

PROCESS

Mars Quave

Rationale

When designing this book, I aimed to showcase biomorphism in architecture through academic articles and images of structures. I used a strict four-column grid structure, which helped me organize content and present both main types of information clearly and consistently. The target audience for this book was people like myself: those interested in architecture and but don't have in depth knowledge of the area, but who enjoy reading academic articles about conceptual topics and exploration of form.

Research

Contents

Initially, I wasn't sure what I wanted to do my book on, but I knew I wanted to use some academic journal articles. I'd downloaded a bunch on different topics recently, so I read through some of them and enjoyed some of the ones about different approaches to architecture. Before this class started, I had bought some books and one of them was on biomorphic architecture, so I knew that there was a lot of interesting structures and photos that could work with that topic.

The next step was to look into specific architects and find articles more tailored to biomorphism. I found a TED Talk by Greg Lynn and enjoyed/was inspired by his process and how much math and science goes into it. Originally, I planned on using those influences in my design itself, but as I progressed, I realized that was potentially too ambitious for a six-week course, and chose to make a more static system to show text and image.

After that, I went and downloaded a bunch of articles from JSTOR on biomorphism, for the text portion of my book, and went to the York library to find books on architects. I had thought of incorporating some text from various books into my book, but chose not to, and focused on their images to make up that portion of my book.

Image Directory

Manuscript

I used five books for the images in this project, and spent a couple days doing 3 scanning sessions, the first two at 300dpi and the last one at 600dpi. I cropped them and did some color correcting in Lightroom, and later did some batch edits in Photoshop to correct contrast and make everything black and white for the final book.

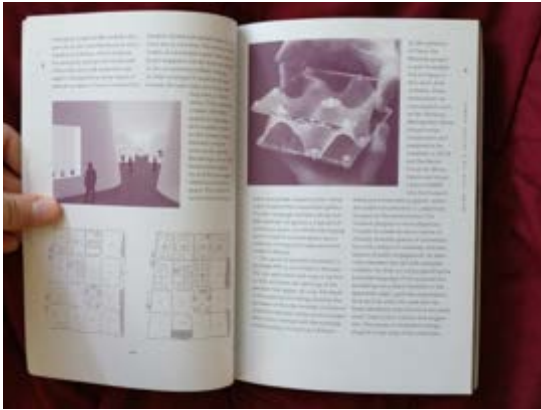
The directory noted the scanning sessions, the sequence of images scanned, and the size in inches at 300dpi. All of this information was incredibly useful to me when choosing which images to use where in my book, as a smaller/half page one, full page bleed, or two page spread. The captions and credits were in a separate document, but was organized along the same session/sequence lines.

In addition to the three articles used in the final iteration of my book, I considered three other texts. One was an article by Greg Lynn from the same *Monster* issue of *Perspecta* that the Weinstock article is from. I also considered using the aforementioned TED Talk Lynn did, but it doesn't make sense without the visuals he had for that presentation, and I could not find high res images corresponding to that online or in the books I had access to. There was another article that was more critical of biomorphism in architecture, but the more I read it and thought about it, it didn't make sense for my book (which is more of a celebration/showcase), and I don't think the author understood the conceptual thinking behind the practice. The three articles used also were all lengthy enough in their own rite, that when combined together, make a substantial yet not overwhelming collection.

Research

Layout

There were many ways I could have approached designing this book. Books I had on hand, as well as ones checked out from the library, were useful references for potential layout, as well as book size. I really liked the size of the book I did my presentation on (Hong Kong In-Between), but a slightly smaller book (Toyo Ito: Forces of Nature) was more comfortable to hold, so I based my size off of that. I also took inspiration from that book's use of typography and single color images. Additionally, I checked out some works I'd recently liked on Behance for some more contemporary influences and ideas of how to treat text and image in a longer form project.



Omnivore
Toyo Ito: Forces of Nature

The use of single color for images and text influenced me in the later phases of my design, when I planned on doing everything in moss green with the Risograph.



Patrick Coppens
The Triumph of Typography

I read this for History of Type, and it was a collection of essays/short articles and often incorporated images, which was what I wanted to do in my book. I also liked the contemporary Dutch design of the book itself.

Like the *Toyo Ito* book, this one also used two different colors of paper, but the difference is more subtle here.



I liked the use of grey paper with white text as well, though I didn't really try that with my design outside of the chapter dividing pages.



Ludovic Balland
Hong Kong In-Between

While a lot of this book is overwhelming to look at, the section dividing pages were simple. I also really liked the contrast of light and dark used throughout this book, and it influenced my design of chapter intro spreads



Elisa Chieruzzi
Desert Islands

<https://www.behance.net/gallery/40483499/DESERT-ISLANDS>

Although I only looked at this work online a couple times and very early on in my drafting process, the usage of black, lots of text, and very small margins was visually interesting to me.



Elisa Chieruzzi
The Little Prince

<https://www.behance.net/gallery/45687511/The-Little-Prince>



Jenny Donnet-Descartes
Edition, Réintroduction du Gypaète

<https://www.behance.net/gallery/29807335/Edition-Rintroduction-du-Gypaete>

Like *Desert Islands*, I like the high contrast of this book, especially the full page image spreads.





Lucas Machado
Travels with a donkey in the Cevennes

<https://www.behance.net/gallery/48196165/Travels-with-a-donkey-in-the-Cevennes>

I thought it was fun how this used green to contrast with the text instead of black.



Studio Orfeo Lanz
Ochos Book

<https://www.behance.net/gallery/51210505/Ochos-Book>

I enjoyed the treatment of images in this book, and the dot matrix pattern was a factor I worked with in my images as well.



Studio So
Symbiose [Lars Teichmann]

<https://www.behance.net/gallery/48542833/Symbiose-Lars-Teichmann>

Early Layouts

I originally envisioned this project as one with image sections and text sections that were largely separate from each other. Critiques swayed me away from that, mainly because too much text is boring and dry, not really exciting for a reader even if they're interested in the topic. When I started incorporating images, I got into a pattern of doing text on the left and image on the right, creating a spatial contrast as well as one in density/grey value of the content itself. I enjoyed the narrative booklet exercise, and while I never intended to use only photos to create a story, it did make me think more about the relationships between images, which I explored more in the multipage spreads of the book.

Critiques also encouraged me to go outside of my comfort zone and try one column of larger text, which I liked enough to use for the majority of the book. I knew I wanted to use a sans serif, and Univers is one I had liked but never tried for an entire project, and when reading through *Stop Stealing Sheep*, I liked the passage on its personality: "the more technical a profession, the cooler and more rigid its typefaces (Univers for architects)." I think it suits the final design and my approach, which works within a rigid system, but is consistent.

Class 4



potential opening spreads, using two column grid



continuing text spreads with image, thinking about how they relate spatially



image-only spread ideas



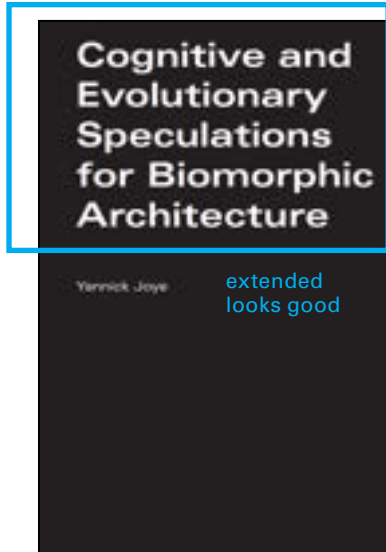
Class 5



dynamic opening spreads: black instead of grey background



more opening spreads, using two and one column



extended looks good



Cognitive and Evolutionary Speculations for Biomorphic Architecture

Herwig Jägle

Abstract: In recent architectural research, the concept of biomimicry has been widely discussed. However, the term is often used in a very broad and unprecise manner. This article aims to clarify the concept of biomimicry and to explore its potential in architecture. It discusses the different levels of biomimicry and the role of cognitive and evolutionary processes in the design of biomorphic architecture.

Biomorphic Speculation
The concept of biomorphic speculation is a speculative approach to architecture that seeks to explore the potential of biomimicry in the design of buildings. It is a speculative approach because it does not aim to replicate nature, but rather to explore the possibilities of biomimicry in architecture.

more opening spread variants

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continuing spreads + images, exploring spatial contrast

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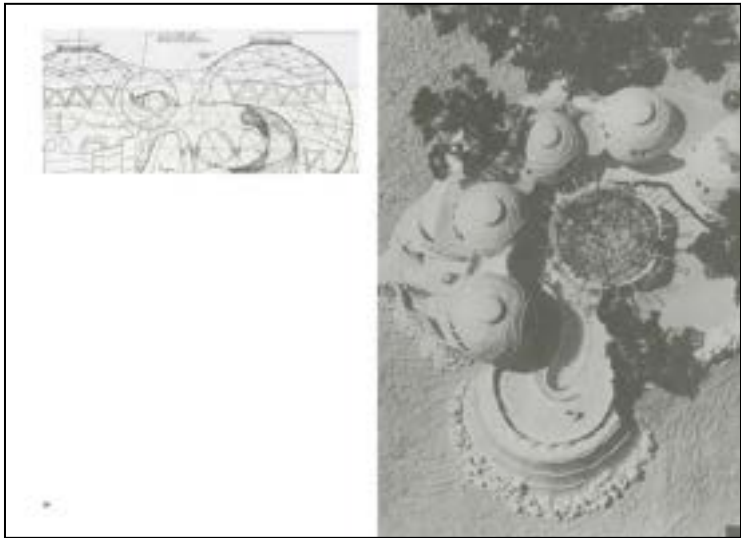
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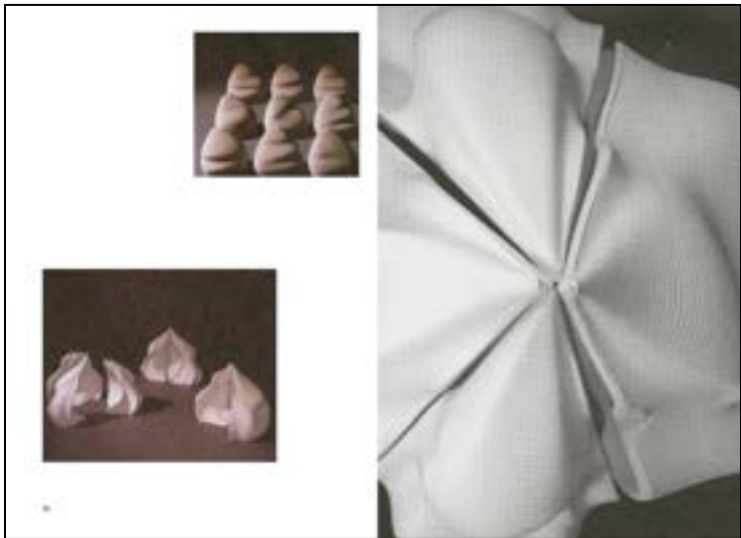
Diagram and Biomimicry Speculations for Biomorphic Architecture



multiple images



single image
+ multi on black background



Members of today's technologically oriented societies have increasingly diminished contact with natural form. This is probably due to a combination of reduced contact with real nature and exposure to architectural settings devoid of references to natural form (e.g. minimalist architectural). Humans, however, evolved in natural environments, and there is reason to believe that the human brain is adapted to processing natural settings and objects. The central aim of this article is to make some suggestions pertaining to the field of architecture that may help in overcoming the discrepancy between the workings of the brain and modern living environments.

In the first part of this article, I present evidence that humans are endowed with a cognitive system specially dedicated to natural information. The existence of so-called biophilic responses suggests that this system is linked to neural areas

Santiago Calatrava
Carpus (Miami) Foundation
Miami, Spain 1999-07



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intro text + image

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In the first part of this article, I present evidence that humans are endowed with a cognitive system specially dedicated to natural information. The existence of so-called biophilic responses suggests that this system is linked to neural areas dedicated to causing emotional reactions. The subsequent parts consider how these neural assemblies can be stimulated by biomorphic architecture, which shares essential geometric features with natural objects. After a presentation of examples, the final sections discuss how such architecture can enrich the human relationship to the built environment.

Biophilic Responses

Research indicates that humans are innately predisposed to have an emotional affinity with nature. This affinity, sometimes called biophilia, can be explained by the fact that the brain evolved in a biocentric world.¹ In such an environment, an individual had clear survival advantages if it were genetically predisposed to react emotionally toward living things. This entailed that living things with a high survival value (e.g. fruits) would be associated with positive emotional states,

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5

intro text + image variant

image size + caption placement

continuation w/ image

continuation w/ image variant

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A primary expression of biophilia is the universal human preference for certain natural elements. For instance, various preference studies indicate that people find vegetation-rich landscapes more aesthetically appealing than urban settings without vegetation. When different urban environments are compared, people most prefer those containing some vegetation.² The preference for these elements is due to their survival value for our human ancestors. For example, because it is difficult to differentiate between plants when they are not in bloom, flowers helped in identifying different sorts of vegetation. Further more, flowers were conspicuous signs of the

Rogers Ford
Plan for Gateway (Birmingham)
Birmingham, UK 1958-1959



6

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Living things are also found to influence other aspects of human functioning. According to Roger Ulrich, early humans were often confronted with threatening and demanding factors (e.g. predators) leading to physiological and psychological stress.⁴ Those individuals who could separate easily from these situations by reducing stress had better chances for survival. Ulrich argues that such restorative responses typically occurred in unthreatening natural settings. The stress-reducing effect of nature is still effective today because the individuals who were able to respond restoratively to stressful situations survived and reproduced better. This conclusion is supported by empirical investigation. For example, Ulrich notes a study

Rogers Ford
Plan for Gateway
Birmingham, UK 1958-1959



7

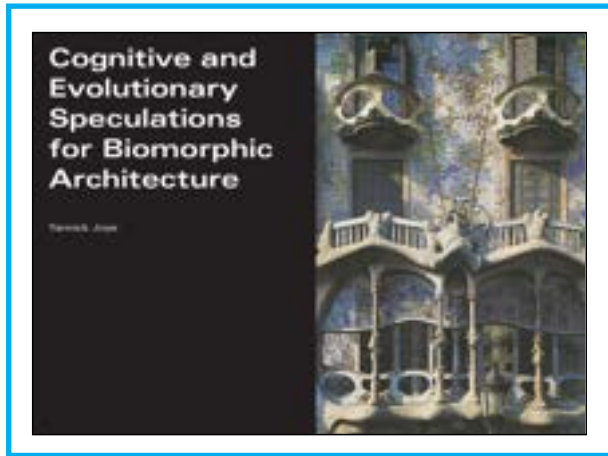


chapter intro spreads



references/bibliography variants

liked this the best hints at horizon line

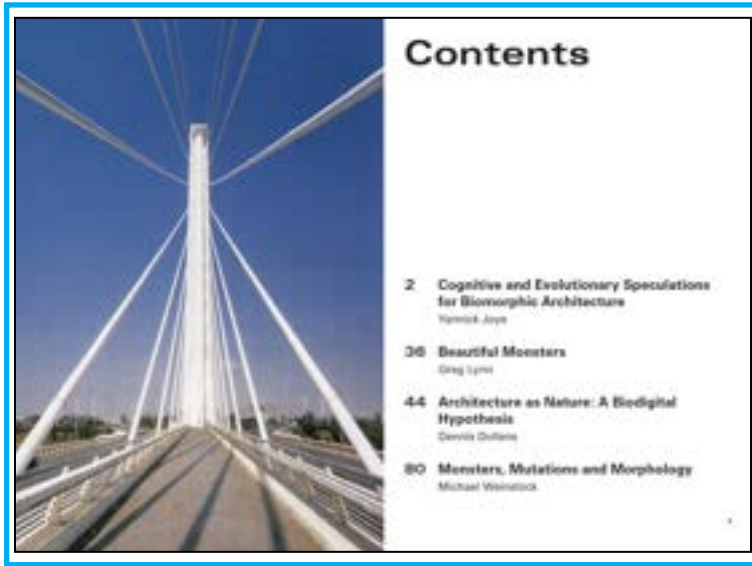


Design Proposal

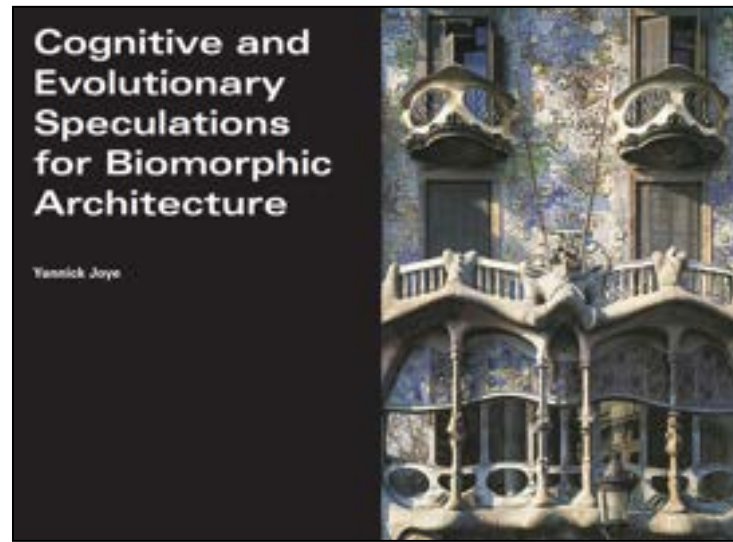
By this point, I'd decided on doing the body text as one column with narrow margins in Univers 55 Roman + 65 Bold for subheads. Chapter introduction spreads had the article title in Univers 63 Bold Extended, with the Author underneath in Bold or Roman, but that part hinted at my grid where i split up the page into top and bottom along a horizon line. I had printouts indicating all of the major types of spread in my book: contents (two versions, as I was still exploring that), chapter openers/dividers, opening and continuing text spreads, as well as single and multiple image spreads, and references.

For the references and bibliography, I had them set up so that individual articles' reference section would be at the end of that article, and at the very end of the book would be a bibliography of where the articles themselves came from. Everyone in class agreed that was kind of confusing, so I later changed that to a single reference section at the end.

I had also started thinking about the cover, and wanted to use leather or wood, do an open spine with coptic stitching, and have a band with the title that went around the entire thing. The logic behind that was taking inspiration from nature, like biomorphic architecture, by using natural natural materials, but now I'm glad I didn't do that. It's not exactly the same thing and could be the cover for anything, and the final cover represents the book's contents much better.



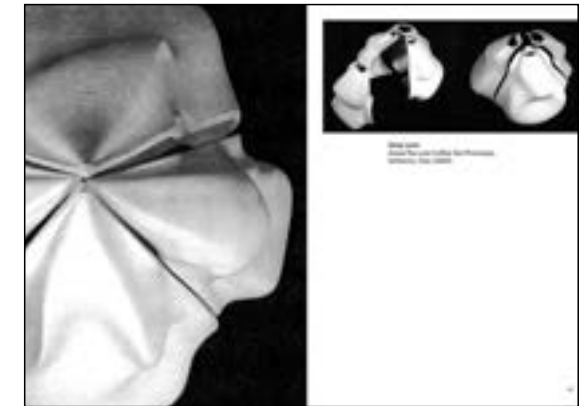
contents variants:
which side is which info, dark or light bg



chapter opener



continuation
image caption 1 column over

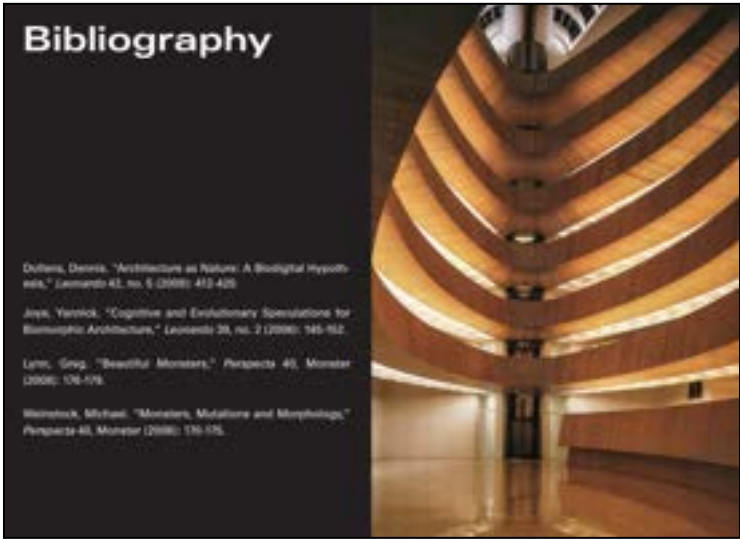


single + multiple images





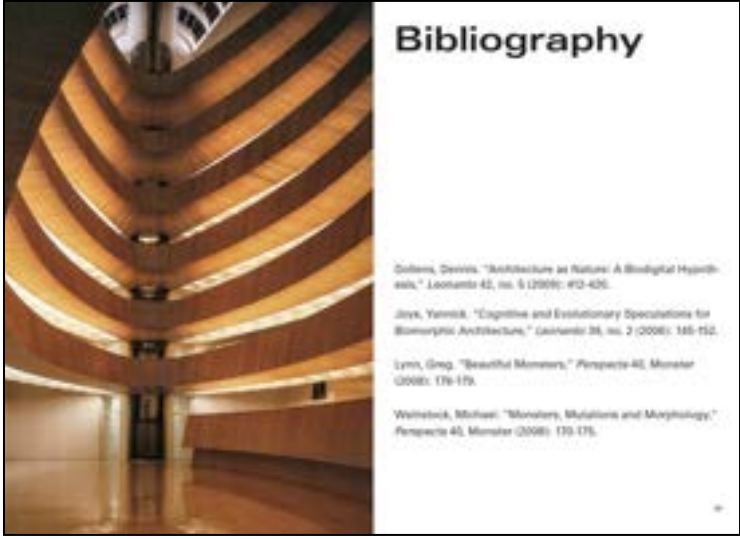
individual article references



bibliography at the end of the book



potential covers, using natural materials



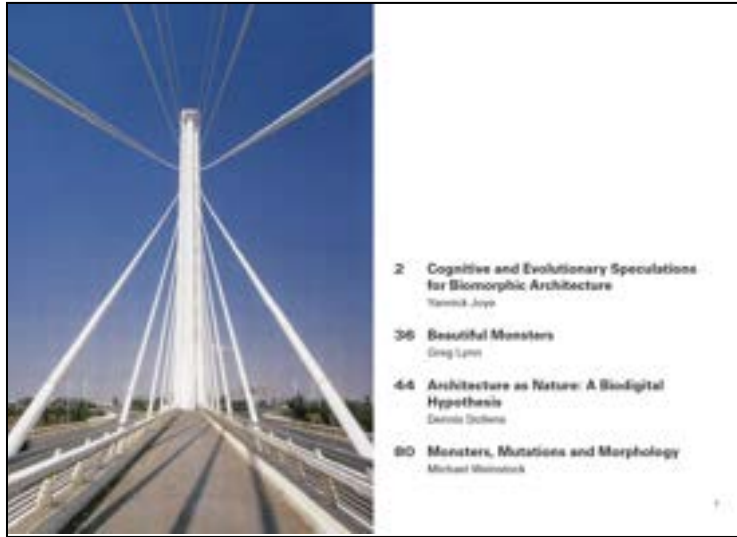
Revisions

When doing revisions after my proposal, I focused on finding a balance of images and text in a larger system. I tended to get into a rhythm of having an image at the top, followed by one at the bottom, then back to the top again. I followed with that natural instinct and it created a consistent rhythm that's occasionally broken by bleeding images. When I'm working, I can get into the zone and often listen to the same thing on repeat for a long time, and when I listen to something else it's a bit of a shock to the system. That's the effect the two page spreads have in relation to the text from my perspective, letting them pack a bigger punch because of the context they're in.

I spent a lot of time fine-tuning the typography between the proposal and the final. I got more experience with justification, and the small changes that can be made for better looking text. Optical kerning was always on and, and I made adjustments where needed. Also this project got me using character and paragraph styles, which was extremely useful when making small adjustments. Although they weren't present often in the text and captions, I had to learn to make my own small caps when the ones included with the typeface aren't sufficient. One thing that I noticed throughout this process is that you can't trust the technology or math itself, you have to eyeball things a lot of the time.

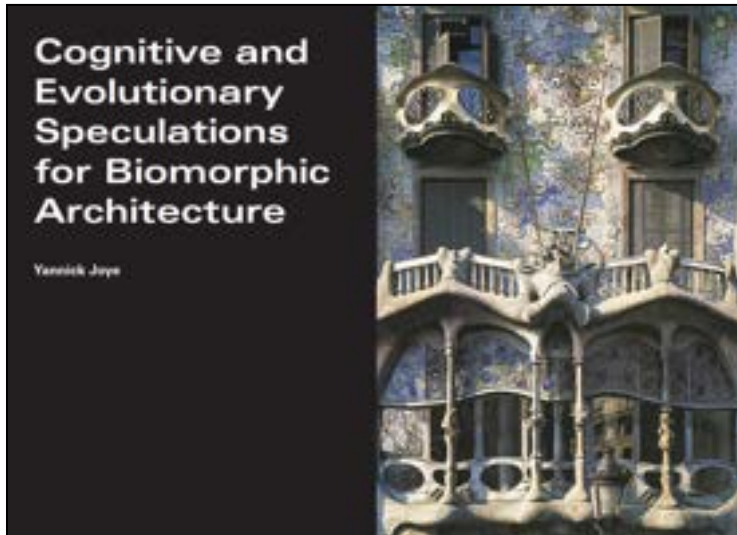
For the cover, I experimented with different alignment of subtitles and specific letters in the title, adjusting outlines of letters as needed (bringing in the B, extending the P and L).

Class 8



no "contents" on that page

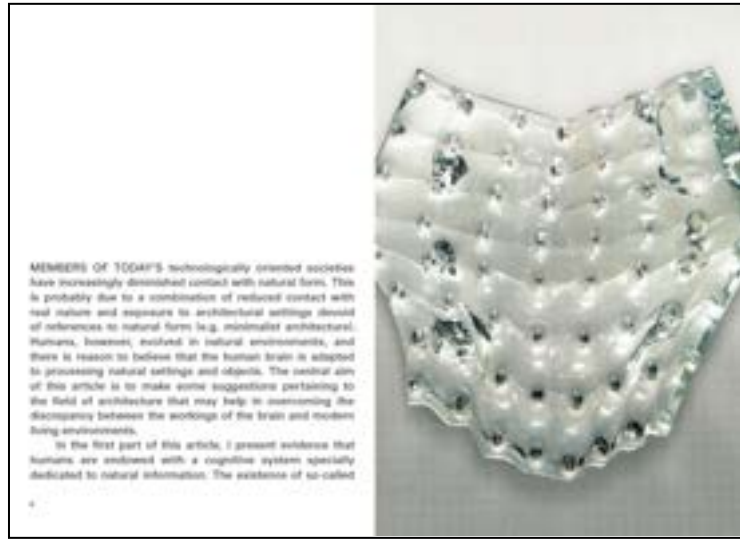
bold author on opener



starting to refine justification for body text



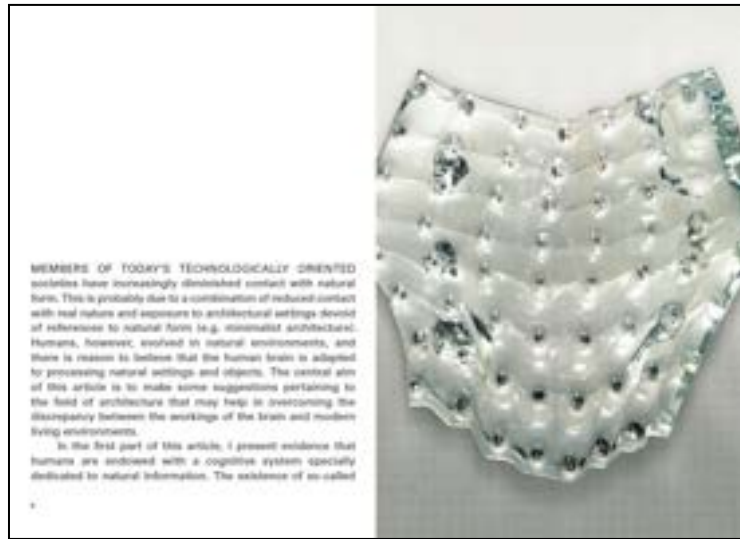
revised bibliography



variations of opening text



subtitle +name added



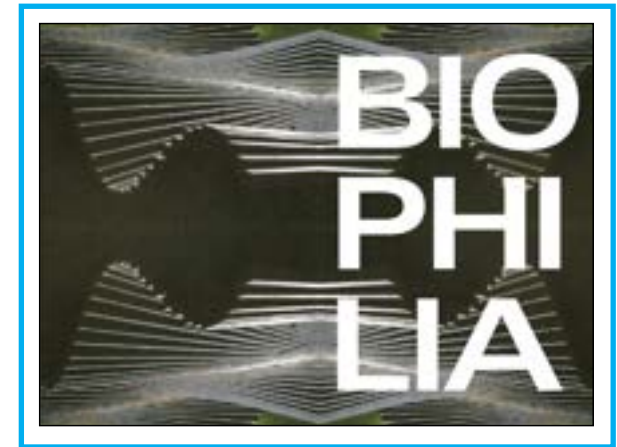
Class 9



thinking about using the riso
in moss green



cover variants using an image
from the my directory
+ all caps title





small caps, tracked out, extended

more intro text variants



multiple images + captions



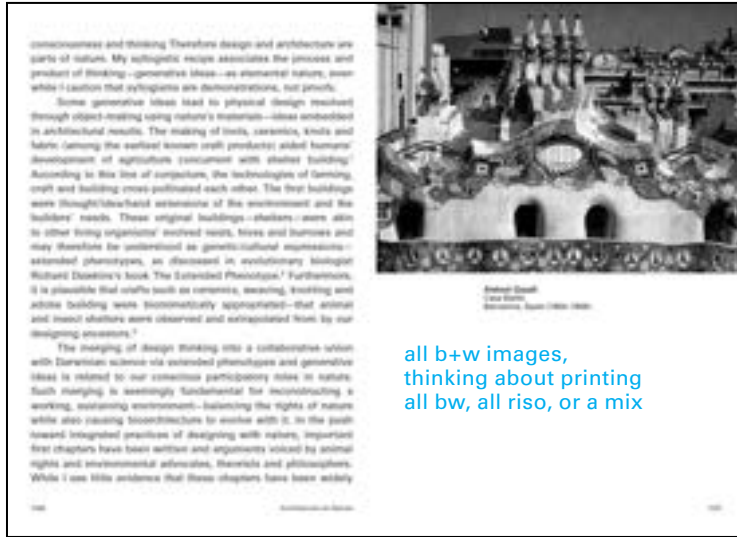
image within/beside text



bibliography at the end, spacing vs using a rule



Class 10



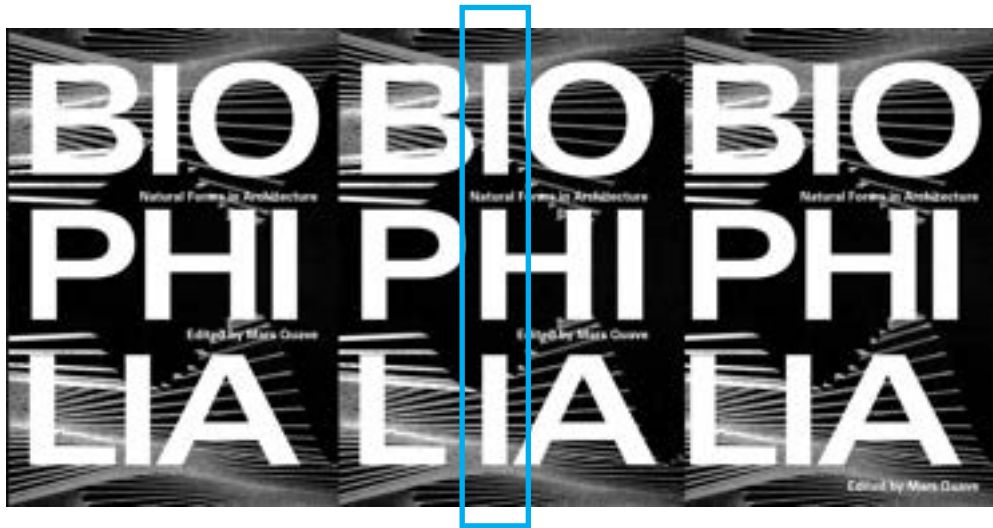
all b+w images,
thinking about printing
all bw, all riso, or a mix

more refinement of body copy,
justification adjustments
folios on left side



slightly refined text styles for
bibliography, added references
for book sources

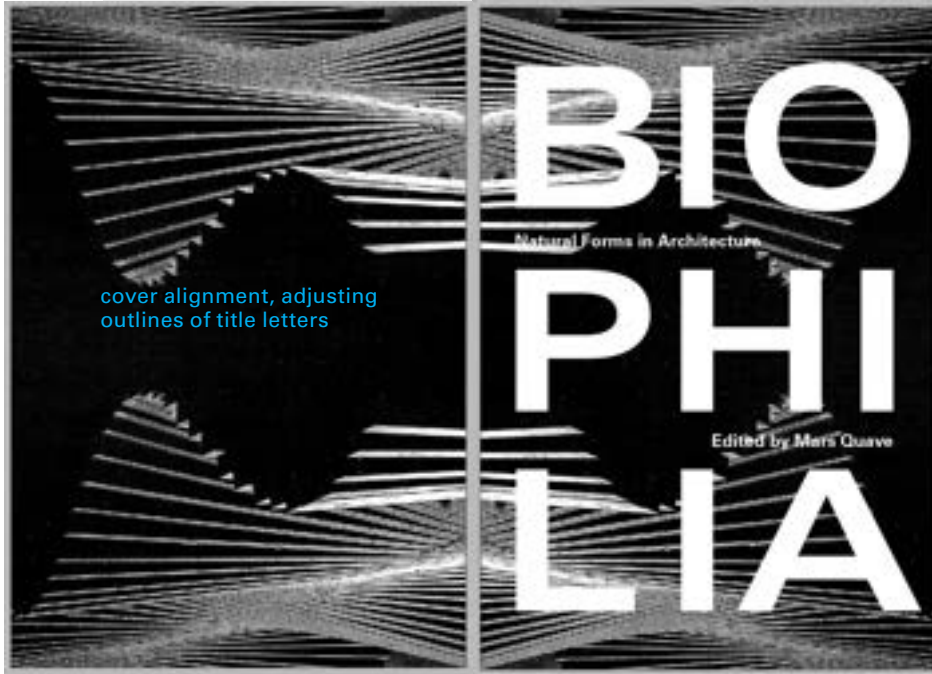
no rule for references



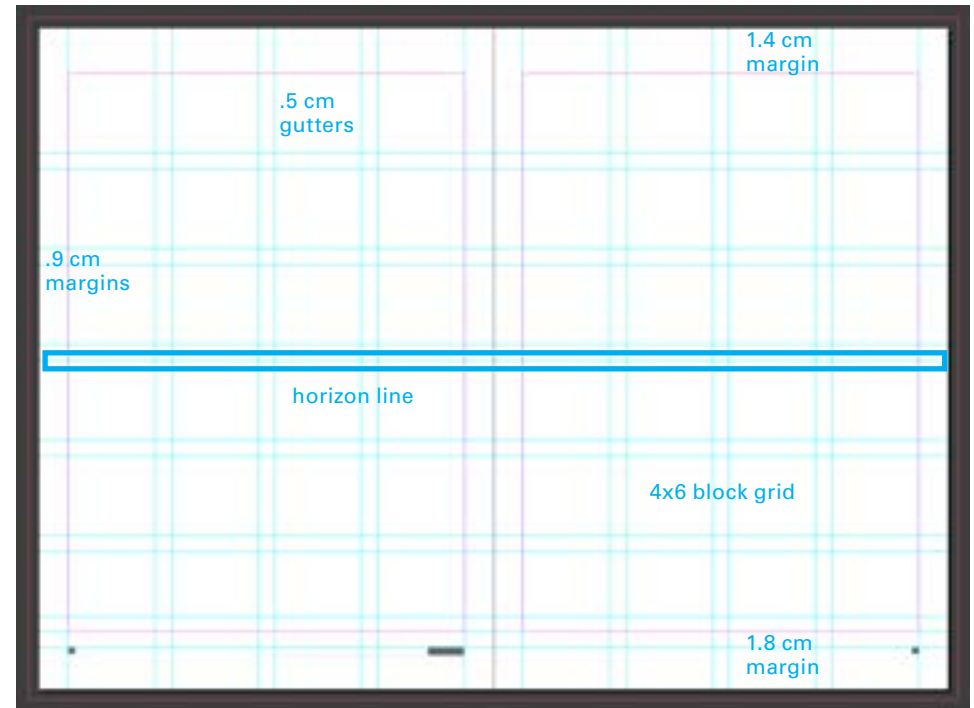
placement and alignment of title + subtitle



Class 11



cover alignment, adjusting outlines of title letters



base grid

A widely adopted theory about the organization of object knowledge is the Sensory Functional Theory (SFT).¹¹ According to this theory, knowledge in the semantic system is organized into subsystems that each process some "type" or "modality" of knowledge. The central claim of SFT is that recognition of the category of living things is dependent on the "perceptual" semantic subsystem. This means, for example, that the concept "zebra" will activate perceptual concepts (e.g. black and white stripes). On the other hand, the "functional" semantic subsystem is most crucial for recognizing non-living things. According to this view, the concept "key" will activate functional concepts (e.g. "locking"). When one of these subsystems is damaged, this can result in deficits for the categories of objects that are associated with the subsystem.

Eugene Tsui
Prototype raving dwelling
Orinda, California USA (1987)

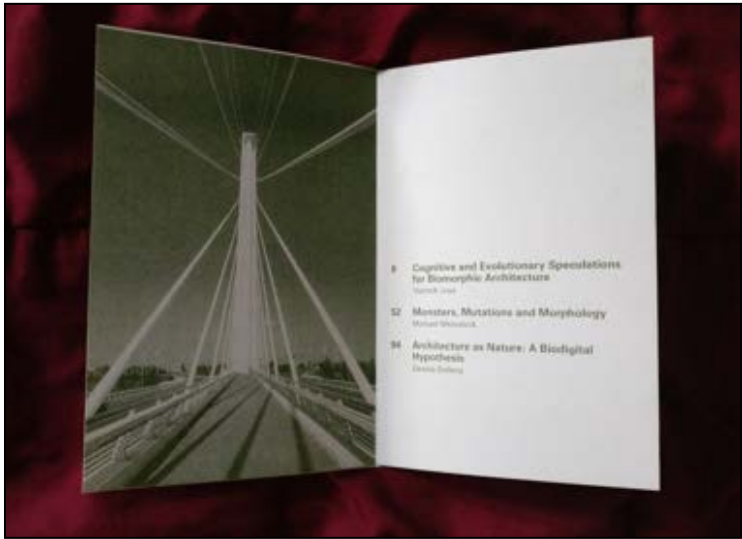
two sizes of small caps



risograph+laser cover variants

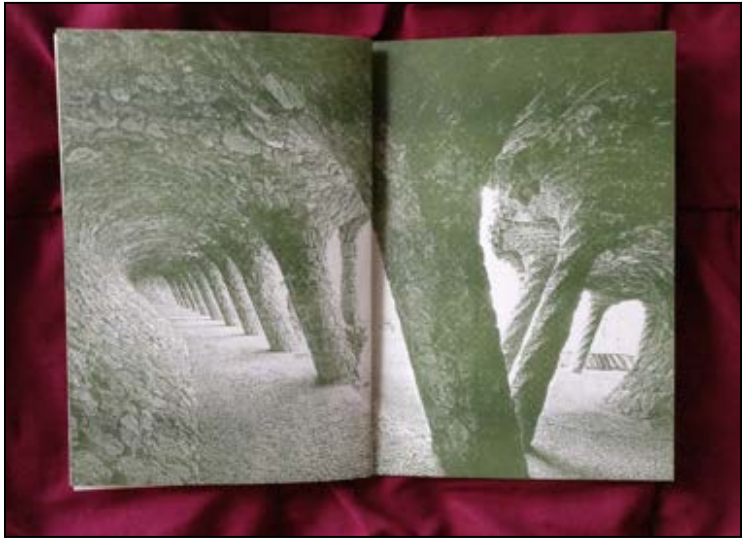


more riso covers



risograph printed spreads

opening text page printed with the risograph



Final

Many of the final design decisions concerned printing, both the method/machine used and paper. Since I'd thought about using the risograph for images in my book, I figured I might as well use it for the whole thing, since I'm spending the money and time to do it. A factor in that decision was that the black and white printers in the labs had some issues with registration that I could not find a workaround for. Since I was going to use the risograph, I had to use uncoated paper (which I planned on doing anyways). I found the pebblestone paper in the dsa room, and really liked the tone and texture of it, so chose to use it for the whole book and covers.

When actually printing on the risograph, the technicians and I encountered some issues. There were problems with saturating/filling large areas that weren't an issue before when doing the demo for class and my own tests. I was able to print a few cover variants and the first signature on riso, but it took lots of time and was kind of frustrating, but it was the design choice I made and was going to stick to it. That is, until I went in the next morning, and the technician noticed that there wasn't much green ink left, and there was no way I could finish it with that same color. I decided to use the same paper and print everything in black and white on the laser printer, which had much better registration than the ones in the labs that couldn't be adjusted. After that, we printed some spot color in green with the risograph, but the same saturation issues persisted. The green on the cover came out well, but there is so adjustment problems that we couldn't get perfect,

but I enjoy the slight offset. Even two days after the risograph prints were done, the ink smears to the touch. I'm not sure if that's the paper or what, but it never fully dried down, so maybe it's for the best that the whole book is not so fragile. I had some issues with production, especially with gluing on the laminated covers to the book board. The laminated material and glue were irritating to work with, on their own, but together was difficult, so there's some issues with the covers and the endpapers. However, the end result is something I can be proud of, a substantial work of design that I assembled by hand.

5.5 x 8 in, 144 pages

Black and white laser print, with moss green spot color on uncoated paper

Typefaces: Univers, Univers Extended

Hardcover, coptic stitch bound