Spring 2021

Typemaking

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Honors Research Project in Fine Arts

April 23, 2021

Abstract

The objective of this project is an exploration of typemaking—an analysis including the development of letterforms to the various methods in printing these forms, including the rich history behind these developments—which ultimately results in the form of communication known as graphic design. Research begins with the history of print processes and evolving typographic styles, providing a comprehensive understanding of how typography has been applied as a means of communication, and the benefits to society throughout time. The information is then applied through the digital design of letterpress type, followed by the physical production of these pieces using a range of materials. The pieces are then printed in an experimental stage to test their effectiveness, resulting in a diverse collection of prints. The purpose of this project is to be experimental and informative to the artist, as well as to fellow artists and designers in the school and community.

Typemaking

Rationale

For many centuries, people have used print as the sole means of communication. The development of metal movable type (individual letters which can be arranged in any specific manner before printing) increased the ability to print information quickly and in a mass-produced manner, thus increasing the accessibility of information within society and across demographics. In the early 1800s, the shift from metal to wood type further increased the accessibility and usage of printing type. Now, even in our digital age, printing with authentic type pieces remains a timeless means of printing with visual appeal, character, and impact. My goal in this research is to explore the historical and contemporary processes of typemaking in order to create my own set of type pieces that meet printing standards, and furthermore to do so in a way that is tangible and accessible to the common population—emphasizing the initial purpose of these pieces at their creation.

Historical Context: Development of Printing Processes

The beginnings of printing type actually date back to the beginnings of printmaking all together, with its roots in Chinese block printing as early as 770 CE (though this is the earliest record of such printing, it is believed the process was well developed for centuries at this point). Prints were made by "carving calligraphic characters into a flat surface of jade, silver, gold, or ivory" and then pressing these objects into ink and printing on a surface—much like modern day stamps.[1] Additionally, relief carvings—a form of printing where the artist carves out the negative space and leaves only the parts to be printed—would be carved on stones and used to make rubbings. Though the initial goal for the Chinese was "authenticating the text" rather than mass

[1] Philip Meggs and Alston Purvis, *Meggs' History of Graphic Design*, Sixth Edition (Hoboken, NJ: John Wiley & Sons, Inc., 2016), 40-41.

production, they found that woodblock printing allowed them to mass produce a wide range of prints.

In 1045, Pi Sheng expanded from these processes to develop the first concepts of "movable type." According to Merriam-Webster, movable type is "printing type made up of individual pieces each carrying usually a single letter or other character so that the pieces can be freely assembled or reassembled for printing any desired combination or line." Though this is the first trace of movable type, the concept would not be fully developed and practically used until it reached Europe, where the languages contain far fewer individual characters.

In the Roman Empire, illuminated manuscripts—or handwritten texts decorated with intricate designs and gold leaf—were the means of producing all books. When woodblock printing made its way to Europe from China in the 1300s, the art became popular for mass printing books that would otherwise take years to complete when handwritten. Despite the increased convenience that came with block printing, Europeans still desired to develop a system which would allow them to printer faster and more efficiently, and many printers explored methods that might allow production of movable type.[2]

The first recognized complete system of typographic printing came from Johann Gutenberg in 1450. As a metalworker, he developed a method for mass producing metal type pieces consistently by casting metal into molds. In this process, a punchcutter would cut a letter "punch" into steel, then the steel punch would be used to stamp an impression of the letter onto a soft brass matrix. This matrix would be then placed inside a mold, where a lead alloy would be cast (melted, poured, and cooled) to form a piece of movable metal type. In addition to his creation of metal casting movable type, Gutenberg was responsible for other significant advances

[2] Meggs, *Meggs' History*, 73-77.

in printing—such as the development of the lead alloy that was soft enough to cast but hard enough to print impressions, the use of linseed oil ink, and of course, his well-known invention of the first printing press.[3]

Gutenberg's mechanization of producing metal type was incredibly significant in the history of print because it increased consistency and accessibility of printing. However, this mechanization of type also meant that letterforms had to be established and perfected precisely for such mass production. In manuscript writing, scribes could be more or less consistent with their forms, and they could adjust their forms as necessary since everything was done by hand.[4] Now that the letterforms were being printed by invariable pieces of metal, the accuracy of these forms was essential, creating the fundamental concept of a model letter to be used as a reference for all following productions thereof. Thus, not only did Gutenberg's inventions institute the means of mass printing, but they also demanded for the standardization of typographic forms.

Progression of Typography

With the development of print communication has also come the development of letterforms and typefaces. Throughout history, designers and typemakers have debated what is best visually in the appearance of a typeface: organic forms that fall naturally from the hand, or purely geometric structures?

Romans in the first few centuries (AD) used inscriptions in stone primarily for political and social reasons. The all-capital letterforms served their purpose: to declare a bold and definitive message with a practical application (these letters would have been easier to carve at large sizes and more legible). However, there were also adaptations of a flowing, handwritten style (what we know today as "script") that were easier for personal use. This handwritten style was adapted

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[3] Meggs, *Meggs' History*, 77-79.

[4] Paul Luna, *Typography: A Very Short Introduction* (Oxford, United Kingdom: Oxford University Press, 2018), 7.

by scribes in the Carolingian period as an exercise of "imperial authority,"[5] and then also resurfaced during the Renaissance. The letterforms of these times used thick strokes, high contrast, and condensed forms—to the point where letters were sometimes indistinguishable from each other. This style is modernly known as "black letter" (see fig. 1).

As previously described, the invention of metal type helped standardize the Latin script to more recognizable typefaces. Over time, these standardized typefaces formed what is recognized today as Old Style typefaces (see fig. 1). These typefaces still have a calligraphic style to them, including an angled axis (the vertical tilt of a letter), angled serifs (horizontal strokes at the end of letter stems), low-contrast strokes (thickness of the thin strokes in relation to thickness of the thick strokes), and thick brackets (the curve adjoining serifs to stems) (see fig. 2 for examples of letterform terminology).

In the 1700s, typeface designers started to modify typefaces into what is now known as transitional typefaces and modern typefaces. Both of these styles aim for more geometric perfection and mechanical forms. For example, John Baskerville of England developed a transitional typeface (Baskerville) in 1754, and he made the following changes: less angled axis (nearly vertical), more horizontal serifs that are also thinner and flatter, sharp angles instead of curved edges, and increased contrast between thick and thin strokes.

From there, Giamattista Bodoni of Italy and Firmin Didot of France developed their respective typefaces in the 1780-90s, taking the transitional changes to the full extreme: sharp contrast between strokes, completely flat serifs without brackets, and a completely vertical axis. These typefaces are recognized and cherished today for their dramatic angles. Though visually

[5] Luna, Typography, 4-5.

appealing to many people, such thin strokes are not usually ideal for printing below display type sizes.

An extension of modern serif typefaces is slab serif typefaces, such as Rockwell, in which all the angles are also horizontal/vertical, with no brackets. Slab serifs, however, get their name from the thick serifs used; in slab serif typefaces, all the stroke weights are equal, opposite of the high contrast of modern typefaces.

In the 1920s, the Bauhaus and New Typography movement pushed for a new collection of typefaces that are now most commonly used in today's design trends: sans serif typefaces. These designers wanted to rid typeface design of "clutter" and ornamentation, reducing letterforms down to their elemental geometric makeup of squares, circles, and triangles. Thus, they created typefaces without serifs (hence the name sans serif) and with equal weight between all strokes. However, in some typefaces, such as Futura, the designers had to account for the optical effects of purely geometric forms. Visually, the combinations of forms (e.g., vertical stems with circles) do not always appear with equal weight despite having the same mathematical measurements. As a result, the designers made the optical changes to their typefaces to adjust them visually.

Just as there is a variety of serif typefaces, there is a variety of sans serif typefaces (see fig. 1). Grotesque sans serifs tend to have a similar width to that of serif typefaces, but with the modern geometric adjustments mentioned previously (horizontal/vertical strokes and low contrast between strokes; all strokes are relatively equivalent in width). The neo-grotesque style is an extension of the grotesque style and have the same geometric forms, but with less exaggeration of the geometrical shapes and a bit of contrast in the strokes. This variety makes it more legible for text than its grotesque precursors. In contrast, humanist sans serifs are very similar in form to serif typefaces, with higher contrast between strokes and more organic strokes of a calligraphic quality—they are primarily different from serif typefaces simply in that they do not have serifs. Lastly, the geometric style is the most extreme of these, made up of perfectly geometric forms, as intended by the Bauhaus thinkers.

Contemporary Context: Further Developments of Machinery

At the beginning of the 19th century, American commercial printing was increasing in popularity, and with it, so did the need for larger pieces of type that printed smoothly and easily. Metal pieces of type simply would not hold up to the demand for several reasons; metal was expensive and heavy, and its results in casting were less consistent at larger sizes due to the metal cooling unevenly.[6] In 1828, Darius Wells of New York invented the lateral router, which is a saw that could cut curved outlines into wood. This technology allowed Wells to mass produce wood type quicker and easier, decreasing both production time and human error.

Then, in 1834, William Leavenworth adapted pantograph technology—a mechanical system that is used to copy a drawing over to another area, sometimes at a different scale—to Wells' router. This allowed typemakers to copy letters directly over from a determined drawing rather than directing the router by hand, increasing the precision of the cutting process. This invention would evolve to become the primary means for producing wood type, even until this day. Additionally, in 1884, Linn Boyd Benton engineered the Benton pantograph, which could engrave metal type punches accurately and at differing scales, eliminating the need for manual punchcutting by the early 20th century.[7]

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[6] "What is Wood Type?," Hamilton Wood Type & Printing Museum, accessed October 8, 2020, https://woodtype.org/pages/what-is-wood-type

[7] "Type Technologies Speed the Making of Type," Graphic Design History, accessed October 3, 2020, http://www.designhistory.org/Type_milestones_pages/Panatograph.html

Today, there are three different kinds of printing presses: flat-bed cylinder presses, platen presses, and rotary presses. The letterpress methods I am exploring utilize the flat-bed press, which is a press made up of a horizontal "bed" to hold the type pieces, and a cylinder which rolls over the bed to print the paper.

Approach to Typemaking

To create my type pieces, I considered what machinery and methods would be most accessible to me. While I wanted to explore a variety of processes, it was important for me to emphasize processes that are more commonly accessible, and which could be easily mimicked by someone following my research to create their own pieces. As a result, I limited myself to materials available at local hardware stores or easily found online. I also decided to use the laser cutter in the MakerSpace at the Myers School of Art. (Though this is not a machine people commonly have, there are many local laser cutting vendors that could complete these cuts for someone intending to create these pieces.) I determined that the laser cutter uses a similar approach to the lateral router and pantograph machinery, cutting with complete precision—yet the laser cutter would be more populous and available than the industrial options.

Materials

The beginning phase of this project required extensive research on materials used in letterpress type. Initially, my intention was to create a variety of letterpress pieces with a diverse range of materials. However, as I worked on the project, I quickly learned the challenges of using certain materials and was met with more limitations than expected. As I will discuss in more detail, this led me to shift my focus to finishing a complete set of letterpress wood type.

The materials originally purchased for this project included several types of wood, metals, plastics, and rubber—as well as an array of tools. This list was as follows (but not limited to): 5mm thick premium Baltic birch plywood, 23/32-inch BCX plywood, 5mm (actual size 0.196-inch) tri-ply underlayment plywood, unmounted linoleum printing block, rubber stamp carving blocks, 1/8-inch aluminum sheets, 24-gauge (0.201-inch) brass sheets, 6mm polyoxymethylene (POM) sheet, and 0.050-inch acrylic sheet. The wood and plastic materials were intended for creating movable type, or printing made up of individual pieces. The metal, linoleum, rubber, and some wood (leftover scraps) materials were intended for block printing, in which one carves or engraves a single design into a block that is printed "as is" repeatedly.

I explored several resources to choose which type of wood would be best for the wood type pieces. Large and established wood type manufacturers—such as Hamilton Wood Type Company, Virgin Wood Type Manufacturing Company, and Moore Wood Type—use a pantograph to cut letters into slabs of maple wood with a pre-cut thickness that is type high. This is the most precise, durable, and straightforward method; however, without having access to a pantograph, I opted for the laser cutting method. When searching a range of other methods for creating wood type, additional recommendations for the wood material were Baltic birch, plywood, and medium density fiberboard (MDF).

One woman creating her own type at home, Gwen Holbrow, used Sintra—which is polyvinyl chloride (PVC) board, made of a foam-like polymer—for the letter pieces, and 3/4-inch MDF board mounted to 1/8-inch plywood for the supporting blocks. She used a CNC (computer numerical control) router machine to plane down the MDF and to cut out her letterforms.[8] I wanted to use a similar approach with a laser cutting machine, though I decided to use plywood since she reports that the MDF and Sintra were too soft for printing properly.

[8] "Homemade Wood Type," Reflex Letterpress, last modified February 22, 2019, https://reflexletterpress.com/homemade-wood-type/

After deciding to laser cut my pieces, I needed to ensure I had materials that would be compatible on the laser cutter at the Myers School of Art MakerSpace. I researched the ability to cut various materials, and also some of the Emerging Technology students at the MakerSpace about such materials. A 3D printing company named Sculpteo has a guide on their website about laser cutting different materials, which I found very beneficial to my decisions in choosing materials.[9]

According to Scuplteo, plywood is a great option for laser cutting because of its durability and cutting precision. The site states that standard laser cutters can cut plywood up to 15mm (roughly 0.59-inch) thick, but the MakerSpace assistant suggested nothing much thicker than ¼-inch thick. The disadvantage of using plywood over MDF is that any knots, rings, or gaps that may occur in the plywood can ruin a clean cut. This is because plywood is made of layers of wood grain, while MDF is a mixture of resin and saw dust. For my wood pieces, I chose to cut plywood for its strength and to buy sheets with as few knots as possible, because I wanted the pieces to be more firm and durable.

When it comes to plastics, Sculpteo writes that both acrylic and POM sheets will cut cleanly and precisely, and both materials have certain qualities of resistance and flexibility. Between the two, Sculpteo recommends POM for its stability and resistance to cracking under "large amounts of strain and friction," so I chose this board for cutting the plastic pieces. However, one limitation to this material is its tendency to have scratches or burns on the surface after laser cutting, which counters the expectations I originally had for this material to render

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[9] "Laser Cutting Materials: MDF, Plywood, Metals, Acrylic, Cardboard," Sculpteo, accessed October 22, 2020, https://www.sculpteo.com/en/lasercutting/laser-cutting-materials/

printing results of smooth forms and full-coverage ink. According to my MakerSpace assistant, either of these materials could be easily cut by the MakerSpace laser cutting machine.

For the metal options, the MakerSpace assistant reported that the laser cutting machine would not effectively engrave any of my materials, but it could etch into a layer of paint that I could then use an acid etching method to engrave the metal. This would allow me to use the metal for intaglio printing, which is the opposite of relief printing in that one carves out the parts to be printed (and then applies ink into the grooves of the engraving, wipes the surface clean, and prints the engraving). Though I had my doubts about this method, I decided to test it out.

Working Methodology: Prepping Files for Laser Cutting

To prepare files for laser cutting, I used the Adobe Illustrator program with artboards sized to my pieces of wood. I wanted variety in my pieces, so I chose a few different typefaces and point sizes to begin. For my serif typeface option, I chose Baskerville because it is a well-known and recognized transitional typeface, and a typeface that was used in the original methods of metal type punchcutting. I opted for the bold weight of this typeface to accommodate for its thinner lines and the point size I intended to use. For my sans serif option, I chose Sofia Pro (black weight) for its clean, geometric nature that I believe would read nicely on a poster even in a small point size. I also wanted to use Bodoni, but the MakerSpace assistant advised me that the sharp contrast with the thin strokes would be too thin for the laser cutter to cut properly.

As for point size, I used a range of heights including 36pt (half-inch tall), 72pt (one inch tall), 144pt (two inches tall), and 216pt (three inches tall). For a longer amount of text (called "body copy"), typically point sizes 5 to 14 would be used and made with the metal casting method. (Personally, I think the readability of modern layouts is optimal between point sizes 7 to 10.) This small size would be too small for laser cut wood, so I used a relatively small "display" height of 36pt for the plastic pieces (using Sofia Pro) so these could still be used for longer lines of text. However, wanting the wood pieces to be larger and bolder, I used Baskerville at a display height of 216 pt (three inches tall).

Within my file, I typed out all letter characters from A to Z (uppercase and lowercase) in both typefaces, then set them to their respective heights, and then converted the type to outlines. Converting to outlines means that the letters become shapes, which will allow the laser cutter to cut them out as such. While the letters were still aligned, I added rectangles that would be used to cut blocks to adhere to the letters—blocks which not only support the letter pieces, but also hold them all precisely in place so when printed next to each other, they are visually aligned. I created rectangles with a consistent height, from the top of the tallest letter to the bottom of the lowest letter. (When identifying the height of type, point size actually refers to the height of these blocks rather than the height of any of the letters.) For the width, I added a slight amount of extra width to each rectangle and centered the letters within that width (I later find this was unnecessary). After grouping each letter to its respective rectangle, I could move the pieces around to fit on the wood piece.

For the laser cutter to cut my wood as intended, I used a black stroke for anything that was to be cut and a red fill for anything to be engraved with diagonal lines. I used the engraving ability to engrave the letterforms onto the corresponding block pieces so that I could best align the letters in place when gluing them together. This required me to flip the pieces horizontally (engraving the letters "backwards") so when the wood pieces are combined and finished, they would print in reverse of that, meaning they will print how we regularly view letters.

For the plastic and wood pieces, I cut out letters and blocks. For the metal, I could only etch the plate with a preset sentence. (I decided to use the phrase "wishing you a merry

Christmas” in Sofia Pro since the holiday was approaching and I was hopeful to create greeting cards with the plate.)

Laser Cutting Results

After laser cutting, I was very impressed with how the wood pieces turned out. They had smooth cuts, and minimal problems with knots, breaks, or holes in the wood. I added reference dots in the bottom right corners of the blocks to reduce confusion on which letter is which. The final steps for preparing these pieces were gluing, sanding, and sealing them (a process that I describe later on).

As for the plastic, I was not as pleased, only because the plastic edges melted slightly as initially expected. However, the cuts were still pretty smooth and the pieces themselves still had a lot of strength to them. Finishing these pieces would be more straightforward, simply just gluing them to their respective blocks.

Etching the Metal

For the etched metal blocks, I chose a few short words/phrases, and prepped them simply by transforming the text into outlines and flipping it horizontally (as described above). The assistant at the MakerSpace recommended using brass out of my metal options, but also warned the laser cutter would only be able to etch, not cut. I proceeded to spraying my brass sheets with a few light coats of spray paint. Once that dried, I had the assistant etch my designs into the paint.

To actually etch the metal itself, I would need to soak the metal in an acid bath with only the parts to be etched to be exposed to the acid. To do this, I had to cover all other areas of the sheet with painter’s tape, including the back side. When exploring Lowe’s and Home Depot for an etching solution, I found UGL DryLok Etch & Cleaner, which claims to etch galvanized metal when mixed in a solution with water. I set up the acid bath in a plastic container and placed my taped metal sheet in the container. I left the sheet for several hours, checking it periodically to see how well it was etching. After several hours in the acid, the etching still did not seem very successful, so I decided to explore other options.

Through many YouTube tutorials, I found two other options: etching with ferric chloride or with salt and batteries. In the process for etching with ferric chloride, it is similar to the process with the DryLok solution, in which the metal soaks in an acid bath. With the salt etching method, one sets up the metal by covering areas to not be etched, and then covers the area to be etched with salt water. Then, one connects one wire from a battery pack to the metal sheet, and another wire to an etching tool (any piece of metal with a protective grip). Then the etching tool is used to go over the etching area, causing a reaction with the salt water to corrode the metal and leave behind the etched pattern. Here, I opted to try the ferric chloride solution next.

During this process, I referred to a YouTube tutorial by Switch & Lever—the machine workshop of Daniel Jansson, who is an industrial and interaction designer—titled "Acid Etching Brass Plaques."[10] In this video, Daniel prints his design onto the brass, then tapes around the back (as I already did), and then uses a Sharpie to cover any unetched areas that are not completely covered by ink. Next, he attaches his brass plate to a foam block to help it float in the ferric chloride solution, and he brushes the plate with the solution before placing it in the bath. Once the plates are in the bath, he moves it to sit on top of a radiator to help speed the etching process (I do not have a radiator to do this exact method). He then checks the piece every ten minutes to see the progress and to brush the plate again with the solution. He said the time can

[10] "Acid Etching Brass Plaques," Switch & Lever, YouTube, January 9, 2018, https://www.youtube.com/watch?v=7Op6H0C18tM&t=337s

vary for the process, but the ones in the video only took half an hour. When I tried this process, the etching appeared to be much more successful than before.

Redoing the Wood Pieces

While analyzing my finished wood pieces with my project sponsor, we discussed several changes to be made for these to be authentic letterpress pieces. Due to these errors, I did a bit more research and decided to recut the wood pieces. For the new pieces, I used the typeface Gotham (medium weight) for a full set of 72pt type. I also made new samples of 200pt Gotham and 110pt Baskerville (only A through Z).

First of all, and maybe most importantly, the pieces were not "type high" (see fig. 3). Type high is a standardized measurement of how tall a piece of type needs to be for it to print properly in a press—if it is any shorter it will not show up in the print, and if it is any taller it could damage the paper, the piece itself, and even the press. The English (America/United Kingdom) measurement for type high is 0.918 inches from the foot (bottom) to the face (top) of the piece. (This measurement varies slightly across countries, such as 0.928 inches in France/Germany or 0.934 inches Belgium.)

To fix this, I explored Home Depot's different thicknesses of wood to determine which ones could add up to exactly type high and still thin enough to be cut by the laser cutter. An important thing to consider in this stage is the "nominal" thickness of the wood—the dimensions before the wood has been smoothed down on all surfaces—versus the "actual" thickness of the wood. The wood sheets on the shelves are the "actual" thickness, so I needed to base my decisions on those measurements, also keeping in mind my plans to sand and seal them.

For my pieces, I got two sheets of 5mm (or actual thickness of about 0.196 inch) plywood. I set up my files to cut out the set of letters in this thickness along with two blocks per letter, so when stacked the total length would be over half an inch. Using a digital caliper, I measured the pieces as I went along to ensure they reach type high. The actual measurements of these pieces after assembled with three layers were between 0.56–0.57 inches. To supplement the height, I added another layer of 11/32-inch plywood to the blocks. This brought the pieces to just under type high, but I hoped the final stages of sanding and sealing would help. I preferred to have them slightly lower than too high.

The second issue with my original set of type was the dimensions of the blocks for the letters. I made them too long and wide, where traditionally type is cut down to the actual sizes of the letters so there is no extra space around them when printing. In my changes, the width was pretty straightforward, because the widths of the blocks just needed to match the width of their corresponding letters. This is called the "set width" (see fig. 3).

The length of the pieces (i.e., type height) was a bit more complicated since it is used a reference point to align the letters. For all capital letters and most lowercase letters, the height of the pieces is consistent, and covers the distance from the top of the highest ascender to the bottom of the x-height letters (for some typefaces, the tail of the letter "Q" is lower than the baseline, in which case the bottom of the block should extend to that length). For any letters with descenders, the height of that block is the same as the others plus the additional length of the descenders (using the same starting point at the top of the piece keeps the letters aligned). In metal type, the height for every piece matches from the top of the ascenders to the bottom of the descenders, and this distance is actually what defines the point size of the line of type (see fig. 3). However, for many wood pieces, that extra length is only used on the pieces with descenders, so that is what I used in my second round of laser cutting wood pieces.

Lastly, I needed to make more letters than before. Previously, I was only making samples, making only one piece of each letter. When I shifted my focus to the wood pieces, I realized I would not have a full set of type to successfully make prints. I referred to the "Specs" page on the Virgin Wood Type Manufacturing Company website for a list of various font schemes. According to them, "a font scheme describes the quantity of individual characters in [a set of type]." This lists how many of each character, having more of the more commonly used letters (e.g., five A pieces, 3 B pieces, 4 C pieces, ...). From their site, I used the following schemes: 5A (capital letters and punctuation), 5a (lowercase letters), and No. 1 (numbers) for a total of 246 characters (see fig. 4).

Preparing and Sealing the Wood Pieces

Finally, to finish the wood pieces, I knew I would need to sand them smooth and coat them with a waterproof and ink-resistant seal. I researched the differences between shellac, varnish, polyurethane, and lacquer, and also asked some friends who work in carpentry for advice. Based on my research, I found the best option to be oil-based polyurethane or lacquer, and the friends suggested polyurethane, so I used that. I followed the process a friend suggested: first sand the wood with 180 grit sandpaper (defined as macro or coarse), then coat with a layer of polyurethane. Once dry, sand again with 320 grit sandpaper (defined as micro or fine). Lastly, he said I could add one more layer of polyurethane if I wanted it smoother, and I did so to have a better seal. I measured the final height of the pieces to be around 0.90–0.91 inches, which I found to be close enough to type high. From there, I could add a very thin sheet of plastic to raise the height of the blocks, but I found this to be difficult without going over type high. Instead, I think it is best to add some sheets of paper underneath the blocks when printing, as necessary (as some tabletop presses allow to adjust the height of the press instead).

Printing

Traditionally, letterpresses are printed in what is called a “lockup” (see fig. 5). This means surrounding the characters with spacers and “furniture” that keep them in place on a press bed. Though I have had experience using lockups before, I did not have the same ability at home. However, in efforts to test the printing quality of my pieces, I still set up a makeshift flat-bed on my dining table with a plastic sheet and a rolling pin in order to simulate the printing process of an actual press. Then, I tested my wood pieces with the well-known pangram “the quick brown fox jumps over the lazy dog.”

In my makeshift flat-bed press, I placed a piece of acrylic down on the table and placed evenly spaced, horizontal lines of double-sided tape down the length of it. Then I used the tape and an extra letter “a” to align my sentence properly as I went along placing each letter by hand. After placing the pieces, I put some extra pieces in each corner of the sheet to support the print. Then, I applied block printing ink to my pieces using a brayer. Next, I taped my printing paper to another acrylic sheet, which I used as a firm support for the paper while printing. Finally, I placed the acrylic sheet with my paper on top of the inked letters, and then rolled a rolling pin over it for a while. To accommodate for pieces that were not printing, I added strips of paper underneath those letters to bring them a bit higher. Though the test prints did not turn out perfectly, it was enough to determine that these pieces do print and print well.

In conclusion, I was very pleased with the results of the wood type. If I had to remake the project and make any changes, I would recreate the set with an actual type-high cut of solid maple wood, like what is used by authentic wood type manufacturing companies. However, for pieces that would be more easily done by the common person, laser cutting plywood and the subsequent methods produced a successful, quality set of wood type.

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Figures

Figure 1. Development of typeface styles throughout time. (Personal graphic)

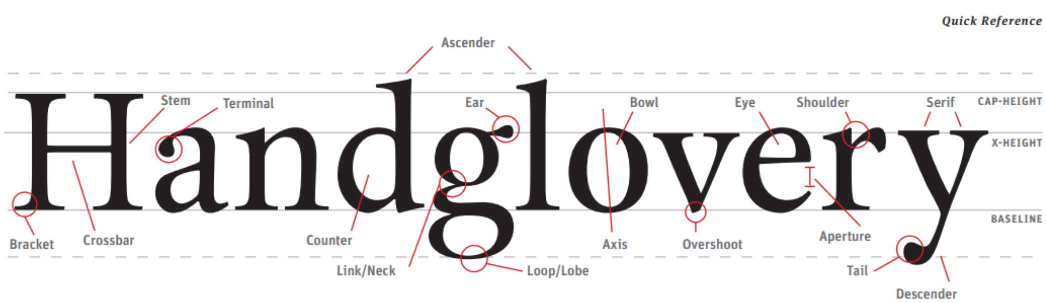

Figure 2. Letterform terminology. (Source: Font Shop)

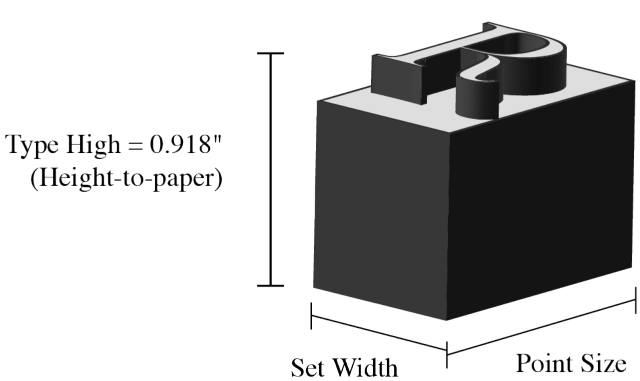

Figure 3. Diagram of movable type piece showing measurements for type high, set width, and point size. (Personal graphic)

Figure 4. Font schemes used for this project (combined here: 5A, 5a, and No. 1)

(Source: Virgin Wood Type Manufacturing Company)

Figure 5. Metal type lockup on flat-bed press. (Personal photo)

Project Photos