

ARCHITECTURAL ANTHROPOLOGY

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The built environment in which we live as humans, is an important matter. The architectural landscape deeply structures our lives. On the other hand, architecture, as it is produced today in our urbanised environments, is based on too restricted knowledge. Postmodern 'theory of architecture' is determined by the conventional history of art. Its narrow concept of aesthetic values prevents scientific research and reasoning by judgements of subjective taste. The wider human condition is not integrated. Man appears only marginally as user and is represented by standardised functional needs. Consequently, architectural anthropology maintains that theoretical horizons have to be widened. The term architecture is defined in new ways by integrating it into anthropological dimensions, including primatological and paleanthropological considerations. Thus the term 'architecture' implies: all what humans and their biological relatives built and build.

In the late sixties modern architecture was manoeuvred into a crisis. Using the dynamite destruction of a modern habitat district (Pruitt-Igoe) as key incident, Charles Jencks declared the "Death of Modernism" and proposed a new era of "Postmodernism". Pruitt-Igoe had won an architectural award before, but had finally ended up as a slum. However, Jencks' declaration was felt as a regress into the 19th century's history of styles by many young architects. The post-modern 'architectural theory' based on written history related to architecture (e.g. Vitruvianism) now imposed by art historians, was critically questioned as a historicism inadequate for the 'anthropological depth' of architecture. Key example: Joseph Rykwert's book 'On Adam's House'. The origins of architecture can not be found in ancient texts.

In the same period a considerable interest developed for the achievements of

traditional 'architecture without architects' as proposed by Bernard Rudofsky (1965). Vernacular architecture now was perceived by many as a new domain of research. Books published by Paul Oliver and others made it evident that ethnology had neglected this field considerably. Particularly architects became active in this direction of research. A world-wide movement emerged with numerous international associations which focussed on the study of traditional environments (IASTE, UC Berkeley). The most important result of these efforts can be seen in the '*Encyclopaedia of Vernacular Architecture of the World*' (1997) edited by Paul Oliver. It is a 3-volumed oeuvre in folio size, with about 2000 contributors world-wide. The basic goal was to globally document traditional architecture and to classify it according to anthropological criteria. The encyclopaedia is a milestone in global house research. It shows the great variety of house forms in various cultures of the world. It documents traditional aesthetics and the very special structural conditions of related ways of life and social orders often still felt as exotic today.

However, theoretically, the Encyclopaedia is not without problems. It rests largely on the level of an anthropology of the house and uses its patterns of explanation from disciplinary anthropology without being conscious of the euro-centric origins of these interpretations. Many characteristics of house traditions can not be explained in this framework.

Further, something very important becomes clear if, in regard to materials used, we concentrate our interest on the traditional or ethnological domain of architecture. Besides durable materials we find also materials of limited durability like wood or even very ephemeral fibrous materials. Evidently they have the advantage that they can be easily worked merely by the hand. The hand as the primary tool? Binding, weaving etc. can be seen as very ancient techniques technologically or anthropologically. We find many types of roofs, walls and floors, mats for sleeping and so on. Further, there are containers, means of transportation and cages for animals and the like. All these are important products of this fibrous type.

In the framework of history and prehistory of architecture such ephemeral equipments are absent. Time has destroyed them. We must either put aside our intentions or change our methods. In the latter case, material culture has to be defined anthropologically. The Viennese school of ethnology, and in particular Karl R. Wernhart (1981), has developed a new method called '*Structural History*' or '*Ethno-Pre-History*' which can be used for questioning the historicism separating the three temporally different disciplines in regard to material cul-

ture. Did fibrous materials and fibroconstructive processes play an important role in prehistory? Was the evolution of culture closely related to objects which were not durable? Were such objects representative for systems of ontologically high values? Such questions can be taken as a good reason to hypothetically introduce a new period into the periodic system of prehistory: [pre-lithic] fibroconstructive industries. We will have to support this hypothesis more clearly below.

There is a further important point. Architectural anthropology is closely related to Otto F. Bollnow's anthropology of space. In his book 'Man and Space' (1963) Bollnow maintained that, in contrast to the homogeneous concept of universal space, essentially a discovery of the 14th century, cultural, or human space, is closely related to the evolution of human dwelling and settlement. This implies first, that human space perception and space conception originally were formed in small, local settlement units, in which architecture provides the semantic systems for spatial organisation. Second, we have to assume a long extension process of spatial perception and conception. In addition tectonic elements imply vertical and horizontal axial systems (e.g. 'access-place scheme' or 'vertical polarity scheme'). In the framework of a new 'habitat anthropology' we gain new and objective instruments for the reconstruction of basic spatio-cultural patterns with often surprising continuities.

These prerequisites allow a new view on the anthropologically defined concept of architecture. It works with five classes: subhuman, semantic, domestic, sedentary and urban/imperial architecture. These five classes are relatively independent fields of research. Combined with the results of conventional physical and cultural anthropology they can be taken as a new field of stimulating discussions. This shall be outlined in the following.

Subhuman architecture

In their book 'The Great Apes' (1929) the American primatologist couple Robert W. and Ada W. Yerkes for the first time had systemically collected and studied observations focussed on nest building behaviour of the pongids. They considered nest building as a daily practised and routined constructive behaviour which produced definitive alterations of the natural conditions of the environment. And they postulated pongid nest building as the beginning of an 'evolution of constructivity'.

The work of the Yerkes was of great influence on the following pongid

research. Numerous primatologists, who studied animals in their natural environment, contributed important observations regarding nest building behaviour. Today we have a fairly good view of the enormous protocultural significance of the nest. Particularly women like Jane Goodall, Biruté Galdikas and Dian Fossey contributed important studies due to their unprejudiced spontaneity and capacity of observation.

However, theories of hominisation in general today are dominated by tool using and tool making behaviour. In a recent book of McGrew it even circulates as 'culture'. It is supported mainly by observations of the use of stones for nut cracking or the use of defoliated twigs for ant fishing. However, in the natural environment these types of tool use are rarely observed. They are not part of a daily routine. But, why the tool use dominates, is clear. It is considered to be supported by the archaeologically established line of tools.

If, on the other hand, the suggestion of the Yerkes is taken seriously and the protocultural artefact character of the nest is emphasised, nest building behaviour is much more convincing as protocultural activity.

- It is intimately connected to the life of the pongids. Infants spend about four years in the nest of their mother until they can build their own nest. Nest building is learned. The young play with nests. The completed nest produces identification of the producer with his artefact. The nest is also used in case of sickness and imminent death.
- Nest building is daily routine. Quantitatively too, nests are overwhelming. During its life an individual builds a virtual tower of about a height of 11 times the height of the Eiffel tower in Paris.
- Construction implies specific physical conditions characteristic for humans: extensive rotation of arms, precision grip and precise stereoscopic view while controlling constructive processes.
- It has important protocultural characteristics. It requests judgement of constructive conditions, static quality etc.
- One can even speak of the psychology of the nest: several observers noted animals expressing cozyness when in their nests.
- Night camps are an eminently social arrangement. Further, the night camp of a group shows a strategic organisation with a secured inside and a controlled outside, which is spatially not much different from the principles of a human apartment.

Most important is the differentiation of tree- and ground nests. Whether tree- or ground nests are built depends on various factors. Weight and age of the indi-

viduals are important, but also environmental conditions play a decisive role. Tree nests gain their stability from the structural condition of the tree top in which they are built. Ground nests are usually made with rooted plant materials - bamboo stalks in a bamboo grove for instance. Roots act as natural foundations. On a height of 3 to 4 meters the stalks are bent, broken and knotted into stable triangles thus forming a perfectly stable type of tower. On its top the nest proper is made with thin and thoroughly interwoven twigs to form a smooth upholstery. Finally the often heavy animals are climbing up, positioning themselves with their body into the central depression of the nest and spending the night sleeping.

Evidently the ground nest is a full fledged work of architecture. But the ground nest is not only a primordial type of architecture. With its material and technical conditions it provides the ideal environmental setting to plausibly explain another important subject of hominisation: the erection of the body and the permanent bipedal locomotion of humans. It is generally assumed that, due to climatic changes in a temporal period between 16 and 11 million years ago, tropical rain forests increasingly vanished and were replaced by open savannahs and that this process influenced hominisation. Evidently the loose vegetation at the edge of savannahs is the ideal environment in which this type of tectonic ground nests could be built. Produced routinely by groups, the night camp must also have been of advantage selectively in regard to securely passing the night, also protected in view of nocturnal predators.

But this complex system of constructing behaviour and its intimate relations with the life of pongids raises a further complex of questions related to processes of hominization: what were the factors of brain development? What was the main cause for the increase of brain size? Was it language, was it tool behaviour, was it due to social interactions? From the position of architectural anthropology these parameters - seen also in mutual connection - are not apt to explain the considerable increase of brain size of about 300% between *homo habilis* and *homo sapiens sapiens*. Particularly the tool behaviour as it is described today with its monotonous processes, can not explain the expansion of the brain.

If, on the other hand, the routined nest building is put into the foreground, the use of early tools as cutters for fibrous materials might have produced the 'first architectural revolution'. It was mentioned above that the building of the pongid ground nest is bound to the corresponding biotope (rooted materials). Consequently tools of the pebble tool type must have freed constructive work

from this fixation to biotopic conditions. Materials could now be 'harvested' where they grew and could be carried to the 'construction site' where they could be combined with other materials. Signs could now be set up freely e.g. in regard to intensified food control. Material combinations of constructions could be extended. Stable and flexible materials could be integrated at the same place into the same construction. A process of structural differentiation is initiated which might have led to an elementary material culture of the fibrous or fibroconstructive type. Maybe the 'traffic signs' made among the Bonobo subgroups while on daily migration as described recently by Sue Savage Rumbaugh, might give some impressions on the level of communication by fibrous signs.

Semantic architecture

In their important ethnological study on traditional technology Walter Hirschberg and Alfred Janata showed, that fibroconstructive industries are the main part of material culture in traditional societies. They play also an important role in the field of building and dwelling. The ephemere character of the materials and also historic fixations have obstructed the view on the anthropological significance of techniques with fibrous materials. Tools are rarely used, the hand is the primary tool. The autonomy of the processes guaranteed by the ubiquity of the materials too, hints to temporal depth. But evidently, the conditions of fibrous material culture can only be researched in the ethnographic field.

An example: the material culture of the Ainu as it is presented by Shigeru Kayano (1978) with precise technical drawings, is of great importance here. Kayano's book presents about 250 tools and instruments which an archaeologist never finds. A great part of the material culture of the Ainu reflects their palaeosiberian roots: simply constructed traps, nets, cages, fish traps, baskets and bags for transport, boats, weapons, tools for various purposes. Toys for children and status symbols are there too, as well as small temporary hunting huts. These objects can easily be retro-projected into mesolithic times, maybe even into the Upper and Middle Palaeolithic. It seems that material culture was much richer than the image archaeology maintains.

Further, the Ainu have an extraordinary topo-semantic sign system, their '*inau*'. John Batchelor, who was considered an authority on the Ainu, described these signs under the Euro-centric concept of 'primitive religion'. But, earlier, Willy

Kremp (1928) has discovered the territorial implications of the Ainu signs in the framework of a systematic survey. They are primarily related to dwelling, but in an extensive sense they are also used to control economical 'incomes'. The altar behind the Ainu house functions as co-ordination point for gift exchange for all what comes in from the wilderness to the house through the distinguished domains of hunting, fishing, collecting and small gardening. Hitoshi Watanabe (1973) has described the river system with mountain- and ocean-oriented contrasts and as it serves as orientation system in this local cosmos. Emiko Ohnuki-Tierney (1972) too has contributed important data for the understanding of these environmental orders controlled by signs, but she interpreted the Ainu microcosm macro-cosmologically, following Mircea Eliade's Euro-theological concept.

Japanese agrarian culture too contains numerous indicators of autonomous local cultures with fibroconstructive industries. With the title 'Straw' (*wara*), Kiyoshi Miyazaki (1985) has described this rural straw culture of Japan in a beautiful two-volume study. There are not only coats, bags, shoes and other practical things, but also objects of ontologically high values related to the world view of Japanese farmers. This fibroconstructive culture is doubtless more ancient than what we know from the Yayoi period of Japanese object culture. Without doubt, it was carried along as vital tradition by the early agrarian settlers. The autonomy of the tradition might have been helpful for local integration.

However, most surprising in Japan are the traditions that have been preserved in the framework of traditional village Shinto: a fibroconstructive topo-semantic system which traditionally survived until today in a surprising density. The elementary technological characteristics appear combined with highest ontological values (sacrality). The signs are considered as deities or as temporary seats of local gods and are completely integrated into historical Shinto. In the framework of architectural anthropology the traditions can be considered as archives of local village history. In the framework of cyclic renewal cults the signs document the early residence of ancient families or of the settlement founder line represented by one or several houses. Since these houses express a moderate hegemony in the villages, the cult supports also the political and social structure of the settlement. Thus what the Western perspective considers as religion, appears to a great extent as a traditional local constitution. The fibrous nuclear border demarcation set up at the occasion of the settlement foundation, is renewed.

In the case of Japan we become aware that such fibrous topo-semantic demar-

cations must have been an important structural characteristic of prehistorical agrarian settlements. Guenther Kapfhammer's book on alpine traditions of Central Europe (1977) shows such demarcations also as maypoles and the like within European folklore. We find them as 'fetishes' and 'idols' in many traditional cultures of the world. And we find them historically in the framework of the so called 'lower mythology' of Sir James George Frazer and Wilhelm Mannhardt. Archaeologically they are known as life-trees in many forms [Bronze Age]. Very likely many of the rock-art 'tectiformes' had similar functions. Semantic architecture can thus be taken as an universally spread architectural type of pre-domestic significance. Very likely semantic architecture was the experimental field of architectural form and corresponding symbolic meanings.

We have often mentioned 'high ontological values', that is, high values related to local world views. This is an important point, which should be outlined here. The most important results of ethnological research focussed on semantic architecture can be seen in the fact, that a cognitive principle of autonomous origins could be described. It is expressed with most elementary forms and is produced autonomously by the constructive process, without any preconceived idea of the producer. The expression can be characterised as 'categorical polarity' or 'coincidence of opposites'. In the tradition of 100 villages researched by the present author (1994a) it is clearly shown how the primary geometrical form, essentially as column- or hut-like type, following a trend of local differentiation, enters into dialogue with natural forms via the 'coincidence of opposites' imbedded in the same form as 'general principle'. Most strikingly this happens with a tree form in some villages, but also with birds, with mountains, or with a certain type of fish. There are also male-female contrasts, two-headed snakes, fire spitting dragons etc.. Somehow a primordial metaphorical world, which, however, has its clear objective background! The convergence of artefact and natural form happens through the categorical polarity of the topo-semantic system, respectively through the 'polar analogy' of both forms. The artificial forms remain dominantly characterised by structural conditions, technically and geometrically.

Regarding the prehistorical question how man discovered natural forms, this can provide models how the environment was organised by conscious perception. Landscape too seems to be structured according to this principle of polarity. Time can be perceived in polar relations and similarly elementary social hierarchy. The dialogue between semantic architecture and natural form can be used as a model for the cultural perception of nature on the level of categorical-

ly polar analogies. Very likely polarity, as a cognitive system, has produced an elementary aesthetic revolution which can still be observed in many traditional societies. And, in fact, it structurally survives into many aspects of modern perceptions. Its origins could be assumed in the Middle Palaeolithic, that is, between homo sapiens and homo sapiens sapiens. This process of cognition might also have contributed considerably to the increase of brain capacity.

Domestic architecture

By assuming a primary topo-semantic stratum in the architectural evolution outlined, we gain new indicators for the development of domestic architecture. The so called 'shelter theory', that is, the assumption that man invented protective roofs or windbreaks against excessive climatic influences, reveals as functional retroprojection. Huts and houses have to be interpreted as composite developments. We discover basic architectural schemes like the 'access place scheme' in which semantic architecture defines the elementary plan with 'place- and gate-markers' combined with other elements derived from semantic architecture. House altars and house gods reveal as place markers and sacred door posts as gate markers. Consequently, as Gustav Ränk has shown, traditional house plans are often extremely conservative in spite of changing materials and flexible outer form of the houses. The ontologically high ranking demarcations appear fixed by cyclic cults, which were originally focussed on their renewal. The fire in the open hearth reveals as an independent construction, which entered the house or the hut while preserving its own ontological autonomy. Similarly the roof. It can be derived as independent development of hut-like signs.

This program was essentially derived from two traditions studied in depth, that is, from various house types of the Ainu and from farmhouses of Japan. Both house traditions, with all variations, are not developed according to functional principles. Both correspond to accumulations of relatively independent elements derived from a pre-domestic topo-semantic layer, which defined living space with cyclically renewed topo-semantic demarcations. This creates a central and important requisite for the research of houses: related cults must be included into research.

Sedentary Architecture

In the following we will shortly discuss an important insight of the approach: the evolution of territorial control and sedentary life. In the Mesolithic a cultur-

al dimension comes up, which can be understood from its developed form, but which cannot be reconstructed archaeologically with its factual conditions. Here too the ethno-pre-historical method shows a new potential to better understand the phenomenon of the increasing capacity for territorial control and, finally, of permanent sedentarity from its institutional conditions.

We can assume that processes related to territorial control like broad spectrum food collection (Mesolithic), permanent sedentary village cultures (Neolithic) and formations of cities and states with social hierarchy (Bronze Age) were not isolated events, but were structurally coherent parts of a wider development.

An earlier study of the present author hinted to sources which support the thesis that topo-semantic territorial demarcations of the fibroconstructive type had been an important equipment of the Middle and Late Palaeolithic (*grave flowers of Shanidar, tectiformes and female figures in rock art*).

The Mesolithic then is characterised by increasingly sedentary communities and by the capacity to collect a broad spectrum of food. However, the conditions of the new level are not clear. On the other hand, comparison with the ethnological situation clearly shows the importance of topo-semantic systems. In the case of the Ainu it is evident, that broad spectrum food gathering is controlled by a fibroconstructive topo-semantic system. In the framework of a categorically polar system the topo-semantic signs relate the antithetic categories of inside and outside. The fibroconstructive signs form the threshold points of gift exchange between man and wilderness. Rooted in the intimate space of dwelling, they extend into wider zones of hunting and collecting within the valley as home range of the Ainu. A complex system of categorical polarity also controls time, social role and communal cooperation. In short, the comparison with the ethnological situation gives us very clear ideas about the structural conditions and ontological principles according to which extended territorial control systems could have evolved.

The Neolithic is prehistorically characterised by permanent agrarian settlements and domestication. More or less permanent occupation of a territory became important with pastoralism and agriculture. However, the question how settlements were institutionally organised, remains open. Architectural anthropology assumes that topo-semantic demarcation systems present already in the mesolithic period became dominant in neolithic times. They proved highly efficient in the protection of sedentary life and consequently produced high ontological values among local populations. Crucial are the terms 'nuclear border'

and 'settlement core complex'.

Nuclear border demarcations were set up in the middle of settlements. The fibrous demarcation remains within the controlled zone of the settlement. The categorically polar structure of 'semantic architecture' is projected spatially towards the outside, producing village plans with complementary surfaces, functional and non-functional domains. First, this must have been effective within regional settlement systems. It developed also a system of ontological values which further protected the settlement. Polarity had become an established ontological value related to the signs. They were used as models of the harmonious organisation of space, time and social organisation. This implied also a primary type of aesthetics, which provided value to the settlement as a whole.

The cyclic renewal of the same fibroconstructive demarcations introduced temporal depth into the settlement's consciousness. Further, an elementary social hierarchy developed within agrarian villages. Through cyclic cultic renewal the demarcation system remained related to the foundation of the settlement, an aspect which is locally shown in the founder house line. The founder house develops hegemonic claims. In the renewal cult its representant appears with dominant functions. He is priest and chief or ruler of the settlement. Thus, the topo-semantic system had the function of a traditional local constitution. What we defined as semantic architecture can be taken as a scriptless archive of settlement history, very likely a basic institution of neolithic village cultures.

Urban and imperial architecture

Bronze Age formation of early civilisations is the field where architectural anthropology clearly shows its validity. Due to rich archaeological sources, the anthropological method outlined, provides considerable new insights into institutional processes, due to the ontological values related to architecture and also due to the constitutional institutions it came to form in neolithic times.

Conventional archaeology and history organise the rich Bronze Age finds as beginning of early high culture, they admire the wealth of forms and attribute these surprising phenomena to the great power of early civilisational invention. For the causes of the enormous social and institutional changes well founded explanations are lacking. Some consider new irrigation systems as the main cause, others emphasise new population densities or new market developments.

However, the archaeological interpretation of sources has neglected an important point. The larger part of sources shows obvious indicators of fibroconstructive prototypes in texture and formal structure. This is valid for temples, temple columns, innermost sanctuaries, temple gates, stelae, imperial or regional symbols on thrones, djed pillars, life trees, etc..

Walter Andrae was a prominent figure of the German architecturo-archaeological research, which was active in Mesopotamia and Ancient Egypt in the 30ies of the last century. Andrae has strongly emphasised this aspect of 'metabolism' between ephemeral and durable materials in this domain. In his book 'The Ionian Column, built Form or Symbol?' (1933) he presented a great quantity of archaeological sources supporting the thesis of a fibroconstructive substrate among pre-dynastic village cultures of the Ancient Near East and Egypt. Based on this substrate he interpretes the Greek columns of the Ionian or Corinthian orders as bundled fibrous plant columns 'metabolised' into stone. They are thus placed close to the plant columns of the Egyptian temples.

In other words, what archaeology describes as highly creative level of 'early civilisation' reveals basically as a 'metabolised' reproduction of fibroconstructive architecture and material culture of pre dynastic village cultures, including corresponding socio-political structures. The prototypes did not show with the archaeological method.

This leads to an entirely new evaluation of early civilisation. Innovations were essentially of technological character. The first cities and empires owed their existence mainly to the 'monumentalisation' of cyclically renewed fibrous 'documents' of the constitutional archives of pre-dynastic villages. They were copied into durable materials, which allowed the spatial extension of empires. Villages could be controlled from impressively built cult centres as the top institution of a monumental theocratic system of territorial control. The material expenditures of the cyclic village cults were centralised on the higher level as taxes and labour. This allowed the accumulation of wealth in the centres. The cyclic time concept of the villages was superseded with linear time, expressed by 'eternal' buildings. The evident causality of the cults in the foundation of the villages and the corresponding local ontology became superseded by complex divine genealogies with their origins projected into imaginary time depths (myths). As Hermann Kees (1980) has described clearly, hegemonic processes then developed on the regional district-level as well as on the imperial level with corresponding cults and temples. The originally autonomous agricultural settlement was subdued to centralised control by means of the monumentalised

cult system. Theocracy appeared as political form.

Conclusion

We tried to show that architecture defined in an anthropologically wider framework reveals new aspects of the human condition. Based primarily on ‘constructivity’ it appears closely related to the subhuman and human existence. Closely related to the anthropology of habitat, architecture shows important new aspects in regard to territorial organisation and sedentarisation as well as in view of the formation of early civilisations.

With increasing urbanisation of the world, rationalised architecture has become an important part of the modern human condition. But, architecture can not simply be considered as a part of the Eurocentric artist-art scheme anymore. Nor can it be reconceived in its conventional circles. The methods have to be extended towards global horizons introducing perspectives of anthropological temporal depths. ‘Architectural theory’ is a matter of anthropology. Anthropology will have to clarify the factual complexity of the architectural domain in regard to the human condition.

Nold Egenter
DOFSBT, Zurich, Switzerland

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