FINDING THE OTHER STAKEHOLDERS; THE RE-EMERGENCE OF THE TINKERER

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ABSTRACT:

A popular mode of architectural education rests on an elitist canon of established buildings as a means to ascertain the benchmark for design merit and provide a trajectory for future architectural practice. This research proposes an alternative method of pedagogy that explores the value of engaging contiguous disciplines, operators and stakeholders in spatial production. Building on concepts of design education from Victor Margolin and methodologies of active analysis from James Corner, the paper promotes improvised and collective fabrication to incite critical engagement. Charting strategies and student projects from the Interior and Spatial Design Honours program a critical reflection will be made upon; the value of fields outside of the architectural canon in generating design solutions that address localized criteria; the scalar duality of craft and model-making as an agent in *research through application*; and the value of expanded speculation in both the pedagogy of spatial design and its practice.

Keywords: Divergent-thinking, Stakeholder, Fabrication

FINDING THE OTHER STAKEHOLDERS

Jilly Traganou (Traganou 2009), in her article *Architectural and Spatial Design Studies: Inscribing Architecture in Design Studies*, promotes the importation of Victor Margolin's method of design engagement within the field of architectural scholarship. Traganou (Traganou 2009 p. 174) outlines the 'status quo' of architectural education as being of Pevsnerian derivative and engulfed in the study of key built works, establishing the present as an evolution of the elite architectural canon. Margolin's (Margolin 1995 p 9. 12-13) design studies propose the inverse – design is contemporized by a review of non-normative concepts located in adjacent fields of production to test the relevance of present practice.

Interior and spatial design as a practice seeks to explore the expanded definition of the interior. As educators we train students to examine the interior as a significant component of the city with levels of affect ranging from the articulation of the room to the infrastructure of the city. The production of this field is often likened to that of architecture, a result of its shared historical roots and similar presentation format. Interior and Spatial Design at The University of Technology Sydney is contiguous to Photography and Situated Media,

Integrated Product Design, Visual Communications, Fashion and Textiles, and Animation. This spectrum of disciplines is bound more closely by the common act of designing than the medium of space. The intersection between spatial practice and a pedagogy defined by adjacent disciplines is well located to test the potentials of Margolin's design studies on the configuration of interiors and cities.

The underlying approach of the yearlong Honours Program is to initiate a personalized methodology that establishes criteria met by student-defined deliverables. Christopher Alexander (Alexander 1964 p. 77-78), in his preliminary explanation of set theory, elucidates and widens the margin between the mental image of context and the mental image of form. Here the contextual forces are expanded and hierarchized to provoke an agenda broadened by adjacent concerns and located beyond preconceived problems and solutions. Learning from Alexander, the course aims to generate new typologies of articulated space, venture beyond discipline specific precedents and engage a critical pluralist approach to design process. The foundational concept of co-creation is employed substantially as a pedagogical strategy and is enacted as recurring loop between divergent and convergent thinking to counter student preconceptions and expand speculated thematics.

TINKERING ACROSS THE GAME-BOARD

The rationalization of design through a canonical structure of evolving excellence is often interfaced with practice through a similarly rigid mode of creation - l'esquisse. This methodology, with its origins the Beaux Arts, rests on the absolute separation of the timed sketch (the initial prompt of genius) from the design development (the iteration and manipulation of this founding development). While the esquisse is more widely applied in the present as a considerably less dogmatic exercise, its original application sought to maintain and celebrate the purity of the original concept. In discussing Louis Kahn's architectural training, Load (Load 1989 p. 14-15) describes the original Beaux Arts esquisse as something of a bridge connecting the canonic archetype with the contemporary scenario – forming a design solution as an extension to the defined trajectory of exemplified architecture.

An institution of considerably less esteem has provided a different mode of thinking-through-making. Previously seen as antiquated, the act of *tinkering* deploys localized knowledge and ad hoc crafting as a means to simultaneously invent a contemporary design methodology and solution. Unlike the esquisse, *tinkering* prioritizes the considered exploration of methodology to historically qualified normative values. This process builds the design trajectory into a multi-dimensional field that includes other key tenants such as environments, experts and stakeholders; each no longer positioned as a set of constraints but an active player contributing to the design outcome by configuring the methodology.

In his book chapter, *The Agency of Mapping: Speculation, Critique and Invention*, James Corner (Corner 1989 p. 240) defines a particular mode of mapping he labels as the *Game-board*. This mapping technique encourages multiple parties, concepts or ideas to engage across a demarcated limit of territory. Unlike the more common mapping techniques such as layering or the *derive*, the act of game-playing affords and encourages stakeholder

interaction. James Corner (Corner 1989 p. 240) states, 'As a representation of contested territory, the map assumes an enabling or facilitating status for otherwise adversarial groups to try and find common ground while 'playing out' various scenarios.'

The *tinkering* process as applied within the Honours program has its foundations in Corner's concepts of *Game-board* mapping. The assignment is foregrounded by two mapping exercises, the first of which examines the qualities or thematics of the immediate site area and the second that 'futures' the potential of these within the site, city and nation. This information defined by locations, quantities, vectors, boundaries, legalities and chronologies form the starting point of the student to construct their *Game-board*. Within the context of the Honours studio this exercise is undertaken as a three-dimensional working model to exploit the broader potentials of model making.

A significant agency of the model is its inherent duality in presentation and representation. Within the various disciplines of spatial practice, model making like drawing has provided the ability to design, test and discriminate at scale. The territory outlined in the scale model is fundamentally representative – it holds an obvious level of abstraction where the designer, educator and critique are required to imagine the presented material within the realities of site. The model however can never deny its operation as a 1:1 object; using considered fabrication techniques to process a specific selection of materials with ideological intent.

Constructed through *tinkering* and therefore concerned with both solution and process, the scaled representation of space is allowed the agency to define place as well as vectorial forces of interaction (trade, community processes) and time (season, decay, evolution). The model as a 1:1 object enables an engagement with concepts such as craft (an architectural detail), the haptic (sensorial qualities of space), and architectural heritage (an exploration of vernacular construction). Prioritizing the provision of performance over image, the *tinkering* process inevitably relies on the engagement of previously unforeseen experts, non-experts and stakeholders. Ashraf Salama and Nicholas Wilkinson (Salama & Wilkinson 2007 p 250) discuss the agency of community projects in design pedagogy as a means to address physical space with its inherent social, and political faculties. The act of tinkering allows 'the physical' to be applied as a multi-authored methodology situating a broader stratum of community within spatial practice.

Here the process of model making is drastically expanded. The iterative model becomes representative of the evolving design scheme at scale as well as a mechanism to be engaged by the operators of the themes embodied in its tectonics. The model can conceptualize construction details with fabricators, initiate discussions of material performance with suppliers, provide aural and tactile survey's of the landscape, examine weather and atmosphere, and provide an operable platform for discussion with effected user groups. This broadened series of operators and operations are often situated in adjacency to the confines of spatial practice. Critically however, the physicality of the *Game-board* provides limitations to project scope and affords a space where a divergent series of stakeholder concerns can converge at a synthesized design outcome.

RESEARCH THROUGH APPLICATION

The Honours program employed extensive *tinkering* in two different studios that explored specific sites on Sydney's coastline. While the pedagogy deployed in both studio's was nearly identical, the act of collective-fabrication evolved a variety of student methodologies and generated a range of student projects. The following case studies are intended to illustrate the potential of *tinkering* across a series of scenarios as a means to emphasize its agency as a flexible system of engagement.

MANUFACTURING BLACKWATTLE BAY

In 2014 students were tasked with redeveloping Blackwattle Bay as a manufacturing precinct on the final traces of Sydney's working harbour. The project outline was developed as a response to two critical issues facing Sydney and Australia - both of which had featured heavily in the media. Facing the continued growth of the city's real estate, the Bays Precinct, a historic segment of the harbour traditionally used for industry and power generation, was targeted for redevelopment into residential waterfront. While the area's use as a productive working harbour had been in decline for a period of time, Blackwattle Bay maintained industry through boatbuilding, a fish port and cement importation. During the same period announcements were made that Australia's manufacturing industry was facing a further marginalization within the economy evidenced by the closure of automotive production in Victoria. As a response, the students were tasked with developing schemes for Blackwattle Bay that spliced economic production through manufacturing with waterfront public space. The design brief demanded the research of an appropriate site anywhere along the foreshore and the justification of an apposite industry.

The *Re;forestation* project by Amy Sun was initiated when overlaying historic maps of the Blackwattle Bay evidenced a relationship between privatized industrial use, a decline in vegetation and significant changes to the shoreline. Further historical research established its prior function as a colonial post for tree harvesting and generated an interest to explore timber manufacturing as an agent for land reconciliation and reciprocity; a paradigm shift from the historic incarnation of timber production.

The project's objectives were to develop a viable industry with site-specific benefit for the land and the public. In doing so the project addressed sustainable forestry, yield capacity, cutting processes, growth patterns, companion planting, soil quality and market demand. The strategy and research knowledge acquired to achieve these objectives was gained during the production of the student's initial site model (Figure 1). An identified timber yard still operating in proximity to the site became important as both a supplier of materials for the production of the model and a source of knowledge for timber processing, construction and detailing. Beyond providing broader information about plant selection and harvesting, the timber yard became a surrogate stakeholder for the hypothetical project.

To generate the potential for public space within the territory of private industry, the design proposal considered controls such as access to the workshops and the working limits of specific machinery. Studies of standardized metric restrictions were reinforced by tutored

workshop production to provide knowledge of constraints and the value of manufacturing as a spectated process (Figure 2).

Figure 1: *Re;forestation* site model. Tracking the importation of timber and the export of sawdust. Photo by Amy Sun.

A craft gallery situated beside the timber storage yard formed a key spatial envelope within the project. As a means to design the interior of the space as well as agenda a series of objects to be curated in the gallery, the student began a series of conversations with celebrated Sydney-based industrial designer Berto Pandolfo. Key thematics in Pandolfo's work and associated manufacturing concepts provided an enhanced set of spatial ideas about craft, material reuse and pragmatic questioning. These idea's generated from faculties outside of the architectural canon conditioned the students approach to the design of the gallery.

Figure 2: *Re;forestation* model-based render of timber workshop. Image by Amy Sun.

The *Game-board*, operated in conjunction with the timber yard, workshop technical staff and industrial designers afforded the project a critical approach to; land rejuvenation, seasonal awareness, indigenous species selection, the specific pragmatic requirements of workshop architecture and the value of crafted timber.

Stormwater Skate Park by Elsa Karonis was born from a reluctance to engage with manufacturing spurred by revulsion to the pollution produced by industrial facilities. The westernmost part of the site forms a major juncture for numerous storm water outlets moving waste from the surrounding suburbs including a number of existing manufactories. Citing the visible water slicks and discarded objects, the student chose to forfeit a mapping of existing industry and pursued an investigation into the quality of water.

Specimen samples were retrieved from shoreline locations and notated with the time, place of collection and embodied pH levels (Figure 3). These test studies were assembled across a scaled territory that plotted the location of harvested waste, solid debris and the precise service area of surrounding storm water collection. The two and three-dimensional map established the instigation point for a volume of wastewater without treatment that flowed into the bay. This outcome enabled the student to engage in conversation with the university's engineering department; an identified stakeholder in the project outside of the architectural field. Using the spatial and pseudo-scientific maps, a questioning took place upon both the facilities required to clean the water as well as the potential and limitations of the treated water in public space.

Figure 3: *Stormwater Skate Park* specimen sample.

While present day treatment units proved incapable of providing water sanitary for bathing or swimming, their spatiality and systematization unveiled conceptual themes around kinetics and fluidity. A categorization of required facilities was represented in scale models that revealed the latent spatial, mechanical and atmospheric qualities of what had previously been understood as pragmatic infrastructure. This expanded understanding of the public domain that included water improvement strategies, diverse suburb demographics, infrastructure volumes and kinetics provided an intersection at the conceptual program of a skate park.

A group of regular skateboarders were involved as a second set of stakeholders to understand the geometry, velocity and movement of the skateboarding activity. The three-dimensional models of the storm water infrastructure provided a *Game-board* with which the student's role was productively assigned to a mediator with design intent. The pragmatic storm water system and the spatial requirements of a skate park were navigated to produce

a new type of public space; a functional outcome that challenged the routine tectonics of each archetype (Figure 4).

Figure 4: *Stormwater Skate Park.* Photo by Mitch Lui Photography.

The final project became a programmatic integration of a skate park, water playground and public plaza located on what is presently the polluted edge of Blackwattle Bay. The *Stormwater Skate Park* demonstrates input and ambitions from multiple stakeholders; providing a profitable supplier of water for commercial and public use, clean water activities and environmental awareness by visually celebrating storm water processing (Figure 5).

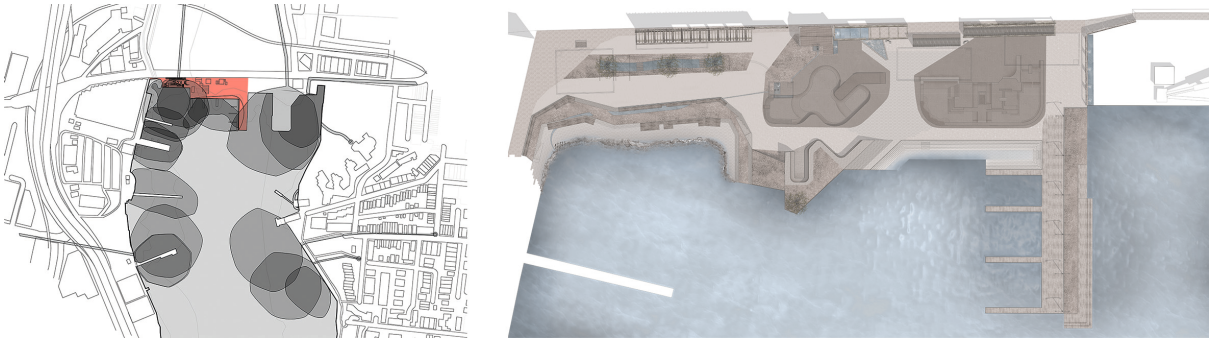

Figure 5: *Stormwater Skate Park* pollution zones and final scheme. Image by Elsa Karonis.

RECOVERING VAGRANCY

In 2012 students were asked to explore a series of disused 19th century military bunkers positioned along the city's headland reserves, the Sydney harbour foreshore and the outer limits of Botany Bay. Constructed to defend the settlement from a potential navy assault, the sites occupy land located in close proximity to the city, yet separated by difficult topographic conditions. The bunkers are examples of an architecture specifically designed to treat a now absent paranoia. Today, the individual emplacements are preserved not only by their heritage but also by apparent lack of developable programmatic feasibility. Their location within headland reserves and close proximity to operating barracks casts them as inevitable outsiders to Sydney's urban fabric and their heavy concrete construction, both beautiful and brutal, makes them difficult to evict. Through processes of *tinkering* students

defined a specific site, program and user group. With an agenda to explore the visceral spatial qualities beyond the scope of a standard site analysis, the models took the forms of prosthetics extending the perception of the body to derive programmatic function.

The prosthetic holds a key difference to the architectural model in the way scale and scalability are presented. The prosthetic is 1:1 - it is an armature (or a micro-architecture) that is realized and therefore non-representative. As a spatial construct it has a site (or series of sites should it be mobile), a user, and a defined program, but like the architectural model it does hold the capacity to be scalar. While the prosthetic provides space for a single user it evokes the potential for its service to be upscaled; to apply its tectonics, program and atmospheric qualities to the conceptualization of a structure with a greater capacity of inhabitants. It was through this duality, based primarily as a visceral reaction to the adjacent qualities of site and secondarily as a programmatic structure, that students explored the re-inhabitation of seemingly unfeasible development.

The disused colonial military bunkers of Bare Island are positioned proud of the La Perouse shoreline at the northern tip of Botany Bay. Alena Minaeva's *Ocean Baths* sought to revitalize the inhabitation of the island by continuing the tectonic and topographic transformation initiated by prehistoric ocean swells and later by European settlers. The resultant project employed a process of excavation, an accelerated form of nature's erosion, as a means to instate a series of pools that afford an interface of water, sound and light to narrate a connection with people and place.

The student's conceptual objective was to exploit the historic collaboration between user and the sea. The project consisted of three interconnected baths; the *tepidarium* and *caldarium*, both located within the existing bunkers; and *frigidarium,* the main pool carved into the island by nature and open to the Pacific Ocean. The pools are linked by a concourse implanted in the bedrock that slices through the abandoned bunkers to an internal cave; a thoroughfare that allows the sound of the ocean to resonate throughout the interior and illuminate the textured sandstone.

The project began through the construction of a prosthetic that enabled the student to understand the site absent of its image - engaging with the tactile, the olfactory and the aural. During the blind exploration across the undulating rocky surface the prosthetic acted as a modified walking cane, registering deviations on the ground surface as ideograms on the wearer (Figure 6). This interconnection with land that prioritized movement and touch established a desired response to site and initiated material investigations to scale the prosthetic as a public interior.

The interest generated in the dichotomy of *the solid*, *the malleable* and the *limits of durability* informed a series of studies intended to capture shifting conditions caused by long-term weathering. Recordings through stone rubbing and photography documented the decay of the abandoned military architecture and the tide-sculpted bedrock. These works laid the foundation for five abstract models crafted from wax and plaster that tested the relation between static and fluid forms (Figure 7). In their abstraction they provided a

visceral reaction to the site that could not be captured by objective mapping devices. These studies, inspired by geological as well as manmade decay, generated criteria for proportion, organization, scale and tectonics.

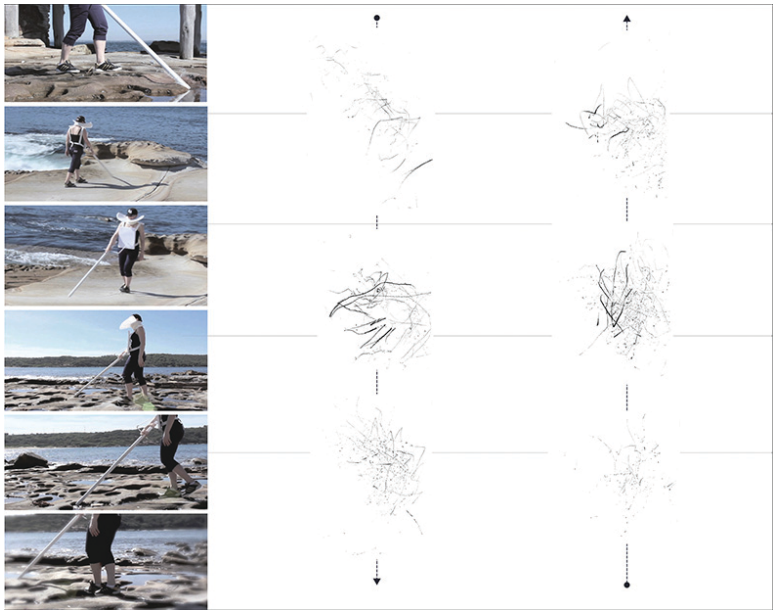

Figure 6: *Ocean Baths* prosthetic and associated ideograms. Image by Alena Minaeva.

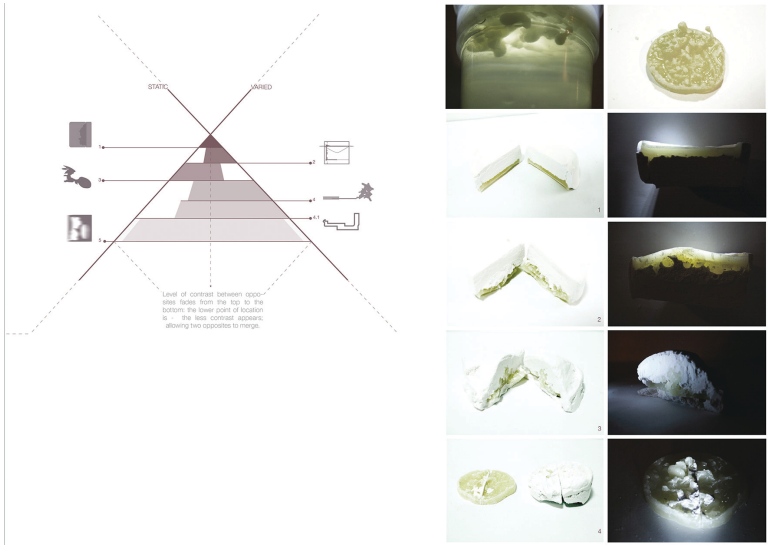

Figure 7: *Ocean Baths* abstract concept models. Image by Alena Minaeva.

The bunker containing the *tepidarium*, *caldarium* and utility room as well as the concourse relied predominantly on introduced materials and artificial technologies reflective of the structure's colonial roots. The concluding *frigidarium* is almost entirely maintained as a natural cavern carved by the ocean, the same natural force that controls the temperature and depth of its waters (Figure 8). Importantly, a key concern of the project was its gradual erasure brought into effect by human use and natural forces. The continual study of the site at the scale of its sedimentation provided a basis of the projects conceptualization, an

ideology that defined the natural process of decay as a logical operator in human construction.

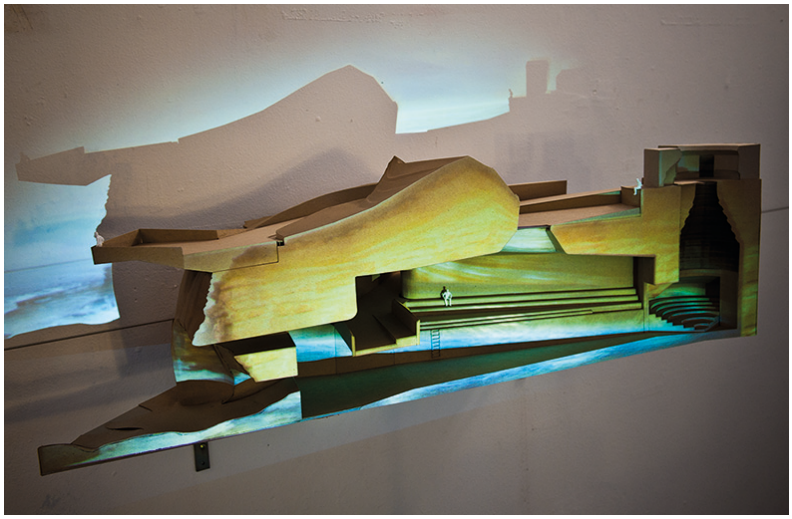

Figure 8: *Ocean Baths frigidarium* model. Image by Dasha Guseva.

THE AGENCY OF EXPANSIVE SPECULATION

The use of *tinkering* to simultaneously formulate design methodology and solution poses two significant questions to interior and spatial design pedagogy and its associated practice. The Honours program affords students the opportunity of brief writing with two key constraints - a generous limitation on site location and a broad definition of required program. The pedagogical format of a research thesis to be answered by a corresponding final project is hardly an uncommon exercise; there are a number of design institutions within Sydney alone that embrace this format. However the process of *tinkering* makes a fundamental shift through its refute, or at least resistance, to the scheduled barriers of research, concept development, design development and presentation. Its ideological agency is that key ideas relating to any stage of the project may be discovered at chance, or upon advice, as a bi-product of engaging adjoining development stages. In accepting these multiplicities, *tinkering* allows a cross pollination of ideas between both disparate stages of the project as well as dualities of scale. A corresponding development is a broadening in the range of stakeholders, their period of opportunity and their effect across multiple measures of the design; a reception of adjacent fields that credits Victor Margolin's (Margolin 1995 p 9. 12-13) concept of design studies as an education model.

There is however a questioning that must be answered about the role of this methodology beyond tutelage in interior and spatial practice. With the perceived view that designers solve a predefined mandate on an administered site, is the role of the designer as a brief-writer relevant within the reality of practice? If *tinkering* is a process of reconfiguring the specifics of the brief with stakeholders beyond the client, can it be valued a mode of practice in the contemporary city?

The role of questioning adjacencies is essentially a process of expanded speculation. Combining the term *speculation* with space, urbanism, or architecture quickly attracts

trouble in the post-2008 economic climate. Speculative urbanism has indeed proven itself dangerous. The Concise English Dictionary (The Concise English Dictionary 2007 p. 896) defines the word *speculate* as 'to reflect: to theorize: to make conjectures or guesses: to take risk in hope of gain, esp. in buying or selling.' It could be suggested that everything within this definition apart from its oft-association with commerce is incredibly productive within design process. If the expanded notion of speculation would include testing these theories, guesses and conjectures upon an included and informed stakeholder group, surely this would produce solutions from diverse and relevant critique.

The localized act of *tinkering* provides a working approach that negates mimicry, producing results and approaches born from questions of place. Design theorist and educator, Tony Fry (Fry 1999 p. 5), considers this a fundamental quality of design. 'Design always arrives as the way something acts as, in and on the world, and as a learnt thinking (theory) that informs practices which bring something into being.' The practice of *tinkering* is precisely about engaging experts, non-experts and community members as a means to collectively navigate and situate details of the locale beyond the economic feasibility of location. If speculative urbanism has proven a danger within the present, the designer's role to re-evaluate what is being speculated may be at its most relevant.

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