Spella, Paul. 2019.
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Mac and Photoshop

Paving the Future

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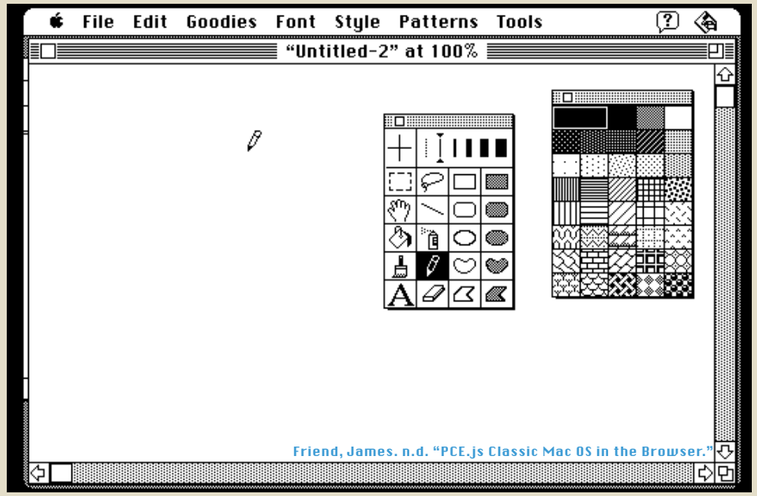
Modern technology has only made the process of designing more streamlined. The Mac 128k and its software MacPaint paved a standard for graphical user interfaces. MacPaint's interface and functionality influenced the functionality and Graphical User Interface (GUI) of other design programs such as Adobe Photoshop. Everything from how the tools are laid out, to the way icons labeled the tools. The differences are easy to see, but similarities are much harder to spot. The importance of the influence of MacPaint is understated as it is a pivotal part of design history and the digital revolution- not only its direct influence with the GUI and tools but the inspiration and innovation within the software.

Andy Hertzfeld and Bill Atkinson were early developers on the Original Macintosh and its software, primarily MacPaint. They helped strive for innovation, working on the Mac 128k and the MacPaint software. The Macintosh's basis for GUI would spread into its provided software as well, such as MacPaint. The advantage the Mac had over its competition was in its interface, features such as "windowing, scroll bars and drop-down, pop-up and tear-off menus, dialogue boxes and buttons." (Lewis 1988) would change the computer and software industry. Now they are the standard of most GUIs for computers, laptops, and the software within them. MacPaint was one of those programs that used these features to its advantage, making it easier to understand and more customizable for its users. Adobe Photoshop took influence from MacPaint, having similar features and functionality, but also improving and innovating upon those features.

Windows and drop-down menus are features that make design software like Photoshop modular and more customizable. MacPaint's use of drop-down menus was revolutionary. Before users would have to type everything out in lines, there were no mice. Users could now go to the tool drop-down menu and drag the tool section out. This feature is included in Photoshop for users to drag out different windows depending on what they need easy access to. If a user wants easy access to the different styles of brushes, they would have to drag that window out. Windows behave similarly between both Photoshop and MacPaint. Bill Atkinson explains it best, "One of the fundamental things that happened with the graphical user interface is the shift from the computer driving the user, to the user using the computer as a tool." (Dormehl 2014). The software of MacPaint and Photoshop are tools, like a swiss army knife that can be personalized and customized to users' wants and needs.

The tools of MacPaint still hold up today as the behavior of those tools is what directly inspired Photoshop's tools. One of the most fundamental tools, the selection tool, was developed by Bill Atkinson. He described the tool as "a rectangle of marching ants." (Booch 2004). The selection tool works by dragging your mouse over a specified section of a graphic so a user could move it, cut it, copy it,

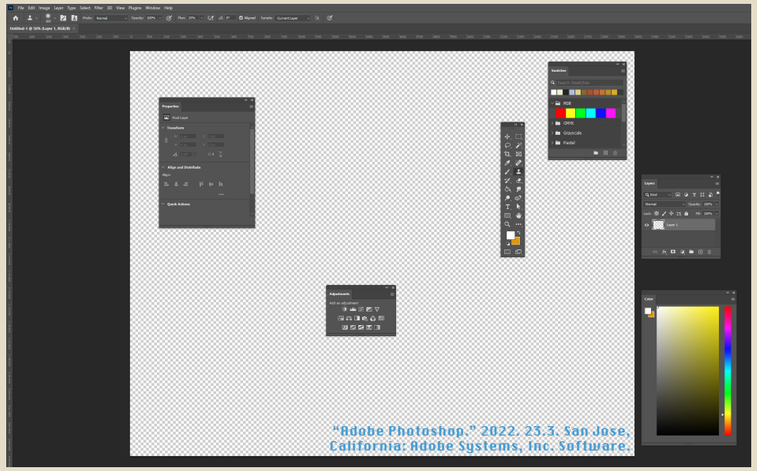


Friend, James. n.d. "PCE.js Classic Mac OS in the Browser."

The tools of MacPaint

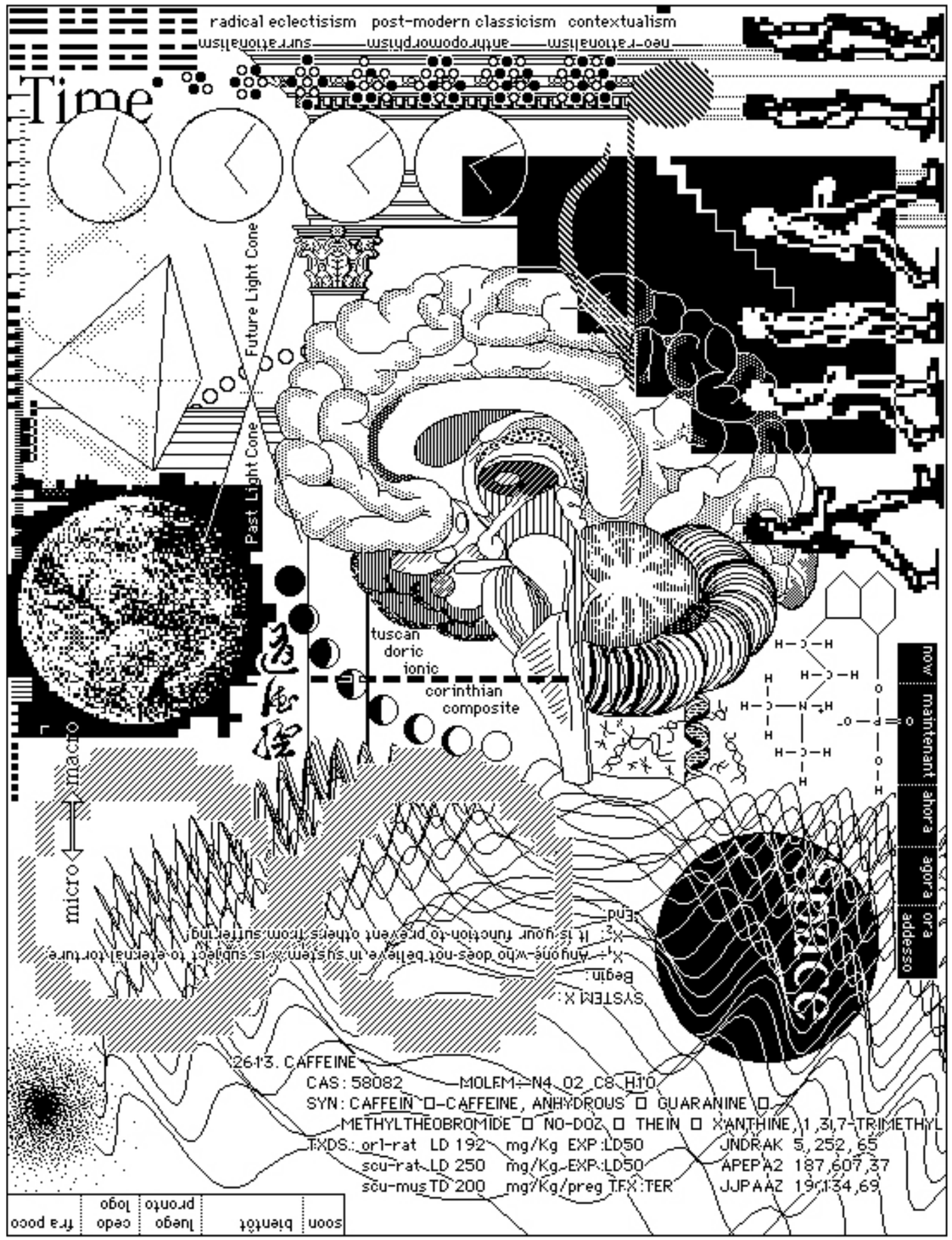
or edit the specified area. The animation and functionality of the selection tool are the same today. More tools included in the MacPaint software are the pencil tool, paintbrush the lasso tool, shapes, hand, line, paint bucket, spray, paint, text, and eraser tool. In MacPaint you could make adjustments to the tools like the brush shape and size, changing the font, size of the text, alignment of text, adding effects to text like outlines & shadows, and patterns on the brush. The lasso tool worked similarly to the selection tool; instead of confining you to a shape, it allows you to draw the shape of your selection. The hand tool would allow users to move around the digital canvas. The pencil would allow you to draw thin lines. The paintbrush would allow you to draw as well, providing customizability to the width and patterns on the brush. The line tool would allow users to click and drag a line out. The paint bucket would fill in a specified area, either with a pattern or solid black and white. The spray tool would draw but depending on how much a user moves over a specific area the more opaque the color or pattern would be. The base functionality of these tools is nearly the same as the current version of Photoshop. The only difference is that Photoshop now has even more tools, features, and adjustments to these tools because of the better performance of modern-day technology. With Photoshop's inclusion of color patterns became more customizable, allowing to recolor patterns. Photoshop would also bring gradients into its software, which allowed users to seamlessly blend 2 colors across the canvas allowing for more dimensionality.

The tools and their functionality are fundamental parts of design software, but showcasing the functionality and all the tools



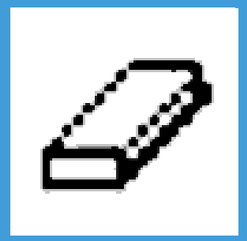
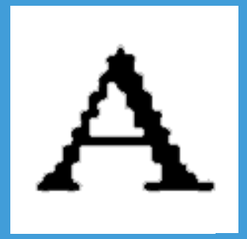
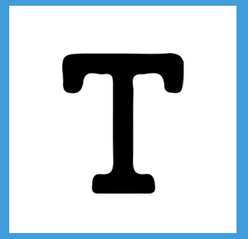
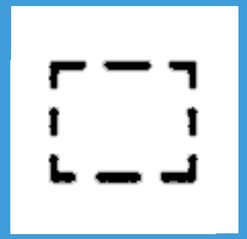
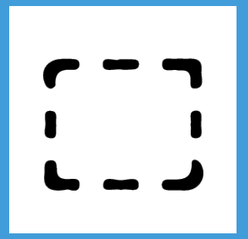
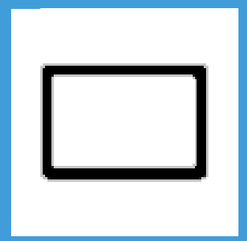
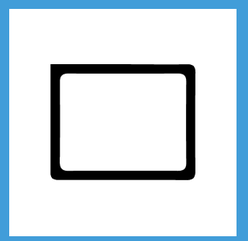
"Adobe Photoshop." 2022. 23.3. San Jose, California: Adobe Systems, Inc. Software.

in one place was a challenge Atkinson faced. There was a moment where Atkinson said, " If users select a tool from a menu, it's not really in front of the user... what tool am I in? Is this stroke going to erase some stuff or going to draw with marker or et cetera?" (Booch 2004). Atkinson needed to make the tools easy to find as well as easy to understand without even having to use the tool first. The visuals and layout of the tools can make and break creative software. If the tools are impossible to find, it makes the software harder to use. No user wants to, that's harder to understand. The Macintosh, rather than using text, utilized icons. The use of icons was revolutionary as "real-world metaphors such as using a trash can to delete files." (Jesdanun 2014) It wasn't very commonplace for computers at the time. It can be seen in the toolbar of MacPaint as they use these real-world metaphors as well. The lasso tool resembles a real-world lasso, the grab tool is a hand, the fill tool is a paint bucket, the spray tool is a spray paint can, the paint tool is a paintbrush, the draw tool is a pencil, the text tool is an uppercase A, and the erase tool is an eraser. Photoshop has additional tools like the pen tool which looks like a pen, the spot healing tool looks like a bandage, the color selection tool is an eyedrop, the zoom tool is a magnifying glass, and much more. With new tools being added to Photoshop, Adobe has to keep finding new metaphors to visualize the tools as. These icons make it easier for the user to understand what the tool does and easier to differentiate the tools for quick selection. The icons with the paint palette-like layout make selecting tools less of a hassle, especially compared to the text-



Leftwich, Jim. 1987. Time 'n Space

Icon Tools Over the Years

MacPaint		Photoshop
	Eraser	
	Type	
	Selection	
	Shape	

Friend, James. n.d. "PCE.js Classic Mac OS in the Browser."

"Adobe Photoshop." 2022. 23.3. San Jose, California: Adobe Systems, Inc. Software.

based menus before the Mac. One functionality that doesn't exist in MacPaint is the layers. Think of layers as transparent pieces of paper; you can reorganize the order of the paper and draw different things on each page.

There are many other functionalities shared between MacPaint and Photoshop. Users can turn on a grid, zoom in and out of a file, use shortcuts, change preferences, edit and create patterns, brush mirrors, and even scale a selection. Users can add effects to patterns and have different text modes similar to the blending mode in Photoshop. These blending modes in MacPaint determine how the black and white colors interact and blend. They were separate for patterns and text. For patterns you would have; Opaque, which would not apply any effect when drawing over black or white. Transparent would allow users to overlap patterns and switch whether the white portions of the pattern are transparent or the black parts. Reversed would make white portions of what your drawing visible on black objects turning it black when drawing on white. Erased would only draw on black portions of a drawing. For text, they had normal which would add a box for the text to sit in, overlay which would have no box, meaning text and graphics would overlap, and inverted which would invert the text color depending on what color the text is over. Since Photoshop has layers, as well as color support, the functionality of blending modes is more in-depth. Rather than only being able to apply blend modes to tools themselves you can also apply them to entire layers.

MacPaint's interface made it simple for users to understand. Apple understood that computers should not only appeal to those who are technologically advanced. The use of iconography for tools makes tool functionality easy to understand. The paint palette-like layout for the tools made them easy to spot and move around. The customizability of the tools made the software more versatile. Users can change line weight, color, patterns, and more. When creating on MacPaint you see what you'll get. Print and it is as if it never left the computer screen. There are similarities between MacPaint and Photoshop, but the difference in technological advancements is large. MacPaint would run on only one-eighth of a megabyte of memory from the Mac (Hertzfeld 1983). That is one-eighth of a megabyte of the 128k of RAM available in the Macintosh ("MacPaint History and Significance", n.d.). Meanwhile, Photoshop has a minimum requirement of 16 GB or more. Even with the technological age gap between the two software, MacPaint holds up today. MacPaint is the grandfather of design software, it inspired newer software such as Photoshop to improve and add to its legacy, continuing to push the boundaries further for all future design software.