

Tempus Lignum

Towards a wood-centred paradigm for architecture in the Anthropocene

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'Truth is nothing but the daughter of time'
Leonardo da Vinci

1. Time to grow

Wood is not an object or a substance, it is the manifestation of a process, a process that never ends.

The biological and chemical processes giving form to wood relate principally to diurnal and seasonal cycles: conveying water upwards to the atmosphere in summer daytime, protecting the sugars produced through photosynthesis by storing them deep in winter. The form and structure of a tree result from the complex web of transfers of matter and energy which goes on -with ebb and flow- at all times. Wood embodies and maps these processes in its cells, fibres and limbs, each plant being unique and responding to minute conditions of context and climate.

The high lignin content of wood is the result of a yearning towards the sky, an evolutionary response to a collective will to grow stiff, erect and closer to the sun, in concert with a community of plants. Trees are not a product of Darwinian individualism; their very existence is predicated on a biological consensus and democracy, a cooperative canopy. Recent discoveries concerning underground fungal networks allowing trees to communicate and share (Mycorrhizal networks or the so-called Wood Wide Web) underline this collective process and give post-facto scientific validation to a central, millennial thought of many religions: that *everything is connected*.

I wish to propose that an awareness of this dynamic character should change the way we think about the built world as it exists across timescales ranging from the momentary to the eschatological, and specifically in the time of crisis that we inhabit today, where the world is more a product of our actions than we are a product of it. We have entered the Anthropocene -the era of human dominance over the planet since 1945, with the dropping of the Atomic bomb over Hiroshima.

Using wood for construction presents numerous benefits in our faltering attempts to live in balance with our world; I hardly need remind present company of this. Carbon capture -perhaps the most important benefit- is usually expressed grossly as a question of gaseous weight, a box to tick on the way to an eco pat on the back from a regulating body. Think about it, though, in terms of *life*: this marvellous organism is killed just after having taken in a long, long breath of gases which we need to get rid of. It has performed a profoundly useful sacrifice; we, in turn - having killed it - have to curate it to keep the CO₂ inside, to prevent its release through decay or conflagration; it becomes a collaboration. And besides, it's not entirely dead: wood for building continues gaseous and hygroscopic exchange, it weathers, swells and shrinks and weeps resin for centuries after it enters our service.

I wish to go further and suggest that wood confers *character* to constructions, creating conditions of empathy with our built world. This question is not new: the woody origins of classical architecture have - I believe - more than a little to do with the fact that we have ascribed (and inscribed) personal qualities to columns and totems throughout architectural history. As we are upright, imperfect and unique, it is hardly surprising that we project ourselves into, we feel at one with, the columns of an Ancient Greek or Shinto temple.

This identification often takes on a sacred character. According to The Legend of the True Cross, the tree which became The Cross grew from a sapling planted in the mouth of Adam when he died aged 900. Cut down and made into a member for a bridge, the Queen of Sheba recognised it as being the piece of carpentry which -by killing a carpenter- would dismember the realm of the Jews, a message which she took to King Solomon, who had the wood buried, obviously to no avail. The reputed remnants of The Cross - some form of pine, perhaps Aleppo - have subsequently been dispersed around the world for veneration, including to Notre Dame, close to my home in Paris.

2. Time to Build

I shall return to the migratory and resurrectional character of wood in due course. Let us, however, contrast it now with the prevailing paradigms of the production of space in order better to evaluate its potential. The combination of social media and computer assisted design in our time have vastly accelerated a tendency to see the built world as something immaterial and perfect, outside of time. Buildings are conceived photorealistically on the computer screen and then presented for consumption directly to the retina screen via electronic media. They barely need to exist in real life: we could actually save a lot of bother.

This collapse of object into image is enabled by manufacturing processes which retrace the complex double curves made possible by modelling software: there is apparently no resistance, no hassle in translating smooth, immaterial screen-based shapes into their smooth, immaterial correlatives in real life. These tools are addictive and enslaving, meaning that the high-end designed world we live in is acquiring a remarkable homogeneity despite this virtuosity: our imaginations are limited and channeled by software rather than by human or material possibilities.

The stars of contemporary architecture very rarely -if ever- build in wood, which is a totem of resistance to these trends. Wood - at least as a structural panel- refuses to bend every which way. Despite the fact that its production can be highly computerised, the material retains its stubborn organicity, variety and imperfection. It is a reminder that we live in a complex, multisensory, constantly evolving world. Wood rejects the autonomous, precise, unchanging character of aluminium panels and GFRC favoured (for these very qualities) by architects such as Patrik Schumacher.

3. Time to Perform

I wish to employ a theatrical metaphor as a prelude to opening this analysis up to the work of my own practice.

We have recently completed an all-wood neo-Shakespearean auditorium in Northern France which is formally adventurous, using curved CLT throughout, perhaps for the first time. Any of you who have observed CLT being made know that it is a mixture of mechanised and manual production. Indeed, the process I saw at Merk's factory, with skilled craftsmen shuffling the planks into place, was a kind of abstract dance worthy of Heiner Goebbels, executed in collaboration with the glue robot, which passed over each successive layer of wood between the shuffling dances. Cutting was impressively precise and computer-controlled (for large openings), finishing and smaller apertures were executed by hand.

The resulting structural panels - which, with the oak columns, we left exposed as the gently brutalist flesh of the theatre - possess character, as I argued earlier. They *perform a role* in the space, bringing inside the essence of the building's extraordinary woodland surroundings. Their presence all around and on the stage itself confers a certain warmth and dynamism to the proceedings, as well as establishing a timeframe which works as a foil to the instantaneous stage world. Visitors have commented on the building's ambiguous temporality, noting a somewhat archaic character for a paradoxically brand-new and unambiguously contemporary building.

Many theatre directors reference this presence as an essential quality of a good space: it should feel inviting, open, non-specific but somehow strong and supportive. Wood is a material which has performed this role throughout history, and it has been a great pleasure to bring into focus a new procedure like CLT in this way. The theatre's acoustic character has garnered similar comments from performers: the building is materially warm to the touch, and seems to resonate aurally in a similar manner. It is no surprise that wood has found no artificial competitors to rival the quality of a Stradivarius violin or cello, nor have I found anything remotely comparable to the precision and warm harmonics offered by my Japanese snare drum made -by Canopus- from a single piece of Zelkova oak.

The absence of mechanical plant in our theatre (the building is naturally ventilated) helps a great deal, as does the presence of natural light, to confer a slightly sacred quality for a space destined to be able to support all manner of stories. The aim of the building is to transport the spectator part of the way to the destination of the tale, to open the imagination. Its silence seems to emanate from the wood.

I have put the cart before the horse somewhat in this account, but the temporal openness of the space can be said to have resulted partly from a certain non-robotic precision in the construction process. The soft spruce making up the Leno panels was seen to lose its whiteness within a few hours of exposure to the sun, and then - unfortunately, due to sequencing difficulties for the contractor- stained grey and black when left unprotected in three weeks of August rain. The builder had to renovate the unfinished building, sanding 1200 square metres of wood, giving a result which was often lively and sometimes slightly negative. Given the quantity of water absorbed, the material moved in places and continues to season and bed down in appearance. At the end of the day I believe the material itself will balance out and redeem this situation.

4. Time to Age

If our accelerated internal ageing was somewhat unexpected and subject to improvised treatment, the building's exterior is intended to accept time as something inevitable, unlike the camera-ready blobs of contemporary practice which are designed for the instant. Untreated larch battens turned 45 degrees cover all the convex curved surfaces of the building, including inside the foyer (to give the impression of an indoor-outdoor continuum). The 45-degree twist was intended to give a slightly furry character to the exterior, allowing the maritime light to rake across it, defining clearly the curve of the various portions of cylinder which make up the building's mass. This rakish inclination will also - hopefully - generate a smooth transition between the bleached grey facing south and west into the prevailing sea storms and sun, and the protected northern part which will remain browner. I was unaware - consciously, at least - during design that this form of angled batten has existed in Japan for 1400 years under the name of renji-koushi, and can be seen in the 7th century Houryuuji Temple in Nara.

5. Time to Adapt

Wood invites convivial relations: it can be sourced and prepared locally almost anywhere outside of desert and polar zones, and generates ongoing and overlapping relations between client, architect, engineer and builder. Anyone can manipulate this most democratic of materials, and this inviting, open character is a large part of its appeal. This obviously does not end with the delivery of the building: wood invites upkeep, repair and replacement more than many other materials (which may - like curtain walling - just require wholesale replacement). Let's stay in Japan to consider this further.

In the autumn of 2015 I had the privilege of being a pensionnaire of the Villa Kujoyama in Kyoto, a prestigious French government programme of research residencies for creative professionals. My residency - in tandem with Japanese architect Kibo Hagino - examined attitudes to wood and bamboo across cultures. A daily pleasure was caressing the 1-metre diameter, 500 year-old solid cedar columns of the Nanzen-Ji temple gatehouse or Sanmon. This eternal character stood in sharp contrast to the many deliberately 'disposable' elements of traditional Japanese architecture, such as gutters and drainpipes made of

bamboo. *Our* attitude might be to buy an industrial component (expensively) which we then leave alone; in Japan the raw material has almost no value, but the skill going into making it is perpetuated by the ephemerality of the element (gutters and logs used for retaining garden steps need to be replaced every three years or so).

As part of our residency Kibo and I collaborated with master gardener Kurato Fujimoto on an ephemeral bamboo installation, designed as research into questions of connection and mass, and erected in a matter of hours (we also harvested the bamboo ourselves).

This experience serves to remind us that wood and bamboo are uniquely qualified for adaptable and fast-build structures. Whilst our theatre was a very complex building, the erection of the principal superstructure only took about 7 weeks; this was consciously inspired by the example of the original Elizabethan theatres, which were made of pragmatic, vernacular post and beam structures, often dismantled and moved to another location. Astonishingly, the first proto-Shakespearean theatre was built in this manner by Henry VIII very close to the site of our theatre in Northern France, then repatriated to London. More recently, the Comédie Française Salle Ephémère - built by Charpentier Céromane - was erected in three months start to finish in a very sensitive location below the offices of the French Minister of Culture. Part of the ongoing research of my firm relates to the adaptability of wood to short-term or urgent needs for high-quality shelters, such as those seen at the Grande Synthe refugee camp (close to my theatre) or our idea for a tilt-up theatre with structure, waterproofing and insulation included in the same element. With approaches such as these - which invite industry collaboration - it should be possible to develop low-impact, high-quality buildings which can enliven marginal sites and bring needed functions in areas where long-term project development (at several times the cost) is improbable. I invite anyone reading this to join me in this quest, which I hope will become the subject of an ongoing research programme with institutional support.

6. Time to Die

Christ's Cross - his mechanism of death - was - according to legend - transported and transmuted, like the timbers of an Elizabethan theatre, before being splintered into a thousand relics. Us normal folk finish our journey in a wooden box in the ground. However - like the sapling placed in Adam's mouth - wood always renews from the earth. It is - in our buildings - a talisman of mortality, and also a witness to the joy of being alive.









