Biology in Architecture
The Goetheanum Case Study

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Rudolf Steiner’s Philosophical Modernism

The Goetheanum is a public structure with a unique chronology and character that, in an innovative biologically based architectural form, embodied Rudolf Steiner’s idea of the restoration of global harmony through people creating their living environment. It was erected in Dornach, Switzerland at the beginning of the twentieth century as a physical manifestation of the anthroposophical science developed on the foundation of Johann Wolfgang von Goethe’s theory of natural life cycles and studies in biology. Over the years, the building has unleashed hate and magnified love from around the globe. As a result of historical cataclysms and personal tragedies, it was presented in two consecutive physical appearances as the First and the Second Goetheanum, with remarkable individuals involved in its design-build history. Today, the culture of the Goetheanum projects an even stronger impulse on contemporary design initiatives.

In this chapter, the phenomenon of Goetheanistic architecture is explored as an alternative philosophical strain within modernism. Distinct from the dominant rationalist narrative of revolutionary progress based on the idea of material culture modeled on industrial paradigms and utilitarian functionalism, the Goetheanum emerged as the vision of spiritual evolution of material living in sustainable balance. It was built on the notion of anthropomorphic topography, which combined human physicality and spiritual awareness. Design from this perspective is rooted in a theory of metamorphoses responding to bio–cycles of natural life and the perception of light and color as the revelation of universal mysteries of mind and soul. Ultimately, the historical analysis of anthropomorphism in the Goetheanum opens a cross-cultural debate on the influence of organic thought on contemporary architecture.

The approach to anthroposophical architecture is considered through the lens of ecology: the restoration and preservation of the natural balance of the environment by creative design and construction. I evaluate architecture as a culturally structured, socially rooted matter of philosophical and spiritual experience. From this perspective, anthroposophical architecture is aimed at the advancement of technologies in the service of holistic living and toward fundamental improvement of practiced design patterns by learning from nature. Such holism prioritizes individual knowledge of the architect and the sense of internal logistics of structural models as natural shells for growth and transformation, rather than the mimicry of forms or the programming of decorative styles.
By referring to the Goetheanum in terms of “holism,” I situate the building in a philosophical discourse of unity with roots in classical Antiquity. The building is a living sociocultural organism with its own soul and spirit, a breathing entity in developmental process bearing an internal connection with the natural environment. Holistically speaking, it is in communication with the universe. This thinking is informed by Aristotle’s definition of holism, which he described in the *Metaphysics* as “the whole is larger than the sum of its parts.” For Steiner, it was important that the building and site be a holistic one. The building must respond uniquely to its context: it evolved over time according to both its environmental and sociocultural milieu. Its shape is not based on the literal imitation of natural shapes, but is a result of the careful attunement to structure and integrative design. The environment defines the message and the language of individual structures, as much as the sense of place and internal relations within its parts identify in perspective the unity and complexity of the whole. Therefore, holism as such within architecture, the streaming and floating of life processes in coordination by design, is the grounding principle of creating sustainable spaces.

**The Goetheanum and Anthroposophy**

The term “anthroposophy” comes from the Greek roots *anthropos*, meaning “human,” and *sophia*, meaning “wisdom.” In the original definition, Rudolf Steiner (1861–1925) stressed the spiritual essence of the term: “Anthroposophy is a path of knowledge aiming to guide the spiritual
element in the human being to the spiritual in the universe.” By manifesting the idea of spiritual organic learning as a core value of social development, anthroposophy opposes soulless technical advancement as a means of human survival. Steiner identified bio-spiritual awareness “as an essential need of life,” an evolutionary natural experience “of the human being and the universe.”

Steiner founded anthroposophy as a school of thinking in the early years of the twentieth century. He was a true Renaissance man: a trailblazing philosopher, literary scholar, scientist, educator, social reformist, prolific writer and lecturer, extraordinary artist, and initiator of numerous remarkable creative endeavors, including Goetheanistic architecture, anthroposophical medicine, Waldorf education, Eurhythmry as new performance art, and biodynamic agriculture. Born in Austria in humble circumstances, he retained his awareness of nature from his childhood in the Alps. He studied at the Technical University in Vienna and earned his doctorate in philosophy in 1891 at the University of Rostock in Germany. Steiner worked as editor and scholar at the Goethe Archive in Weimar, and later as a publisher in Berlin. There he also lectured in sciences, literature, and history at the Berlin Workers’ School, and was renowned for his charismatic personality, broad scope of knowledge, and rhetorical talent. In 1902 he was appointed General Secretary of the German branch of the Theosophical Society. In 1913 Dr. Steiner announced the formation of the Anthroposophical Society and its departure from the theosophical movement.

As a spiritual science, anthroposophy confronted the fatalist meditative doctrine dominating theosophical teachings evolving toward the quarries of Eastern religious philosophy. In simplified terms, theosophy asserted the Hindu concept of divine descents, i.e., avatars deprived from internal essence, whereas anthroposophy advocated Christianity. Steiner’s approach was based on Western philosophical traditions and he described his insights as the result of “introspective observation following the methods of natural science.” Steiner developed ideas of the ethical and aesthetic human-centered awareness rooted in the narrative of the Goetheanum, that is to say, in the same transformative way that Goethe’s natural science was rooted in the physical world.

The concept of the Goetheanum integrated Western monotheism and Russian cosmism, and was inflected by the holistic development of natural science shaped by spiritual knowledge. Art critic Michael Brennan underscores Steiner’s spirituality by arguing that he was, “of all things, a great twentieth-century mystic.” Steiner “claimed to have had clairvoyant powers of perception since childhood, and he later developed his own ‘supersensible’ spiritual science of Anthroposophy after breaking with Theosophists over the recognition of Krishnamurti as the incarnation of a new Christ messiah figure, among other issues.”

Carole M. Cusack frames Steiner’s thinking by way of Eastern philosophies. She argues that the Theosophical Society had always looked to the East for spiritual inspiration, and “it was Theosophy’s endorsement of Krishnamurti that caused Steiner to leave the movement, and to form the Anthroposophical Society.” Steiner insisted that: “the reason why Blavatsky’s Theosophy went astray was that from the outset the interests of one portion of humanity … were placed above the interests of mankind as a whole.” The fundamental idea of building the Goetheanum as a contemporary cultural, social, and educational center for gatherings of the anthroposophically inspired international community revealed Steiner’s practical intention of creating a strong bio-architectural impulse.

Steiner’s philosophy of human habitats was unconventional. It embraced architecture’s unlimited diverse identities. He insisted that architecture responds not only to sheltering needs, and envisioned landscapes working in conjunction with buildings that would follow the rules of varied nature and not the impersonal order controlled by factory-based design. At the same time, he granted architecture a certain agency of resistance in that it could push up against the site, while the site could reciprocally act back. This vital complementarity in working with the
landscape liberated architecture from the prescribed code of standards imposed by the functionalist principles of the Bauhaus.\(^{13}\)

Nature and architecture for Steiner existed within a spiritually rooted balance: his architecture was intended as a meaningful connection between the earth and the sky. Unaffiliated with any political force, architecture would rise naturally, as a result of craft and transformation, and as an enlightened personal and communal undertaking. A uniquely talented individual from outside the profession of architecture, Steiner resisted the dominant ideas of utilitarian modernism, developing in contrast a parallel modernity rooted in the creative beginnings of early civilization. Central to this was the biological impulse of the Goetheanum, which signified the universal idea of building for humanity.

Steiner restored and modernized the European model of the Renaissance man as the creator of his living environment, driven by a strong social impulse and striving for scientific and spiritual knowledge. His anthroposophical architecture emerged from radiant aesthetic dreams of an integrated liberal society, which simultaneously materialized in the unifying ideas of Trahndorff’s and later Wagner’s _Gesamtkunstwerk_, and of vibrant “Cathedrals of the Future” conceived by Taut and Gropius.\(^9\) Some of his colleagues expressed disappointment, accusing Steiner of esotericism. Others considered him a visionary, seeing in this unique combination of assets the creative impetus for massive practical endeavors.

Steiner called for a radical rethinking of architecture. As part of a quest for a “new architectural style” and a “new aesthetics,” he reexamined the ideas of the philosopher, poet, and scientist of the German Enlightenment Johann Wolfgang von Goethe, and emphasized the integration of aesthetic, moral, and spiritual perceptions of the world in organic architectural form.\(^{15}\) Steiner identified Goethe as the founder of a “new aesthetics,” and named the building that would embody this new approach after him, calling it the Goetheanum.\(^{16}\) The sequence of lectures “Ways to a New Style in Architecture,” given in 1914 during the building of the First Goetheanum, presented constructive insights into tectonic metamorphoses and the science of color defining the new aesthetics inspired by Goethe’s teachings.\(^{17}\)

Steiner examined Goethe’s ideas in totality, reflecting on his contribution to modern rational science and his work as an artist. Steiner’s first lecture delivered in Vienna to the Goethe Society was dedicated to Goethe as an artist, the title offering an emphasis on holistic integration: “Goethe as the Founder of a New Science of Aesthetics.”\(^{18}\) “There, he did not recapitulate dogmas for an architectural vernacular. His approach was instead universalizing. He believed that any art, including the art of architecture, reveals the truth, which is impossible to depict through other means. In this vein, he quoted Goethe, maintaining architecture should be based on “a reading of the hidden rules of nature, which the human spirit cannot explore otherwise.”\(^{19}\) These rules could not be exclusively explained by rationalist scientific methods but also by emotion and intuition, perceived through varied forms of art.

An anthroposophical teaching on architecture was not abstract, but read in the material practice of architectural design and the anatomy of the human body. From this perspective, Steiner developed an idea of inhabitable spatial _shells_ as places for living.\(^{20}\) He considered architecture to be a planetary, earthly matter and an integral part of the living organism. It was to serve as the natural “third skin” by providing harmonious environments for communities, functioning like a sheath that protects the human body. For Steiner, architecture was a living integument. Therefore, his buildings did not slavishly imitate natural forms, but exhibited the organic processes of living nature itself while at the same time mirroring nature as the human body does the macrocosmic universe.\(^{21}\)

In designing the Goetheanum, Steiner did not intend to create merely an archetype, or the physical manifestation of the idea, but a real building containing a living potential of
consciousness. The building was intended to impress upon and cultivate human mind and to evolve following organic principles. The true nature of the building was perceived not as a final material product but a constant work-in-progress. Architecture approximates the transformations of life: a building is becoming and in metamorphosis. British architect and anthroposophist Rex Raab (1914–2004) also applied Goethe’s idea of metamorphosis to architecture as the transformation of mass and shape that “creates the appearance of consciousness.” He believed that a “strategic design” physically and spiritually nestled in natural surroundings shaped new landscapes of rare uplifting power.

I believe that architecture would become an empty vessel if professional craft is untethered from the concept of human life. A century ago, substantiating his drive toward holism, Steiner insisted that architecture must be rooted in craft. Steiner contended that craft, mind, and cosmos constituted a unified whole. In his book *Architecture as a Synthesis of the Arts* (1913), based on the eight lectures he gave during the building of the First Goetheanum, Steiner argued that light in living architecture represented the spiritual thought essential to the *Bauimpuls*, a German term meaning “building impulse.” Light implied the physical instantiation of spiritual thought, the ethereal force as the tangible Goetheanistic inspiration. Steiner’s spiritualism thus bore a deep sense of materialism in that it was connected to craft. He explained, “if you create on the basis of abstracted concepts and ideas, nothing of value will ensue.” Writer Bobby Matherne describes the forms of the Goetheanum as though they were of a living entity, asserting that “they are organs … of the spiritual world.” Therefore, I argue that the Goetheanum is the embodiment of the physicality of Steiner’s humanistic esotericism: here, architecture gave material shape to his cosmic philosophy.

Unity and wholeness also constituted an equilibrium of the manmade and natural in design. The anthroposophical perception of balance goes back many centuries and is rooted in ideas of one’s harmony with nature as exhibited in archaic structures. The combination of poise and stability in the Goetheanum draws upon a variety of moments in the history of architecture, from prehistoric to medieval cultures. It embodies an ancient pre-Christian spatial teaching, which celebrates the design concept of openness directed from the outside in, traceable to pantheist ancient Greek and Roman shrines to gods conceived of as forces of nature. At the same time, Steiner referred to the Gothic cathedral as a profound spatial inspiration and repository of the collective spiritual revelations of the community. Dramatically different from other influences based on pre-Christian practices, the medieval structure brought to bear a concept of form that metaphorically breathes vertically from the inside out, as a matter of the “earth communicating to spirit.”

In his lecture in Liestal in 1916, Steiner connected the combined force of spiritual science to art. He outlined the importance of studying spiritual science as a means of understanding its art, just as it is necessary to situate the Sistine Madonna within Christianity. Thus, spiritual science is based upon a sensible belief system. He emphasized the energy of human presence in the life of sacred centers by comparing the emptiness of Greek temples to the fullness of Gothic cathedrals. The former were silent with emptiness as they were vacant shrines to higher entities while the latter hummed with energy when filled with the collective life of a congregation. He explored the bond of biology and spirituality, claiming, “A building is a sacred organ which God uses for communication with the people.”

Biological life was the basis for Steiner’s sense of architecture’s distinction from mechanically assembled material forms. He believed that a plain object simply possesses an external form, while an actual building has a living essence that evolves during the process of construction. He identified this approach as a mode of “new construction,” naming technological advancement as a “new impulse” that would inspire a “metamorphosis” and foster awareness of “the threefold
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nature of architecture.” First, architecture is present in terms of its matter. Its material content functions like a physical body: structure, foundation, framework, walls, roofing, and materials are the properties of architecture’s corpus. Second, it is viewed through the lens of the living soul: the building must be filled with color that creates an emotional dynamism. Color is perceived as the soul of the universe and the manifestation of motion. And third, architecture is alive in connection to the spirit and spirituality: the windows represent and reflect the mystical openings to the spirit of the world and the presence of higher creative forces unveiling the prospective for inner enlightenment and improvement.

The walls of a building exhibit internal and external processes, like those of living and breathing entities. They express a voluntary tendency to expand from the inside out. From that standpoint, the interiors of a building were far more important than exteriors, bearing the organic potential for growth and transformation. These processes are similar to the life and growth of plants. Hence, the principles of harmony in the life of plants are applicable to architecture as well as people by creatively following the laws of natural growth and metamorphoses of vegetation, and by sensing the progress of compression and tension, concentration and diffusion. Steiner defined the new style in architecture by declaring that “the spirit of form is enlivened by the spirit of movement.”

Building the Goetheanum

The construction of the First Goetheanum started in Dornach near Basel in 1913 and was completed in 1920, as a result of the efforts of a large international art colony. The total volume of the building was 54,000 square feet. It was intended as a public center for meetings and celebrations, a manifestation of the worldview of the anthroposophical community. The majestic edifice consisted of two cylindrical volumes of distinct diameters, domed by interpenetrating cupolas. The skeleton, elevations, and interiors were built in wood and rested on a sculpturally molded concrete ground floor. For the first time in the history of architecture, a designer combined expressive forms in a public structure, deploying the rich resilient materiality and unlimited possibilities of concrete.

Steiner and his crew used bio-scientific principles and new construction technologies, which opened architecture to the formative rules of nature. Reinforced free-shaped concrete was envisioned as an art form conveying the limitless possibilities of a liquid stone. Steiner insisted that every person has a potential for learning from nature, arguing:

If one has the ability to realize how the human body, on one hand, is an instrument for inspiration, and on the other, for aspiration, and that both these faculties are sustained by the power of senses; if one has the vigor to comprehend the formation of human structure, of the head, limbs and torso, with the heart system as the nexus, then one is capable to create organic forms. The Goetheanum is that organic form.

Two intersecting domes of unequal size floated above the stage and auditorium. This created a dynamic set of overlapping spaces, which signified the unity of body and mind, materiality and spirituality, the terminal and endless. Steiner compared their interconnected organic shape to a “larynx through which deities speak.” The scholar of Byzantine architecture Jelena Bogdanović traced the bio-structural disposition of the Goetheanum back to the Byzantine idea of total design as embodied in the medieval dome of the sixth-century church of Hagia Sophia in Constantinople. As in Steiner’s material spiritualism, the Hagia Sophia’s large dome
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combines weight and transcendence. It materializes the Romanesque-Byzantine concept of a weighty and earthen divine idiom as opposed to celestial Gothic weightlessness. The building bears an “unconventional mode of creative expression and structural and aesthetic potential for the development of architecture in modern context.” The reference to architecture as “heaven on earth” as signified in the Hagia Sophia parallels the biologically based spiritual bond with Russian Orthodox Christianity of Byzantine roots. Furthermore, the wooden domes in the First Goetheanum were finished with silvery Norwegian slate that reflected bright light, creating an almost blinding radiance that is similar to the effects of the shiny slate roofs of the domes of ancient churches in the Russian North. Following the insight developed by the Russian philosopher Sergei O. Prokofieff (1954–2014), our comparative architectural analysis reveals that this idea had a profound influence upon Steiner’s design of the Goetheanum.

Linking organic thinking to Byzantine design, Bogdanović also compares the roof structure of the First Goetheanum to “the vaulting system of Hagia Sophia, where the massive central dome is flanked by two smaller semi-domes along the east–west axis.” Simultaneously, she finds structurally compelling ties between the First Goetheanum and the twelfth-century St. Michael’s Church of Pantocrator Monastery in Istanbul, connecting the axial setting of two domes of unequal size. Steiner’s teachings include insights on Greek and Gothic architecture. However, there are no direct references to Byzantium, rather a few exceptions implying Greco-Byzantine cultural influence as an essential element of formation of the “Russian soul”:

Looking over to the East we see a magnificently finished philosophy of religion, a culture that is eminently a religious culture. But can it be called “Russian”? It would be absurd to call it Russian … for it is the culture that came over … from ancient Byzantium; it is a continuation of what originated there.

Nevertheless Bogdanović suggests that in architectural form and essence, the Goetheanum can be related to Byzantine sources. She argues:

Steiner wrote about architecture as a revelation of human and divine wisdom (anthroposophy and theosophy), and even if he did not explicitly mention Byzantine architecture, he refers to it within his discussion of Medieval architecture, which many at the time related to Romanesque-Byzantine idiom as opposed to Gothic.

In a study of the Goetheanum, Fiona Gray has examined the role of ancient mysteries of the occult in anthroposophy. For Gray, Steiner’s designs move “towards creating a totally new architectural language appropriate to the modern age,” shaped in an evolutionary process by revealing spiritual content. She claims:

Steiner made free use of historical and mythological precedents as archetypal references in his work, thus giving his architecture a genealogy that has, until now, remained largely undefined. By investigating Steiner’s indebtedness to ancient temples … a greater understanding of his architectural heritage is made possible.

That assessment logistically implies that the Goetheanistic experience would foster cultural liberation from the myth of industrial progress. However, the Goetheanum was, in fact, based on a larger, more tolerant vision of new building as an integral part of existing living environments.
of structural elements separating the domes, and rejected the application of “massive interior arches that supported the intersection of Byzantine domes,” hidden bindings, or separate belts conventionally implemented in construction of large-scale cupolas. Local engineer Englert, the former director of the Basel building association that developed the concrete base for the building, responded to the challenge by inventing a unifying principle of reinforced bands and a single massive tension ring jointly holding both domes and anchoring the two cupolas mutually supporting each other. The magnitude of the double-domed structure of the First Goetheanum was unprecedented because of this pioneering engineering as well as its remarkable dimensions. The larger dome of the Goetheanum with its inner diameter of 110 feet surpassed in size the dome of the St. Paul’s Cathedral in London (102 ft.) and the dome of Hagia Sophia in Istanbul (108 ft.). For Steiner, however, the most important element was the experience of living architecture and not the symbolism of a giant dome.

Along these lines, David Adams stresses Steiner’s disavowal of the cultural representation of the domes, opposing this utilitarian approach to the rectilinear shapes of the walls of the Goetheanum. Steiner emphasized the idea of architecture as a living organism, and used bio-terminology for defining the “breathing” spiritual nature of the walls of the Goetheanum. For instance, he described the walls as “etheric,” meaning that an intangible “ether” emanated from them, and defined them as “living” and “spiritual,” integrating the structural element of the wall into the threefold nature of architecture. The wall is part of a building’s becoming and a matter of architecture in process. It transitions from the robust ground floor, continues through the spacious “dematerialized” middle elevation with carved wooden walls, and culminates in the crowning dome, which for Steiner was a matter of “being limitless, boundary-less because once a beholder starts to circumscribe the dome, there is no ending, no physical obstacle.” He incorporated structural and decorative elements, such as columns and various sorts of carved wood, in order to convey a transformative organic message of natural and spiritual growth rooted in Goethe’s theory of color and light.

Steiner’s philosophical notion of light in architecture emerged in a context rich in metaphors of a luminescent utopia based in glass architecture. The idealist aspiration to light, to the shining Glass Utopia, shaped various modernist visions of “cathedrals of the future.” It bridged diverse strains of expressionism within German and Russian avant-gardes, and connected to Bauhaus teachings proclaiming “Art is Light,” embodied in Lyonel Feininger’s Cathedral and Bruno Taut’s Glashaus that decree glass- and light-based transformation and dematerialization of architectural form. In contradistinction, the stained-glass windows of the First Goetheanum, with hand carvings by Asya Turgenev, were holistic: they were an integral element of the greater building. Their colorful opaque translucency and figurative imagery were attuned to the exploratory performative energy of the bio-spiritual impulse of the entire structure of the Goetheanum.

This idea—that a “living wall” is the organic part of the body of the building—restored an older vision of ecclesiastical architecture from the pre-Mongolian era. Massive hand-crafted stone walls with carved spiritual imagery and colorful frescoes endowed these buildings with a heavy, earthen grounding. Steiner gave the Goetheanum a similar earthly identity by way of design, construction, and humanist ideals. Steiner’s building affirmed a vision of “Man as the Representative of Humanity.” He depicted “Slavic Man” as a “mythical, archetypal” image in the fresco “Slavic Man with his Double, Angel and Centaur” of the small dome of the First Goetheanum that shaped the overall Goetheanistic tectonics, uniting the past and the future of humanity.

The building was truly the result of praxis—architecture as experience of both building and philosophy. Slavic culture and philosophy, rooted in organic spiritualism and “folk soul” with an inherent bond to nature, deeply influenced Steiner’s worldview. Arguably, the Tolstoyan movement, in particular, had a profound impact on Steiner. Before the Bolshevik revolution of 1917, strong ties were established between Steiner and Russian intellectuals. Writers, philosophers,
composers, and artists such as Maximilian Voloshin, Andrei Bely, Asya Turgenev, and others participated in the construction of the Goetheanum in Dornach, and Marie von Sivers was Steiner's wife, colleague, and inspiration.\footnote{From the late 1920s in Soviet Russia, where socialist realism was enforced by the authorities as the sole direction for intellectual thought, anthroposophy was outlawed. It was persecuted as “alien ideology,” a “mystical doctrine, a modification of theosophy, consisting of fanciful interpretations of various fields of knowledge … for domination over nature.”\footnote{After the demise of the Soviet Union in the early 1990s, the Anthroposophical Society was reestablished in Russia by Sergei O. Prokofieff, with a primary focus on education, and had little outreach to the realm of architecture massively modeled on hardline modernist prototypes.}}

The detailed arguments within modernism between industrial-based functionalism and the environmentally driven bio-spiritual Goetheanum ultimately evolved toward a polemics of style within the academy. This meant that Goetheanistic architecture was superficially tagged as modification of either expressionism, symbolism, organic architecture, or art nouveau.\footnote{Steiner considered the debates meaningless, lacking relevance to the true nature of architecture. With the exception of Vasily Kandinsky, Oskar Schlemmer, and Georg Hartmann, the Bauhaus largely ignored the existence of the Goetheanum. By contrast, Kandinsky wholeheartedly accepted the mystical nature of the Goetheanum. The architect and set designer Oskar Schlemmer was interested in the building, as it related to his ideas on design psychology and biology. Schlemmer’s student Georg Hartmann manufactured window engravings for the Goetheanum and later worked there as a teacher. All advocates of anthroposophy considered the philosophies of the Bauhaus and utilitarian modernism a dead end for architecture.} Addressing this chasm in design, Steiner argued that the “amateurish negligence,” “conscious dishonesty,” and arrogance within utilitarian modernism violated and interrupted the evolutionary balance of life and the continuity of the spiritual world.\footnote{The First Goetheanum building burned to the ground in 1922, presumably because of the acts of an arsonist radicalized by the challenging political context of Weimar Republic. By 1928, the Second Goetheanum had been erected on the same site (Figure 2.2). The new design engaged the footprint and the foundation of the First Goetheanum, while modifying the volumetric properties of the building. Steiner expanded the concave-convex “breathing” volumes built in reinforced concrete. The building was conceived as a colossal structure, with Steiner envisioning larger airy spaces filled with flowing light and shadows. In developing the designs for the project, Steiner crafted a clay model. New construction methods employed for sculpting the building in flexible concrete opened possibilities for spatial metamorphoses. Vision and sound united in space as spectacularly colored designs in tinted glazing were tied to theatrical performances in tune with uplifting musical compositions by Beethoven, Mozart, Haydn, Wagner, Debussy, Stravinsky, Glazunov, and Rachmaninov. Daylight revealed the depths of engravings on glass with the hues from dark to light. This was the very first multistoried public edifice worldwide entirely constructed in reinforced concrete. While a quintessential building material of the twentieth century, the basic technology of aggregate concrete was developed in Ancient Rome two millennia ago. Steel reinforcement invented in the nineteenth century revolutionized the industry, initially used in separate structural elements and, by the beginning of the twentieth century, experimentally applied in industrial construction. Once again, the past and the future resonated within Steiner’s philosophical modernism.}

By the end of the 1920s in Dornach, Steiner had designed eleven buildings, each with its own identity, integrated into the natural environment.\footnote{By 1928, the Second Goetheanum had been erected on the same site (Figure 2.2). The new design engaged the footprint and the foundation of the First Goetheanum, while modifying the volumetric properties of the building. Steiner expanded the concave-convex “breathing” volumes built in reinforced concrete. The building was conceived as a colossal structure, with Steiner envisioning larger airy spaces filled with flowing light and shadows. In developing the designs for the project, Steiner crafted a clay model. New construction methods employed for sculpting the building in flexible concrete opened possibilities for spatial metamorphoses. Vision and sound united in space as spectacularly colored designs in tinted glazing were tied to theatrical performances in tune with uplifting musical compositions by Beethoven, Mozart, Haydn, Wagner, Debussy, Stravinsky, Glazunov, and Rachmaninov. Daylight revealed the depths of engravings on glass with the hues from dark to light. This was the very first multistoried public edifice worldwide entirely constructed in reinforced concrete. While a quintessential building material of the twentieth century, the basic technology of aggregate concrete was developed in Ancient Rome two millennia ago. Steel reinforcement invented in the nineteenth century revolutionized the industry, initially used in separate structural elements and, by the beginning of the twentieth century, experimentally applied in industrial construction. Once again, the past and the future resonated within Steiner’s philosophical modernism.}

The Glass House was among the most remarkable. This edifice was equipped with a working glass studio where the windows for the Goetheanum were crafted (1914). Other buildings included the animated Boiler House with underground pipelines servicing the Goetheanum (1914), the House Duldeck (1915), three Eurhythmy Buildings with airy studios for the new art of movement designed in collaboration
with English sculptor Edith Maryon (1920), the double-volume residence House De Jaager (1921), the Transfer Station (1921), and the “Goetheanum-Child”—the Eurhythmeum (1924). The sweeping economic crises followed by the tyranny of ruling political regimes meant that the world culture of the 1920s–1930s was severely altered. After Steiner’s passing, the anthroposophical community of Dornach declined and the construction of the Goetheanum experienced dramatic shortages. Only at the beginning of the 1960s did further developments of the site resume.

The Goetheanum Chronicles

In retrospect, the biologically based concept of the Goetheanum never had the benefit of broad publicity. Steiner’s ideas were neither actually accessible nor identifiable. This was due not only to political or socioeconomic causes, but also to the sway of the industrial-based design for the masses. Prefabricated international prototypes were more popular than Steiner’s design based in anthropomorphic individualism and the occult complexity of anthroposophy. In the absence of precisely modified features, the “new aesthetics” of the Goetheanum had little influence on mainstream architecture. Steiner’s call for liberation from style and symbol lacked specific methods, materials, and moderated strategies, making it difficult to adapt for professional education and training. Steiner defined the guidelines and deeply sensed the power of architecture, yet did not develop concise routines for his followers. Freed from the cloud of professional knowledge, he warned against reviving or copying historical archetypes and aimed at discovering new shapes.

Figure 2.2  The Second Goetheanum, architect Rudolf Steiner, 1925–1928. West view
Source: Photograph, Anna P. Sokolina.
and new places envisioned through the prism of intense investigations into inner structural logics, metamorphosis, and dynamics of natural life, including the study of geodesic transformations, collisions, and growth of non-organic materials such as the formation of crystals.

British scholar Dennis Sharp has argued that Steiner’s approach was ignored because of its strangeness: it was simply too opaque, “due to its idiosyncrasies and unique originality, it falls into no stylistic category and thus defies normal critical evaluation.” Postwar architects rediscovered the Goetheanum when Sigfried Giedion announced the death of modernism. Only by the end of their careers did Wright, Corbusier, and Saarinen pay tribute to the Goetheanum “as the integral masterpiece of rare strength and clarity.” By mid-century, alternative designs inspired by organic ideas, as well as in opposition to stylistic revivalism and utilitarian modernism, mushroomed across the globe. Le Corbusier designed the chapel of Notre-Dame du Haut (1950–1955) in Ronchamp, France after visiting the Goetheanum in Dornach. The designs of Eero Saarinen’s TWA Terminal (1956–1962) at JFK Airport in New York, Hans Scharoun’s Berlin Philharmonie (1956–1963), and Jørn Utzon’s Sydney Opera House (1973) were influenced by Rudolf Steiner’s Goetheanum. In the late 1960s, Japanese architect Kenji Imai argued that the Goetheanum would transform the perception of modernism forever. More recently, the complex structure of the ING Bank in Amsterdam, Netherlands, designed by the anthroposophical studio Alberts & Van Huut International Architects (1979–1987), shows evidence of the longevity of Steiner’s design philosophies.

Danish architect and Steiner acolyte Erik Asmussen (1913–1998) argued that International Style modernism was driven by a process reflecting on speculative games with beautiful abstract shapes. As co-founder of the anthroposophical center, the Rudolf Steiner Seminary in Sweden, Asmussen carried Steiner’s philosophy into the late twentieth century (Figure 2.4). He insisted that one arrives at a vitality of design through architecture’s unity with its site. According to
Asmussen, design should follow the function of the building, be informed by natural shifts and transformations in the environment, and strive for a wholeness of human mind, body, and soul. Asmussen called this integrity a “spiritual functionalism.” He maintained: “the goal for anthroposophic architecture is … to create a stimulating environment, which through its special atmosphere can act as an inspiration to just the activity for which the building is intended.” His living architecture and community in Järna, Sweden, offer a contemporary take on anthroposophy with Nordic roots. Architectural historian Gary Coates writes about Asmussen’s vivid bond with the bio-spiritual idea of the Goetheanum, arguing that he developed regionally adapted functionalism rooted in aesthetic sensibility with reference to local traditions and vernacular, as well as anthroposophic thought. Asmussen’s designs embody Goetheanistic ideas through holistic philosophies and a combination of folk tradition and contemporary real-life experiences. The natural transformations of the landscape add inner grace to Asmussen’s humble architecture, and are reflected in his simple, interconnected organic shapes.

For the Goetheanum, the dynamic idea of the metamorphosis as bio-spiritual transformation is essential. By linking natural formative principles and suggesting dialectical oppositions, Danish architect Jan-Arne Andersen reinterpreted the vernacular of anthroposophical connections. In his designs, Andersen juxtaposes the frozen surfaces of the crystal to curves and transformation of the plant, and self-conscious mind and sense of reality to the distant sphere of dreams and mysteries. He examines impositions of practical rationalism versus idealism and personal faith; regulations of binding symmetry versus liberating asymmetry; calculated consequences versus surprising playful fantasy. His take on concentrated intensity of the language of forms is shifting toward relaxed warm humor; and to emancipation from nature—toward the bond with the landscape and the organic world in form, material, and color. His argument against the restraint
and purity of utilitarian functionalism is based on the bio-organic idea of the Goetheanum with reference to the endless variety and expressiveness of life forms.

**The Bio-Impulse of the Goetheanum**

In this chapter, I have recounted the architectural narrative of the Goetheanum rooted in the holistic biological thinking of Rudolf Steiner. My goal has been to set in relief an ecological paradigm for the present. The Goetheanum offers contemporary designers not simply a formative source of inspiration, but a biologically driven mode of design-in-process. Steiner intended the building to approximate a living organism in development. This is represented by the sense of natural progression, from initiation through construction, to living conceptual maturity, and finally to broadening influence on a panoramic global scale. The exploration within architecture of a topography of dynamic biomorphic connections promises a unique take on the sustainable environment in the present and future. While pertinent for times to come, we look back to Steiner’s inspirational words to his construction crew from a century ago.

In his lecture to the builders of the Goetheanum in 1914, Steiner emphasized the human aspiration for self-awareness and the need to challenge semantic self-identification through self-reflective activity. For Steiner, an integration of playful forms within architecture implied an individual’s energetic interaction with the world. He explained, “when we animate everything that presses, bears and curves, that crafts surfaces and masters complete forms—we begin to live by ... playing with the forces that shape the world.” We live mindful lives through careful contemplation of shapes and materials. Steiner continued, “by creating art we explore fantasy and endless metamorphoses.” The creative act of making art brings with it an understanding of the complexities of the universe, “but we realize that we cannot understand the secrets of the world of forms until we try to express ourselves in universal organic motion and in creative activity.”

Steiner’s integrative approach was based on close readings of the writings of the scientist-philosopher Johann Wolfgang von Goethe, who in the age of Romantic Enlightenment argued that the sense of inner identification with nature, of deeper personal concern and empathy with organic metamorphoses, is essential for humanity. Goethe’s intuitive artistic approach formed the foundation for an idealistic phenomenology of the natural world, a qualitative careful description of the phenomena based on experimentation. He emphasized the meaning of balance in opposing “vertical” and “horizontal” tendencies in the growth of plants as an interplay of concept and practice, and insisted on dialectic methodology as the core of comprehension of divine forces for the interpretation of the meaning of light and color joined in an interpenetrated unity.

The Goetheanum pioneered the threefold architectural approach: it is the result of a holistic design philosophy based on a unity of the mind, body, and spirit. Conceived as the representation of humanity, as a microcosm of the macrocosm, it emerged as an experiment within modernism, countering its industrial vision of functionalism with a passionate biologically based spiritualism. The Goetheanum stands as a beacon across time, bearing evidence and inspiration of collaborative workmanship in the past and of biologically based impulse for the design of the future.

**Notes**


6 Ibid., 13.


14 The term Gesamtkunstwerk, total work of art, universal artwork, was introduced by German romanticist philosopher Karl Friedrich Eusebius Trahndorff in his *Ästhetik oder Lehre von Weltanschauung und Kunst* (Berlin: Maurer, 1827).

15 Goethe published *Metamorphosis of Plants* in 1790, and *Theory of Colors* in 1810.


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23 Rex Raab, “Architecture,” in Work Arising from the Life of Rudolf Steiner. Articles Published to Mark the Fiftieth Anniversary of the Death of Rudolf Steiner. J. Davy, ed. (London: Rudolf Steiner Press, 1975), 61–76. Rex Raab, also a lyrical poet and philosopher, until his last days annually would send me his new books of poems as his Christmas gift.


30 Steiner, Ways to a New Style; Rudolf Steiner, At the Gates of Spiritual Science. 14 lectures given in Stuttgart 1906 (London: Rudolf Steiner Press, 1970).


37 See also Sergei O. Prokofieff, The Heavenly Sophia and the Being Anthroposophia (Forest Row: Temple Lodge, 2000); Sergei O. Prokofieff, Rudolf Steiner and the Founding of the New Mysteries (Forest Row: Temple Lodge, 1994).


40 Bogdanović, “Invocations,” 5.

48 Fant et al., “Rudolf Steiner’s Wooden Sculpture,” 93–96.
50 Prokofieff, The Spiritual Origins, 394.
57 See Timothy O. Benson et al., Expressionist Utopias (Berkeley: University of California Press, 2001).
58 Georg Hartmann, Goetheanum-Glasfenster (Dornach: Verlag am Goetheanum, 1983).
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69 Steiner, Ways to a New Style; Steiner, At the Gates of Spiritual Science; quoted in Sokolina, ed., Architecture and Anthroposophy, 264.
70 Ibid.
71 Ibid.

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