Scale as the Representation

of an Idea, the Dream of Architecture and the Unravelling of a Surface

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Architectural drawings are considered as a medium of thought and can be understood as a primary clue to thought processes and ideas. The drawn is a tangible speculation that experiments with scale as the labour of the hand and eye attempts to bring dreams into the built world. A drawn detail can be at a miniscule scale or at 1:1, the dimensions of a future building. Focusing on a single object may change the sense of scale and require imaginative scale shifting to show the relationship between the drawn and its link to ideas.

> In Olinda, if you go out with a magnifying glass and hunt carefully, you may find somewhere a point no bigger than the head of a pin which if you look at it slightly enlarged, reveals within itself the roofs, the antennas, the skylights, the gardens, the pools, the streamers across streets, the kiosks in the squares, the horse racing track. That point does not remain there: a year later you will find it the size of half a lemon, then as a mushroom, then a soup plate. And then it becomes a full-sized city, enclosed within the earlier city: a new city that forces its way ahead of the earlier city and presses it toward the outside. (Calvino 2002: 129)

In his book *Invisible Cities*, Italo Calvino's version of scaling relies on procedures of partial seeing, scoping, rescaling and extending. This suggests that a single work can appear at once assured and ordinary, or near and yet strangely remote; it may affect vast areas, yet simultaneously seem in danger of disappearing (Rugoff & Stewart 1997: 14). Scale, it is argued, is the representation of a dream and the complicating of a surface with which architecture comes into being. This paper attends to the drawing archive of the University of Auckland for the Smith & Caughey Department Store (1927) and, in particular, two drawings of the elevations to the department store.

This paper will discuss the drawn scale as three aspects: the representation of an idea, the dream of architecture and the unravelling of a surface. Architectural drawings represent more than their architectural subjects and are proportionate to the future building; they are also elements in the history of architecture as well as an intriguing, if shadowy, window to the imagination (Hewitt 1985: 9). Drawing may not only present ideas of architectures past but also represent them through the un-built. Mark Hewitt writes: "An architect's sketch or sketches, approximations of mental pictures and ideas with their own intrinsic qualities, provide a kind of foil for further mental speculations and images" (1985: 3).

Architects are removed from directly representing or even abstractly depicting aspects of the visual world, except as they must visualise their invented objects within it. Frank Orr writes about scale from the perspective that it can be seen as a comparison of the size of something as it relates to something else, more specifically he writes that it is a comparison and relation to human size (1985: 9).

1 *Scalae* – a flight of steps, stairs, staircase, ladder, scaling-ladder. (Pollio 1960: Book 5, Chapter 6)

The Latin word *"scalae"* means a ladder or a flight of stairs.[1] In a more modern application, scale could signify a series of marks made at regular intervals along a line, like rungs on a ladder, and later a device or system for measuring. In cartography and in architecture, a scale is a line divided into equal parts and placed at the bottom of a map, a drawing, or a plan to serve as a common measurement for all parts of a building or for all distances. Rather than scaled drawing limiting accuracy, scale makes the comprehension of drawn worlds possible.

A scale drawing could be seen as a miniature with a consistent specific ratio to the imagined object. The scale of architectural drawing consists of equal parts of measure and proportion where a unit of measure is chosen and a ratio established between idea, representation and future apparent size. Scale invites the inhabitation of a drawing, the anticipation of occupation and is a means to imagining measure through projecting oneself into the drawing. The ability to project a miniature self into the drawings allows the architect to occupy the building, what Susan Stewart calls "the architects' scalar imagination" (1993: 94). As the imagined miniature self (a tiny self with measures deriving from the human body) inhabits a drawing, the miniscule body of the architect is the measure, walking across the surface of the drawing. The relationship of the idea to a physical scale relies on internal systems of comparisons, the notion of hierarchy, selection and example of drawn details.

Paul Emmons writes that, while Cartesian approaches assume that scale is merely a numerical dimension known to the mind, it also has an empathetic bodily projection that is critical to imagining a future place (2007: 71). The making of architectural drawings engages the entire body in the physical act of imagination to understand scale.

Scale can affect the exchange between viewer and idea. Small details may force us to draw closer in order to scrutinise, for the more closely we examine minute details, the less we notice the gap in size that separates us. The act of paying attention is itself a kind of magnifying or diminishing glass, the exchange between the viewer and the objective idea. Imagination is required to project a change of scale. Similarly the approach and the scaling of an idea can reveal the clarity needed for the idea to move into the built world. Scale becomes a stair providing the means for ascending and descending between the great and the small and the compartments of the imagination. The climbing of stairs to view the representation of the idea more closely reveals the lines of the future place.

The scaled detail will be discussed in relation to drawings from the University of Auckland Architecture Archive. The question of the relationship between the architects' phantasia and the nature of a scaled detail are tested in the archival drawings of one particular building. The drawings, it is suggested, become a kind of text, the visual representation of the author's dream, a partial set of fragmented sheets, the taking apart and putting together required to see the dream in its entirety.

Fig. 1 Smith & Caughey Building. Photograph by Susan Hedges.

Smith & Caughey Department Store (1927)

The Smith & Caughey Department Store is a seven-storeyed building designed by Roy Alstan Lippincott in 1927. The building reads as an ornate monolithic mass on the corner of Elliot and Wellesley Streets, Auckland City. The department store underwent a number of alterations from 1927 to 1940, all designed by Lippincott, including the remodelling to the Queen Street façade in 1940 and the addition of a lightwell to the store in 1932 (Bruce 1984: 74).

The drawing set offers a department store richly decorated in pressed cement panels and plaster facings. Large arched windows reach like ladders from the ground to the sky and recessed transoms set in cast iron dominate street front elevations. Bronze panels separate floors and are repeated up the building. Pilasters soar upwards and protrude above the parapet line, giving a vertical emphasis. Ornamentation appears as leaves and rosettes of different types contained within geometric frames, blossoming pilasters and balconettes, and spiral and lozenge patterns decorate colonnettes.

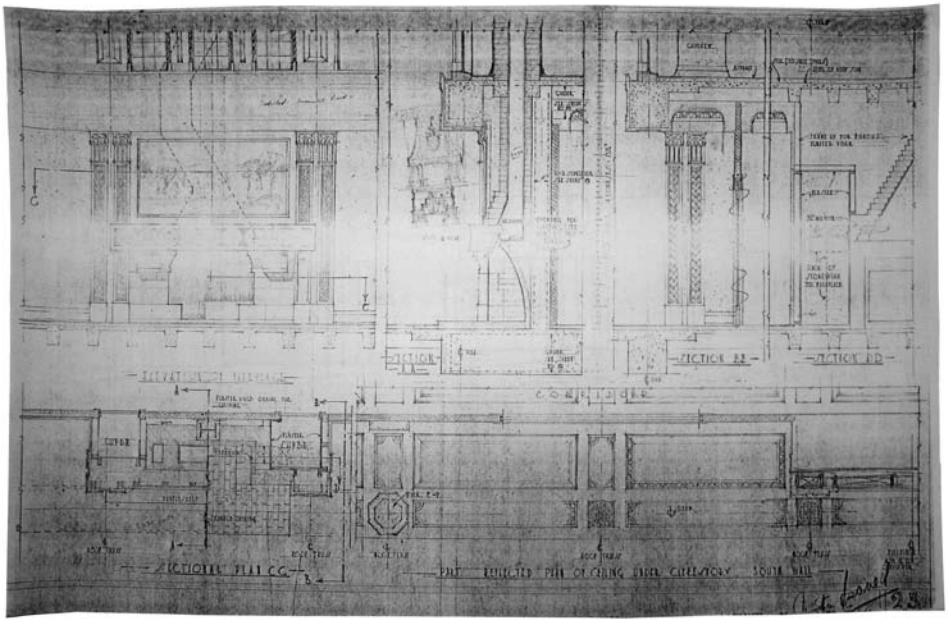

Fig. 2 Lippincott, Sheet No. 25, 'Sectional Plan CC, Reflected Plan of Ceiling Under Clerestory South Wall'. Architecture Archive, Architecture Library, The University of Auckland (UoA Architecture Archive).

The archived set and the representation of an idea

The Smith & Caughey archived drawing set consists of a number of hand-drawn, ruled and contract drawings. The drawing set does not precisely represent the building as it is today; sheets from the façade remodelling are missing and only a single sketch showing the lightwell remains. The titles begin at the foundations and end at fibrous plaster details.

The archived set consists of working drawings, instructions to be sent to various skilled workers, masons and builders. The first 22 sheets are on fragile, faded paper, weathered, yellowing and torn at the edges. The rest of the set is a series of more recent photocopied sheets, where patches of the drawings have been lost in the duplicating process. The set is incomplete, sheets are missing and some drawings have no titles. The surviving notation of the future building and the delicate marks of detail have become blurred edges, smudges lost in the attempt to be copied.

The marks that are lost threaten the full clear representation of the imminent object. The loss of marks makes the images unstable and the images' own coherence is undermined; scale shifts into smaller details, from rough proportioning to refining and trimming, repeated by subsequent enlargements, progressively focusing on parts of the dream.

Susan Stewart writes that a book offers metaphors of containment, of exteriority and interiority, of surface and depth, of covering and exposure, of taking apart and putting together: "The book sits below me closed and unread; it is an object, a set of surfaces. But opened, it seems revealed; its physical aspects give way to abstraction and a nexus of new temporalities" (1993: 37).

The opening of the book becomes the opening of the archive; the drawing set becomes the site of the phantasia, its construction and record in the archive enabling the exploration of future spaces and a glimpse of the architect's imaginings. This discussion will centre on four of the sheets describing the details and elevations of the Smith & Caughey Department Store: *Sheet No. 3 South Façade (To Wellesley St) + North Elevation, scale ⅛" = 1 foot*, *Sheet No. 4 West Elevation (Elliot St) + East Elevation scale ⅛" = 1 foot*, *Sheet No.7: Half Elevation Typical Bay Elliot Street, and Half Elevation Typical Bay Wellesley Street, scale ¾" = 1 foot* and *Sheet No.8: Section at Entrance, and Sectional Plan A-A, scale ¾" = 1 foot*.

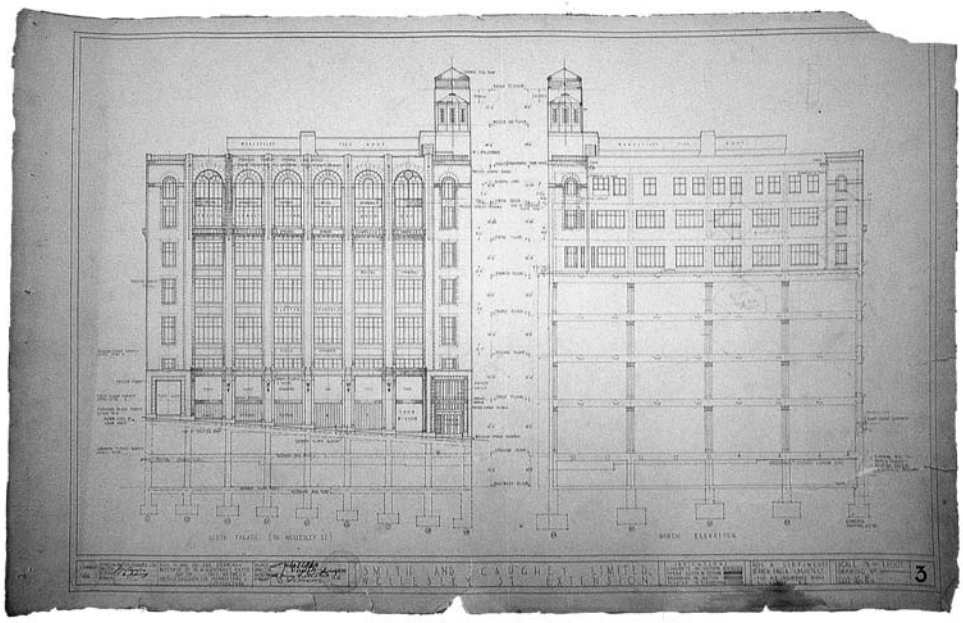

Fig. 3 Lippincott, Sheet No. 3, 'South Façade (To Wellesley St) + North Elevation, Smith & Caughey Limited, Wellesley Street Extension'. UoA Architecture Archive.

The drawn sheets and the dream of architecture

Sheet No. 3 and *Sheet No.4* reveal the four elevations of Lippincott's dream. The building's two street elevations show eight bays of windows on Wellesley Street and six on Elliot Street and cover six floors of the department store. (Shaw 1991: 111) The upward momentum is slowed at the fifth floor by a small row of flower boxes. Two floors above this they merge to form a single range of double-height arched windows that visually tease apart the spaces of the page.

The east and north elevations are drawn with a reliance on outline and flattening of surface. In the west and south elevations the line work becomes more complicated: depth is implied with darker hatching, the *poché* suggesting an embossed ornate surface. Moments of drawn ornamentation begin to add depth to the sheet's surface, and become a suggestion of the dream of skin.

The flatness of the department store drawings, the elevations and their detailing, reveal the structural elements, the supports and connectors and, alongside the perceptual understanding of the building, closure and aperture, solid and void, surface and transparency. The elevational drawings offer the meeting and crossing of ideas, the steps, the required scale shifts and the scaling of a ladder to get closer to the representation. Marco Frascari writes that all the lines in architecture derive from the lines used in a loom (1993: 23-24). Earlier, he had suggested that the architects' phantasia are woven into shape from these lines: just as threads form a piece of cloth, the loom can be seen as a metaphor for the architectural plan, just as scaffolding could serve as a metaphor for raising the architectural elevation (1985: 87).[2] The marks become an expression of imaginings and are a statement supplying the general picture. The large scale prompts elaboration so as to grasp the potential of the small part. The detail soon follows.

The graphic elements involved in drawings, plans, sections and elevations, are a visual representation with silhouettes or figures. The elevation is the image of the projected building, an upright proper drawing showing a source of proportional play where surfaces become places for geometry. This flattened projection can be thought of as a mask, a portrait or a permeable screen. It suppresses the three-dimensional. The elevation is part of the performance of architecture, a place of strangeness and comfort. The mask transforms and omits as much as it represents and, as with the elevation, there is that which is denied and revealed (Hill 2006: 13-14).

2 Frascari suggests that scaffolding is not independent but an integral part of the façade (1985: 87).

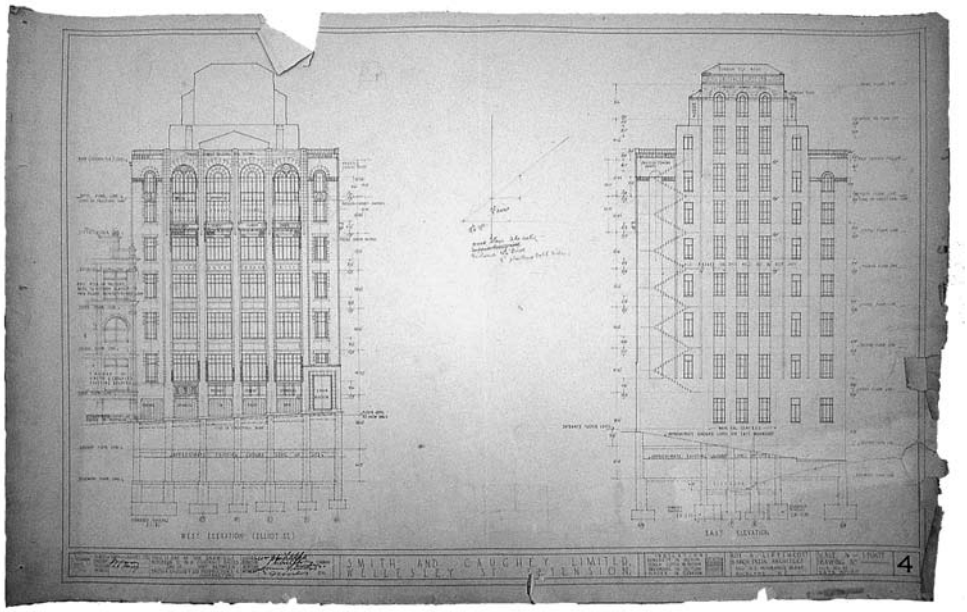

Fig. 4 Lippincott, Sheet No. 4, 'West Elevation (Elliot St) + East Elevation, Smith & Caughey Limited, Wellesley Street Extension'. UoA Architecture Archive.

The elevation is the picturing of architecture, a site for negotiating the inside and outside, the recording of materiality, a play of ornamentation, proportion and elevation. Vitruvius writes that, "An elevation is a picture of the front of a building, set upright and properly drawn in the proportions of the contemplated work"[3] (Pollio 1960, Book 1, Chapter 2).

3 [orthographia autem est erecta frontis imago modiceque picta rationibus operis futuri figura. item scaenographia est frontis et laterum abscedentium adumbratio ad circinique centrum omnium linearum responsus.] (Pollio 1960, Book 1, Chapter 2)

The elevation is the construction or building of the front image, a picture or representation of the *operis futuri,* the future work. It suggests that the drawing should be worked on an upright wall like an inscription on a board, or like ink on paper. The implied depth in the two dimensions of an elevational drawing interact with the perception of real depth to give more or less a flicker between the present drawing and the imaginary future work. The Smith & Caughey Department Store elevation's implied depth is made up of flat surfaces modulated within a thin layer. The scaled drawing offers notions of casting forward, of projection; it invites imaginative projection between a drawing, its future place and its detail.

With lines stopping and starting, the architects' phantasia is projected. Line weights aid in the suggestion of depth, the heavier the delineation of an element the farther forward it appears, and the lighter the delineation of an element the further it appears to recede. Tonal values of ink and texture are used to enhance the depth of materials, textures and shadows of the future work. The department store elevations depict this convergence of dreams, real space and time through a fragmented series of distinct but related views.

Pen and ink, the hand-produced drawing, hinders the image of scale and size. The "dream detail" is compromised by the physical size of the drawing instrument and the ability of the human eye to perceive it. Thicknesses between lines diminish and line weights become heavier, rendering indecipherable blackness and moving beyond the limits of bodily skill to see and draw detail. The edge of skill necessitates the making of a new drawing, altering detail through instruments of removal and relocation, the architect shifting between drawings of differing scales. The detail of dreams promises a relocation, rescaling and removal, allowing movement between incomprehensible miniatures, failing vision and the thickness between lines.

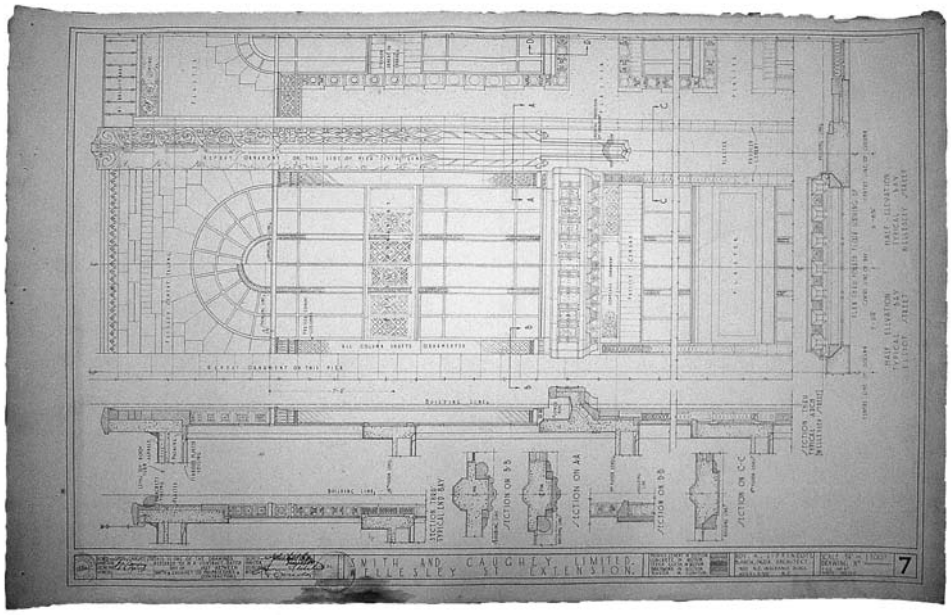

Fig. 5 Lippincott, 'Sheet No. 7: Half Elevation Typical Bay Elliot Street, and Half Elevation Typical Bay Wellesley Street, Smith & Caughey Limited, Wellesley Street Extension'. UoA Architecture Archive.

The unravelling of a surface: elevational details

Sheet No. 7 and *Sheet No. 8* are scaled elevational details of the Smith & Caughey Department Store. *Sheet No. 3* and *Sheet No. 4* paint an account of the design. The scaled elevational details draw nearer to the *operis futuri figura*. *Sheet No. 7* shows half elevation details to the Wellesley and Elliot Street façades, flat inscriptions lie horizontally across the paper. The window arches shift in size from Elliot Street to Wellesley Street, the radius of the arch deepens in scale to fit within the compositional arrangement of the building. To the right of the sheet the half detail of the terminal bays rises between ornate concrete colonnettes. To the right of the sheet a section reveals a flower box beneath each window. Threads appear stretched, teased over the surface of the page, places of earlier complication have become unravelled and lighter in weight. Flowers and tendrils are caught in geometric patterning, and swirling column shafts frame the arched windows.

Sheet No. 8 shows the lower two floors of the department store. Plate glass windows dominate the centre of the sheet. Woven across the surface of the sheet are small sectional details of points of juncture. Bronze pilasters and grilles echo the verticality of the upper floors.

For these imagined walls, their weight and consistency, the sheet surface becomes the imaginary scaled-down face of the future building to which the lines of the drawing correspond. Connections between darker points become more visible in *Sheet No. 3* and *Sheet No. 4*, where the architects' phantasia appears with a measured clarity. *Sheet No. 7* and *Sheet No. 8* draw nearer and begin to consider the overall proportions of the future place. The scaled detail is the information required for the translation from the representation of the idea to the built. Through the search for clarity, one draws closer, acts of scale become acts of scrutiny and, in this examination, the retracing of the architect's movements between eye and hand become clearer (De Zegher 2003: 71). The drawings made of lines become a line, provoking the thought that every line could itself be a world composed also of a multitude of lines.

The reading of one view or component of a building automatically refers to another invisible condition outside of one's immediate perception, referencing other realisations of the drawing's characteristics. The attempt to translate surfaces of the building, whilst maintaining sufficient identity with the sheet of paper, happens with scale and proportional ratios, a teasing apart of drawn objects to

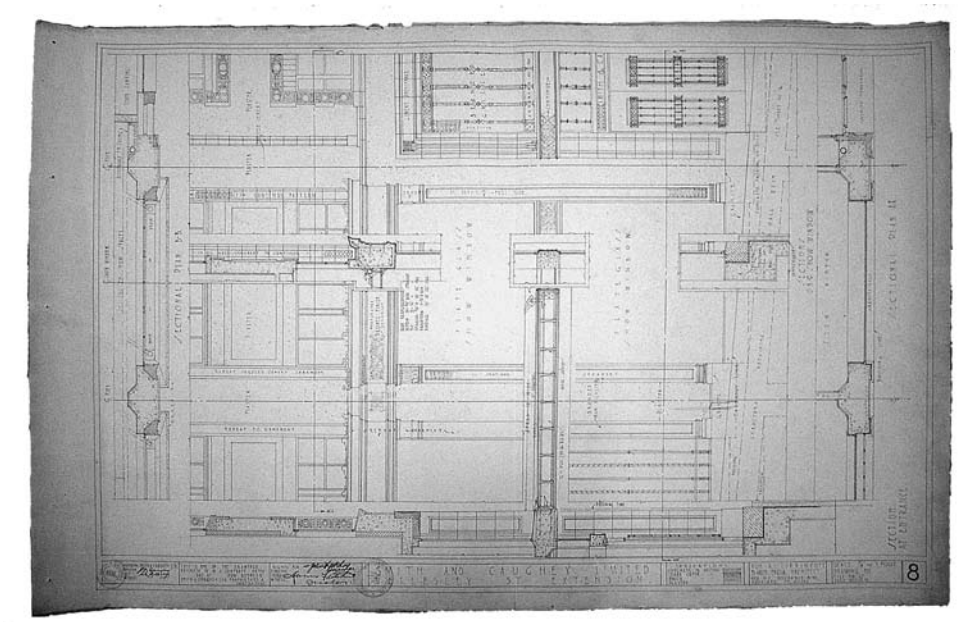

Fig. 6 Lippincott, 'Sheet No.8: Section at Entrance, and Sectional Plan A-A, Smith & Caughey Limited, Wellesley Street Extension'. UoA Architecture Archive.

understand or reduce their complexity. Through this visual unravelling there could be elements of distortion, a means of making things fit, revealing another layer of narratives within its surfaces.

The sheet's visual field is occupied by an imagined architectonic structure, perforated with openings, arches and windows, becoming a kind of screen that simultaneously organises the two-dimensional surface and divides the implied depth of the pictorial space. The delicacy of the line work that shifts from the elevation to the detail and the sharply defined lines form a web of shapes. In the seeking of the scaled detail, the visual elements have become flimsy and delicate. The delicacy is there in order to resolve difficulty and to decide on a meaning that can be seen. Georges Didi-Huberman writes that the detail is linked to a greater or lesser extent to the act of drawing a line, this being the act that constitutes stable differences, the act of making graphic decisions and distinctions (1989: 152).

A visual matching of lines, marks on paper, become a transformation from one system of representation to another. They are a transformation of appropriate signs with a view to the imagining of certain architectural events (Frascari 1984: 30). "Scale is simultaneously an instrument for the hand to make drawing and for the mind to imagine building" (Emmons 2007: 64).

Does the scaled detail become rinsed clean of all matter? Is the teasing of line and thought, presentation without representation? The sheet begins to confront us with its material opacity. Georges Didi-Huberman suggests, "it thus connotes both structures and the tearing away of parts of structures, or their partial collapse" (1989: 165).

The rhythm of scaling relies on procedures for partial seeing, scoping, rescaling, extending and reducing material features. Notions of graduation (nuances of size and degrees of presence) become internal streams, orders and disorders, visual puzzles, flows and synchronisation of moves. In "scaling up" or "scaling down", successive repetition and redundancy compose a type of rhythm. The rhythm becomes an ordered variation in a series of moves performed with different intensities and speeds, creating a knowing through scaling, a lending of the body (Yaneva 2005: 870). The use of geometry, line drawings and other representational conventions, the signs of architecture, the modelling of the scene, are held together for a moment before being teased apart. Climbing the ladder to get a closer look at the architects' phantasia, the surviving notation is of a lost

visualisation, the scene and the production of a drawing and the representation of a dream. The drawings become a transfer from bodily visualisation and envisioning, to registers of representation. Through the flat plane of the drawn sheet, lines transfer and imply depth.

Lippincott's drawn sheets transform from elevation to detailed ornamentation, the spill of information and imagination. Out of meticulous investigation architectural detail emerges, the practical procedures of drawing up projects are also mechanisms by which ideas are shaped, an initial image later to be a definitive form. The archived drawings of the Smith & Caughey Department Store are directed towards a future non-drawn object, the drawings an attempt to fix fragmented phantasia in a logical sequence by building knowledge step by step. This hoped-for figure is the scale. The scaling of a ladder to get closer to the dream becomes an act of clarification, a visualisation of the perceived or imagined. Because its proportion and scale differs from its context, the detail invites an occupation of space, on ink and paper.

This becomes a discursive unravelling of the Smith & Caughey drawings, a move from the dream of the architect to the dreams of the reader, where scale as representation shifts to misrepresentation and unruliness. In unravelling veiled implications for future work, scale becomes the weaving and unravelling of practiced fingers. The creator of the dream unravels tangled skeins to weave intricate drawings. One hopes that none of the fine threads will break.

> or he speaks of Arachne's fingers, expert at winding or unravelling wool, turning the spindle, plying the needle in embroidery, fingers that at certain point we see lengthening into slender spiders' legs and beginning to weave a web… (Calvino 1993: 10).

References:

Bruce, M. A. (1984). *Roy Alstan Lippincott: an American connection*. Thesis (BArch) University of Auckland.

Calvino, I. (2002). I*nvisible Cities*. W. Weaver, (Trans.). London: Vintage.

Calvino, I. (1993). *Six Memos for the Next Millennium*. New York: Vintage Books.

De Zegher, C. (Ed.) (2003*). The Stage of Drawing: Gesture and Act*. London: Tate Publishing; New York: Drawing Center.

Didi-Huberman, G. (1989). The art of not describing: Vermeer – the detail and the patch. *History of the Human Sciences*. 2(2), 135-169.

Emmons, P. (2007). Drawn to Scale: The imaginative inhabitation of architectural drawings. In J. Hale, B. Bradley Starkey and M. Frascari (Eds.), *From Models to Drawings: Imagination and Representation in Architecture*. London and New York: Routledge.

Frascari, M. (1993). The Unfolding of an Angelic Paradox: the Corporeal Reading of Plans. *Practices*. b (Spring), 19-25.

Frascari, M. (1985). A 'measure' in architecture: A medical-architectural theory by Simone Stratico Architetto Veneto. *RES*. 9 (Spring): 79-90.

Frascari, M. (1984). 'The Tell-The-Tale Detail'. *VIA*. 7: 22-37.

Hewitt, M. (1985). Representational Forms and Modes of Conception: An Approach to the History of Architectural Drawing. *JAE: Journal of Architectural Education*, 39(2), 2-9.

Hill, J. (2006). *Immaterial Architecture*. Abingdon (England): Routledge.

Orr, F. (1985). *Scale in Architecture*. New York: Van Nostrand Reinhold.

Pollio, V. (1960). *Vitruvius: The Ten Books on Architecture*. M. H. Morgan (Trans.). With illustrations and original designs prepared under the direction of H. L. Warren. New York: Dover Publications.

Rugoff, R. and Stewart, S. (1997). *At the Threshold of the Visible: Miniscule And Small-Scale Art 1964-1996*. New York: Independent Curators Incorporated.

Shaw, P. (1991). *New Zealand Architecture: from Polynesian Beginnings to 1990*. Auckland: Hodder and Stoughton Ltd.

Stewart, S. (1993). *On longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection*. Durham: Duke University Press.

Yaneva, A. (2005). Scaling Up and Down: Extraction Trials in Architectural Design. *Social Studies of Science*. 35(6), 867-894.