

Reconsidering the Tectonic. On the sacred ambivalence of the tectonic in the light of Martin Heidegger and relevant theoretical studies on architecture

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Abstract

Kenneth Frampton's critical regionalist interpretation of the tectonic applies the 19th century terms of Karl Bötticher and Gottfried Semper to evaluate its role in initiating the architectural resistance, where it seems to hold a position without further cognitive prospects. Redirecting architecture essentially to philosophy, tectonics stands rather as it is given by the language and the natural use of structures or materials: in a sacral ambiguity presenting the ontological break between the frame and the cladding of a building. The revision of the Greek origin of the term reveals a Latin root as an alternative, which sheds light on the double meaning of the tectonic inherent in the architectural manifestation of Martin Heidegger's fourfold comparable to the similar modalities of Semper as well as Christian Norberg-Schulz. Based on its poetic and ritual characteristic, contemporary sacred architecture provides significant examples for both the analysis and the understanding of the symbolic debate of immanence opening up in the spatial occupation of the human being.

Keywords

architectural theory · contemporary sacral architecture · tectonics

1 Fourfold of architecture

In the light of the ideas of Martin Heidegger described in *Rappel à l'ordre, the Case for the Tectonic* (1990), an essay by Kenneth Frampton, illustrates primarily the related observations on tectonics by Karl Bötticher and Gottfried Semper [4]. Though one can notice the signs of the tectonic way of thinking even at Bötticher, who dissolves the conceptual stereotype of the 19th century's contradiction between the structural core (Kernform) and the decorative enveloping (Kunstform) of the building by the use of the expression 'bodyform' (Körperbilden) combining the attributes of both of them; Semper goes further in the interpretation of the tectonic with the assumptions of his work, *Tektonik der Hellenen* (1843), and finally he reaches the roots in his *Die vier Elemente der Baukunst* (1852). The result of the phenomenological search of Semper, which has queried the triad of Vitruvius (utilitas, firmitas, venustas), established a new genealogy of architecture that is based not on the paradisiacal housing of the biblical Adam or the ancient lodge of Laugier made of twigs against the rain, but instead the natural architectural traditions of primitive communities. His study is not restricted merely to the description of the natural structure of a Caribbean lodge of which he found a good example, but also presents its elemental build-up. Similarly to Heidegger [16] and Christian Norberg-Schulz, here we can see the attempt of Semper to discover the four elements of architecture. These four elements are: hearth, earthworks, framework – roof, and the covering 'membrane' e.g. the cladding of the building.

It is worthy to note that in the case of Semper's approach there is no place for the wall as a load-bearing structure among the ancient elements, neither in the form built from telluric blocks (stone, brick, adobe) nor in monolithic bulk (made of earth or mud, or dug into porous stone). The Caribbean lodge transfers the loads coming from dead load and payload down onto its frame elements. In a joint building phase the framework and the roof are placed around the preliminary prepared hearth, to an area marked by earthworks (dug around, rammed or pinned by stones). Despite any construction lacking the hearth and the cladding that are usually installed just in the finishing phase, it can be sufficient in creating certain agricultural buildings (such

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as granaries, sheds, stables or lathes), which are known from Hungarian [11, pp. 218-238] or Scandinavian [12, pp. 65-66, 70], 70] vernacular architecture. Reserving the certified thesis saying that peoples living in symbiosis with nature have preserved the lifestyle of pre-archaic man, Semper had a good reason to search for the archaic origin of the tectonic culture in the architecture of primitive folks. The natural tribes are primarily connected to the archaic way of thinking by their closeness to *earth*. The ritual act that for the first time clears away a place from the wilderness, then sanctifies it with ramming, marks it with the hearth, and finally protects it with canvas fixed on a framework, reminds us especially of the constructional logic of the nomadic settlement of, animal-keeping peoples.

As it is also noted by Frampton, out of the four elements determined by Semper the most important one is the hearth, which is always made of *earth* and is directly in touch both with earth and fire. The four elements of Semper – similarly to the four architectural modalities of Christian Norberg-Schulz [12, p. 170] – can be compared to the four attributes of Heidegger, and this comparison leads to the set-up of the following relations: earthworks – earth, framework and roof – sky, cladding – mortals, hearth – gods. If we also take into consideration the modalities of Norberg-Schulz, we get the following consonance: earthworks – thing – earth, framework and roof – order – sky, cladding – character – mortals, hearth – light – gods. This coherence can also be compared to the ancient Greek elements (earth, air, water, fire) that are philologically connected to Empedocles (495-435 B.C.) and provide us with a full matrix. Based on the mutual analogies, we can share the opinion that the principles used for the elementary description of architecture manifesting existence in the world are the same in all four authors' approach. The house or the temple prepares the place for these four principles and creates the conditions needed for the operation of them. To let or to make the *truth* work, this fourfold (Geviert) manifests in Heidegger's *poiesis* (ποίησις) which defines man as an architect's presence-by-building on earth [9]. There is no need to prove scientifically the existence of these elements since they are pre-assumptions by their essence: they are pre-assumptions of the quality of poetry, without which human life and architecture cannot be imagined [9, pp. 227-228].

2 Opening the space

Regarding the meanings, this double occupancy, namely the clearing-away for territory and the marking for dwelling are implicit in the German *räumen* as well as in the English term *to room*, which observation can be found in Heidegger's essay, *Art and Space* (1969). It suggests listening to the language, whereof the word *space* (Raum) speaks: clearing-away (*räumen*) is uttered therein. This means to clear out (*roden*), to free from wilderness. Clearing-away brings forth the free, the openness for man's settling and dwelling. In each case, clearing-away brings forth locality preparing for dwelling. This secular locality is always a privation of an often very remote sacred space,

but how does clearing-away happen? It is making-room (*Einräumen*), and this again in a twofold manner as grating and arranging. As stated herein, making-room primarily admits something. It lets openness hold sway which, among other things, grants the appearance of things present to which human dwelling sees itself consigned. Consequently things themselves are places and do not merely belong to a place [7].

The act, in which a nomadic animal-keeper or natural folk – clearing-away the place from nature but at the same time expressing the given conditions in the construction activity [12, pp. 23-32] – prepare a place with the intention of settling down, and mark it as their own property, is the symbol of the poet 'entering this world'. However, the poet does not arrive to his *creatures* as an outsider *creator*, but like someone who creates and determines his own identity within certain things by this act [2, pp. 64-72]. So the house and the temple is the place where the elements that are unimaginable without each other and mutually reflected by the others are collected, where the craft of poetry is manifested and the poet recognizes himself [13, pp. 430-432]. This opinion is discussed by Heidegger in *Bauen Wohnen Denken* (1951) and explained by Norberg-Schulz in *Genius loci* (1980) where he interprets *Winter evening*, the poem of Georg Trakl [8].

The poet's spatial self-recognition is something given in the geometry of the architectural concept. Such is lustrously revealed in the work of Timo Sakari and Oskari Toumo Suomalainen, the Tempeliakion church (1969) in Helsinki (see Fig. 1). It was built in the residential district located on the borders of Kamppi and Töölö, close to the historic city centre of Helsinki. The residential district with a misshapen hexagonal outline was settled around a worn granite block typical of the northern regions. This cliff marked out the place of the temple. The image of the 'church built on stone' appearing in the biblical tradition has a new meaning here. The sanctified place consists of a cave hewn out of stone, and completed by the excavated debris. The church kept more or less the former contour of the caved cliff; its circled shape opens up to the outside world by a definite, horizontal split, which presents the sacred debate, the break (*Riß*) between the hidden earth and the world as clarity (*Lichtung*) [10, pp. 50-55]. Entering this split, one goes through a dim low and gains the microcosm of the perfect sphere-segment rich in light. The naturally veined block of the cliff creates the wall of the church, and it is completed by a protecting wall built from the debris. Above the cave of the temple-space a concrete-framed dome of narrow (~ 10 × 35cm) radius structural beams is stretched; its zenith is encircled by a superficies woven of fine copper fibres. The dome, therefore, is a web of framework and a spiral fabric manifesting the twofold of the tectonic in contrast with the bedrock lying below. The rays of the light-dome at its zenith sensuously interfere with the stone wall: the experience of the in-between is realized by the simplest engineering technique. The light breaks in at the borderline of the wall and the superficies of the dome. This is where

the building is born in an ontological manner, where the sacred masterpiece mirrors the four elements implicitly, ready to be occupied as a whole.



Fig. 1. Timo Sakari Suomalainen and Oskari Toumo Suomalainen: Tempeli-aukion church, Helsinki (Finland), 1969. (Photo by Zorán Vukoszávlyev.)

On the contrary, based on Semper's analysis, some agricultural buildings of the nomadic animal-keeper or natural folk as well as some industries, stations or exhibition halls of the age of technical revolution can be considered as 'unfinished' or temporary houses because of their mere structural habit. This is not due to the lack of hearth – which usually refers to a permanent human presence, but is unnecessary in case of agricultural or industrial buildings – much more because without any cladding or envelope there is no border that would separate the interiors from the outside world. This phenomenon expresses the symbol of the mutual analogy of house – temple – presence-in-the-world especially in relation to traditional Japanese architecture. Dwelling starts with the free observation of sky and earth, commences with an observing sight: and this sight gives the scale for the concrete, engineer-like recording of the discovered open dimension, of the world [9, pp. 219-224]. Accordingly, the world does not end on the horizon as a final border, on the contrary: it starts from the horizon which is the definite basis of the view [8, p. 154]. In this way, the border or the 'membrane' of the

coverless open house is the horizon itself, and it is reflected by the unvarnished elementarity of nature: the encounter of sky and earth.

The house without cladding, "missing one of its 'components'" – as Gyula Hajnóczy interprets the *Exterior Design in Architecture* (1970), the study of Yoshinobu Ashihara comparing the Japanese and European space concept [6, pp. 341-342] – rightly takes a superior role in the understanding of space-intersections since it represents the potential of nature as a possibility, i.e. an 'expressionless' natural immanence inherent in the *profane*. In this natural profane we should not see the peripheral or chaotic attribute, but the silently-wise, the macrocosmic which pervades the human by its entity and potentials. In this way we can get to the archaic distinction between sacral and profane, which is in contrast to the transcendent-religious interpretation. In an archaic sense something is sacred when it is expressed verbally. Only declared things may become touchable, that is to say impoundable for cognition. The grammatical form of the act of marking the territory by dwelling (*wohnen*) and the circumscription of things as known elements (*gewohnt*) leads to a common stem; and following Heidegger this observation is also highlighted by Norberg-Schulz in his *The Phenomenon of Place* (1976) [14]. In this sense dwelling presumes the definite separation of exterior and interior or the indirectly and directly ruled space. Elias Cornell also refers to this when he states that the first concrete form of architectural space was the courtyard removed from the natural space by fences (outdoor enclosed space). The interior of the house had originally belonged to this courtyard, and then it became independent by another enclosing, which was made apparent by the conscious formation of the *exterieur* [1, p. 54].

3 Double meaning

In his work, *Complexity and Contradiction in Architecture* (1967), Robert Venturi defined architecture as something that by its entity, is "a wall between inside and outside". On one hand this statement, which caused some misunderstandings, laid down the theoretical basis of 'commodity architecture' [3, pp. 440-446] that deals only with externals and is severely opposed by Frampton. However, on the other hand it is in harmony with the observations of Norberg-Schulz, being adequate in the sense of Heidegger, in that the *genius* of the built environment is determined by the simple architectural motifs of the building complex (i.e. doors, windows, roofs and mouldings) [12, pp. 170-180]. These motifs are not only the elements of the façade, but they are *textus* which articulate the shell, the 'membrane' dividing inside from outside, they are the grammatical elements of architecture. What Norberg-Schulz says here is similar to the context that is typical of the 'tectonic object' of Frampton, which is the mean between the two different architectural approaches typical of the 'technological object' or the 'scenographic object'. This contextual character is ontological and representative at the same time, it is meant to emphasize the visible structural aspect of the

building and to present the place of the invisible structural elements. This duality is also in connection with the distinction of Semper, who defines a difference between two structural characters: the structural-technical and structural-symbolic, which are in this way united in the tectonic concept of Frampton. From which etymologic bases does Frampton originate the expression of *tectonic*?

“Greek in origin, the term tectonic derives from the term tekton signifying carpenter or builder. This in turn stems from the Sanskrit taksan referring to the craft of carpentry and to the use of the axe. Remnants of a similar term can also be found in Vedic, where it again refers to carpentry. In Greek it appears in Homer, where it again alludes to carpentry and to the art of construction in general. The poetic connotation of the term first appears in Sappho where the tekton, the carpenter, assumes the role of the poet. (...) In Aristophanes we even find the idea that it is associated with machination and the creation of false things. (...) Finally, the Latin term architectus derives from the Greek archi [presumably the proper form is arkhé (αρχη) or arkhon (αρχων)] (a person of authority) and tekton (a craftsman or builder)” [4, p. 521].

From the interpretation of Frampton it can be clearly seen that he traces back the expression *tectonic* to the Greek-Sanskrit origin where it usually was used in the sense of carpentry or poetry. Nevertheless, the etymologic connection between the profession of a carpenter, a poet and a builder is not quite clear, and why they should be all inherent in the ancient word of *tecon*. Furthermore, why should it be beyond doubt that the Latin word *architectus* (architect) comes directly from the Greek *architektonas* (αρχιτεκτονας)? What do the Greek *tecon* or the Latin *tectus* word suggest, can the latter originally have a Latin root which could help us in a deeper understanding of the tectonic?

We can find the evident answer in the grammar form of *tectus*, which is actually the past participle of the verb *tego*, in other words it is the fourth form in the dictionary. The complete dictionary armature of the verb *tego* is the following: *tego*, *tegere*, *texi*, *tectus* (originally *textus*, which has the supinum-root: *text*). The verb *tego* has four different meanings. Directly: (1) cover; (2) cover, hide, conceal; (3) shelter, protect, defend. Figuratively: (4) hide, conceal, keep secret; (5) defend, protect, guard [15, p. 1108]. Derivatives of the word: *tegimen* (cover, screen, armour), *tegmentum* (envelop, screen), *tegula* (roof tile, cover), *tectum* (ceiling, shelter, house), *tector* (house-painter, gypsum decorator, stucco builder). Examining the grammatical and vocabulary connections, we can state in general that the meaning of *tego* refers to the final stage of construction, when – after building the foundation, hearth, frame and roof structure, the exterior shell, the ‘membrane’ is stretched over the building. This finishing work is equivalent with the symbolic act of construction, when the interior of the place prepared for dwelling is being separated from the exterior, and this way the dwelling place is occupied. This characteristic symbol makes difference between the temporary or profane architecture of agriculture, economy

and industry from the original sacredness of the place indicated for human or divine dwelling. The purpose of the house or the temple is not the storage of animals or objects, but it is meant for the connection of the four prime elements for human and divine dwelling. The house is unimaginable without this relationship: hearth is the dwelling of *gods*, the structure of the house standing on *earth* rises up following the orders of the *sky*, and finally the *mortals* cover it in order to protect the inhabitants.

The supinum-root of the former makes the parallel interpretation of the verb *texo* possible. The armature of *texo*: *texo*, *texere*, *texui*, *textus*. Meanings: (1) weave; (2) join or fit together, plait, braid, fabricate, build; (3), weave, compose, devise, contrive [15, p. 1125]. Other derivative words: *textor* (weaver), *textrix* (weaver, textile worker), *textum* (texture, structure), *textura* (braid, structure, composition). It is worth to mention how the expressions of weaving-spinning, structure and building are connected in the meaning of *texo*. This connection becomes apparent when we think about the wattled infill wall known from vernacular architecture, the straw cover of the roof or the canvas covering the frame of the nomadic yurt [11, pp. 142-152]. When we consider the finishing stage of the construction as covering it with texture, it is contrary to the architectural tradition of the cultures using load-bearing wall structures. With reference to this, Semper makes a difference between *Mauer* and *Wand*, meaning by the first the load-bearing wall structure of fortresses and by the latter the infill walls with only a separating function. Though the English word *wall* does not differentiate the two meanings, the German language gives the possibility of further interpretation, since it can be etymologically connected to the noun *Gewand* (dress) and to the verb *winden* (embroider) as well. The differentiation of the two wall types can also be found in Latin: the town wall was called *murus* (cf. *Mauer*), and the temporary rampart was *vallum* (cf. *wall* or *Wand*), the latter had a similar meaning to the expression of *tegimen* or *tegmentum*. Beyond all this, Semper stated that the primary structural element of the nomad and primitive architectural traditions significantly influenced by textile-culture is the *knot* (der Knoten). And in German, in connection with the word *bindung* (die Verbindung) this expression has a relationship with the word *joint* (die Naht), where this binding should be imagined especially as a loop, binding or, knotting that serves the connection of different architectural elements. The search of Günther Nitschke on the Shinto agricultural binding ritual is connected also to this, and his observations are explained in his essay *Shi-Me* (1979). Frampton calls this palingenesis-expressing ritual as ‘proto-tectonic’ [4, p. 524].

Not only because of the clear separation of its architectural elements, mostly its skeleton-frame and copper scales, but also for the way its wooden ribs are bound together. The Pyhän Henrikin ecumenical chapel (2004-2005) of Matti and Pirjo Sanaksenaho portrays the tectonic in this archaic sense (see Fig. 2). The location of the building was chosen near the inner coast of the bigger island belonging to Turku, Finland. The curving line of

the sea-canal bordering the coast, the high-rising evergreen vegetation and the streamlined docking ships are part of the everyday view here and soak even into the architectural concept. The chapel itself forms the shape of an ark. In search for the Norman roots of the pointed arch first used in the cathedral of Saint-Denis, the suspicion that the new vaulting technique was inspired by the experiences of the shipwright's craft often arises. This hypothesis is sensitively presented by the chapel.

The carpentered 'hull' consists of a series of pointed arched, curved wood beams. The exposed frames of ribs determine only one narrow and high longitudinal nave that has no intermediate windows at all. The interior has only two sources of natural light: one can be found at the pointed ending of the nave's end-wall and the other is provided by the complete opening of the last field of the web. The fields between the ribs are filled with natural wooden cladding inside, while outside the roof is installed with a standing seam copper cover. The red coloured copper was untreated, thus as a result of rain a green patina has appeared on its surface. The heights of the frames' pointed arches differ, so the building's ridge is slightly waving. This organic structure of the sharp-convex, waving ridged roof and its scales sliding on each other create a connection with the mythical ancient images of Kalevala. The puritan choice of materials also strongly influences the interior. The green, ragged shell has a smooth, polished golden inner core. Neither the windows opened next to the two end-walls can disturb the unity of the space. They discretely let the skimming light in, reaching the planking of the end wall from the sides. These two natural sources let only minimal light into the interior of the chapel. The orientation becomes unmistakable and lends accelerating dynamics to the linear space. The light of the apses attracts the entering visitor. The point light at the back is only needed for the comfort of the eye, to help gradually accustom itself to that semidarkness, the quality of which informed the man of archaic times on the presence of sanctity.

4 The debate

Understanding either the connection of the main elements (earth, sky, mortals and gods) or the undividable architectural modalities and phases, or the binding of the different structural elements by the word tectonic, its meaning as *tectus* will always be far from the carpentry that is implied by the meaning of tectonic as *tecton*. Carpentry is a constructional work which refers to the second, middle phase of the architectural rite according to Semper and not to the finishing works. The construction reflects the order of the *sky*; the building emerges according to this, although it is still without protection and ornament. Without meeting the *mortal* sense, the construction is immortal and cosmic. On the other hand, construction is lifeless if not inhabited by man. Construction is geometry and arithmetics: a frame of lines and quantity. In the sense of *architectus* the builder is not an architect, but in the sense of *technicus* he is a craftsman, the teacher of the profession. (Actually, the Greek word *archi-*

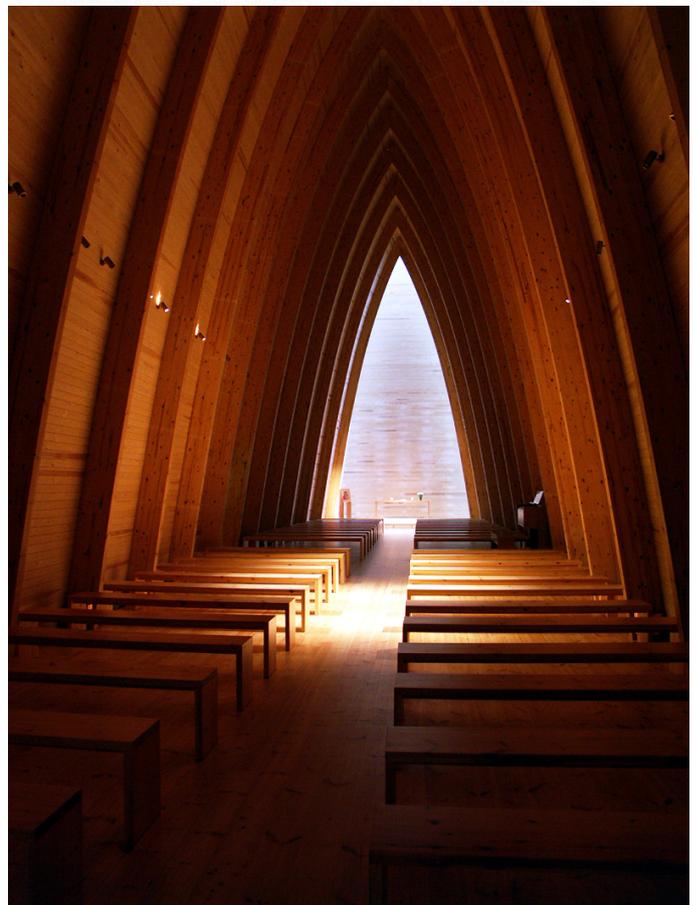
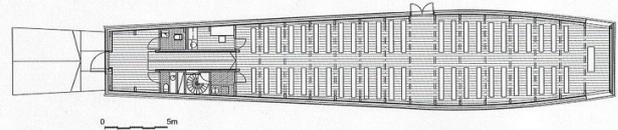


Fig. 2. Matti Sanaksenaho, Pirjo Sanaksenaho and Enrico Garbin: Pyhän Henrikin ecumenical chapel, Turku (Finland), 2004-2005. (Photo by Mátyás Holló)

tectonas would be equal with the Latin *archi-technicus*). While the architect answers the question 'how' the builder responds to the question 'what'. At the time the architecture of the 20th cen-

tury has unforgivably melted the question of ‘what’ and ‘how’ in the expression of *Baukunst* initiated by Mies van der Rohe; it seemingly has forgotten the meaning of *Architektur* forever [3, pp. 442, 445]. At this point architecture really stopped to be architecture. The objection of mortals against *Baukunst* was not against technology [12, pp. 192-194], but because of the lack of architecture in its real sense. On the other hand in the Greek word *technologia* (τεχνολογία) we can find the expression *techne* (τεχνη), namely art: art as an operative craft but not as a poetic formation as the *textus*. Though the *techne* – an intermediate state in the process of construction reflected by the orders of *sky* – is indispensable, the *poiesis* (poetry) of Heidegger manifests itself much more in the word *textus*.

The assumption of poetry is recollection. Memory is carried by the language, so poetry can only start speaking in the language, by listening to its wisdom [13, p. 434]. The language of architecture is the character, in other words the *textus*. This makes the house recognizable. And the location becomes explicit by the existence of these recognizable houses or house groups [12, p. 179]. Language is the natural speech in which the *logos* (λογος) works. However, the *logos* as interpretation can be connected not only to the *textus* but also to the *techne* in the word *technologia*. As it is interpreted by Marco Frascari [5, p. 500], in construction and technology *logos* and *techne* get into a chiasmic relationship with each other: there is no construction without construing: the construction of structure requires the interpretation of structure and the reverse. Finally, the *logos* working as poetry in the *textus* of character cannot come into contradiction with the *logos* working in the *techne* of construction since these two are the same. The necessary coherence of the formal character and the structural system of the house, as well as the sacred unity of architecture should be found here, and not in merging the two meanings of tectonic into one another.

Nowhere may this have been shown more precisely than in the church of St. Thomas of Aquin (1997-99) in central Berlin by Thomas Höger and Sarah Hare (see Fig. 3). By its size, the building could even be a chapel; its geometric consistence arises partly from the scholastic theory and partly from Paleochristian traditions. The clear final result behaves like a formula: the nave is determined by a reduced pillar-beam frame tectonics, in the middle of the hall a liturgical space is placed with the layout proportions of 1:2, impounded on all four sides. Besides the dualism of the concrete-granite, meaning the clear separation of structure and material (object or substance), the light appears as the element of transparency dissolving the reality of the objects. The splits, where the narrow, long elements of the granite wall are missing, are filled with glass tiles. Up to the upper shoulder of the wall, the material parts are gradually vanishing while the lighting elements become richer, in this way making a transition from the solid stone to the source of the inner light. The wall built of these dual blocks represents the Thomistic formula of the reality of ideas (universalia) and things (res) which do not exclude the other. Heidegger refers to this philosophy as ade-

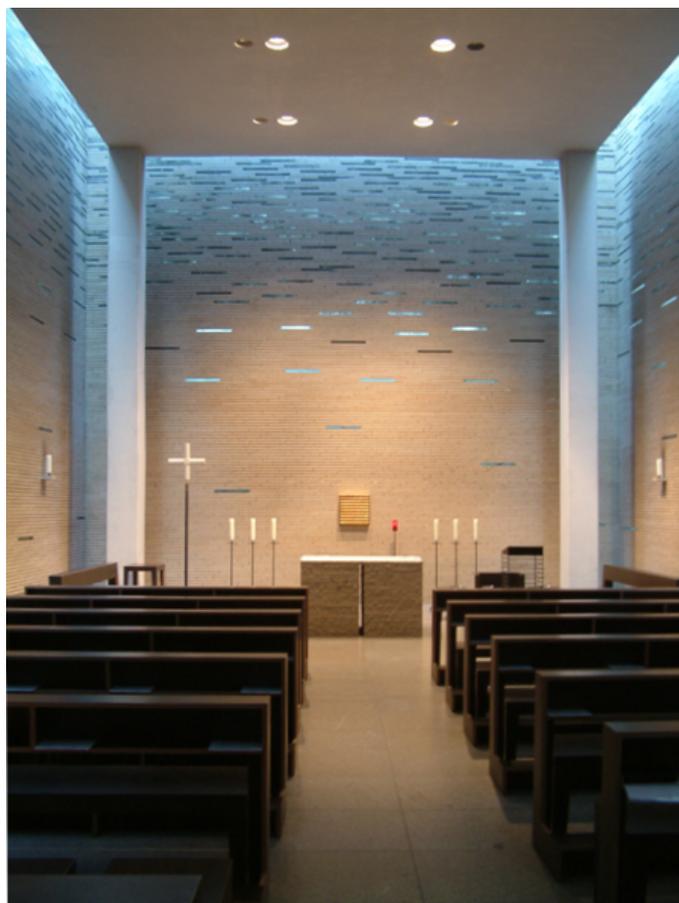


Fig. 3. Thomas Höger and Sarah Hare: The church of St. Thomas of Aquin, Berlin-Dorotheenstadt (Germany), 1997-99. (Photo by Zoran Vukoszávlyev.)

quate in understanding the unity of *morphe* (μορφη) and *hyle* (υλη), the form and the matter in a common shape (Gestalt) [10, pp. 36-39].

In case this liturgical crystal was intended to express no more than the autonomous content seizing the most inner essence, then the closed, slightly dissolved space would manifest the archaic, sacral lack of light. But this could not come true. The flood of light breaking out from behind a concrete baldachin that is supported by columns at the corners of the space makes the cladding of the wall tapestry-like. The previously subtle lights are replaced by the forceful brightness of the skylights – for the protection of the abstract vaulting of the baldachin [17, pp. 50-53]. Contrary to the lightness of the liturgical objects of the sensitively harmonized space and the texture of the wall – where the altar, the cross, the candelabra, the night-lights on the wall, the wooden furniture similar to the work of Hans van der Laan and the metal-framed ambo are all modulated in the same way – the white baldachin appears as the geometric rationalism of the rough structure, differing also in its scale. The space carries the unmistakable sign of this duality.

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