final stage of Realengo, 1943-1945 (Picture 2). The blocks are very characteristic of the production of IAPI in that period, the presence of expanded balconies, hollow sealing member in the stairs and gabled roof defining volumetry. The urban quality is given by the presence of green landscaped areas, and was preserved throughout the entire placement process.

In dialogue with the international debate, public service technicians outlined models in response to local requirements that were often dictated by the overwhelming need to build more in the shortest possible time - the construction of Distrito de Obras of the Conjunto Residencial da Penha, for example, took two years from the project development until its end, from 1947 to 1949 (Picture 3). The emblematic case makes clear that according to the evaluation of IAPI's technicians, there was no reason to leave exposed the domino structure, and the hipped roof responded more objectively to the established purposes, and also defines a language closer to the experience of the popular classes to which the state tried to get closer from 1945 on. In this project you can also see the concern of IAPI designers with the definition of broad collective spaces.

In the housing Passo D'Areia in Porto Alegre, they also tested various residential types, including single-story houses, two-story houses in a row (Picture 5) and blocks of three and four stories (Picture 4). In this case, as in other housings, the conventional construction technique was allied to the mass production and extensive landscaped public spaces to create a space that draws attention for its urban and environmental quality.

Comparing different modes of operating one can note, however, the similarity of the tensions in the period: the old and new, the local and universal, tradition and modernity. Formal results are finally due to different professional training but reflecting the same intellectual conflicts.

Picture 1: The picture shows two types of housing blocks tested in Conjunto Residencial Operário in Realengo - IAPI. Architect: Carlos Frederico Ferreira. Photo: Stephan Norair Chahinian / Archive: Grupo Pioneiros.



Picture 2: Conjunto Residencial Moça Bonita - IAPI, Rio de Janeiro. IAPI Divisão de Engenharia (IAPI Engineering Division), coordinated by Carlos Frederico Ferreira. Photo: Stephan Norair Chahinian / Archive: Grupo Pioneiros.



Picture 3: Conjunto Residencial da Penha, Rio de Janeiro. IAPI Divisão de Engenharia (IAPI Engineering Division), 1947-49. Photo: Stephan Norair Chahinian / Archive: Grupo Pioneiros.



Pictures 4 e 5: Conjunto Residencial Passo D'Areia in Porto Alegre. Source: Grupo Pioneiros da Habitação Social no Brasil. Photo: Nabil Bonduki / Archive: Grupo Pioneiros.

A quick glance on this production can lead to two interpretations. The first relates to its short range, which actions would not have come to draw a public policy indeed. The second concerns the language of these housing projects, which formal characteristics do not correspond to the canonical precepts of the modern movement in architecture.

The ground analysis disregards the importance of these sets in an urbanizing action with a much broader aspect, in which the transformation from agrarian base to the industrial base was made from a limited State action in its investment capacity, at a time when many development projects were in dispute.

We must also consider the symbolic potential of these sets in the political configuration: it can be the visual impact exerted in the suburban landscape or the social complex that merged during housing implementation, public services and recreational areas, these spaces started to represent the hard core labor pact - the alliance between the political elites and the new class of urban workers.

As for the formal characteristics, the analyses shown here try to complicate the notion of "modern architecture" and, exploring various restrictions, explain some of the many interpretations that the concept embraces. The adaptations and recreations of a "modern vocabulary" appear in various structures of IAPI's housing, ranging from a detached house on the lot to blocks of collective housing, from prismatic volumes to the introduction of sloping roofs and hollow brick walls, from rational deployment to winding path. This richness and formal diversity demonstrate the intrinsic flexibility of its own modern design, putting into question the bonds and authoritarianism used to assign their achievements in the fields of housing and city.

## REFERENCES

- ALMANDOZ, Arturo. Notas sobre historia cultural urbana. Una perspectiva latinoamericana. *Perspectivas urbanas/Urban Perspectives*. ETSAV: Barcelona, n.1, p. 29-39, 2002.
- ALMANDOZ, Arturo. Mudanças políticas e institucionais para o planejamento latino-americano do Segundo Pós-Guerra. In: GOMES, M. A. A. F. (Org). *Urbanismo na América do Sul: circulação de ideias e constituição do campo, 1920-1960*. Salvador: EDUFBA, 2009.
- AMORA, Ana Albano. Arquitetura em Revista: o moderno e a tradição em dois periódicos representativos dos campos acadêmico e profissional da arquitetura e do urbanismo. In: SEMINÁRIO DOCOMOMO BRASIL, 8., 2009, Rio de Janeiro. *Anais...* Rio de Janeiro: DOCOMOMO – Brasil, 2009. 1 CD-ROM.
- ANDRADE, Carlos Roberto Monteiro de. O ideário cidade jardim na cultura urbanística paulistana e carioca na primeira metade do século XX. In: ENCONTRO NACIONAL DA ANPUR., 13, Florianópolis. *Anais...* Florianópolis: UFSC, 2009. 1 CD-ROM
- ANDRADE, Francisco de Paula Dias de. Casas operárias. *Revista Inapiários*. Rio e Janeiro: IAPI, n.12, abr., 1939.
- ARAVECCHIA BOTAS, Nilce. *Entre o progresso técnico e a ordem política: arquitetura e urbanismo na ação habitacional do IAPI*. 2011. 273 f. Tese (Doutorado em Arquitetura e Urbanismo) – Faculdade de Arquitetura e Urbanismo, Universidade de São Paulo, São Paulo, 2011.
- AYMONINO, Carlo. *Vivienda racional ponencias de los congresos CIAM 1929-1930*. Barcelona: Gustavo Gili, 1973.
- BENEVOLO, Leonardo. *História da arquitetura moderna*. São Paulo: Perspectiva, 1976.

THE BESSER Heritage. *Besser and employee-owned company*. Disponível em: <http://www.besser.com/besserinfo.asp?Page=/history.asp>. Acesso: set. 2008.

BLOCOS de concreto premoldados. Cimento e concreto. *Boletim de Informações – Associação Brasileira de Cimento Portland*. ABCP, n. 33, p. 157-164, 1939.

BONDUKI, Nabil Georges. *Origens da habitação social no Brasil: arquitetura moderna, Lei do Inquilinato e difusão da casa própria*. São Paulo: Estação Liberdade, 1998.

BONDUKI, Nabil; KOURY, Ana Paula. (Orgs.). *Os pioneiros da habitação social*. São Paulo: Edunesp, 2014. 3 v.

CARVALHO, A. Monteiro de. Fotografias e comentários de viagens. *Arquitetura e Urbanismo*. Instituto de Arquitetos do Brasil. Rio de Janeiro, Ano 1, n.4, p.35-62, jul.-ago., 1936.

CARVALHO, A. Monteiro de. Fotografias e comentários de viagens. *Arquitetura e Urbanismo*. Instituto de Arquitetos do Brasil. Rio de Janeiro, Ano 1, n.5, p.151-162, set.-out., 1936.

A CASA do século XX. *Revista de Arquitetura da ENBA*. Rio de Janeiro: ENBA, ano IV, n.30, mar., 1937.

A CIDADE de amanhã. *Revista de Arquitetura da ENBA*. Rio de Janeiro: ENBA, ano V, n.39, mai., 1938.

CIUCCI, Giorgio; DAL CO, Francesco; MANIERI-ELIA, Mario; TAFURI, Manfredo. *La ciudad americana de la guerra civil al New Deal*. Barcelona: Gustavo Gili, 1975.

CODY, Jeffrey W. *Exporting American architecture: 1870-2000*. New York: Routledge, 2003.

COHEN, Jean Louis. *Scenes of the world to come. European architecture and the American challenge 1893-1960*. Paris: Flammarion, 1995.

CONGRESSO PAN-AMERICANO DE VIVENDA POPULAR, 1., 1939, Rio de Janeiro. In: *Arquitetura e Urbanismo*. Rio de Janeiro: Instituto de Arquitetos do Brasil, 1939.

CONNIFF, Michael L. *Política urbana no Brasil: a ascensão do populismo*. Rio de Janeiro: Relume Dumará, 2006.

A CONSTRUÇÃO com blocos de concreto pré-moldados e o Instituto de Aposentadoria e Pensões dos Industriários. Cimento e concreto. *Boletim de Informações da Associação Brasileira de Cimento Portland – ABCP*, n.46, 1941, p. 269-276.

ECOS da “Jornada da habitação econômica”. *Revista Inapiários*. Rio de Janeiro: IAPI, n.42, out., 1941.

O ESTADO actual da vivenda na América. *Urbanismo e Viação*, Rio de Janeiro, n. 7, jan., 1940.

FARIA, Rodrigo de; CERASOLI, Josianne; SAMBRICIO, Carlos. Cidade e habitação na América Latina. *Urbana*, v. 6, n.8, 2014.

FISCHER, Silvia. *Os arquitetos da Poli: ensino e profissão em São Paulo*. São Paulo: Fapesp, Edusp, 2005.

FREITAS, Maria Luiza de. *O lar conveniente: os engenheiros e arquitetos e as inovações espaciais e tecnológicas nas habitações populares de São Paulo (1916-1931)*. 2005. 180 f. Dissertação (Mestrado em Arquitetura e Urbanismo). Escola de Engenharia de São Carlos, Universidade de São Paulo, São Carlos, 2005.

GOMES, M. A. F. Experiências Sul-Americanas: uma lacuna na historiografia brasileira sobre a cidade e o urbanismo. In: GOMES, M. A. F. (Org). *Urbanismo na América do Sul: circulação de ideias e constituição do campo: 1920-1960*. Salvador: EDUFBA, 2009.

GORELIK, Adrian. *Das vanguardas a Brasília: cultura urbana e arquitetura na América Latina*. Belo Horizonte, Editora da UFMG, 2005.

IANNI, Octavio. *Estado e planejamento econômico no Brasil*. Rio de Janeiro: Editora da UFRJ, 2009.

IAPI. *Relatório e Balanço Geral de 31 de dezembro de 1940 (3º Exercício)*. Rio de Janeiro: Tipografia Mercantil, 1941.

JORNADA da habitação econômica. *Urbanismo e viação*. Rio de Janeiro, n.17, out., 1941.

LIBERTY square. *Revista de Arquitetura da ENBA*. Rio de Janeiro: ENBA, ano IV, n.37, fev., 1938.

LIERNUR, Jorge Francisco. *Trazas de futuro*. Santa Fe: Universidad Nacional del Litoral, 2008.

MANCUSO, Franco. *Las experiencias del Zoning*. Barcelona: Gustavo Gili, 1980.

MARTINS, Carlos Alberto Ferreira. *Arquitetura e Estado no Brasil*. 1987. 225 f. Dissertação (Mestrado em História). Faculdade de Filosofia Letras e Ciências Humanas, Universidade de São Paulo, São Paulo, 1987.

OLIVEIRA, Francisco Batista de. O acesso do povo. Casa Própria. *Urbanismo e Viação*, Rio de Janeiro, n. 25, fev. 1943.

- OLIVEIRA, Francisco Batista de. A casa popular e o aspecto urbanístico das cidades. *Revista do Clube de Engenharia*. Rio de Janeiro, n.63, dez./jan., 1939.
- OLIVEIRA, Francisco Batista de. A casa popular como problema urbanístico. *Revista do Clube de Engenharia*, Rio de Janeiro, n. 68, jul./ago., 1940
- OSBORN, Max. A moderna arquitetura alemã. *Revista de Arquitetura da ENBA*. Rio de Janeiro: ENBA, ano I, n.14, 1935.
- OSBORN, Max. A moderna arquitetura alemã (continuação). *Revista de Arquitetura da ENBA*. Rio de Janeiro: ENBA, ano I, n.15, 1935.
- PEQUENAS casas para americanos civilizados. *Revista de arquitetura da ENBA*, Rio de Janeiro. ENBA, ano II, n.22, 1936.
- PORTO, Rubens. *O problema das casas operárias e os institutos e caixas de pensões*. Rio de Janeiro, 1938.
- O PROBLEMA da habitação popular e os admiráveis progressos feitos pelo Brasil – focalizada em Washington, a esplêndida contribuição do IAPI na construção de vilas proletárias. *Revista Inapiários*. Rio de Janeiro: IAPI, n.61, mai., 1943.
- PRODUÇÃO e consumo de cimento no Brasil. *Revista Brasileira de Engenharia*. Rio de Janeiro, n.3, t. XXIX, mar. 1935.
- RACIONALIZAÇÃO e prêmios para a mão de obra. *O Construtor*. Rio de Janeiro, ano V, n.275, set. 1944.
- RIBOLDAZZI, Renzo. *Un'altra modernità. L'IFHTP e la cultura urbanistica tra le due Guerre. 1923-1939*. Roma: Gangemi Editore, 2009.
- SILVA, Joana Mello de Carvalho. *Ricardo Severo: da arqueologia portuguesa à arquitetura brasileira*. São Paulo: Annablume, 2007.
- SIMÕES JR., José Geraldo. A urbanística germânica (1870-1914). Internacionalização de uma prática e referência para o urbanismo brasileiro. *Arquitextos*. Ano 9, jun. 2008. Disponível em: [htt p://www.vitruvius.com.br/revistas/read/arquitextos/09.097/134](http://www.vitruvius.com.br/revistas/read/arquitextos/09.097/134) Acesso em jun., 2009.
- STEPHAN, Otto. *The concrete Century: 1904-2004*. Besser Company, 2004. Disponível em: <http://www.besser.com/downloads/concretecentury.pdf>. Acesso em: set. 2008.
- TAFURI, Manfredo; DAL CO, Francesco. *Architettura contemporanea*. Milão: Electa, 1978.

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