

org/apas-history . Accessed 22-1-2020.

31. Authors like Reyner Banham or John Brinckerhoff Jackson. The impermanence of American housing is paradigmatic and continues today. The relevance of this fact is increased if the social context of this country is taken into account, in which a tenth of the houses is a portable accommodation and almost all the rest is built with light and transportable systems derived from the balloon frame. WALLIS. A. D. *Wheel State. The Rise and Decline of Mobile Homes*. Oxford University Press, New York-Oxford, 1991, p. 13.

32. ZHAW Institut Konstruktives Entwerfen. *At Home In Steel*, Park Book, Zurich, 2019.

33. Kocher developed this kind of workshop at the Schools of Architecture of Pennsylvania State, Carnegie Institute of Technology de Pittsburgh y Black Mountain College en Asheville, Carolina del Norte.

Images

01. Lawrence Kocher y Albert Frey. Kocher Canvas Weekend House. Spiral stair. Source: John D. Rockefeller Jr. Library. Williamsburg. A. Lawrence Kocher Collection.

02. Lawrence Kocher and Albert Frey during the presentation of the *Cotton-Steel Houses*. 1932. Source: John D. Rockefeller Jr. Library. Williamsburg. A. Lawrence Kocher Collection.

03. Kocher and Frey. Aluminaire House. Project floor plans. Source: John D. Rockefeller Jr. Library. Williamsburg. A. Lawrence Kocher Collection.

04. Kocher and Frey. Aluminaire House. Built house at the *Architectural and Allied Arts Exposition*. Source Metal Progress. June 1931. Pag 94.

05. Kocher and Frey. Aluminaire House. Picture of the house as erected at W.K. Harrison's property. Source: John D. Rockefeller Jr. Library. Williamsburg. A. Lawrence Kocher Collection.

06. Kocher and Frey. Experimental Weekend House. 1932. Pictures of the model. Source: John D. Rockefeller Jr. Library. Williamsburg. A. Lawrence Kocher Collection.

07. Kocher and Frey. Kocher Canvas Weekend House. 1935. Pictures of the construction. Source: Roth, A. (1940) *The New Architecture*. Examined on 20 examples. Zurich: Verlag Dr. H. Girsberger. P 11-16.

08. Kocher and Frey. Kocher Canvas Weekend House. 1935. Picture of the finished construction. Source: John D. Rockefeller Jr. Library. Williamsburg. A. Lawrence Kocher Collection.

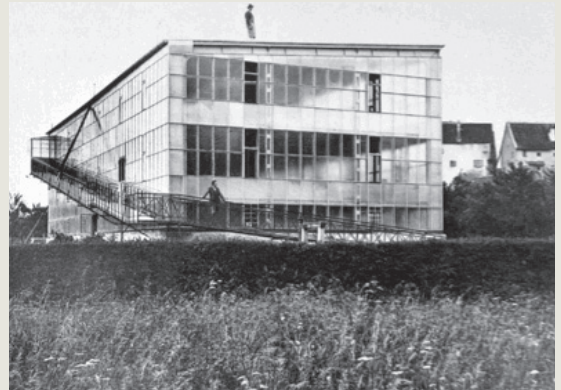
09. Kocher and Frey. Kocher Canvas Weekend House. 1935. Floor plan and facade sections. Source: John D. Rockefeller Jr. Library. Williamsburg. A. Lawrence Kocher Collection.

10. Kocher. House of Plywood. 1939. Promotional brochure. Source: John D. Rockefeller Jr. Library. Williamsburg. A. Lawrence Kocher Collection.

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Steiff Factory, 1903. The story of a pioneer Blanca Lleó

Progress in all its facets evoked collective enthusiasm a century ago. Back then, glass and steel architecture was held to be the symbol and expression of the highest aspirations of material and spiritual freedom. With the passage of time, our conscience and sensibilities have undergone a change and it is today with a sense of guilt that we hold ourselves responsible for having incentivised an incalculable waste of energy owing to the uncontrolled use of those shining materials. *Man is a god when he dreams and a beggar when he reflects*. These lines of Hölderlin's poetry exhort us to look back to the horizon, since we do not know what past awaits us. This article takes us back to the incandescent beginnings of glass architecture in order to discover an unusual creation, the Steiff factory of 1903.



"What was the first modern building?" asked Alison and Peter Smithson in 1980.

The response had lain implicit years ago in their *family album* entitled "The Heroic Period of Modern Architecture (1910-1929)"¹; that selection of pioneering works of modern architecture designed by young architects between 1955 and 1956, that deliberately opened with seven photographs of the Fagus factory by Walter Gropius and Adolf Meyer.

All origins are mythical and all myths are human creations. The modern architecture movement is no exception and its beginnings, now more than a century old, were as mythical as the birth of Venus. In the same manner that Boticelli's sublime work of art embodied the advent of the goddess of love within the Renaissance, a carefully curated image of the Fagus factory was, for decades, a powerful symbol of the moment when the new architecture was born.

This article deals with a practically unknown building that, being older than the Fagus, opens up a new perspective through which to rethink the incipient 20th-century architecture. We are talking about the Steiff factory, an unusual work of great purity and admirable social significance, a visionary creation conceived and executed in 1903, that incorporates exceptional architectural innovations. This edifice, far removed from the landmarks highlighted by the official genealogy of the modern architecture movement, was the first glass box inhabited by manual workers in the course of their daily tasks. What is truly surprising is that this architecture has been ignored and passed over by historians and critics throughout the 20th century², or perhaps it was an intentional act of silencing.

The first news about this factory would not appear until the end of the previous century and the start of the 21st century, in brief quotations and in a couple of highly technical articles that highlight its façades as the first curtain wall in history³. With regard to its construction, the works published in German by Anke Fissabre and Bernhard Neithammer are especially significant.⁴ Within the English-speaking world, a recent historical text in English links the Steiff factory to various earlier and contemporary buildings.⁵

It is our opinion that the aforementioned references to the technical and historical aspects of the work are insufficient, as in order to understand the true scope of the Steiff factory it is essential to carry out a complete and detailed architectural analysis. At the same time we must present the significant achievements made by Margarete Steiff in her career. In the following sections we shall deal with both questions, highlighting the paradigmatic nature of this work within its historical context and revealing its significance as the embodiment of the ideas of a female industrial entrepreneur and a pioneering designer.

In the year 1903, the unexpected and dazzling success of the Steiff brand led its owner to erect, within months, a new three-storied building. The radical modernity of the building's architecture must have seemed remarkable in Giengen, a medieval town located 80 km from Stuttgart and therefore isolated from the leading cultural and industrial circles of Germany in those times. Historical documents show that the streets and squares of this small provincial city constituted an unchanging secular landscape of traditional buildings.

In one photograph from the period –where we can also distinguish the later extensions built in 1904 and 1908 in the background–, we can perceive the radical contrast between the traditional architecture of the access pavilion and the new glass building, the main object of interest in this work. Situated in the area that permits access to the factory and facing the historical city, the two buildings constitute a sign of the times in the commencement of a century marked by great changes (fig. 02).

In the lower section of the factory's original location (fig. 03), dated the 20th of February 1903, a single signature is visible under the license stamp: that of Margarete Steiff –*Die Bau Unternehmerin*–,⁶ whose determination and leadership allowed her to overcome all impediments posed by the building inspectors to the creation of such a radical new form of architecture such as this one.

Who is the person behind this initiative and whose signature appears on the document?

Margarete Steiff was born in 1847 in Giengen an der Brenz, a town in South Germany, located at the borders of Bavaria. Her career as a creative entrepreneur and social reformer has been recognised and is currently a subject of study in business schools for having revolutionised the world of toys and collectors, with a personal project that she began in the later decades of the 19th century and which continues to be an international landmark after more than 125 years. Nevertheless, the unique architecture that supported this project –as an important part of her ambitious creation– has not been, until recently, studied with the same diligence.

This young German lady began her professional career around 1877 by designing a small elephant in coloured felt sewn by hand. This simple object, initially meant as a pin cushion for seamstresses, was spontaneously discovered by children as a new toy filled with unexpected sensations. The curiosity and emotions evoked by the exotic and soft animal made it an instant hit leading its creator to soon sell 5,170 units.

Thus began, almost casually, a considerable business venture. Margarete invented the world of the soft toy, something apparently banal that nevertheless was a signifier of the enormous change that was taking place with regard to childhood in 19th-century society. The thought was taking hold that little ones were not cheap labour but citizens of the future and therefore, had to be taken care of and educated. This consideration of infancy was something

new, as George Steiner points out: “young children in medieval and Renaissance art were diminutive adults [...]. The child is a discovery of the eighteenth and nineteenth centuries, he is ‘invented’ by libertarian and romantic sensibility and Rousseauist theories of education”.⁷ The adage on which Margarete Steiff's entire business enterprise rested was “only the best is good enough for children” and her designs are a testament to this emerging change in thought: the cold tin soldiers and distant porcelain dolls would give way to soft stuffed toys, full of warmth and fantasy.

After that first toy elephant and now firmly established since 1888 in her first workshop, Margarete's hands and imagination would create many more animals: tigers, pigs, camels, dogs, donkeys, bears, and others (figs. 04 and 05).

Four years later, in 1892, she decided to publish her first catalogue, as part of her strategy to enhance her already expanding firm. It offered an extensive collection of animals that had been created until then and included her famous bear in four colours and two sizes. The following year, encouraged by the impact of the project, she exhibited her products at the Leipzig Fair and on 3 March 1893, she registered her company, the Filzwarenfabrik Giengen/Brenz. By then she was already employing fourteen female workers, of whom four worked in the factory and the remaining ten at home, thus balancing their work with their domestic lives.

In the following years, Margarete Steiff would make her first contacts abroad, beginning with the Harrods chain of stores in London where in 1895, her toy animals were already being sold.

In 1902 an extraordinary set of circumstances would provide a new boost to the company, culminating in the creation of the architectural project that was the Steiff factory. A seemingly insignificant episode was a determining factor in this story and that was the trip to Europe made by Hermann Berg, a seasoned trader of toys in search of new items. At the Leipzig fair, this American –who was also the brother of Alban Berg the composer– would fortuitously encounter, at a small stand, the Steiffs' most recent product, the jointed bear. With an unerring intuition, he decided to buy 3,000 units of this new toy in order to introduce it in the United States (figs. 06 and 07).

Almost at the same time, on the other side of the Atlantic, a memorable event was about to take place, one that would be highlighted in all the media, in the form of articles, illustrations and caricatures. President Theodore Roosevelt, a consummate hunter, had just made a magnanimous and honourable gesture, one that would have a deep significance in the midst of the heightened social tensions then prevalent in the country: on an organised hunt in the state of Mississippi, the head of state walked away from a helpless young bear that was offered to him as a hunting trophy (fig. 08).

The Steiff toy bear would appear at exactly the right moment in the right place, and the symbolic association between the American president and the toy bear would last until today (fig. 09).

This happy coincidence would make Margarete's toy –which had just landed on the New Continent– an overnight national icon dubbed the Teddy Bear, in recognition of the President's action. From then on, demand would shoot up in the United States of America, making it essential for the German factory to expand its workspace in record time.

It is now more than a hundred years ago that the Teddy Bear became famous and it is still a collector's item today. Six generations underway, the family enterprise created by the Steiff matriarch in 1893 continues to be in full production, and the original building of 1903 is still in use as the workspace.

To place this work within the historical context of architecture –where, as we have already mentioned, it is not even mentioned–, we must remember that from 1900 onwards, Germany was the centre of European architectural culture, and a determining factor in the evolution of the modern movement would be the founding of the Werkbund in 1907, whose goal was to elevate the

work of artisans by linking it to art and industry. It is evident that the birth of the Steiff factory in 1903 was possessed of a visionary spirit that placed it ahead of the events highlighted by history, situated as it was additionally, in an unfavourable environment in time and place. Conversely, the Faguswerk of W. Gropius and A. Meyer would conveniently be hailed by the orthodoxy as the seed of the modern architectural project.

The earliest texts on the history of the modern movement in architecture would not be published until the 1930's. It was then that the important texts of Nikolaus Pevsner and Sigfried Giedion⁸ would develop a genealogy and establish the now legendary glazed corner of the Fagus-Werk, built between 1911 and 1913, as its undisputed beginnings. In the two decades that passed between the execution of the work and its historiographic narration, the Fagus was established as an undisputed canonical work, an accolade that would remain for another twenty years until the post-war period when the first critical revisions were made, within the framework of a lively architectural debate that would question the symbolic value of the famous corner.⁹

Bruno Zevi, the Italian architect and historian would be one of the first persons to question it. In the illustrated pages of his 1953 *Poetics of Neo Plastic Architecture*, alongside the usual photos of the Fagus, he published other *hostile*, images that depicted the dubious and classist side of Gropius' work. Zevi thus shed light on the partial and biased perspective of historiography, at the same time that he questioned the veracity of the modern values of perspective by pointing out that some views of the Fagus factory denoted "certain traditional persistence and a lack of ease in drawing. One who judges the architecture by their complexity and not by a few photographs, will realise the unsteadiness in the volume, the anomaly of a wall box attached to the laboratory glass by means of such a clumsy insertion that not even the decorative horizontal incisions can hide it; a narrative writing, the epigone of the *Arts and Crafts* and of *Art Nouveau* [...]. The foundation of the Factory is decidedly anti-rationalist, it breaks the unity of the wall, it forces a horizontal order and encumbers it with cornices, moulding and a strident portal".¹⁰

The last page of this book that was decidedly controversial at the time is especially insightful. It depicts twenty one images of the corners of other emblematic architectural works. The sequence begins with the Temple of Concordia in Agrigento, dating back to the 5th century BCE, and ends with the Roma Termini Station of 1951. Between these two are included views of corners of the Duomo in Milan, the Palazzo Vecchio in Florence, the Ca' d'Oro in Venice, the Ducal Palace in Urbino, the Strozzi Palace in Florence, the church of Santa Maria della Pace of Bramante; in addition to works by Auguste Perret, Josef Hoffmann, Erich Mendelsohn, Willem Marinus Dudok, William Lescaze, Le Corbusier and Giovanni Michelucci.¹¹ Within this series of photographs focusing on the dihedrals of the façades, the omission of the Fagus corner is especially eloquent and meaningful.

As we know, in 1960 the British architect and historian Reyner Banham openly questioned Gropius' work as a standard of modernity, by unmasking the partial and even biased visions of those early historians who were fans of the German aspect of the modern movement. Banham had no compunctions about using expressions like "dirty laundry" and "zones of silence" to refer to the way in which those exceptional witnesses established the birth and genealogy of modern architecture.¹²

In the 1970's, other critics would bring forth new interpretations, among which are Manfredo Tafuri's perspicacious enquiries and fruitful uncertainties with regard to the beginnings of modern architecture. By then, the argument regarding the truth or falsity of the mythical Fagus photo had become irrelevant faced with the discussion on the validity of the modern project, sentenced to death by some who, like Tafuri, sought to "demonstrate its complexity and its fragmentary nature" at the same time that they proposed to "dis-

cover its shortcomings, contradictions, betrayed goals, errors"¹³, as, according to the incisive Italian historian, "if criticism did not proceed like this, it would continue to collaborate in the creation of myths that may have been required [in other times] – as necessary and indispensable forces to force the situation – but now must be eliminated".¹⁴

In line with Tafuri's discourse, the goal of this article is to unveil one of these deficiencies and to correct a mistake, by rescuing the Steiff Factory of 1903 from oblivion, as a pioneering work of architecture that is an authentic display of modern architecture.

The launch of Steiff's new production space in Giengen would be as frenetic as the dazzling success of its most famous toy, the Teddy Bear. The result would be an innovative and radical form of architecture that was as modern as the mode and the times when it was built.

It is important to remember that until that moment and for decades, Margarete Steiff had meticulously developed an entrepreneurial project of a marked social bent that focused on child welfare and female workers. Her perseverance, innovative creativity and revolutionary social vision would ultimately take shape as a construction whose symbolic expression of humanistic functionalism would be the modern dream pursued by architects in the decades to come.

The Steiff factory is an architecture without an architect, nothing extraordinary in the early 20th century when frequent industrial, engineering and artistic contributions were made to the nascent architecture. Times of change in which great masters such as Mies van der Rohe, Le Corbusier and Walter Gropius would never complete their official studies nor obtain the degree of architect, as they deemed the prevailing 19th century education system to be obsolete and useless.

Obtaining the building license in 1903 was not easy, as technicians claimed that whoever worked in a fully glazed building such as the Steiff Factory would be at risk of losing their eyesight. Eventually, the ministry of commerce and industry of Württemberg and the local authorities offloaded the responsibility on to the shoulders of the company and give them permission to build.

The façade turned out to be so effective that within the same decade, when two considerably larger buildings had to be built, the same glass enclosure system was used, albeit with a wooden frame structure instead of steel. Today it may be unreservedly said that the Steiff Factory built in 1903, possesses the first curtain wall in history, fifteen years prior to the Hallidie Building in San Francisco, which is generally thought to be the oldest curtain wall of all time.¹⁵

This research focuses on the first volume built within the Steiff complex, called the east block, a precise prism of three storeys, with an area of 12.00 x 30.00 m, and 9.40 m high. Its metallic structure of riveted steel beams braced for wind resistance was created by Eisenwerk München AG, in collaboration with the Steiff family, and represents the most advanced structural technique of the German industry of that time.

The floor is divided into three bays by means of two lengthwise porticoes. Each bay consists of six columns composed of two U-shaped beams, connected by small sheet metal strips. Thus, each elevation has an open plan surface measuring 360 m², solely punctuated by eight slim pillars, as the remaining four are embedded in the lateral façades (fig. 10).

The four corners of the building house L-shaped pillars, reinforced by riveted steel plate and angle sections, while nine I-section columns run along the two longer façades. This entire steel structure connects the load-bearing beams to the foundations, said beams also consisting of metallic elements, arranged in five transversal compartments.

Both the horizontal cross-beams that connect the pillars as well as the slanting braces that may be seen behind the glass ensure the three-dimensional rigidity and the wind bracing of the entire building (fig. 11).

The skeleton, which is made entirely of prefabricated steel, was erected in a few days and ensured an architectural design that was light, resistant and precise. It is important to highlight that in 1903, the industrial production of this material had only been recently implemented, especially with regard to standardised laminated profiles. If we take into account the distance between Giengen and the centres of production, then this work acquires especial value as its architecture was a display of avant-garde technology.

How was it possible to have such an advanced system of building in such a place and at so early a period of time?

The building is undoubtedly the incarnation of a revolutionary spirit, not only in its technological aspects but also in its aesthetic and social aspects, as the constructive solution, the rationality and the abstraction of its form is a clear response to its utilitarian nature and to the needs of its occupants and is therefore, an unprecedented expression of true modern functionality.

The will to innovate that is reflected by the Steiff Factory was born several decades ago with the invention of a new product –the stuffed toy bear– and with the foresight of its distribution in what was then an emerging international market of mass consumerism. Thus it is evident that this architecture symbolises, in the early stages of the modern project, the enthusiasm for change and progress that has always characterised the pioneering career of its founder, Margarete Steiff.

There has been speculation regarding the authorship of the Steiff project, hinting and even outright claiming that it was the work of the male members of the family, specifically, that of her nephew Richard, who was only three years old in 1880, when Margarete founded the Steiff company, and fifteen when the pioneering businesswoman had progressed to selling her famous toy bears by catalogue. The data presents irrefutable evidence that displays the leadership of this admirable woman in all aspects of the creation of the Steiff company, from its beginnings, with the design and development of the products to the development of the modern buildings constructed in 1903, 1904 and 1908.

In the second half of the 19th century, an ambitious businesswoman would have encountered innumerable obstacles. Margarete, who was born in 1847, was aware of this from a very early age, which is why she created, from the start of her activity, a strategic company structure involving those who would eventually become her heirs. The six Steiff nephews were trained under the matriarch for different responsibilities within the firm and it was she who would assign them, from a very early age, the responsibilities of different areas of management, finance, sales, marketing, development and new Steiff products. In one humorous photo, we can see them all –with imposing moustaches, of course– perched on small toy elephants of varying sizes. (figs. 12 and 13). The picture, on one hand, shows the symbolic value of the legendary felt pachyderm that in a bygone 1877 a young Margarete would create all by herself, and on the other hand, it is a clear expression of a decided family-based plan meant for a future industry even before this new generation of Steiffs was born.¹⁶

The four façades of the Steiff Factory are completely covered with glass, and in contrast to the Fagus Factory, there are no signs of traditional architectural elements or links to the past that might diminish its radical and continued polish. This concise glass box, –known back then as the “aquarium of the virgins” owing to the many young women who worked inside– still shines brightly today as a symbol that heralded a new age.

The building skin consists of two glass layers 3 mm thick separated by a chamber of 25 cm that houses the metallic structure. The 60 x 90 cm panes are supported by a grid of T-shaped steel mullions, measuring 25 x 35mm. A series of straps attached to the metallic structure resolve the tension caused by the wind on the delicate panes of the façade.

The outer glass layer runs continuously from the base of the of the building to its roofline, while the interior layer spans

from the top of each floor slab to the bottom of the next slab. Thus the outside glass layer does not have the usual interruptions owing to a vertical structure or to the presence of fittings. This double skin of glass with a chamber therefore constitutes, as we have already mentioned and as reiterated by several studies on façades, the first curtain wall in history (fig. 14).

It is worth remembering that in both the AEG Turbine Factory of 1909 built by Berhens as well as the renowned Fagus by Gropius in 1911, not only is the glass façade –which is surrounded and supported by the building’s load-bearing structure– interrupted, but in both cases, it also consists of a single glass layer. In spite of not being acknowledged throughout the 20th century, even when we adhere to the most orthodox historiographic criteria, it is evident that the 1903 Steiff Factory is a pioneer and the most modern of the three factories.

This new building that appeared almost overnight in Giengen and at such an early stage in history, is additionally an unparalleled example of glass architecture insofar as it houses people and not machinery, as a place meant for the welfare of its occupants who were mostly women carrying out respectable manual work.

Lighting is essential for the good vision of those who perform tasks as detailed as hand sewing and assembly, especially in the early 20th century when available artificial light was scarce and of low quality.

Within the building, the daylight that entered through the glass façades lit up the entire factory floor. In early times, before the installation of curtains to reduce the excessive glare, the glass was painted over with lime wash in summer and removed in autumn to allow the glass panes to recover their original transparency. The appearance of the building would therefore change according to the time of the year and the hour of the day. As Colin Rowe brilliantly says, “that which is transparent ceases to be what is perfectly clear to become that which is clearly ambiguous”¹⁷

Cross-ventilation was achieved by means of box windows that could be opened and closed and were inserted into the four façades, thus ensuring air circulation without breaking the sealing or altering the isolating capacity of the curtain wall (fig. 15). Additionally, in order to ensure an optimum temperature inside, it had a new heating system that used low-pressure steam.

The glass used in the façades was not transparent but translucent. Apart from being cheaper, the textured cathedral glass used in the Steiff Factory provided the interior with a homogeneous lighting and without strong contrasts, a diffused lighting that was required for the precision work carried out by expert hands there. Margarete Steiff who had created alongside her employees unique pieces of great quality since 1880, was aware of this fact and this choice was undoubtedly influenced by her wish to provide her workers with the best possible working conditions, both inside and outside the company. “Transparency may be a quality inherent to a substance or it may be a quality inherent to an organisation”¹⁸ Another explanation for the use of translucent glass may be the need to protect themselves from the gaze of the competition, similar to the introduction of the famous button in the ear of the *Knopf in Ohn* Teddy Bears, by Franz, another of Margarete’s nephews, to protect the brand from forgeries.

From the outside, the volume exudes a mysterious and suggestive effect: moving shadows are visible without giving away the objects and figures behind the façade (fig. 16).

Access to the two upper floors of the building is provided by means of a ramp that unfolds outside as a continuation of the streets and roads of this new urban area. The inclined plane hugs the building and provides an ascending route from which one can have a moving view of the surroundings: the medieval city, the railway tracks and the river Brenz. This innovative solution replaced the more common staircase and facilitated fluid and unrestricted access for goods as well as the people who worked in the factory. But above all,

it gave access to its owner, who had been restricted to a wheelchair since she was a child owing to poliomyelitis contracted at an early age. Having a ramp was also advantageous from a financial viewpoint as being an external element of the building, it did not count towards the licensing fee and freed the company from the need to invest in energy and mechanical means to move cargo and goods (fig. 17).

But the real discovery that emerged from this type of external perimeter-based connection was the liberation of interior areas, laid out in completely isotropic spaces. The floor thus possessed an absolute clarity and continuity as the absence of staircases, elevators, gaps and partitions, meant that the entire surface area could be used without restrictions. In this as in other architectural aspects, we rarely find modern antecedents of working spaces with the same degree of functionality, building arrangement and spatial quality as those of the Steiff Factory.

In the interior, photographs from the period show how this architecture promotes an egalitarian work organisation where employees are organised in groups perpendicular to the façade without a hierarchical order or a specific assignment of work stations. In the corner of one of these long wooden tables we can see Margarete in her wheelchair, sewing just like any other worker. Half-finished or finished toys are strewn all around, in baskets and crates. The images transmit a sense of cooperative organisation that is also displayed in the company celebrations as portrayed in the other old photo (figs. 18-20).

The open plan arrangement, without fixed work stations or rank-based structures -as opposed to the habitual assembly lines- are extremely advanced concepts for its time and foreshadow a completely new social order and work organisation that would not be implemented until many decades later.

From the beginning of her activity, Margarete Steiff had shown herself to be a unique and exemplary businesswoman, who was willing to come up to formulas that would allow women to work and fulfil their domestic and child-rearing tasks at the same time. Additionally her initiatives were of great efficiency, resulting in a spectacular increase in factory production. For example, 973,994 Teddy Bears were handmade in 1904, in addition to another two million toy animals of exceptional quality, by 400 employees who worked at the factory and 1800 women who worked from home in addition to their domestic duties.¹⁹

The external ramp is a reflection of this dynamism, which became a symbol of the firm's unstoppable growth. This powerful diagonal that ran all along the façade -an element that would be used by Le Corbusier, the Russian Constructivists and others in later decades- is an accomplishment and an artistic expression of continuous movement and the accelerated changes of modern times when "rapid changes in technology, globalisation, communication technologies and changes in the social fabric dominated conversations and newspaper articles; then as now, cultures of mass consumption stamped their mark on the time, the feeling of living in an accelerated world, of speeding into the unknown, was overwhelming"²⁰ (figs. 21 and 22).

The movement of persons and goods in constant circulation on this innovative inclined plane that embraced the façades contributed to a new perception of architecture, changing and open, that is manifested by means of its innovative transparency in the vivid presence of actors and objects within an intermediate space between the interior and the exterior of the factory.²¹

When Margarete Steiff died at the age of 62 in 1909, the large stuffed toy factory had been extended by two larger buildings that shared the same façade system as the first volume (fig. 23). By then, the entire glazed surface of curtain wall occupied 1.5 ha.

Margarete never knew of Gropius or of the Fagus of Alfeld (1911-1913) which was built after her death, as they both belonged to completely different periods and social environments. Nevertheless, it may be said that the pioneers of modern architecture in

Germany, and in general, those related to European avant-garde movements, may have learnt of this pioneering project and may have even visited Margarete's factory in Giengen, where they would have been surprised by its radical crystalline purity.²² We shall probably never know if the most renowned historians and critics of Central European modernity were aware of the Steiff Factory, what is certain is that they made no mention of it.

The Steiff Factory did not exist in the history of architecture until the end of the 20th century,²³ being relegated to obscurity for nearly a hundred years. On the contrary, the Fagus Werk, the legendary protagonist of the history of architecture, achieved the highest possible heritage recognition when it was included in 2011 in the UNESCO's World Heritage List, in spite of the recurring doubts that have been cast over the years on its value.²⁴ Nevertheless, it may be affirmed that the achievements of the Giengen building are a step beyond anything achieved by the Alfeld factory complex. Or to put it in other words, the Steiff Factory of 1903 is the realisation of a series of modern ideals that the Fagus, built between 1911 and 1913, was never able to achieve fully.

This work has allowed us to see, once again, how much is left to discover of 20th-century architecture, an extremely fertile and innovative period in the history of architecture, both with regard to ideas and projects and works. Within the last century, and especially in the first decades, there was an infinite number of manifestations and changes that had multiple influences, creating an unusual kaleidoscope of contributions to architecture and a large variety of expressions in construction, such as had never before been witnessed.

Given the homogenisation created by planetary globalisation, it is unlikely that such diversity shall ever come to pass in similar splendour. Nevertheless, we believe in the growing plurality of perspectives that are able to bring to light unpublished events or remarkable authors and architects of the past that are as meaningful and eloquent as the Steiff Factory of 1903.

With the conviction that we only see what we can think of, we may congratulate ourselves on the social and cultural progress that gives space to all that it diverse. We affirm the emblematic value of the Steiff Factory against the established Fagus factory, because the contrary is also true. But this was already stated by the poet Hölderlin in 1795²⁵.

Blanca Lleó

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Notes

01. SMITHSON, Alison and Peter, "The Heroic Period of Modern Architecture", in *Architectural Design*, December 1965, pp. 590 (re-edited in SMITHSON, Alison and Peter, "The Heroic Period of Modern Architecture Begins", in SMITHSON, Alison and Peter, *The Heroic Period of Modern Architecture*, Rizzoli International Publications Inc., New York, 1981, pp. 9). Within the collection of works mentioned by Alison and Peter Smithson in this article, only two other projects are displayed with the same profusion of photographs as the Fagus: Le Corbusier's Villa Savoye and the Tugendhat by Mies. With this repertoire of references, the new generation makes it clear that faith in its origins still persisted in the 1950s, as stated in the article "The Heroic Period of Modern Architecture is the rock on which we stand" (re-edited in SMITHSON, Alison and Peter, "Prelude to the Heroic Period of Modern Architecture", in SMITHSON, Alison and Peter, *The Heroic Period of Modern Architecture*, *Ibid.*, pp. 5).

02. In 1932, to be precise, two references were made to it in German: a short article that dealt almost exclusively with the difficulties of obtaining the license, and a footnote in a page of a book. Both are insubstantial, solely mentioned in the article by Robert and Brenda Vale.

03. ALBRECHT, Peter, "Fábrica Steiff, 1903. Steiff Factory", in *a+t revista trimestral de arquitectura y tecnología*, 11, Vitoria-Gasteiz, 1998; SCHITTICH, Christian (ed.), *Building Skins*, Detail/Birkhäuser, Múnich/Basilea, 2006; GÖSSEL, Peter (ed.), *The A-Z of Modern Architecture*, 2 volumes., Taschen, Köln, 2007; MURRAY, Scott, *Translucent Building Skins. Material Innovations in Modern and Contemporary Architecture*, Taylor and Francis Group/Routledge, New York/London, 2013; FORTMEYER, Russell Martin, and LINN, Charles, *Kinetic Architecture: Design for Active Envelopes. Images Publishing Group*, Mulgrave, Vic, 2014.

04. FISSABRE, Anke, and NEITHAMMER, Bernhard, "The invention of Glazed Curtain Wall in 1903-The Steiff Toy Factory", in the *Third International*

Congress on Construction History Cottbus, in KURRER, Karl-Eugen, LORENZ, Werner, and WETZK, Volker, Brandenburg University of Technology, May 2009, pp. 595-602.

In 2016, the same authors published in German the book *Die Steiff Spielwarenfabrik in Gien-gen/Brenz*, Geymüller, Verlag für Architektur, Aachen, 2016.

05. VALE, Brenda, and VALE, Robert. "Gropius and the Teddy Bear: a tale of two factories", in the *Architectural Research Quarterly Journal*, vol. 20, 4, December 2016. The article may be consulted at <https://doi.org/10.1017/S1359135516000518> (published on 27 April 2017, accessed on 12 July 2019), pp. 345-356.

06. The construction entrepreneur

07. STEINER, George, "De mortuis", in STEINER, George, *George Steiner at The New Yorker* [1981], Siruela, Madrid, 2009, pp. 103.

08. PEVSNER, Nikolaus, *Pioneers of the Modern Movement. From William Morris to Walter Gropius*, Faber & Faber, London, 1936, and GLEDION, Sigfried, *Space, Time and Architecture. The growth of a New Tradition (The Charles Eliot Norton Lectures for 1938-39)*, Harvard University Press, Cambridge Mass, 1941.

09. TOURNIKIOTIS, Panayotis, *The Historiography of Modern Architecture* [1999], Reverté, Barcelona 2014. The evidence of Gropius' influence on historians and his leading role is visible throughout the history of architecture in the first half of the 20th century, given the great prestige and influence that he wielded as mediator between institutions and generations.

10. ZEVI, Bruno, *Poetics of Neo Plastic Architecture* [1953], Victor Lerú, Buenos Aires, 1960, pp. 18-19.

11. *Ibid.*, Figures 163 to 183.

12. "The Faguswerke at Alfeld, designed from 1911 onwards by Gropius and Meyer and in construction until 1913, is frequently taken to be the first building of the Modern Movement [...]. The modernity [...] is visible indeed, only on parts of two sides, where the machine-shop and power-house present

glazed walls [...]. These two blocks are in such strong contrast to the unadventurous neo-Classical regularity of the rest of the buildings that one may suspect that [...] the partial modern aspect] must have been an unsought consequence [...] of the functional programme", in BANHAM, Reyner, *Theory and Design in the First Machine Age* [1960], Paidós Estética, Buenos Aires, 1985, pp. 84. Banham also expresses it in similar terms in "History and Psychiatry Archit", *The Architectural Review*, London, May 1960.

13. TAFURI, Manfredo, *Theories And History Of Architecture. Towards a concept of architectural space* [1968], Laia, Barcelona, 1972, pp. 12.

14. *Ibid.*, pp. 11.

15. See Notes 4 and 5.

16. Richard Sennet analyses the great changes in the production systems and in the demand for merchandise that was increasing in the second half of the 19th century, when companies were learning the art of stability that would ensure their longevity with an increase in the number of employees in SENNETT, Richard, *the Culture of the New Capitalism*, Anagrama, Barcelona, 2006, pp. 29 on. With regard to the process of training, he also states that "The German word Bildung names a process of personal formation which fits a young person for the lifelong conduct of life", in *Ibid.*, pp. 23. This was the training imparted to the Steiff "brood", meticulously programmed by Margarete. The Prussian model of military organisation was currently being implemented in Germany, "large corporations operated increasingly like armies where every one had a place and every place a defined function", in *Ibid.*, pp. 26.

17. ROWE, Colin, *Mannerism and Modern Architecture and Other Essays*, Gustavo Gili Barcelona, 1978, pp. 156.

18. *Ibid.*, pp. 157.

19. VALE, Brenda, y VALE, Robert, *op. cit.*, pp. 346.

20. BLOM, Philipp, *Años de vértigo. Cultura y cambio en Occidente 1900-1914*, Anagrama, Barcelona, 2010 [*The Vertigo Years: Change and Culture in the West, 1900-1914*, Basic Books, New York, 2008].

21. Seven decades later, the Pompidou building would employ this strategy on a large scale with its famous escalators that, full of visitors and passers-by, symbolised a new culture of masses: "the ornamental crowd" as the generator of a façade in constant change.

22. It is well known that both Gropius and Mies considered factory buildings to be a modern referent. We know of their interest in the impressive factories built by the German architect Albert Kahn on the other side of the Atlantic post 1909. During his first trip to the USA in 1928, Gropius visited, admired and photographed them, and Mies studied the glass and steel structures when in the 1940's, he commenced his stay at the MIT in Chicago.

23. Peter Albrecht is the author of the first and the only article published in Spanish on the Steiff Factory. It is a brief bilingual text in Spanish and English that presents and highlights the value of this building, by means of a detailed technical description of its structure and façade. Nevertheless, the author commits an important error when he states that Richard Steiff "one of her sons [...] planned, along with his father, the new factory complex of 1903 and the extension of 1904". We can see from the very first paragraph of the text, how the true creator of the project is relegated to obscurity: In 1880, the seamstress Margarete Steiff founded a company for the artisanal production of felt elephants intended, at first, to serve as pincushions". Instead, he attributes the authorship of all the creations, including the innovative building, to the male members of the family: the father, the brother and also sons –which, by the way, Margarete never had any–, in ALBRECHT, Peter, "Steiff Factory", *A + T: revista trimestral de Arquitectura y Tecnología*, 11, 1998, pp. 4-9.

24. The director of the Bauhaus Archive, Annemarie Jaeggi, has also expressed her doubts in this regard. In her book on the Fagus published in 2000, this renowned author joins the criticism made by Banham and Zevi –now more than fifty years old–, confirming the biased appreciation for the work that is present in historiography, by

means of selective photographs. In her text, Annemarie highlights Gropius' desire to surpass Behrens, focusing on the limitations of his achievements, in these words: "I was fascinated by the idea of achieving with new building methods [...] a lightness in contrast to the accentuated weight of the earth [...] so significant in older building methods". Jaeggi continues by observing that, although Gropius had tried to find "a radical solution without compromising", he could not avoid the pylon effect with the two stairwell towers in the Fagus façade, in JAEGLI, Annemarie, *Fagus-Industrial culture from Werkbund to Bauhaus*, Princeton Architectural Press, New York, 2000, pp. 7. See also HENZE, Kathrin, *Fagus. La historia de una fábrica* [doctorate coursework at Universidad Politécnica de Madrid, 2005-2006], Arquitectos de Cádiz, non-commercial, limited edition, Cádiz, 2006, pp. 43.

25. HÖLDERLIN, Friedrich, *Hiperión or The Hermit in Greece*, Hiperión, Madrid, 1982, pp. 30.

Images

01. Front. Steiff Factory. Giengen, Germany. 1903.

02. Steiff Factory. Panoramic view of the complex with extensions circa 1910.

03. Steiff Factory. Signed and stamped licensing plan. 1902.

04. Margarete Steiff and Teddy Bear. Anonymous art.

05. Margarete Steiff and her workers in 1888 in front of their first workshop built in the traditional style by her brother Fritz, a builder like their father.

06. Teddy Bear circa 1903.

07. "Teddy bear" in all sizes. *The best toy ever invented. These bears are sensitive and serviceable.*

08. Theodore Roosevelt, sketch of his honourable deed. The Washington Post, 1902.

09. Theodore Roosevelt and Teddy Bear. Photo montage.

10. Steiff Factory. Floor layout. 1902.

11. Steiff Factory. Structure execution in laminated steel sections. 1903.

12. Margarete Steiff's nephews; Paul, Richard, Franz, Hugo, Otto and Ernest.

13. The male members of the Steiff family on elephants, Margarete's first symbolic creation.

14. Steiff Factory. Giengen, Germany. 1903.

15. Steiff Factory. 1903. Corner detail of the volume with four glass façades.

16. Steiff Factory. Curtain wall façade with translucent double glazing (*cathedral*).

17. Steiff Factory. 1903. Ramp access from the outside.

18. Margarete Steiff in her wheelchair working on the manufacture of toys.

19. Steiff Factory. Interior. Workers' celebrations circa 1903.

20. Steiff Factory. Interior. Margarete sewing in the left corner.

21. Steiff Factory. Plan of the sloped floor from the access ramp.

22. Steiff Factory. Workers posing on the building's access ramp.

23. Steiff Factory. View from the avenue of the extensions between 1904 and 1908. The traditional architecture of the small city of Giengen makes for a contrasting background.