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Terra Nova — Earthen Architecture and Modernity

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Abstract: Earthen architecture can fully satisfy a series of functions, performances and aesthetic concerns. The efficiency of the material and of the technical and constructive historical know-how can be taken into consideration today to offer an adequate answer to the pressing needs for sustainable building strategies. A new central role that ratifies both its unexpected *technological modernity* and its responsible and innovative *compositive and linguistic-formal updating*. The interpretative passage from traditional building uses and configurative results to the new possibilities for technical manipulation and as technological-structural support permits defining new horizons for architectural creation. A central role in the contemporary landscape, marked by specific implications in environmental terms, but also of formal investigation: *terra nova*, not intended as a return to the picturesque or the vernacular, or as *rétro* nostalgia, but rather as a *different repetition*, paradoxical cultural and practical territory of another present, which is just as efficient and poetic.

Key words: earth, architecture, modernity

1. Contemporary Earthen Architecture: The Surprising Oxymoron

Researching into the possible and full contemporaneity — technological, as well as in terms of performance and aesthetics — of an ancient constructive technique such as that of earthen architecture, constitutes the key to an educational research, caught between technology and composition, that has been pursued for some years now by the School of Architecture of the University of Florence. The guidelines are threefold: the main value as both threshold and bridge of the architectural project as critical thought naturally linking tradition and innovation; sustainability as strategy giving meaning and operative direction to the practices of transformation and shaping of the contemporary material world; compositional creativity as field of application free from any subjection, prejudice or discrimination regarding architectural styles.

It is rather the efficiently compliant modernity, glimpsed in the evolutive re-consideration of a technical-constructive knowledge that reaches our time from the ancestral depths of human society, which constitutes the unexpected and surprising oxymoron whose opportune and well-founded educational significance must be recognised. The recognition and understanding of these elementary and primary materials and methods may lead to their re-appropriation as an adequate field of expression and formal research, living and active, and therefore susceptible to updating. Not only: epochal cultural oxymoron as a result of the urgent need for innovation aimed at a proper and sustainable environmental development, which rediscovers precisely in the raw earthen material the agent better suited and proven to carry out an efficient *suture* of the ever widening gap between the natural environment and the unstoppable and expansive processes of anthropization. A boundary — temporal, technological and aesthetic — proposed and taken on as the frontier of possibilities for architectures aimed at full sustainability, in a balance between millenary knowledge, long forgotten or surpassed, and claims of a full and deserved cultural modernity: conceptual, technological, and

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formal-linguistic. Where a new energy, but also an aesthetic efficiency, the latter to be reinvented, can *shape,* through the use of the ancient tool, a new architectural landscape decidedly in consonance, not only concerning the field in question, with the needs and the spirit of the current age.

And ultimately, an intellectual and sentimental oxymoron, since it is also a symptom of the rediscovery by the society with the highest degree of technological processing and pervasiveness in the history of mankind, of a need to find a compensatory balance, with a deep and wise cultural and existential equality of distribution, in a sort of Jungian "return of the repressed", irresistibly bringing back to the surface the inhibited opposed principle, that is the recovery of the excessive imbalance between the founding polarities of a humanism which is instead both organic and complete. Or else, as in the contexts that traditionally take it into account — Africa, the Americas and the Far East —, in a trend of increasing re-consideration of a brilliant tradition which is, on the contrary, undervalued and scorned as a symbol of backwardness to be removed.

Thus, earthen architecture proposes itself, in an unexpected and paradoxical role, in opposition to the exponential, imperative, compressive and deforming one-sidedness of a technological hypertrophy derived from industry and from chemistry, assumed as the only universal and objectively progressive paths capable of guaranteeing modern standard values, affirmed as essential and unparalleled *vis-à-vis* other building methods and procedures. Homogeneous globalisation which can find an unexpected bulwark and an antidote in the gentle simplicity, ease, discretion and proximity of the *ante litteram* global archetypal building tradition of earthen architecture, now re-admitted even in the most advanced contexts, as paradigm of a sort of mitigating counterpoint. But also, deep down, of a rediscovered adhesion to a primary plan for material and cultural building that evokes the cyclic aspiration to a re-fusion of nature and architectural artifice, which has been present throughout the history of architecture, including some avant-garde movements.

2. Contemporary Nature of the Features

The building of architectural structures in raw earth is increasingly frequent, including the works of important authors in today's architectural scene, which have ratified their dependability and wide range of uses, both as efficient buildings and as bearers of formal representation [1]. In parallel, the Combined Laboratory and the Thematic Seminars on Architecture_Materials_Environment of the School in Florence, founded upon the three disciplinary keys of architectural composition, technological design and the physics of buildings, have pursued the aim of the re-interpretative passage from traditional forms of treatment, constructive use and configuration results regarding raw earth, to new possibilities of technical management and technological and structural enhancement [2]. They have tacked the final key in particular, the most uncertain and risky, but also the most prioritary: the assessment of the potential in terms of new horizons of compositive and linguistic updating [3]. An formative commitment capable of liberating this architecture from falling into nostalgic regrets or picturesque and vernacular mimicry, conferring to it, on the contrary, full status as a key player with a renewed and well-justified role in the con-temporary world, with an adequate contemporary aesthetic identity (Figs. 1, 2). A contemporaneity, however, pursued in accordance with the most subtle and sophisticated of its stances: that of being able to turn the cultural heritage, both tangible and intangible, into a vital platform for progressively impulsing and relaunching, while applying the methodological intelligence of the analogy, of deduction and transliteration, of the weaving together of the "iteration, alteration and revelation" of tools, methods, meanings, signs, representations of the original reference, and proceeding with their inclusion in new compliant forms (Figs. 3-6).

Fig. 1 Art and Cultural Center in San Sperate, Sardinia. Front and Section (A. Manca, E. Manca).

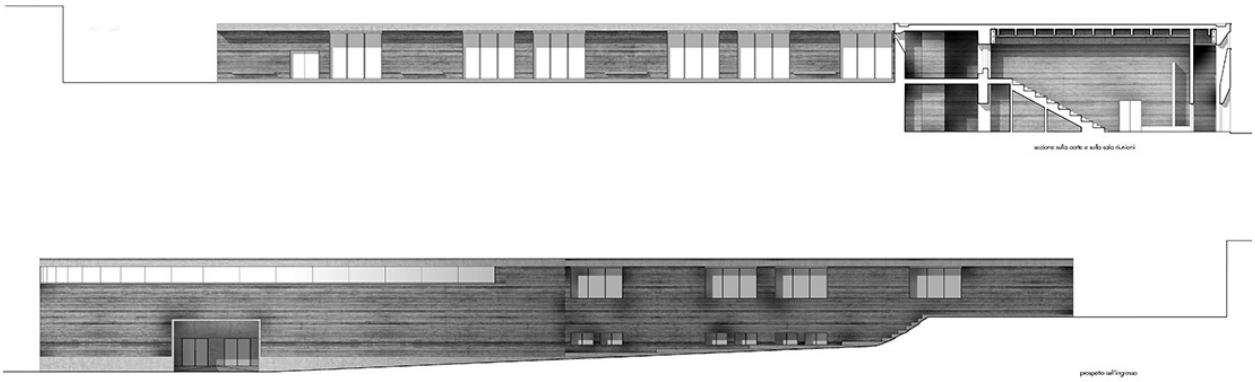

Fig. 2 School in Incisa Valdarno, Tuscany. Section and front (E. Ventisette).

Fig. 3 Art and Cultural Center in San Sperate, Sardinia. View (A. Manca, E. Manca).

Fig. 4 Art and Cultural Center in San Sperate, Sardinia. Hall (A. Manca, E. Manca).

Fig. 5 Art and Cultural Center in San Sperate, Sardinia. Gallery (A. Manca, E. Manca).

It is thus that, in this interpretative key, the material, perceptive-sensory, geometric-dimensional, morphological and expressive features that systematically recur in traditional earthen architecture, giving structure to its alphabet, grammar and syntax, in accordance with a peculiar configurative lexicon — tectonic and linguistic — have been identified and

Fig. 6 School in Incisa Valdarno, Tuscany. Inner courtyard (E. Ventisette).

and recognised as a possible compositive substance, functional especially in terms of a rediscovered desire, also of our day and age, for volumetric purity, for a re-evaluation of the mass, for the physical density and great thickness of walls for energy performance purposes, for the material nudity of primary building processes with a direct formal worth, for a minimalist reduction to a few quintessential dominant connotative traits. Polar rediscovery in retaliation to the opposed and dominant polarity, in current architectural literature, of the poetics of thinning, of de-materialisation, porosity, of luminescent rarefaction, or else of plastic redundancy, of hypertrophic volumetric modelling, as well as of hyper-technology and structural audacity. A dialectic aesthetic re-balancing, useful to the plurality of the material and existential landscape, in which the laconic beauty of the stratification of rammed earth, the texture of adobe, the homogeneous tactile and chromatic unity of the earth, the precise and strongly chiaroscuro subordination of the openings and gaps in relation to the massive, imposing quality of the whole.

An archaically elementary expressive palette which, critically re-processed, combined with new structural and technological devices and enlightened by socio-cultural references, turns to the opportunity of a more complex formal research, completely innovative and adapted to the new times. We are, in other words, in the field of the subtle exercise of "different repetition", in the sense of a genealogical instance which implies the conscious re-proposal of its difference from its origins because derived from them. Well-founded reinvention, which combines and weaves, as in any other vital practice, continuity and transformation, confirmation and adventure.

3. Terra Nova

The reform and compositional exploration of earthen architecture depends on the perfecting of its components and of the building processes that have always been used in the construction of the most typical buildings: rammed earth, adobe, horizontal scaffolding and occasionally lattices in wood or bamboo. But it depends even more on the collaboration of materials derived from contemporary structural systems such as reinforced concrete or steel, but especially laminated wood.

This is the preferred technical resource since it is an extraordinary evolution of the most ancient building element, as has been historically and empirically proven. Hidden or exposed, in layers, as pilasters or beams, as part of the shell or of the flooring, either homogeneous or in slabs, depending of local conditions or anti-seismic requirements, this technology permits obtaining ample spaces, has a good anti-seismic performance, and offers an aesthetic counterpoint capable of providing new developments in terms of composition and performance: geometric, volumetric, dimensional, linguistic. A modern and resolved break with the structural load-bearing role that, as a result, liberates traditional building practices from the direct responsibility of supporting the structure, using raw earth especially for the external walls, due to its high performance in terms of the physical-energetic efficiency of the building, but also, as said before, as unexpected matter for creative representation (Fig. 7).

In addition to wood, also reinforced concrete has an organic and necessary role, both in terms of functionality and aesthetics, in the foundations and in the load-bearing shell, as a base to separate the walls from the ground to protect them from rising humidity and from rain-water: artificial stone of modernity which analogically replaces the stones or bricks of the

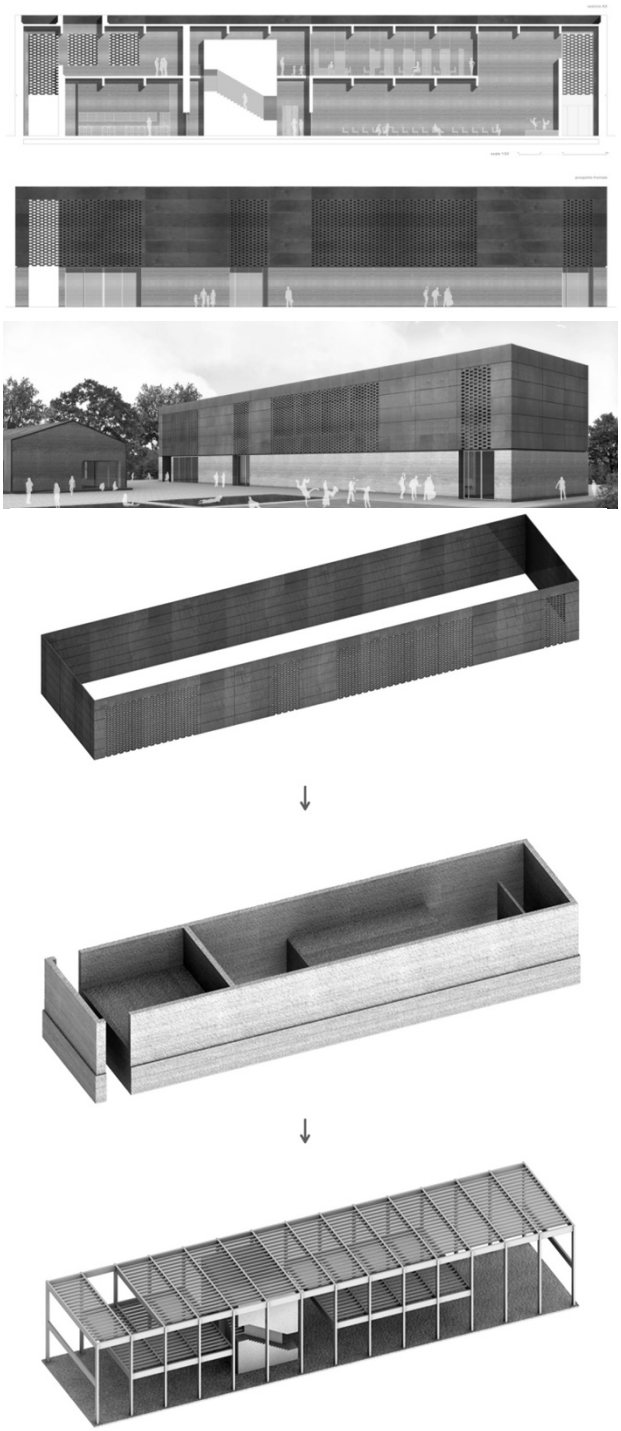

Fig. 7 Ecoborgo in Cenaia, Tuscany. Cultural Center. Section, front, view, building scheme (G. Aguti, G. Boscherini).

past as technical device, but also in terms of aesthetic detail underlining, framing, decorating in a counterpunctual manner the streaked surface of the rammed earth or the material homogeneity of the earthen plaster that protects the adobe walls.

It is the rammed earth technique which seems to prevail in the formal choices both in terms of education and training and in the actual work of the architects who use it. The compact nature of the material and its grain, as well as the direct truth of its stratified use, so familiarly allusive to the aesthetics of apparent reinforced concrete, the trace of the texture of the formwork, the possible increase in terms of language with the use of earth of different colours, either natural or added to the mix, and the liberation from the protection of the plaster, thanks also to the occasional use of new compatible transparent protective substances, give it its aesthetic signature, its connotative identity and its poetic suggestiveness. And it is interesting to see how this primary poetry, so characteristic of rammed earth, is migrating, in a fascinating up-side down movement of transliteration, in examples of architectural structures made of stratified rammed concrete [4], a compressed cement conglomerate which replicates the aesthetic results in terms of thickness (Figs. 8, 9), irregular and iterative superficial graphism, with the evident appearance of the manual execution, colour variation and tactile ruggedness.

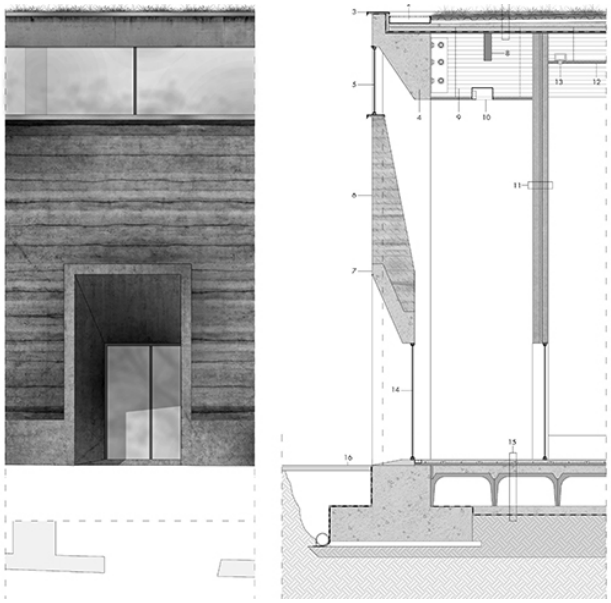

Fig. 8 School in Incisa Valdarno, Tuscany. Building detail (E. Ventisette).

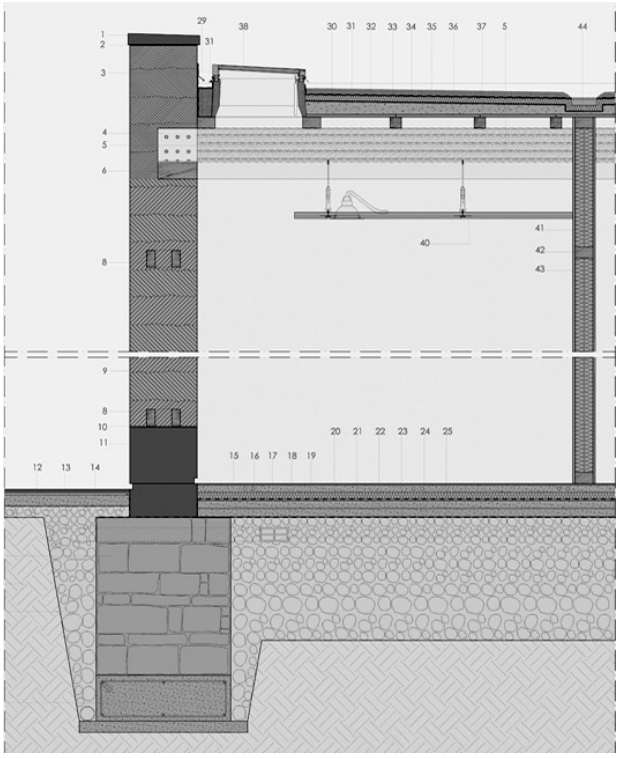

Fig. 9 Art and Cultural Center in S. Sperate, Sardinia. Building detail (A. Manca, E. Manca).

But not only: under the sign of a contamination/hybridization that unites the extremes of historical tradition and contemporary innovation of the two materials, earth and cement, a surprising and paradigmatic synthesis has arrived between the ancient artisan technique of rammed earth in the formwork and the modern technological methodology of the pre-fabrication of modular components in cement. An operative torsion — methodological, instrumental and even ideological —, due to which the patient and coherent coincidence of the ancient method with the ongoing construction is transformed in the procedural de-composition between the predisposition of mega-blocks of rammed earth and their subsequent mounting in combination with autonomous load-bearing structures in another material, in accordance with the modern industrial method [5]. Thus the adobe brick becomes a hypertrophic monolith which supports the dimensional and temporal scales of our age, showing an unexpected versatility in terms of adaptability of earthen material which opens new horizons for research and technical and aesthetic possibilities, rich in interpretations and compositive explorations.

It is on these levels that the educational experience developed through exams, and especially undergraduate theses, but also through a pilot project for Jericho in Palestine, has researched and manipulated terms and syntax inherent to traditional earthen architecture, resulting in new interpretations applied to buildings completely inscribed in contemporary functional and formal narratives: schools, nursing homes, residential houses, student housing, and museums have verified and demonstrated the validity of an unusual building and creative approach, capable of brilliantly combining today's fundamental requirements in terms of environmental sustainability in construction, with a re-appreciated, renewed and tested knowledge which at the same time belongs to the ancient past and projects itself authoritatively in the present with a unique innovative role and an autonomous and accomplished beauty.

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