> *to themselves* [...] *As simulacra, images precede the real to the extent that they invert the causal and logical order of the real and its reproduction.*

Baudrillard's statement acknowledged the advent of this visual sound bite culture which now is an integral part in the way we perceive the world. However, and as outlined by Treib and his fellow contributors, the pixellated image, following all the other developments in the depiction of physical objects (or their images) is here to stay, and the skill will be how to tame it rather than to reject it. The pixellated image – whether produced as part of a design project or perceived and viewed as part of criticism or study – is now one of a range of media available to the architect (and student). As with all previous changes in representational techniques, when designing surely the merit must lie in the use of a combination of media, intelligently applied in accordance to the respective task at hand. A knowledge and understanding of the production techniques of a specific medium can always lead to a better understanding of the limitations and efficacies of the respective medium itself. In some sense the damage has been done, and what's left is to try and use it to our benefit.

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Safety and risk

The summer before my first semester in graduate school at Yale, I enrolled in a course that introduced the safe use of tools in the workshop. The term 'safe' was not used as a form of conservatism or lack of risk taking but rather in service to the proper use of the tools, in the hope that one would not cut off a fingertip or worse. At the end of two weeks, my thirty-five classmates and I had taken a couple of pieces of stock 1x12" pine boards and transformed them into a two-tier bookshelf. Mine was painted orange and held my growing collection of architectural books. I still have my bookshelf but today it's painted black and holds a different yet equally important collection of books: *Hop on Pop* and *Go Dog Go*.

So here was a skill, facilitated by a particular analogue technology that the school wanted to us to learn. But why? So we could use this technology to our advantage while in school? To what end? Were the tools intended to facilitate design thinking? Were they meant to work out details that couldn't be figured out by drawing? Were they meant to replace the pencil? No, the tools of the woodshop – like the latest digital tools of the day – are meant to work in conjunction with, not to replace more traditional methods of design thinking. Which brings me to my contention. That is: the pencil doesn't think for us, so why should we let the computer.

In the woodshop, where we were using traditional technologies, were we just playing with materials or were we practising design thinking? Or both? How does this translate to the digital world? Playing in the world of the woodshop is very different to playing in the virtual space of the digital realm. In the digital world there are no limitations or restrictions to what one does. So, if there are no restrictions then where is the risk?

In the Höweler + Yoon Architecture exhibition, *ONE dpi*, at Northeastern University, Meejin Yoon and Eric Höweler describe the exhibition as follows:

> *The exhibition reflects on the role of the image in the production and dissemination of design ideas* [...] *Our representational strategy for* ONE dpi *arises out of an interest in the economics of images. In a post-spectacular society, the image is more than a surrogate for lived experience, but a source for new realities, practically indistinguishable from reality itself. The glossy full-bleed image so common in publications and exhibitions asserts itself as a seamless verisimilitude of reality. Among a certain class of image-makers, resolution has become a new form of currency: the more vivid the image, the more expensive its production, the more 'real' its content appears.*

The HYA exhibition consisted of complete images pixellated on the wall by stripping away the residual space between a series of dots 1" in diameter spaced equally 1" apart. In this instance, the brain fills in the missing information. The new reality is easily digestible. But is the reality the whole image or the pixels of the image? Does each pixel tell a different story? Is the phrase, 'the sum of the parts is greater than the whole' true? Or is the whole greater than the parts/pixels?

In the Northeastern University Veterans Memorial, a built project by my firm bauenstudio, we employed image pixellation to represent historic events while simultaneously using the viewer's distance from the pixellated image to provide meaning. The memorial features an official commemoration; a laser-etched mural depicting iconic images from five wars. These scenes have been modified and abstracted into pixellated images. Viewed from afar, the pixellated images are clear. But, as one approaches, the images dissolve into an ethereal effect. Thus, these visual images on the wall operate at a multitude of scales, engaging the viewer differently both up-close and from a distance. The exhibition and the memorial share similar physicalities, both employing the pixel as the syntax for design. Can they be the same; can image equal architecture? In the built realm of architecture, is it OK if this phenomenon is not understood? The notion of image, as suggested by HYA, reduces architecture to a two-dimensional artefact. Image suggests a single viewpoint. Architecture, on the other hand, operates on infinite viewpoints. Using the three-dimensional digital model to generate the image thus has its shortcomings. The image in this case is still a projection. At best it can be considered having infinite views but in actuality each can only be singularly viewed in the two-dimensional realm. What, then, is the intention of the architecture? Of the image? How does one translate the image to architecture? In the Veterans Memorial project, we thought through the experience of the pixellation but studied the phenomenon in perspective and orthographic projection, plan and section. The question arises about the difference between the process of architectural design (design development) and the image representing the architectural design

When the notion of the 'image as reality' manifests in design schools, the process of design changes. Are students designing for the image or the architecture? Do students 'think' when they create a digital model and then cut a slice through it to create a plan or section? This method of design process reduces the plan and section to the 'resolution' of the model rather than an integral tool to develop the model. Do students understand how to use the section as a way to change, manipulate and think about spatial experience? Do they use the digital model as an investigative tool to discover what it is they designed? More often, students are 'cleaning-up' the sliced

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orthographic drawings in Adobe Illustrator and Photoshop and not thinking about them as opportunities for design. In addition to 3D digital models being used as objects to be sliced they also offer infinite possibilities of views or slices. With the infinite, there is no risk.

In the early 1990s, a male body, donated to science by a convicted murderer, was 'sliced' to produce cryosectional colour images of human anatomy which became known as the Visible Human Project. This public data set of high-resolution cross-sectional photographs serves as a resource for scientific research and study. The Project significantly augmented current knowledge about the inner workings of the human body. In an area of biology that seemed fully exhausted (human anatomy), researchers found errors in the shape and location of some parts of the body as denoted in anatomy books. Aside from many other possibilities of study, one of the first was a new and more correct spatial understanding of parts within the whole. Do architecture students consider their own models like the human body in the Visible Human Project? Do they seek to discover something by cutting their own sections digitally or do they cut the section as a requirement, a homage to the traditional requirements for orthographic drawings, but fail to use those cuts as a place to study the proportions and forms of space? Is there a risk in slicing sections through the digital model? On the contrary, there was great risk in creating the original male and female versions of the Visible Human Project. The process for obtaining the images resulted in the destruction of the cadaver itself. Like the kerf cut on the table saw, the body was ground in successive layers, and not literally sliced as one might imagine to produce each cross-section image.[1] There was plenty of risk there.

In *Translations from Building to Drawing*, Robin Evans delves into the issue of image in architecture; addressing whether the efforts of the architect result in the drawing as art or the drawing as architecture.[2] His references range from James Turrell's artificially lit spaces, that he argues could not have been represented in drawing, to Philibert de l'Orme's dome at the Royal Chapel at Anet that could only, he argues, have been designed through drawing. Robin Evans cites the work of James Turrell in order to dispel the myth that drawing is a requirement of architecture. He argues that no drawing of Turrell's work could convey the luminosity or sensuality of the spaces he creates. Evans states that drawing is not important in and of itself but 'how they [the artists] use them and why' is important. He goes on to say: 'Above all, the question is to what extent the drawing [replace with 'image' – my addition] if used as a means of investigation, imparts significant properties to the thing it represents.'[3] In discussing Turrell, Evans ties drawing to investigation – to thinking which we can equate to risk taking – and its relationship to the thing it represents. Borrowing from Evans' own logic of using the transitive property, then if image equates to representation and image also equals reality, as noted in the HYA exhibition, then representation equals reality.

Two ways to understand the image: the end product, as HYA and others have suggested (image=architecture), and as production (the thought process). In the end, don't we want the technology, whatever it is, to support the ideas and intention of the architect? Robin Evans details Philibert de l'Orme's application of orthographic projection, instead of metrics, in the design of the dome at the Royal Chapel at Anet, 1547. He writes:

> *Happy results do not of course occur under guarantee of the drawing technique, also requiring, as they do, an inquisitive mind, a very strong presentiment of the sense within forms, together with a penetrating ability to visualize spatial relations. The point is that the imagination and the technique worked well together, the one enlarging the other, and that the forms in question – and there are many more, not only in de l'Orme's work, but in French architecture through to the end of the eighteenth century — could not have arisen other than through projection.*

Technique and architecture are intertwined here. It's quite telling that an image of Frank Gehry's work is better than the architecture. Building technology has not caught up with seamless constructibility in the digital realm. In the academy, how do we frame the Gehry conundrum where the image is better than the architecture? With what expertise are we sending our students out into the world? Are we sending them out to make images or to make architecture? Where do we want the risk taking to happen? Are we letting the computer take the risks for us? Or is there really no risk in using the computer? Is it a problem if there is no risk? The question about image has to do with how students use it, what they learn and where they take risks in the design process? In the end, can we teach the 'safe', risk-free use of digital tools?

The HYA *ONE dpi* exhibition shows us that there is always risk in the physical world. The limitless zooming capabilities in the virtual realm are fixed once something is printed. The print is always static and still. The technique with which we choose to get image to paper doesn't change this. The safe teaching of the table saw and the safe teaching of virtual reality are negotiated in the real objects they produce: either the bookshelf or the print. This is, it seems, where the risk lies.

Notes

1. Slice may be the wrong term since there were no actual slices. The cut itself, the slice, destroyed all material.
2. Robin Evans, Translations from Drawing to Building (London: Architectural Association, 1997).
3. Ibid., p. 189.

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