

Agroindustry as an Object and Representation of Power in the 20th Century

Agroindustry, Silos, Modern Architecture, Power, Resignification of Spaces

/Abstract

Agriculture, historically intertwined with symbolic significance through its connection to a higher dimension, has given rise to concepts such as subjugation and ownership or belonging to a place. The evolution of knowledge, manifested through technical mastery, has led to typological hybridizations in structures associated with agriculture. The intricate relationship between agriculture, architecture, and power becomes more pronounced with the industrial development of the 19th century, marked by field mechanization and industrialization.

In this context, agricultural architectures played a pivotal role as instruments of political and economic control in the 20th century. Their significance goes beyond the transformative power of production, extending to the portrayal of modernization and efficiency, strategically employed as political publicity.

Ultimately, the text reflects on the current obsolescence state and abandonment plaguing these buildings. This condition results not only from the challenges of maintenance but also from the negative connotations associated with them. These negative perceptions, linked to totalitarian regimes, cast these structures as problematic vestiges of the past, seen through the lens of oppression and power abuse.

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Architect graduated from the Valladolid University, with professional accreditation from the Colegio Arquitectos Extremadura (COADE) and the Ordem dos Arquitectos Portugueses (OASRS). Combines professional and research experience in Architecture, Design, Heritage, Urbanism, and Landscape. As an independent architect since 2018 (estudiobocanegra.com), notable projects include the "Strategic Plan and Intervention in Historical, Landscape, and Cultural Heritage" (PEI PHPC). This project (0394-LA2020) focused on the Cultural Routes and Development of the Alqueva Lake, financed by the INTERREG Spain-Portugal Program 2014-2020 of the European Union. Collaborated with various architectural studios on both sides of the border.

Founding member of several practical and research working groups and cultural initiatives for rural development and cross-border cooperation. Notably involved in the Silos Project on Industrial Heritage (proyectosilos.com).

His work has been presented at exhibitions and conferences, and disseminated through scientific and/or journalistic publications (I Jornadas de Património Industrial Agrário. Silos a debate, 2014, ADERCO, Leader Approach Funds).

Engaged in educational and teaching activities, participating in courses, conferences, and scientific research at different universities. Also actively involved in organizing activities directly related to the proposed research project's theme.



The Power of the Earth

Since time immemorial, the quest for meaning in natural processes has been a recurring principle in the human mind. Agriculture has been historically regarded as a transcendental event that, through a symbolic connection to something higher, has sought to address fundamental questions about the existence of beings and their relationship with the surrounding environment.

Natural and climatic process, such as plant germination or crop cycles, were perceived as events more related to magical forces than to explainable phenomena. Humanity delegated the explanation of its individual and collective existence to the belief in a series of abstract and absolute precepts, thus laying the religious culture foundations.

The notion of a divinity linked to nature, whether dualistic or monistic¹, and its association with the earth, is seen as the basis on which food is obtained and on which the species relies, highlighting the supreme power of agriculture as a means of growth and prosperity. A simple observation of our surroundings suffices to understand that food is imperative for the exercise of our most basic functions, occupying the top position in the hierarchy of human needs². [Fig.01] Simultaneously, the obtaining food process serve a symbolic function, going beyond the mere satisfaction of a basic need and transforming into an instrument of social communication. These processes create bonds and connections that shape what we call the “culture of place.”

From an anthropological perspective, agricultural activity, through the marks and furrows resulting from cultivation, contributes to defining the landscape. These furrows metaphorically delimit broader concepts such as identity and belonging to a space or territory.

History shows us how agriculture has been used both as a means and an end to exert power, whether at an individual or collective level. The provision of food through land cultivation ensures one’s own existence, and this has been (and is) used as a tool of subjugation and the exercise of ownership—two concepts of broad significance that have been the cause of major wars and conflicts throughout human history.

The Exercise of Power through Agricultural Symbols

The development and evolution of agriculture, facilitated by new tools, techniques, and materials, imply typological changes in the architectures associated with it, adapting the environment to meet social needs and demands.

Examining the writings of the Roman tradition, particularly the so-called Latin

1 The concept of “monism” applied to nature refers to the philosophical belief that reality is one, and that there is no fundamental division between the material and the spiritual in the universe. Often, this belief implies the idea that everything in nature and the cosmos is part of a single substance or principle. This perspective is explored in works such as “Philosophy of Nature” by Paul Weiss, and “The Philosophy of Nature” by Jonathan Dancy and David E. Cooper.

2 The hierarchy of human needs, as proposed by A. H. Maslow in 1943 in his work “A Theory of Human Motivation,” published in *Psychological Review*, no. 50 (1943): 370-396, outlines a theory of human motivation.

agronomists, we find evidence of the close relationship between agriculture, architecture, and the exercise of power. These texts provided rules and norms for land management and food production, directly influencing the organization and defense of territory.

Works such as Vitruvius³ *“De Architectura,”* Marcus Porcius Cato’s *“De Agri Cultura”* or *“On Agriculture,”* Gaius Plinius Secundus’s *“Naturalis Historia,”* Columella’s *“De re rustica”* or *“On Agriculture,”* and Palladius’ *“Opus agriculturae”* represent some of the most important studies of this era. These publications demonstrate the interest in agricultural practices, techniques, and associated buildings.

These comprehensive works convey extensive knowledge in engineering, hydraulics, architecture, veterinary science, and pave the way for encyclopedic knowledge dissemination. They remained practically valid until the mid-17th century when studies transitioned to those based on the Scientific Method and modern Empiricism.

The Renaissance reexamination of these authors brought a critical perspective on tradition and agricultural techniques. They became a source of inspiration and knowledge for territorial organization and architectural practice. Notable examples include Leon Battista Alberti’s *“De re aedificatoria,”* published around 1450, considered the most significant architectural treatise of humanistic culture. Also, the contributions of Leonardo Da Vinci spanned across various fields of knowledge.

Focusing on architecture once again, Andrea Palladio’s work applied an anthropocentric vision to territorial control and landscape. This perspective is also reflected in the writings of Alvisse Cornaro. In both cases, the idea of *“rusticitas”*⁴ (ruggedness and rural life) is separated from *“santa agricultura”* (sacred agriculture). The former refers to the roughness and rural nature of life and people in the countryside, while the latter signifies the necessary and agriculture venerable nature. This dualism inherently involves class separation and the ideological framing of agriculture.

The Royal Salines of Ledoux (1774-1779) represent a power structure established through state monopoly under the reign of King Louis XV, exclusively created for a productive process—an early industry: the transition from agriculture

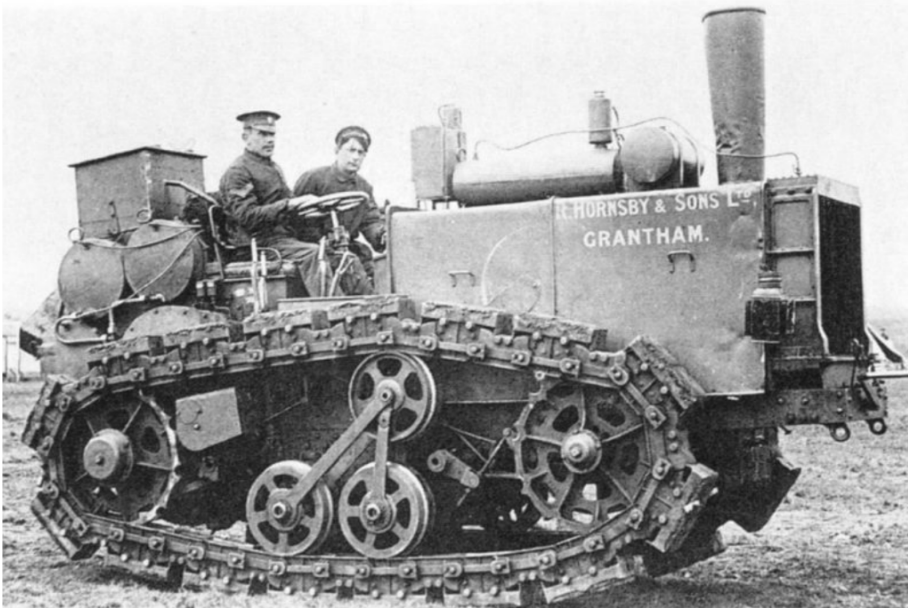


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Fig. 1
The Power of Knowledge and Representation. The Baker’s Tomb, also known as the Tomb of Eurysaces, is the burial site of a Roman citizen from the imperial period named Marcus Virgilius Eurysaces. He was a freedman who likely amassed wealth by supplying bread for the public ration around the mid-1st century BCE. The structure stands behind the Porta Maggiore in Rome.

3 Marcus Vitruvius Pollio, *“The Ten Books on Architecture”* with a prologue by D. Rodriguez, *“Vitruvius and the Skin of Classicism”* (Madrid: Alianza Editorial, 2009), 11-51.

4 Rusticitas: rurality, rusticity (country life and people). Although the term can mean something like a lack of sophistication, by adding the adjective *“santa”* (holy), the intention is to turn it into the opposite, thanks to the alienation of the concept from the passive subject, the peasantry.



to industry. This transformation brought forth new languages, methods of labor organization, and, most significantly, stringent social control. The system eventually led to the collapse of the Old Regime due to increased inequalities, population growth, and the agricultural system's incapacity to sustain it.

Throughout history, agricultural peasants have played a pivotal role as a representation of popular power. This dynamic became particularly apparent during the French Revolution through the transfer of territorial power, marking the beginning of the capitalist system in Europe. Property became a vital resource for wealth accumulation and the rise of the bourgeoisie.

This shift is crucial for understanding the evolution of power structures, persisting through the capitalist system to the present day. Although forms have changed, the underlying essence remains, perpetuating inequalities between those who cultivate and those who consume agricultural products.

Intensive agricultural use has led to nutrient depletion in the soil, causing cyclic soil collapse in Europe. In the 19th century, industrial powers, primarily England, sought ways to compensate by importing fertilizers from various parts of the world. This included the semi-slave labor of Chinese workers for guano extraction (accumulations of seabird excrement). Later, the intensive use of nitrates led to the "Saltpeter War" between Chile, supported by England, and the alliance of Bolivia and Peru between 1879 and 1884.

The development of the chemical industry for fertilizers generated flammable and contaminating products, leaving an unforeseen environmental footprint. With the use of chemicals, wars no longer impact only on a human scale but affect humanity as a whole.

In the 20th century, advancements in field mechanization through mechanical plowing and tractor use set the precedent for the construction of tanks and heavy machinery first employed in World War I. **[Fig.02]**

History illustrates the systematic use of symbols associated with the field, such as the sickle and hammer, sheaves of wheat, the yoke, etc., as ideological sup-

Fig. 2
The Power of Technique.
Hornsby Chain Tracked Tractor
(1907). Source: David Fletcher,
"The British Tanks 1915-19,"
Ramsbury 2001.

port and objects of power legitimation. Agriculture represents the power of the land, folk wisdom, and survival. Hence, the appropriation of these collective symbols aims to convey ideology through the idea of belonging: power legitimizing.

Agroindustry as an Object of Power

The “power representation” concept refers to how power manifests in a specific context. It plays a significant role in the construction and maintenance of power structures in society and how these structures are perceived and legitimized. This representation can be explicit or implicit but often involves the use of symbols, images, rituals, or discourses that reflect and consolidate authority, hierarchy, systems, etc., and their influence on others.

In 1909, the Futurist Manifesto published in *Le Figaro* by Marinetti supported the foundations of identity and nationalist thinking that was brewing in Europe, through the idea of progress, with clear references to movement, speed, and industrial machines.

It is interesting to note how the foundations of power in architecture have hardly differed since their inception. There is a common denominator in all of them regardless of their use: monumentalism fostered by the size of buildings, symmetry, order, and, above all, height.

The proposals of Antonio Sant’ Elia (1888 – 1916), with clear references to Viennese Art Nouveau, influenced by Otto Wagner (1841-1918) and Joseph Maria Olbrich (1867-1908), or the proposal for the industrial city by Tony Garnier (1869-1948), highlight the interest in industry and mechanistic aesthetics in opposition to traditional artistic and cultural values.

Agroindustry as an “object of power” identifies in it the value of being used and controlled to exert influence, authority, or control over others. The intervention in agroindustry implies total control over the population’s food supply. Similarly, the transportation control and logistics infrastructure associated with agroindustry, such as roads, railways, ports, and distributions centers, signifies national power to weave territorial networks, controlling production, distribution, and prices, as seen in the Spanish National Network of Silos and Granaries case.

The intervention in agriculture and its industrial transformation has a direct impact on the rural population. On the one hand, the community’s reorganization and the agriculture collectivization, accompanied by controlled housing and infrastructure plans in dictatorship service, once the war is over. On the other hand, the rural migration to urban areas, again fostering inequalities and the loss of rights for farmers turned into a labor force.

Absolute control of agroindustry played a crucial role in the consolidation of power in totalitarian regimes. This strategy promoted a modern and society transformative vision by introducing innovative production measures such as mechanization, standardization, and mass production. An approach based on



efficiency, self-sufficiency, and productivity showed short-term successful results due to the complete state intervention in the economy and the market.

This interventionism became an effective long-term propaganda tool, exerting significant influence on public opinion and contributing to the perception of continued success, in line with the official ideology of the regime in power. In hindsight, the idealized image of success is what has fostered traditional power structures based on inequality, social control, and cultural population oppression.

A clear propagandistic manipulation example through agro-industrial symbols as objects of power is the strategy employed by the Nazis in World War II. In 1942, they managed to capture and bomb the grain silo in the southern part of the city of Stalingrad. This action was presented in a biased manner, emphasizing the supposed German victory through the publication of photographs and highlighting the importance of control over agricultural resources and supplies. The Nazis even designed a military insignia commemorating the battle. However, despite all the symbolism and publicity, the success was partial, and the Nazis' defeat against Soviet resistance in Stalingrad marked their decline beginning. [Fig. 03]

Perverse Functionalism

The history of art reflects a constant quest for beauty in nature; however, with functionalism, this approach is achieved through the reduction and simplification of form until reaching abstraction. This idea was reflected by the German art historian and theorist Wilhelm Worringer (1881-1965), a disciple of Alois Riegl (1858-1905). In his publication "Abstraction and Nature" (1908), he compared the representational power of grain silos with the symbolism of the pyra-

Fig. 3

The Power of Communication. A Panzer commander scans the horizon with the Stalingrad grain elevator in the background. 1942. Source: <http://alcantara.forogratias.es/la-mayor-batalla-de-la-segunda-guerra-mundial-stalingrado-t1214.html>

mids of Egypt, due to their potency, scale, and robust form.

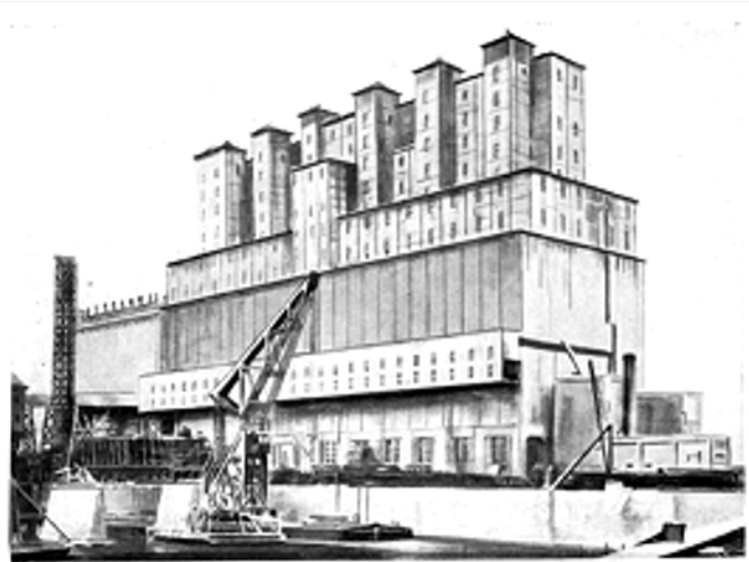
The Arts and Crafts movement in England, promoting craftsmanship and quality production since 1888 through various exhibitions, notably influenced the aesthetics and industrial production of the German Werkbund⁵ (established in 1907). Both movements shared the pursuit of mass production and the democratization of art, laying the groundwork for the principles of the Bauhaus and the Modern Movement.

Several publications in the history of modern architecture emphasize the importance of agroindustrial elements. Walter Gropius, in the 1913 yearbook of the German Werkbund titled "Art in Industry and Commerce" ("Die Kunst in Industrie und Handel"), published an article titled "The Development of Modern Industrial Architecture" ("Die Entwicklung Moderner Industriebaukunst"). The seven pages of photographs of silos and grain factories published alongside the text brought about a radical change in European architecture. [Fig.04]

German architect Erich Mendelsohn included one of these images in one of his own articles and, in 1924, visited the grain silos in the United States, fulfilling his so-called "silos dreams."⁶ In 1923, Le Corbusier published "Vers une Architecture" in the magazine *L'Esprit Nouveau*, where he advocated for a new functional architecture, praising silos as modern icons—an influential manifesto in 20th-century architecture.

Adolf Behne, in *Die Moderne Zweckbau* (1923), included the silo as one of the landmarks in modern architecture. Moisei Ginzburg's "Style and Epoch" (1924) formulated a manifesto for a new architectural language, adapting architecture to the working class.

Ludwig Hilberseimer, in "The Architecture of the Big City" (1927), showcased factories and silos as paradigmatic elements of a new era. The agriculture mechanization and the industrialized food processing brought about typolog-



Silos et elevateurs à Buffalo, États-Unis.

⁵ The Deutscher Werkbund was an association of architects, designers, and artists founded in 1907 in Munich by Hermann Muthesius, a precursor to the Bauhaus.

⁶ Erich Mendelsohn, *Erich Mendelsohn: Letters of an Architect*, ed. Oskar Beyer (London: Abelard-Schuman, 1967), 69.

Fig. 4

Symbolic and Iconographic Power. Photograph. Grain elevators and factories in Buffalo. Original photographs by Walter Gropius. Published in "Vers Une Architecture" (1914). Source: <http://arquitecturazonacero.blogspot.com/2012/10/la-atlantida-de-hormigon-reyner-banham.html>

ical hybridizations in agricultural architecture. Grain silos emerged as modern icons, blending functionality and industrialization through grain mechanization and elevation. Food factories improved hygiene and enabled more efficient and serialized food processing. Warehouses and distribution centers fused logistics with infrastructure. Dairy and meat facilities combined industrial processing with temperature controls and sanitation. Industrial stables and farms were designed to accommodate livestock on a large scale to enhance productivity. While these architectural adaptations reflected the need for productive efficiency and the transformation of rural architecture as a tool for agricultural modernization, the excessive application of these functional principles directly in architecture, especially in collective housing programs or urban planning, would have long-term negative consequences.

The mechanized elements incorporation, mass production, and the new material development revolutionized the conception and modern architecture development and design practices in the 20th century. Although early modern functional construction initially aimed practically to provide shelter and housing in a democratic and accessible manner, industrialized architecture soon acquired other connotations, precisely due to its reductionist conception: it could once again become a strategy or power object, promoting social segregation, control, exclusion, loss of cultural identity, or alienation—exercises in perverse functionalism.

A significant example of what I term perverse functionalism is the Atlantropa project, proposed in 1928 by the German architect Herman Sörgel. The idea was to dam the Strait of Gibraltar and lower the level of the Mediterranean Sea, exposing a significant portion of the seabed to gain land for agricultural development and large-scale energy generation.

The project aimed to unite Europe and Africa, promoting international cooperation to boost German industry. However, the consequences would have been disastrous, including the flooding of coastal areas, water salinization, loss of biodiversity, and climate disruption, causing a devastating environmental impact.

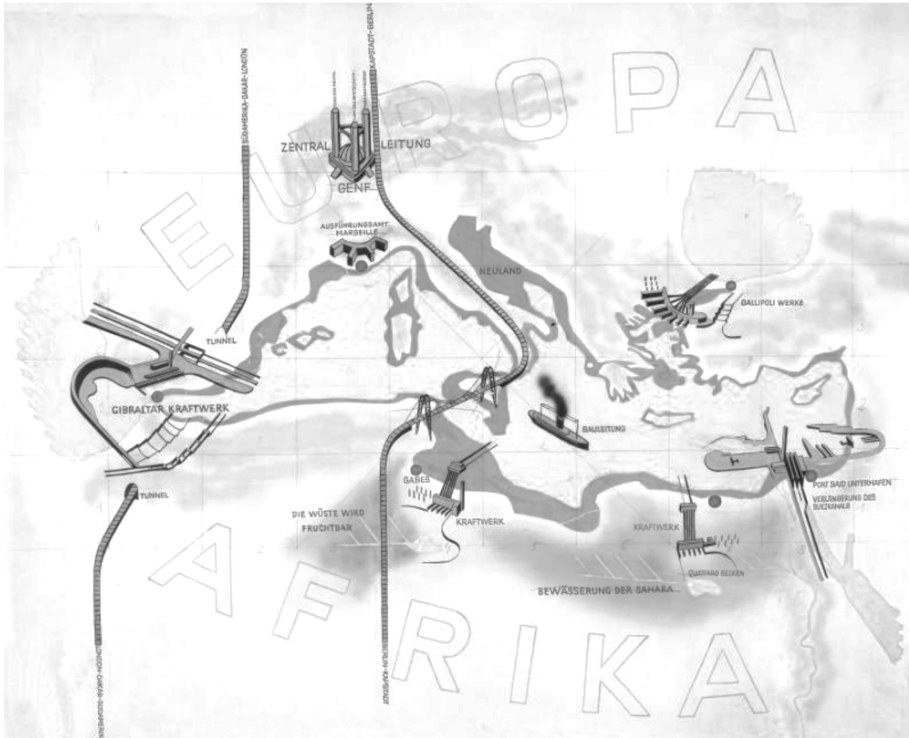
[Fig.05]

Final Reflections

Our exploration witnessed beginning the agriculture evolution —subsequently transformed into agroindustry—and its significance both as an object and a representation of power up to the 20th century.

Some of these connections persist nowadays and unfortunately become apparent in times of war, as exemplified by Russia's blockade on the cereal exports of Ukraine or the bombardment of several grain silos.

It is not difficult, therefore, to conceive that structures of power designed and constructed under the totalitarian regimes of the 20th century are often identified with oppression, a lack of freedoms, or abuses of power. Agroindustry is frequently viewed in many cases with such negative connotations. When aban-



done or rendered obsolete due to shifts in the economy, trade, or technological and energy advancements, their presence in the landscape may evoke a sense of desolation and decadence, construed as remnants of the past and associated with the excesses of absolute power and authoritarianism.

Nevertheless, instances of a “kind of architectural peace or conciliation” emerge through the critical reuse of these structures. Through a deliberate will and effort to reinterpret and repurpose these agro-industrial spaces from a new perspective, with novel uses, there arises an opportunity for reflection and learning from past mistakes. Additionally, this process seeks to champion culture, democratic values, environmentalism, and human rights.

In this manner, these structures, which once bore the weight of negative historical legacies, undergo a transformation into symbols of introspection, coexistence, and positive societal evolution. Efforts in their architectural rehabilitation contribute not only to the physical restoration of these spaces but also to the creation of a legacy that invites critical reflection and dialogue on the intersection of power, architecture, and society.

Fig. 5

Values for an Atlantropa. A new state based on the “utopia” of new lands, connectivity, and inexhaustible energy sources. Figure 3. The Power of Communication. A Panzer commander scans the horizon with the Stalingrad grain elevator in the background. 1942. Source: <http://alcantara.forogratias.es/la-mayor-batalla-de-la-segunda-guerra-mundial-stalingrado-t1214.html>

General Bibliography

- Behne, Adolf. "Die Moderne Zweckbau (1923-26)." Verlag Ullstein, Frankfurt and Berlin, 1964.
- Beevor, Antony. "Stalingrad." London: Viking, 1998, 140.
- Elia, Mario Manieri. "Città e lavoro intellettuale dal IX al XVIII", in "Storia dell'arte italiana: questioni e metodi, Parte I, vol. I." Torino: Einaudi, 1979, 353-418.
- Focault, Michel. "Security, Territory, Population: Lectures at the Collège de France 1977-1978." New York, Palgrave.
- Ginzburg, Carlo. "Da A. Warburg a E.H. Gombrich. Note su un problema di metodo", in *Miti Emblematici. Morfologia e storia*. Torino: Einaudi, 1966, 29-106. *Giochi di pazienza: un seminario sul "Beneficio di Cristo"*. Torino, Einaudi, 1975, chapters 2 and 12. "Stile: Inclusione ed esclusione", in *Occhiacci di legno. nove riflessioni sulla distanza*. Milano: Feltrinelli, 1995, 136-170.
- Le Corbusier. "Vers une architecture." Paris, 1923.
- Mauch, Félix. "Atlantropa - Energía infinita del mar Mediterráneo." Portal Medio Ambiente y Sociedad, *Arcadia*, no. 9 (2012). Centro Rachel Carson para el Medio Ambiente y la Sociedad. <https://doi.org/10.5282/rcc/3864>. ISSN 2199-3408 (last accessed November 2024). Portal de Medio Ambiente y Sociedad, *Arcadia*.
- Tafuri, Manfredo. *Teorias e História da Arquitectura*. Lisboa: Presença, 1969.
- Tafuri, Manfredo. *La arquitectura del Humanismo*. Madrid: Xarait, 1978.
- Tafuri, Manfredo. *La Sfera e il labirinto: Avanguardia e architettura da Piranesi agli anni '70*. Turin: Einaudi, 1980.
- Tafuri, Manfredo. *Sobre el renacimiento: principios, ciudades, arquitectos*. Madrid: Cátedra, 1992.
- Tournikiotis, Panayotis. *La historiografía de la arquitectura moderna*. Barcelona: Reverté, 2001, 127.
- Wittkower, Rudolf. *Architectural Principles in the Age of Humanism*. London: The Warburg Institute, 1949.

Bibliography on Power and Agricultural Politics

- Barciela, Carlos. *Ni un español sin pan. La Red Nacional de Silos y Graneros*. Monografías de Historia Rural, Zaragoza: Prensas Universitarias de Zaragoza, 2007.
- Barberis, Corrado. *Le campagne italiane dall'Ottocento a oggi*. Roma-Bari: Laterza, 1999.
- Cassese, Sabino. *Lo Stato fascista*. Bologna: Il Mulino, 2010.
- Chapperon, Renzo. *Silos e magazzini per ammassi granari. Progettazione, costruzione, gestione*. Udine: Istituto delle Edizioni Accademiche, 1936.
- Ciocca, Pierluigi and Giani Toniolo. *L'economia italiana nel periodo fascista*. Bologna: Il Mulino, 1976.
- CORNER, Paul R. *Dall'agricoltura all'industria*. Milano: Unicopli, 1992.
- Coletti, Costanzo. *Erbai Silos Insilamento*. Macerata. Unione Tipografica Operaia, 1937.
- Despommier, Dickson. *The Vertical Farm: Feeding Ourselves and the World in the 21st Century*. New York: St. Martin's Press, 2010.
- De Soroa, José Maria. *Construcciones agrícolas*. Madrid: Editorial Dossat SA., 1948.
- Ebon, Martin. *The Soviet Propaganda Machine*. New York: McGraw-Hill, 1987.
- Fenoaltea, Stefano. *L'economia italiana dall'Unità alla Grande Guerra*. Roma-Bari: Laterza, 2006.
- Frassoldati, Carlo. *Gli ammassi obbligatori*. Roma: Osservatorio Italiano di Diritto Agrario, 1941.
- Gagliardi, Alessio. *Il corporativismo fascista*. Roma-Bari: Laterza, 2010.
- Mariani, Francesco. *Depositi, Magazzini e Sili*. Milano: Biazzi Editore, 1940.

Orlando, Giuseppe. *Storia della politica agraria in Italia dal 1848 a oggi*. Roma-Bari: Laterza, 1984.

Portas, Nuno. *O SER URBANO: Nos caminhos de Nuno Portas*. INCM, Guimarães, 2012.

Tattara, Giuseppe. "Cerealicoltura e politica agraria durante il fascismo,". In *Lo sviluppo economico italiano 1861-1940*, edited by Gianni Toniolo. Roma-Bari: Laterza, 1973.

Vaquero Piñeiro, Manuel, "I silos granari in Italia negli anni Trenta: fra architettura e autarchia economica". In *Patrimonio Industriale* 07, no.11," 62-68.

Venturoli, Giuseppe, "I magazzini per gli ammassi". *Giornale di agricoltura della domenica*, April 21, 1940.