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abstract

Rather than a tree of life marked by gradual change, the fossil record suggests a pattern of stasis and abrupt evolutionary leaps, "punctuated equilibrium" (Eldredge). Similarly, archeological findings show the evolution of architectural form as marked by striking leaps, the most salient being the transition from circular to rectangular house plans in the neolithic age. Since Darwin, theorists and historians of architecture have borrowed the iconography of biological evolution, attempting to classify architectural species. Notable examples are the Banister Fletchers in the early twentieth century and more recently Charles Jencks. I present an evolutionary theory of architecture that complements its predecessors by paying due attention to prehistoric and vernacular architecture. Informed by Jean Gebser's philosophy of mind I propose a taxonomy of five architectural types: the archaic, pastoral, agrarian, monumental and integral. Each type represents a stage in the unfolding of the discipline since prehistoric times. By placing contemporary architecture in the context of deep time I hope to bring fresh meaning to the use of ordinary form and nurture an interest in the vernacular.

architecture in evolution

origin stories

Joseph Rykwert's landmark treatise on architectural origins, *On Adam's House in Paradise*, is centered on the arcadian notion of the primitive hut:

> In the present rethinking of why we build and what we build for, the primitive hut will, I suggest, retain its validity as a reminder of the original and therefore essential meaning of all building for people: that is, of architecture. It remains the underlying statement, the irreducible, intentional core, which I have attempted to show transformed through the tensions between various historical forces (192).

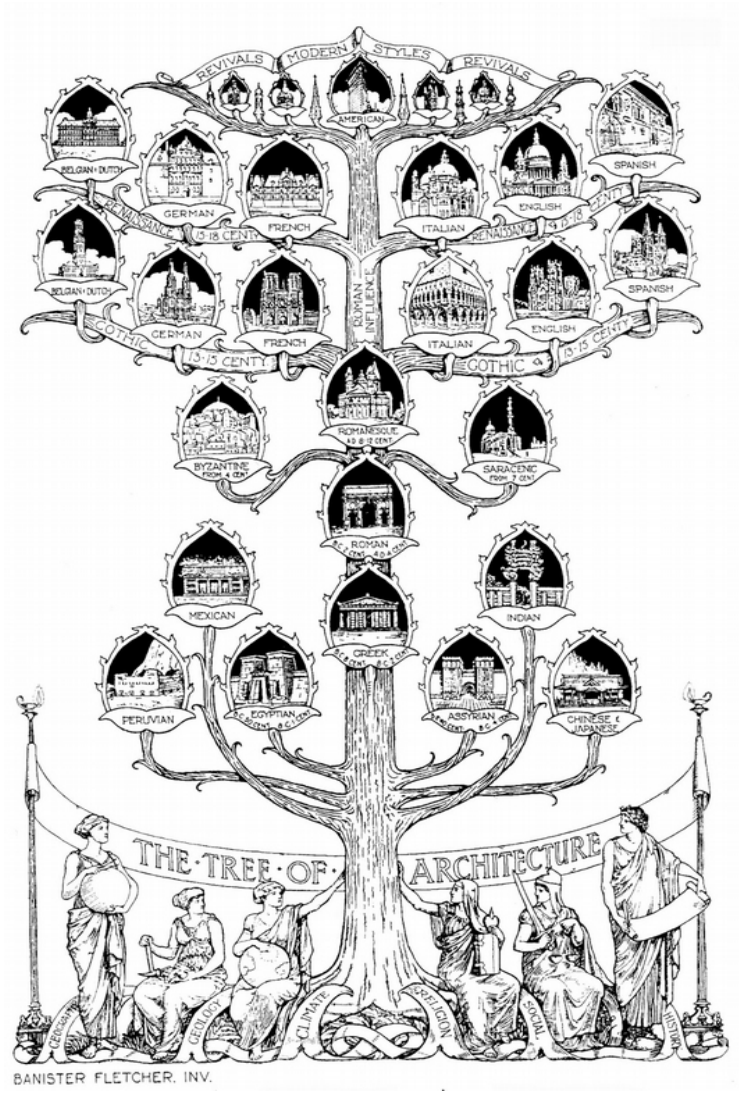
The discourse of the primitive hut, since Vitruvius, always pointed beyond the classics, back to a more archaic, formative past. In modern days, the science of archeology discloses a wealth of information on architectural origins. But Rykwert rejects an evidence-based treatment of the subject. For him, the origins of architecture are to be looked for exclusively in the realm of myth:

> Since it is a notion which I wish to stalk, and not a thing, there would be no point in appealing to archeological evidence for its prehistory and origins. There cannot have existed a first house whose authenticity archeologists could certify. They could not even indicate where its site might have been located. To do this, as I have already suggested, they would have to find the Garden of Eden (14).

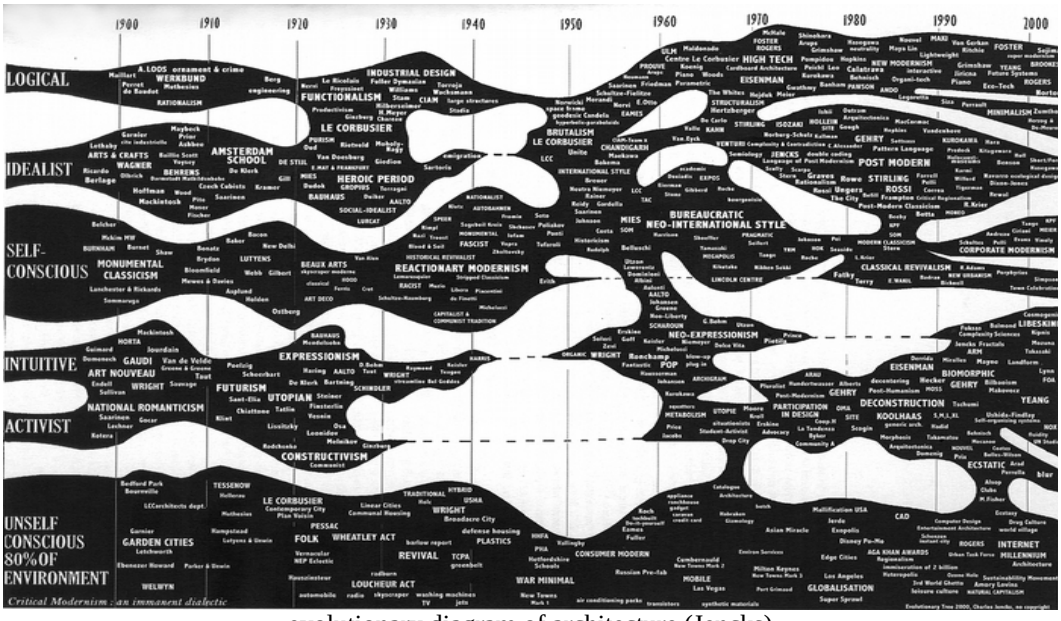
Other architectural thinkers have indeed turned to archeology and anthropology. In the aftermath of World War II, members of CIAM stressed the need to connect with origins. Sigfried Giedion was looking for "the original archetypes of art and architecture ... the primal, prehistoric forms that he saw simultaneously re-emerging in the art of the contemporary avant-garde" (Strauven 238). Aldo van Eyck wanted to reclaim "the elements of a primary, general human visual language that have survived through the millennia within the archaic cultures. They are the same forms as those being discovered by contemporary archeology in prehistoric art" (Strauven 255).

The appeal to the primitive, as voiced by Giedion and Van Eyck, echoes the central concern of the romantic era: to revolt against the hegemony of reason. A pivotal nineteenth century figure in this regard is the German architect Gottfried Semper:

> Semper's *Die vier Elemente der Baukunst* (Four Elements of Architecture), published in 1851, indirectly challenged the neoclassic primitive hut as posited by the Abbé Laugier in his *Essai sur l'architecture* of 1753. Based in part on an actual Caribbean hut that he saw in the Great Exhibition of 1851, Semper's primordial dwelling was divided into four basic elements: (1) the earthwork, (2) the hearth, (3) the framework/roof, and (4) the lightweight enclosing membrane (Frampton, *Studies in Tectonic Culture* 5).
>
> *Er ist das erste und wichtigste, das moralische Element der Baukunst. Um ihn gruppiren sich drei andere Elemente, gleichsam die schützenden Negationen, die Abwehrer der dem Feuer des Herdes feindlichen drei Naturelemente; nämlich das Dach, die Umfriedigung und der Erdaufwurf (Semper 55).* [The fireplace] is the first and foremost, the moral element of architecture. Around it gather three further elements, as it were the protective negations, shields against three elements of nature, hostile to the fire of the hearth: the roof [water], the enclosure [wind], and the mound [earth] [my translation].



Banister Fletcher



evolutionary diagram of architecture (Jencks)

Although contemporaneous with Charles Darwin, Semper's origin story was rather grafted on the antique notion of the four elements, and in that sense can be thought of as pre-evolutionary. The Banister Fletchers, children of the Victorian era, did choose the Darwinian route with passion. Their evolutionary "tree of architecture" reflects the eurocentric bias characteristic of their time.

In recent years, Charles Jencks has mapped the permutations of twentieth century architecture in flowing diagrams, expressive of the postmodern condition. Jencks's diagrams omit the greater context of ancient history and the vernacular, instead focusing on the bewildering output of the twentieth century, "the continual revolution" (350f.)

the controversy of evolutionism

To better understand the controversies of cultural evolution we need to enter the domains of archeology and anthropology, where the popularity of evolutionary thinking has waxed and waned over the years. Colin Renfrew gives the following synopsis of "evolutionism" in archeological thought:

> Lewis Henry Morgan's *Ancient Society*, published in 1877, offered a broad synthesis. He argued that human societies develop through stages from savagery and barbarism to civilisation, each following a similar pattern. His arguments had an impact upon the thinking of Karl Marx who developed coherent ideas on human development ... The Marxist analysis in terms of modes of production could form a coherent basis for analysing technological and social developments within society, rather than depending on diffusionist and migrationist explanations, just as they were to inspire Gordon Childe in his formulation of the neolithic and urban revolutions (28ff.)

The currently prevailing sentiment in the humanities does not favor thinking in terms of universals; the grand schemes of evolutionism continue to bear the stain of eurocentrism. In his plea for a new balance, comparative archeologist Bruce Trigger warns against dogmatism in the debate between rationalism and relativism: "The challenge is to stop simply supporting one or the other of these alternative positions in a partisan manner" (11). Trigger, combative: "I reject the suggestion that the idea of evolution as an approach to the study of human history is inherently and inescapably colonialist and racist" (41).

a philosophy for contemporary architecture

The general observation, enabled by archeology, that some forms emerge early, others late in the developmental sequences of societies points to an overarching story of mankind. All societies find their ultimate origin in the hunter-gatherer life and the taming of fire; the peasant village preceded the city-state without exception.

When it comes to explaining the workings of cultural evolution, I expect that mechanistic, neo-Darwinist models will ultimately not suffice. Rather, the evolution of architectural form reflects an autonomous inward process, a progression of human mentality marked by periods of relative stasis and sudden jumps, largely independent of environmental factors.

The twentieth century philosopher and poet Jean Gebser developed a model of historically successive "structures" of consciousness that, paradoxically, can also occur in parallel if the so-called integral structure comes to fruition. The deficient mental structure, dominating the Western Enlightenment, tends to suppress more primordial modes of awareness. The integral structure amounts to a breakthrough in which the qualities of different structures become simultaneously accessible. Gebser regards modern architecture as an important domain for the emergence of the integral structure:

> The new conception of space based on the new valuation of time has led to what is today called a "free plan". Le Corbusier took the initiative and was the first to apply the diagonal, and in particular the free and non-geometric curve in his buildings ... Rigid and spatially fixed ground plans give way to those which are open, free, and moving ... In purely physical terms, the new architecture no longer builds rigid, circumscribed spaces but spatio-temporal continua (466f.)

Writing just years after the end of World War II, Gebser was not naive to the catastrophic potential of a zealous belief in progress. He includes the following disclaimer:

> The apparent succession of our mutations is less a biological evolution than an "unfolding", a notion which admits the participation of a spiritual reality in mutation. ... progress is also a progression away, a distancing and withdrawal from something, namely, from origin. ... Once more, it should be emphasized that we must remain suspicious of progress and its resultant misuse of technology (to the degree that we are dependent on it and not the reverse) (41).

I propose a taxonomy of five architectural types, in correspondence with the archeological eras as well as Gebser's model:

archeological era	**gebserian structure**	**architectural type**	**plan form**
lower/middle paleolithic	archaic	archaic	point/line
upper paleolithic	magic	pastoral	circle
neolithic	mythical	agrarian	rectangle
metal ages	mental	monumental	symmetrical/axial
contemporary	integral	integral	asymmetrical/pluralistic

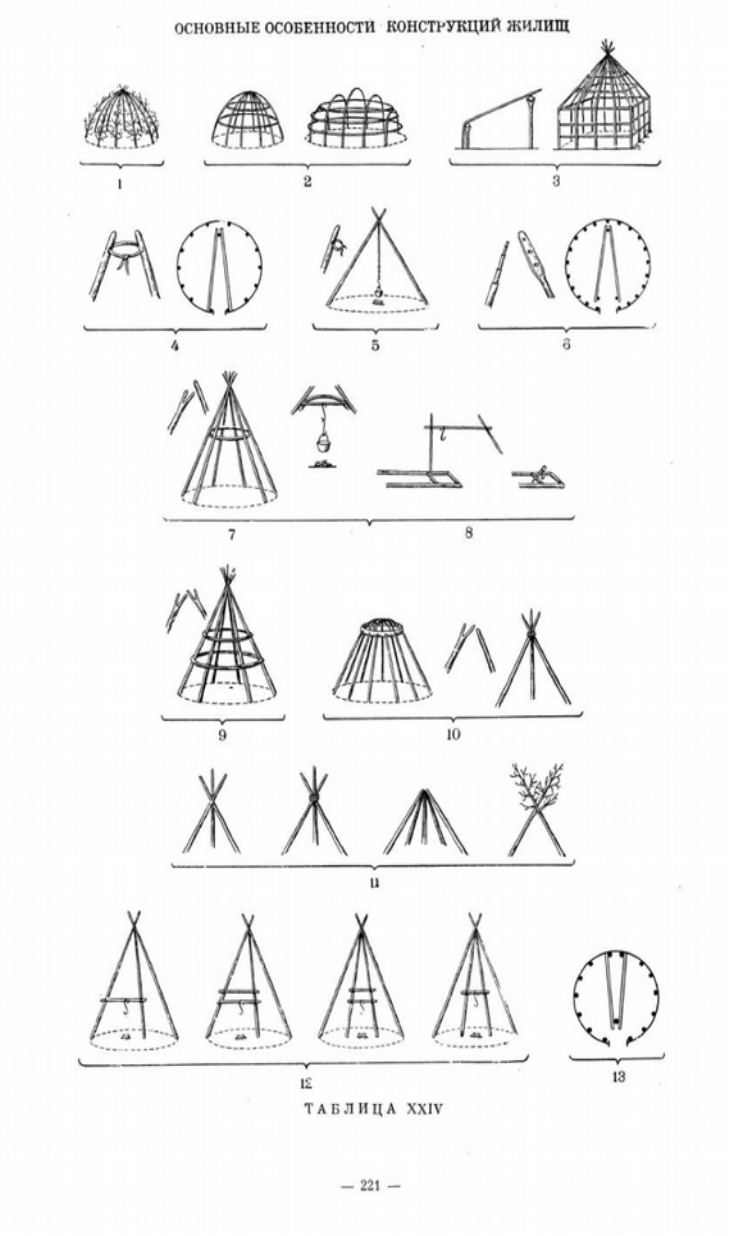
Gebser invites us to subdue rationality in favour of an integral sensibility, cultivating the free flow of energy between unconscious depth and mental surface. Many avant-garde artists and architects have risen to the challenge yet. Still, contemporary architecture often seems stuck in a restless pursuit of novelty.

> Architects nowadays are pathologically addicted to change ... This, I suggest, is why they tend to sever the past from the future, with the result that the present is rendered emotionally inaccessible, without temporal dimension. I dislike a sentimental antiquarian attitude toward the past as much as I dislike a sentimental technocratic one towards the future. ... So let's start with the past for a change and discover the unchanging condition of man (Aldo van Eyck, quoted in Frampton, *Modern Architecture* 298).

the archaic type

Our earliest sense of home must have been tied to the fireplace. For Vitruvius, the control of fire catalyzed the forming of communities and the emergence of spoken language (Rykwert 105). Semper speaks of the fireplace as "the first and foremost, the moral element of architecture" (55).

Archeological evidence for the use of fire pre-dates the evidence for constructed dwellings by hundreds of thousands of years, pointing to the Lower and Middle Paleolithic, roughly between one million and 100,000 years ago. Unequivocal proof for the use of fire occurs not earlier than about 150,000 years ago, at cave sites belonging to *Homo neandertalensis*, such as Le Lazaret in southern France (Scarre 115f.) The first burials are also ascribed to the early Paleolithic age. Like the fireplace, the grave may become an anchor, like a magnetic point in the landscape.



pastoral hut, structural schemes (Levina)

the pastoral type

The bifurcation that birthed the pastoral phase in architecture occurred with the start of the Upper Paleolithic, roughly 100,000 years ago. Architecture is now expressed as the nomad's hut, circular in plan. The fireplace sits at the center of the hut, an umbilical connection to the archaic structure.

The ritual significance of the center becomes apparent in the customs of contemporary Asian nomads; during ceremonies, a birch tree is erected on the site of the fireplace, projecting out through the smoke-hole of the yurt (Eliade 117). It is the world tree, the *axis mundi* connecting us to the hidden planes of existence above and below.

the agrarian type

A proto-agricultural society known as the Natufian flourished in the Levant from around 12,500 to 9,000 BC. The lifestyle was at least partly sedentary; people were harvesting and grinding wild grains with stone implements. Natufian houses were some four meters in diameter, circular or oval in shape. The house was pit-like, dug into the ground, the interior wall lined with stone masonry. Interior wooden posts presumably supported a thatched roof (Scarre 210).

The transition from round to rectangular house plans coincided with the rise of agriculture following the end of the last Ice Age, a moment of transition sometimes called the neolithic revolution.

> One can see that in the Natufian house people used stones or wood merely to consolidate a pre-existing wall formed from the Earth itself where the house was dug into it, and then finally roofed the construction. The emergence of the house into the open air and its transition to a rectangular plan thus realise a technical and at the same time a mental linking [sic]. We must not forget that when rectangular architecture appeared at the end of the Mureybetian period, it had never before in any way existed in the world, but then it very rapidly became the archetype of the human house. In that way sedentary people left the hole of their origins and the circular matrix of their first homes (Cauvin 132).

The earliest known moment of transition from round to rectangular plans is dated back to the ninth millennium BC, with the Mureybetian culture in present-day Syria. The site of Jerf el Ahmar provides a remarkable instance of the invention of the rectangular floor plan:

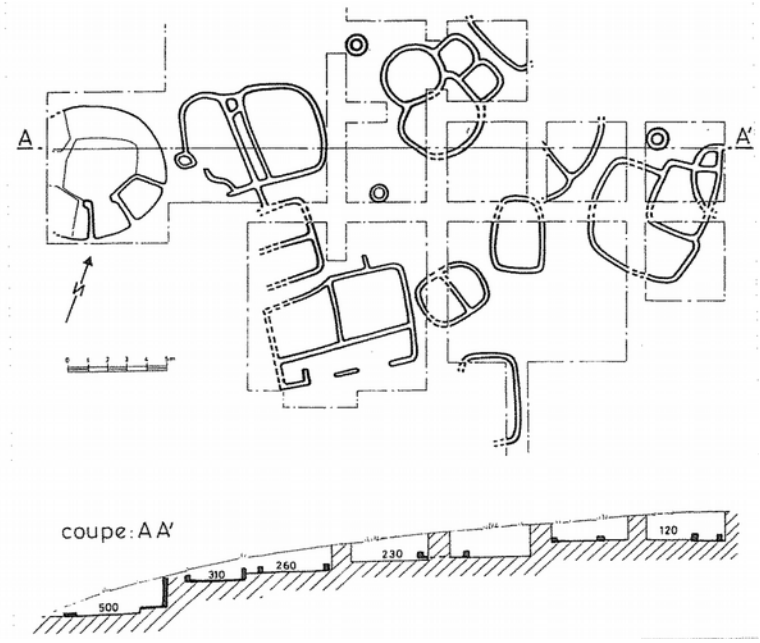
> At present we know that the east knoll was occupied first and that nine levels are superimposed. The first four have only produced round constructions (VII/E to IV/E). The three following have constructions with rectilinear interior walls and fairly straight exterior walls, articulated by large curving angles (III/E to I/E). In level O/E the first strictly rectangular constructions appear (Stordeur 1).

A futher instance of the evolutionary sequence was found in the excavation of an Iron Age hillfort on the Iberian peninsula:

> The evolution of constructed space takes shape in the gradual change in the ground plans of the dwellings; circular constructions would give way to oval structures with rounded corners, eventually arriving at structures with different levels. Finally, the Roman conquest would lead to the systematic appearance of buildings with square floor plans, with sharply defined and/or rounded corners, which co-existed with the traditional, autochthonous circular dwellings (Blanco-Rotea 32).

From the Neolithic onward the rectangle replaces the circle as the default building plan, while the circle is generally reserved for sacred spaces such as megalithic circles. In some parts of the world, e.g. along the Atlantic coast of Europe, the circle would remain favored over the rectangle for millennia (Bradley 10).

Still today, the agrarian type is ubiquitous in rural communities around the world, also dominating the American suburb. Although the television has usurped the central position of the fireplace, the suburban dweller is still committed to a rustic ideal.



archeological plan and section, level I/E, Jerf el Ahmar (Stordeur)

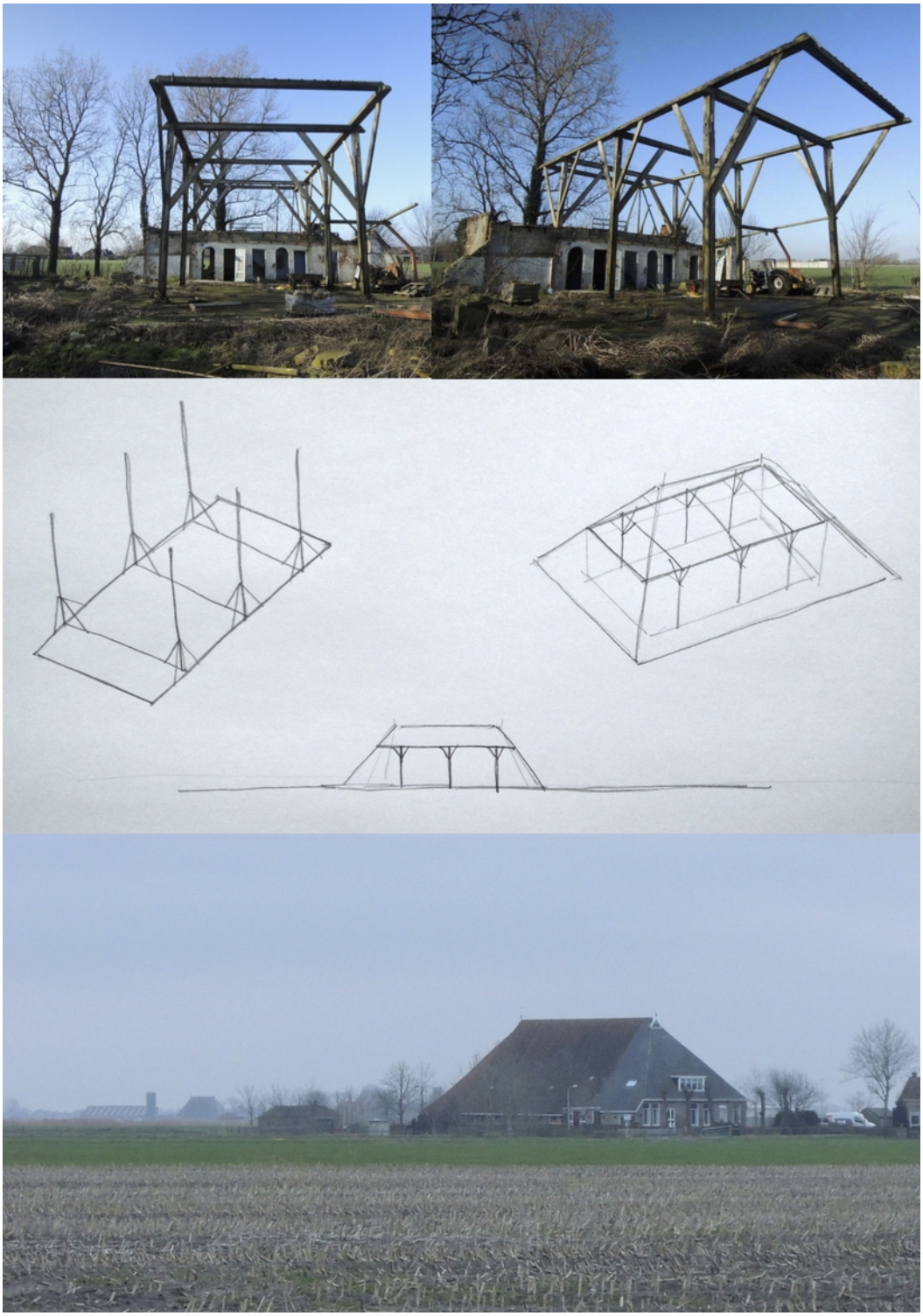
the monumental type

The pyramidal structures of Egypt and Mesopotamia appear to be symbolic representations of the hierarchically stratified societies that produced them. With the monumental phase, architecture becomes an official discipline.

I link the monumental type to Gebser's mental structure, in which perspectival space is discovered: "The ring is broken, and man steps out of the two-dimensional surface into space, which he will attempt to master by his thinking. This is an unprecedented event, an event that fundamentally alters the world" (75f.)

Buildings are now conceived as three-dimensional solids; facade and section become important. The monumental phase is further characterized by the emergence of the city: "Although we find large agglomerations of people much earlier, for example at Çatalhöyük in the Neolithic period of Anatolia, it is only in Late Chalcolithic Mesopotamia that we can detect a real multiplicity of function within those settlements, which enables us to identify them as true cities" (Scarre 439).

The monumental type is synonymous with (neo)classical styles of architecture. Even some buildings that are considered modern based on materialization (glass, steel and concrete) can, on account of the symmetry of plan and facade, be better regarded as expressions of the monumental type (and Gebser's mental structure).



agrarian type: Southwest Friesland *stelp* farm (SHL 2014)

the integral type

The integral type may have had its initial manifestation in the late-medieval architecture of Japan, developing from the Buddhist tea hut (Engel). In the West, the integral type emerged with early twentieth-century Modernism.

The hallmark of the integral type is the asymmetry of plan, section and elevation. Asymmetry may be seen as a romantic antidote to the hegemony of rationality. Asymmetry suggests a rending, perhaps violently like in childbirth, but necessary to create room for doubt, and the long-suppressed needs of the body and the irrational. The confines of space, time and social hierarchy are challenged; memories of a humble past bubble to the surface.

The integral type invites the presence of the past. Japanese tradition and the Western avant-garde were brought to a synthesis by the mid-century Metabolist group. Notwithstanding their futurism, the Metabolists took cues from revered Ise Shrine, essentially a prehistoric house with a continuous existence of 1200 years, its material constituents being replaced ("metabolized") every 20 years. "In the same way as life, as organic beings composed of changeable elements, as the cell, continually renewing its metabolism and still retaining as a whole a stable form – thus we consider our cities" (Kenzo Tange, quoted in Koolhaas 197).

The integral type can, in comparison with the preceding types, to a lesser extent be regarded as a discrete stage or circumscribed entity. In a strictly formal sense, integral designs are collages of elements belonging to one or more of the foundational types (archaic, pastoral, agrarian and monumental). Alternatively, the integral designer simply allows vernacular building to flourish with minimal interference. Vernacular architecture possesses a timeless integrity, immune to the need for progressive improvement.

An early instance of deliberate integrality: glacial boulders are integrated into the foundation of the 12th century St Magnus church in Anloo, province of Drenthe, the Netherlands. The area is known for its neolithic dolmens, constructed from glacial boulders like these (photo Emily C. Thomas 2024).

case study: le corbusier, maison de week-end

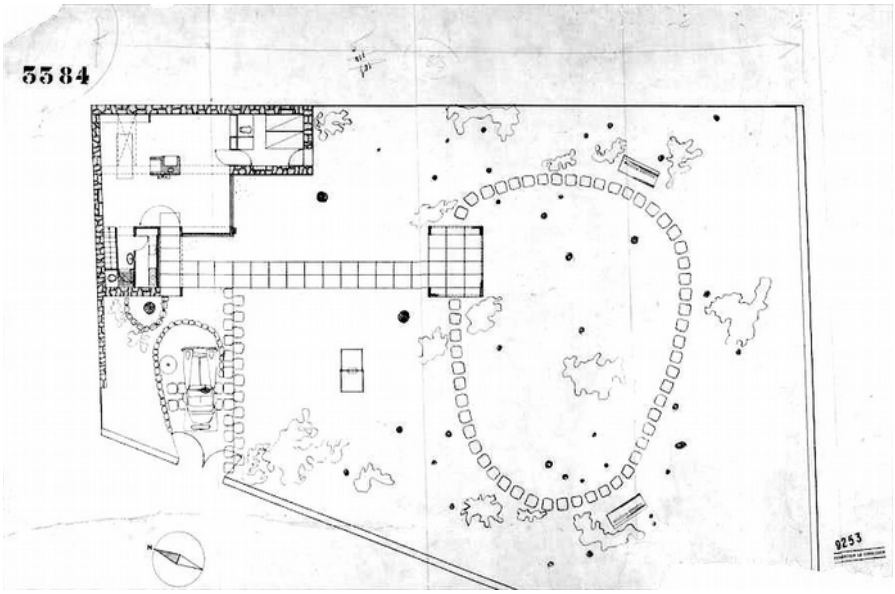
A seminal instance of the integral type is Le Corbusier's Maison de Week-end (1934, La Celle-Saint-Cloud, France). In the weekend house, the fireplace takes up a geometrically central position. But its centrality is diminished, first because the rectangular brick volume does not allow radiation of heat in all directions (the way a firepit would), second because it is conceived of as a point in the plan grid, equal in status to any other point.

Le Corbusier's house embraces a mature evergreen tree on its west side. The tree is integrated in an earthen slope which itself forms the connection between the landscape and the green roof. I regard the tree as a point-like, anchoring element representing the archaic type, perhaps compensating for the subdued nature of the center inside. The archaic type is also evident in the amoeba-shaped garden path.

During the first two decades of his career, Le Corbusier seems to have oscillated between mind and body. See for instance his changing attitudes to straight versus curved roads. In 1910, the young architect praises the erratic movements of a pack-donkey traversing a hill (Jencks 63). Just one year later, he reverts to a puritanical, almost classical position: "I am possessed of the color white, the cube, the sphere, the cylinder, and the pyramid ... straight roads, no ornament" (Jencks 88). In the weekend house and similar projects, Le Corbusier was finally able to bring the opposing categories to a synthesis. In the words of Charles Jencks:

> His architecture starts to shift from the white machine aesthetic toward a hybrid, rough mode that combines crude hand-built masonry and factory-built systems ... Instead of white machines for living ... he produces mud huts with grass roofs ... curved cities based on the meander of rivers and the thighs of women ... LC becomes a Post-Modernist before the fact, a nascent eco-hippy, building regional and contextual objects that are poems to nature-worship (188f.)

"Post-Modernist", "eco-hippy", these are valid ways of labeling Le Corbusier's hybrid style. I would add that Le Corbusier embodied the integral spirit that emerged from the growing suspicion of technological progress since the Romantic era towards the middle of the twentieth century.



Maison de Week-end, plan (Fondation Le Corbusier)

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