

# GRAFT

## PLANTING CITIES



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*I believe, as much as I believe that I live, that, if the plan outlined could be understood by the masses, enthusiasm would amount to such a pitch in the excitement and desire to see "Metropolis" completed that millions would enlist their services for an indefinite time to forward its building, and all they would ask would be soldier's fare and clothing. What would money be to them, when the near future would see it pass into the oblivion of an ignorant age?*

King Camp Gillette (*The Human Drift 1894*)

### Introduction

Climate activist Greta Thunberg addressed the U.N.'s Climate Action Summit in New York City on 23rd September 2019 with her response to a question about the message she has for world leaders.

"This is all wrong. I shouldn't be up here. I should be back in school, on the other side of the ocean. Yet you all come to us young people for hope. How dare you! You have stolen my dreams, and my childhood, with your empty words. And yet I'm one of the lucky ones. People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money, and fairy tales of eternal economic growth. How dare you!"

For more than 30 years, the science has been crystal clear. How dare you continue to look away, and come here

saying that you're doing enough, when the politics and solutions needed are still nowhere in sight.

You are failing us. But the young people are starting to understand your betrayal. The eyes of all future generations are upon you. And if you choose to fail us, I say: We will never forgive you.

We will not let you get away with this. Right here, right now is where we draw the line. The world is waking up. And change is coming, whether you like it or not."

Overall, the impact of CLIMATE EXTINCTION is potentially catastrophic - it will be your generation who have to suffer the immediate consequences, it is time to take action, we must graft. We must plant cities.

<sup>1</sup> image - Hiroshi Sugimoto, from Diorama

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## Studio Position

More than ever our traditional investigation into the substance, stuff and medium of fabrication is vital in order to design human habitats for our current era of Climate Extinction. We typically develop material systems through a better understanding of how to bind together traditional techniques with digital technologies. This year using natural material and helpful geometries, a key proposition is that available digital design and fabrication technologies will enable traditional making techniques to be reinvented as innovative construction logics for the next generation of city. Although this appears to be a technical ambition, it is without doubt the social and civic qualities that are enabled by our systems that interest us most.

Our lofty ambition is to generate provocative concepts to guide the development of new urbanism. Biophylic space will provide a haven for our research, specialising in a seed to city approach.

We propose year long investigations through a single, evolving project, starting with a simple proposition, transitioning through building typological studies and ultimately suggesting the proliferation of these types into context. This year we will use the Ashdown Forest as our prototypical landscape, it gives us an up close relationship to resource and context which is essential to any future architecture.

*"The sustainable forests of Europe take just 7 seconds to grow the volume of timber required for a 3 bedroom apartment, and 4 hours to grow a 300 metre super-tall skyscraper. Canada's sustainable forests alone yield enough timber to house a billion people in perpetuity, with forested trees replenishing faster than their eventual occupants." A Cities architecture ought to be vegetarian"*  
*Michael Ramage , Cambridge University*

We will propose growing for super-tall skyscrapers, then critique the results in context.

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## Studio Programme

Both the *physical* and *Intangible* heritage of place will define our research, developing place specific building systems constitutes a central aspect of our approach.



Each student will individually work with an invented growable composite, revealing and designing the haptic relationships between materiality, form, structure and space, the related processes of production and assembly, and the multitude of performance effects that come from the interaction with environmental influences and forces.

The design of space, place, structure and climate will be synthesised and tested through the fabrication of your material prototype using self developed apparatus, gadgets and gizmos. Portfolios are formed by this artefact together with a book, a film

and several drawings and will be used to support a presentation of your proposition.

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Research investigations will be led by the understanding of both landscape and society, consultation and collaboration is encouraged. Although proposition is considered at every scale, the studio places emphasis on the design of a **building**.

The process anticipates project development via series of strategic assignments, briefed and delivered on a weekly basis. This starts with a month long introduction studio, resulting in a real scale physical piece - on site. Workshop and seminar courses run alongside the studio.

These include;

1. Biophylic, probio design, context, environment and visual impact
2. Material specific complex geometry from cartesian transformations and digital as material matter
3. Detailing with living materials
4. Materials - ceramics, wood, gourds and mycelium.

The programme concludes with a propositional application of the prototype building at city scale on an ideal site.

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## Project - Planting Cities

Cities in which we live today are not the cities that we need for a civic, economic and environmentally sustainable tomorrow. Society is raging against politicians ineffective approach to supporting solutions and ideas for urban areas of the future, it is because of this that development and discussion of an ideal city continues to

*\*image Felicity Barbur*

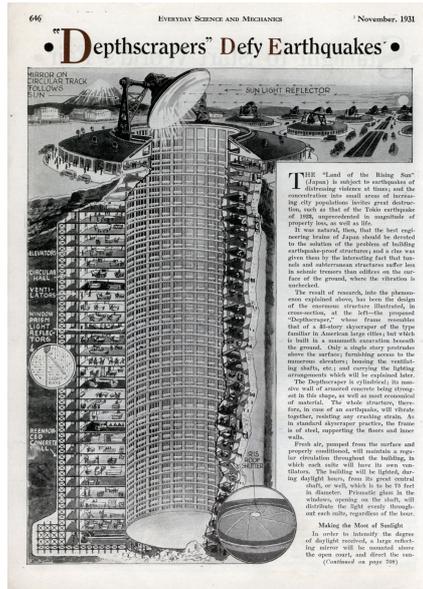
be the most critical area of research in contemporary architecture.

In 1894 King Camp Gillette, developed a Utopian vision - He called it Metropolis and published the design in a book under the title Human Drift - he advocated that all industry should be taken over by a single corporation owned by the public, and that everyone in the US should live in a single city powered by Niagara Falls.

It is his absolute conviction in presenting a fearless, if sometimes flawed solution, that interests us. Your projects must be supported by a similarly fierce conviction. His vision for a renewable energy solution predates the miracle that is being hunted down globally.

Bill Gates talks clearly on logical matters of miraculous cures for climate extinction and these help to define technical components of an architectural brief - which of course is just the tip of an iceberg of possibilities;

1. Change Methods of electricity generation and industrial processes;<sup>3</sup>
2. Gates proposes Clean energy generation together with current renewable solution, using his TerraPower, which aims to process depleted Uranium - 99% of which is waste stored in cooling ponds - by creating a fuel - buried deep below the earth surface - that will be sufficient to supply energy consistently for 60 years - generating waste that is buried at source of use. He proposes HVDC direct current lines as an electricity network - that will handle moving renewable power from ideal and distant location to place of use.
3. Better Energy storage to enable widespread use of renewables; all batteries globally only store 10minutes worth of the power currently used in a 24hour period. So a different approach to batteries is required, this generally means pumping water up or down and driving turbines.
4. We must sequester carbon, Technically liquefying carbon and burying it together with Afforestation / Reforestation - Planting trees or making new forests.



5. Change methods of Construction Finally and most easily achievable - Reducing the embodied energy in building fabric and in use efficiency

*“even if existing technologies to decarbonise the energy, heating, transport, industry, agriculture and waste sectors are maximised, there will be around 130 million tonnes of carbon dioxide-equivalent (MTCO2e) a year of residual emissions that (not yet invented) negative emission technologies will have to remove.*

*Committee on Climate Change - LSE COMMENTARY 30/04/2019*

Metropolis visions like Gillette's are one of the most important catalysts for fundamental change, our

fearless, if not yet immediately realisable, propositions must respect some extraordinary facts;

Destruction of Forests Globally is apocalyptic, in the last 25 years (1.3 million square kilometres have been destroyed). Currently 6.8 billion people potentially increasing 9 billion during this period apparently requires that 1.2 billion of us will live in 120 completely new cities, with only 8 of these holding pro climate agendas.

We must develop projected futures to promote change through capturing the imagination of the wider audience, we will take an earth first approach, exploring new interpretations of 'build only what you need', where cities are the forest. Your architecture, city planning, urbanism, and intangible social practices and rituals will inevitably point beyond the restrictions of the factual to unleash the potential of your vision.

In contrast to the theoretic approaches of the past, your version of King Camp's Human Drift will take the necessity for societal changes into account, current challenges for architecture, mobility, and energy as well as the logistics of food consumption and waste must be met with the ambition to profoundly shape aspirations of life in future cities, whatever these ultimately become we begin by exploring designs for a stacked settlement or building equivalent of the forest vertical eco system. Your cities will be the forests. There are three chapters.



<sup>3</sup>Unbuilt Tokyo Depth Scrapers



- 1 2050 Narrative
- 2 Material Invention
- 3 Spatial Proposition

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## STUDIO EXPECTATIONS

Studio 2 is focused on the development of the individual, as opposed to an overarching style or methodology. By writing a statement at the start of the year you can create a critical means to design and assess your own project. Giving you strong reasons to outline your thesis and ultimately your specific criteria for developing and evaluating your project. Studio 2 requires that you relate your project to the larger conversation regarding the role of the architect in the development of a happy, healthy and sustainable society alongside the development of technologies within the field of building places in this era of climate extinction.

Does your project relate to the studio agenda? Do you have historical and contemporary precedents? Can you define your thesis in a sentence? What is the relevance of your project to our broader cultural context? How does your project grow out of the existing context? How do you articulate the differences within your project using the models, films, text, drawings and images? What are your technical precedents, and what is your environmental, material and structural context? Who are your collaborators? What is the society that you are enabling?

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## OUTPUT

The studio goals in terms of the portfolio will be developed with you individually – you are asked to construct a significant artefact or physical piece to describe your work, this is likely to be the large scale material experiment, installed on site and recorded for

the portfolio, it is also expected that production crosses a range of media including images, books and films. They will have defined relationships with one another, as if part of a single narrative. You will also create a written manifesto, and every piece of work made throughout the year will be recorded and categorised in a digital process book.

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## 4STUDIO SCHEDULE

Tutorials, Seminars & Reviews

Tutorials will be held weekly and we will have an internal group pinup every second week with active participation, dialogue and criticism from everyone in the unit. You are asked to visit site as often as possible, a forensic understanding of your context is an essential part of the process.

<sup>5</sup> The reading list below will be supplemented with visual reference material, separately - using a shared cloud drive - <https://www.pinterest.com/measbe/>.

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## READING

For background in theory:

*Architecture of the City*, Aldo Rossi

*Complexity and Contradiction in Architecture*, Robert Venturi

*Ornament and Crime*, Adolf Loos

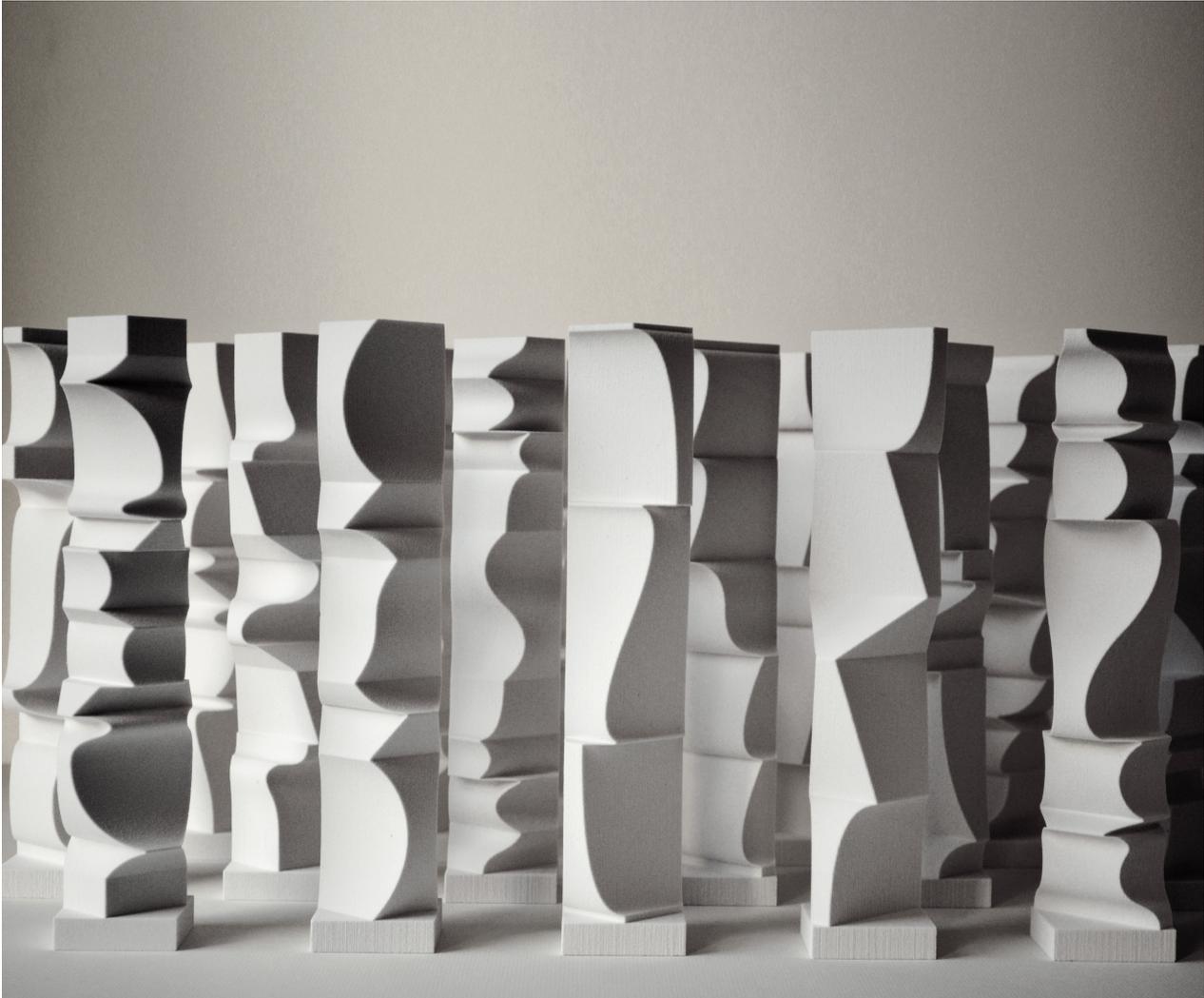
*The project of Autonomy, Columbia*, Pier Vittorio Aureli 2013

For understanding Architecture as Craft

Banham, R. *Theory and Design in the First Machine Age* (The Architectural Press, 1960)

Brunskill, R. W. *Vernacular Architecture* (Faber and faber 2000)

<sup>4</sup> *architectural-fairy-tales-2017-last-day-mykhailo-ponomarenko*



<sup>6</sup> *The Culture of Craft: Status and Future* (Manchester University Press, 1997)

Foscari, Giulia. *Elements of Venice*: (Lars Muller Publishers 2014)

Endo, N. *Studio Mumbai - Praxis* (Tokyo: Toto, 2012)

Freear, A, Et al. *Rural Studio at Twenty: Designing and Building in Hale County, Alabama* (New York: Princeton Architectural Press, 2014)

Gramazio, F, et al. *Fabricate* (Zurich: gta Verlag, 2014)

Gramazio, F and Kohler, M (Eds). *Made By Robots*,

Gramazio, F and Kohler, M (Eds). *The Robotic Touch, How Robots Change Architecture* Zurich: Park Books AG, 2014)

Granger, F. *Vitruvius on Architecture*, (London: William Heinemann, 1955)

Herrle, P and Wegerhoff, E. *Architecture and Identity* (Berlin: UT Verlag, 2008)

Hill, J (ed). *Architecture: The Subject is Matter*, (London: Routledge, 2001)

Illich, I. *Tools of Conviviality*, (London: Fanta, 1979)

Ingold, T. *Making: Anthropology, Ethnography, Art and Architecture*, (Oxon: Routledge, 2013)

Lesteri, C. *Making It, Manufacturing Techniques for Product design*. (K)

Naylor, G. *The Arts and Crafts Movement: A Study of its Sources, Ideals and influence*, (London: Studio Vista, 1980)

Oppenheimer-Dean, A and Hursley, T (eds). *Rural Studio - Sam Mockbee an Architecture of Decency* (New York. Princeton Architectural Press, 2002)

Oppenheimer-Dean, A and Hursley, T (eds). *Proceed and be bold: Rural Studio after Samuel Mockbee* (New York: Princeton Architectural Press, 2005)

Pallasmaa, J. *The Thinking Hand: Existential and Embodied Wisdom in Architecture*, (Chichester: John Wiley and Sons, 2009)

Ratti, C, Claudel, M. *Open Source Architecture* (London: Thames Hudson, 2015)

Ruskin . J, ed . Birch . D *The Stones of Venice II, 1853 The Nature of Goth* v, (Oxford : Oxford University Press, 2004)

Sennett, R. *The Craftsman* (London : Penguin, 2009)

Schaik, L. *Practical Poetics in Architecture*, (Chichester: John Wiley & Sons Ltd , 2015)

<sup>6</sup> <https://medium.com/@MITS.AP/packed-5160d5416530>

Sheil, B. *Design through making* (Chichester: Wiley-Academy, 2005)

Till, J. *Architecture Depends*, (Cambridge, Mass.; London MIT Press, 2013)

Tuomey, J. *Architecture, Craft and Culture : reflections on the work of O'Donnell + Tuomey* (Kinsale, Ireland : Gandon Editions, 2008)

Wall, C. *An Architecture of Parts*, (Oxon:Routledge, 2013)

Wilmes, A. *Altruism By Design : How to Effect Social Change as an Architect*, (New York: Routledge, 2015)

Woods, M. *From Craft to Profession: Practice of Architecture in Nineteenth-Century America*, (University of California Press , 1999)

Yanevo, A. *The Making of a Building : A Pragmatist Approach to Architecture* (Bern; Oxford : Peter Lang, 2009)

Zumthor, P. *Thinking. Architecture*, (Basel: Birkhauser, c2010)

For dogmas and manifestos:

[https://doubleoperative.files.wordpress.com/2013/09/selected-manifestos\\_updated\\_small1.pdf](https://doubleoperative.files.wordpress.com/2013/09/selected-manifestos_updated_small1.pdf)

For examining type:

*The Alphabetical City* , *Pamphlet Architecture 5* 1980, Steven Holl

*Delirious New York*, R Koolhaas,

*Living Bridges*, *Academy Editions*, Peter Murray 1996

*Superstudio Opere 1966-1978*, Gabriele Mastrigli, 2017

*Superstudio Twelve cautionary tales for Christmas*, *Architectural Digest* 1971

*The Supreme Achievement*, Maria Giudici, *Black square*, 2016

For understanding The Ashdown Forest:  
PERPETUATING WOODSCRAFT\_PROCESS  
BOOK\_PETER ROPER.pdf

GRAFT meanings

1. a shoot or twig inserted into a slit on the trunk or stem of a living plant, from which it receives sap.
2. a piece of living tissue that is transplanted surgically
3. combine or integrate (an idea, system, etc.) with another, typically in a way considered inappropriate
4. bribery and other corrupt practices used to secure illicit advantages or gains in politics or business.
5. hard work



<sup>7</sup> Lidar - Forest 2018