Hatch is Hatch: Building Building drawings

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HATCH IS HATCH
BUILDING BUILDING DRAWINGS

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SYRACUSE SCHOOL OF ARCHITECTURE
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The hatch is a series of marks on a page laid out systematically. It is a representational technique that has evolved, taken up different values, and has been utilized in different ways over time as technologies and practices changed. Today, the hatch is used symbolically as a way of communicating a drawing, and has no direct relationship to the represented subject. However, by looking back at drawing practices, we start to understand the hatch has material consequences and is no longer solely illusory. The act of making a mark allows for the process to be read in the final image and has a tangible depth. This thesis is looking at constructed matter, including drawings from hundreds of years ago, etchings by Piranesi, and materials from a building and its surrounding landscape, as substrates that support the multiple ways hatches are deployed, can be understood. This thesis projects upon art theorists who have developed ways to categorize imaging techniques such as painting to inform a new systems of classification and deployment that broadens our collective understanding of what a hatch is and does.
The origins of Architecture, according to Vitruvius in De Architectura, a collection of books regarded as the first Architectural treatise, can be traced back to when builders started “attending to the comforts and luxuries of civilized society.” It was only then that buildings were “carried to the highest degree of perfection.” In his fourth book in De Architectura, Vitruvius places the beginnings of Architecture -- with a capital A -- at the classical orders, the point where human proportions were adopted as the organizing principles of the three dominant column typologies. Since then, the origins of Architecture’s relationship to drawing has changed significantly as technologies and cultural ideologies have evolved. This thesis is critically examining the translation from drawings to buildings, focusing on the hatch as a ubiquitous image-making tool and on the hatch’s deployment in architectural drawing practices. The passive acceptance of new aesthetics and focus on what digital tools can do instead of the
implications they have on building design has allowed the hatch to become an empty signifier, stripping the technique and artifact of any spatial, cultural, and individual qualities. Over time, the deployment of the hatch has changed significantly from providing depth, pushing fantasy, and disseminating knowledge to instead act as visual noise and diagrammatic fills. No longer is it a critical part of an architectural composition, but rather as a pure aesthetic pursuit. To critically examine the hatch, it is necessary to first understand its drawing’s relationship to architecture, the architectural movements that have changed drawing practices, and the contemporary atmosphere in which the hatch now operates before it is possible to critically examine how the hatch can be deployed in today’s architectural practice.

Architecture has not always been a profession concerned primarily with drawing. For much of history, architecture was a field for master-builders and a mechanical craft. Buildings were conceived of, and made by artisan workers. Alberti, in fact, was the first to claim that architecture is first an idea, conceived of by its author, and then copied from drawings into the physical world. He states that “the physical building that may follow [its drawing] is only a copy, devoid of any intellectual added value.” This idea is derived in the two ways the origins of drawings are recounted. David Allan, a Scottish painter
and illustrator, painted the rendition told by Pliny the Elder, a Roman writer of the first century, in 1773, that told the story of Diboutades tracing the shadow of her late lover. By the light of a fire, she marked the contour of her lover on a wall.  

Karl Friedrich Schinkel retold the story in his 1830 painting, replacing the interior condition of the original painting with an exterior rock face, the fire with the sun, and the drawer as a shepherd following Diboutades' direction. While both paintings speak of the architectural drawing, Allan's rendition shows drawing post-architecture in a perspectival view while Schinkel's shows drawing preceding architecture in elevation. Schinkel's painting recognizes the necessity of drawing before architecture. In his essay, Translations from Drawings to Buildings, Robin Evans synthesizes this idea by stating that “drawing in architecture is not done after nature, but prior to construction; it is not so much produced by reflection on the reality outside the drawing, as productive of a reality that will end up outside the drawing.” Namely, it is necessary to have drawing before architecture. The drawing of architecture cannot happen after the building is built, but rather is a prerequisite of architecture. This fundamental dialogue between drawing and building, in the contemporary postdigital age of architecture has be largely renounced. The turn to the “digital” as a mode and technique is almost 20 years old, and computer-based architectural representation, design, and
fabrication are now ubiquitous. Increased access, relatively low-cost services, processing power rendering tools, and programs such as photoshop and illustrator started to “[produce] rendered images -- glossy visions of soon-to-be-build projects, usually blue-skyed, lush-leafed, and populated by groups of groomed and grinning clip-art figures; where buildings appeared with a polished sheen and lens flares proliferated. Postcards from the near future.” Now, projects could be visualized before the design process was completed, clients were able to view snapshots of the future, and projects were started and finished with idealized versions of the built product. The drawing was rendered useless as renderings took the place of spatial description.
The digital revolution has sparked a rediscovery of the architectural drawing, but has also “has made drawings more consumable...This consumability has most often been achieved by redefining their representational role...in the sense of being less concerned with their relation to what they represent than with their own constitution.”

As the drawings have moved away from built work, the drawings have become the focus and are “repositories of effects and the focus of attention,” leaving the translation between the drawing and building as an afterthought. This focus on the drawing is characteristic of the postdigital era of architecture. To understand this change, however, one must understand what the post-digital means. The postdigital is current architectural era that developed after the digital revolution. According to Ellie Abrons and Adam Fure, professors at the Taubman College at the University of Michigan, the post in postdigital “does not imply a time after or beyond the digital, but instead should be understood as both a continuation and interrogation of what we have known as ‘the digital’ to date.” This implies that we should accept the digital technologies that have developed within the digital
revolution and use those as modes through which we design. This changes the nature of the digital as something that should be pushed to its boundaries in pursuit of extreme limits, but rather using new programs in a controlled, refined, and composed way. Abrons and Fure also posit that the postdigital “replaces the forward vector of ‘progress’ with an omnidirectional purview that is less interested in the creation of newness and developing the hidden aspects of computation.”  

This new way of approaching the postdigital halts the passive acceptance of digital norms that have been the result of ubiquity rather than intellectual rigor.

The current approaches to the reconsideration of digital technologies is twofold. While both modes of operation accept the digital techniques, one postulates that images that push the fictitious nature of drawings created with digital technologies can be considered postdigital, as the nature of the drawings themselves, even if they harken back to past aesthetic styles, have been fundamentally changed by the programs themselves. Sam Jacobs, an advocate for this school of thought, states that the postdigital “is in strict opposition to the digital render’s desire to make the fiction seem ‘real.’”  

Jacobs starts to analyze programs such as photoshop and illustrator, calling out their respective characteristics, namely the ability to “freely manipulate content.”  

Instead of the traditional
cut and paste technique of creating a collage, we are now able to zoom and control the relationship of image to image at a “forensic level,” as well as the prevalence of flatness and the graphic outline. However, as long as the images push the fantastic nature that can be constructed via these programs, they add to the general discourse of postdigital architecture. The other school of thought postulates that aside from the aesthetics of the drawing, the mode of working needs, also, to come from digital means. This approach not only looks critically at the way in which “the ‘grain’ of computation shows up in physical things, by training the eye to see patterns and qualities that arise from ubiquitous yet often unintelligible computational processes.” However, instead of accepting these faults within the design, the movement explores the design potentials in the defects of digital image-making; it “multiplies the grains that can be produced, identified, and revealed,” ultimately taking back control over the image production as a whole. The resulting designs maintain “commitments to disciplinary development while exploring the aesthetic opportunities that emerge from changing conceptions of computation.”
While there are many aesthetic forms of representation that have arisen in the postdigital age, a techniques that is heavily ingrained in many image-making processes is the hatch. This technique is of great interest because of the dichotomous coexistence of both their specificity and ambiguity. They, while specific in their part-to-part relationship, push neutral agendas, allowing them to become ubiquitous overlays in much of the postdigital image production. One such example of the loss of inherent meaning and use of the hatch can be seen in MOS Architects led by Michael Meredith and Hilary Sample, professors at Princeton University and Columbia University, whose body of work embraces a “screenshot aesthetic,” which they posit is “central to a certain contemporary way of doing architecture.”

This mode of representation harkens back to the writings on Modernism by Clement Greenberg, an essayist and Modernist art critic, where he defined the “essence of Modernism” as “the self-conscious thematization of the limitations of mediums -- making art about what mediums can do.” Furthermore, he states that “each art had to determine, through its own operations and works,
the effects exclusive to itself."  The screenshot of an architectural project, in the way MOS Architects utilizes them, seeks to establish "an impression or mood rather than convey precise information...[while suggesting] that there is a precisely specified object alive in a virtual space." This suggestion of authenticity and truthiness embedded within the snapshot comes from the fact that "no one would expect anyone to fake them," as they would with art photography.

Examining images the firm has produced for the Foreclosed: Rehousing the American Dream exhibition at the MoMA and their House No. 1 project, a single family home in upstate New York, it is clear that the use of the black line hatch is used as meaningless digital noise that pushes the reading of authenticity with the inclusion of digital detritus.

Another such example of the hatch being deployed ubiquitously with no consideration for the technique’s historical relevance to image making can be found in the textbook Building Construction Illustrated by Francis D.K. Ching. While this book is solely a collection of illustrations of construction processes and materials, utilizes a very specific drawing technique that is referenced as “Francis D.K. Ching’s signature style.” His illustrations utilize the line hatch indiscriminately as renderings of shadow, section cut fills, wood paneling, abstracted atmosphere, and diagrammatic fill. The utilization
of the same hatch in this sampling of ways reflects the embrace of diagram culture within architectural image production. Mark Garcia, an Author and Editor at John Wiley and Sons and a Senior Lecturer at the University of Greenwich’s Department of architecture, states that a diagram is the “spatialization of a selective abstraction and/or reduction of a concept or phenomenon.” The hatch has been used prolifically in the diagram, apparently interchangeable with other forms of information representation such as the color fill and text. Anthony Vidler “distinguishes the ways in which diagrams differ from drawings, namely that diagrams represent abstractions ‘symbolically’.” The hatch’s role in the diagram is only symbolic of something else, and so, has no value of its own. Despite this, architecture firms and artists alike have used the hatch in their architectural drawings, and in some cases, in building design. This fits with the diagrammatic turn in architecture, which has been “quickly assimilated into design practices that work with digital techniques of representation...The evident speed with which digitised images of traditional modes of representation can be modified and worked with has for many years supported the computer-aided design in practice.” This approach to architecture can be seen in the shift from hand-drafting to computational design. With the advent of programs such as Illustrator and AutoCAD, the hatches are readily available and automated, and
thus easier to use.

This aversion to understanding the hatch and embrace of the Modernist ideal of exploring what a medium can do is combated by the Post-Digital’s ideal of exploring what it means to use a certain medium. To critically examine the potential for the hatch, it’s important to build a thorough understanding of the predecessors of the contemporary hatch. The hatch’s origins in relationship to image production can be traced back to techniques such as woodcut, engraving, etching, stippling, scratchboard, photogravure, halftone printing, ben day printing, linocuts, dot matrix printing, and screentone printing. By closely reading quintessential images through the lens for the hatch, it is possible to start to create a collection of ways the hatch was deployed that were tied closely to the modes of production. Albrecht Dürer’s “The Annunciation (The Life of the Virgin)” c. 1503 is an example of an image produced by the woodcut technique. It presents the entire image as a material-less composition, with the outline of the individual components dominant. The hatch is acting as a mode of idealized image rendering, as every subject is clearly defined and no differentiation between the resolution of the line work in the foreground and background. The hatch itself reinforces the constructed perspective while also calling attention to certain elements such as the stairs and the angel. The hatch is produced by
carving the negatives of a mirrored image into the wood. Ink is applied to the smooth surface of the wood and printed onto paper. The hatch is produced by manual gouging of the medium.  

Martin Schongauer’s “Saint Anthony Tormented by Demons” c. 1470 was one of the first images produced by engraving. This engraving piece elevated a technique that was derived from goldsmithing into high art. Cross hatching is mixed with parallel hatching to provide depth and texture to the demons. Tick hatching is used in the background sky to give a sense of atmosphere that does not detract from the subject of the image, but rather accentuates Saint Anthony’s vulnerability. The curved and horizontal lines on the demons accentuate movement and energy whereas the subject itself is rendered with smaller, straight lines to reinforce stoicism.  

The hatch is produced by carving linework directly into a plate of metal. The gouged portions catch link based on depth of the carve, emphasizing deeper cut lines.  

“The Smoking Fire” c.1761 by Giovanni Battista Piranesi was part of a larger series titled “Carciery” or “The Prisons.” This etching utilizes the hatch technique as a way to reinforce the atmosphere and constructed fantasy of the scene. Primary lines follow individual subjects, but secondary cross-hatched lines reinforce the multiple perspectives while simultaneously reinforcing the multiple light sources present.
in the construction. 31 The lines themselves are not independent anymore, but rather layers of scratches that create zones, reinforcing the frantic, oppressive nature of the scene. By divorcing from the graphic outline, he is able to flatten the image to create surreal scenes that don’t question impossible geometries and abrupt terminations.

The hatch is produced by carving away from a thinly applied layer of protective wax, allowing for more fluid linework similar to pencil drawings. Unprotected portions of the metal plate are eroded via an acid bath. While the mode of production is semi-automated by the acid, the image is controlled tightly by the author.

Stippling, as seen in Giulio Campagnola’s “Young shepherd seated in a landscape looking toward an old man in the lower right, buildings in the background and a tree and mountain at left” c.1512 is the first example of a hatch that consists of dots rather than lines. In this case, the fidelity of image rendering is prioritized because a greater gradation of light to dark was made possible. However, no longer is it possible to visually examine the history of the drawing. With this technique, the dot is still subservient to the line, only being used to fill in the outlines of the forms. The technique is no longer prioritized and exploited, but rather an emphasis on the image as a whole is pushed. The hatch is produced by distributing dots of various sizes and densities within a set boundary. Similar to etching, the dots are
carved out of a thin layer of protective wax and then eroded by an acid bath. The technique was a way to mimic the atmosphere produced by chalk drawings.  

The Scratchboard technique was popularized by Merritt Dana Cutler in her publication titled “Scratchboard drawing: A Technical Treatise” c. 1949

The scratchboard was used as a rendering tool, and most similarly reflects the process of engraving while also taking on the same priority of the line as etching. The lines carved provided tone and high quality image rendering, readily available to be reprinted. However, singular subjects are most commonly shown through this technique, as backgrounds would be too time consuming to slowly reveal. The hatch is produced by carving away at a top layer of black to reveal the white layer underneath. It is a direct translation of drawing to image production.

William Henry Fox Talbot spearheaded the creation of the photogravure technique with his piece titled “Dandelion Seeds” c.1858 This mode of image making is a direct translation of object to drawing. The seeds were placed on a photosensitized metal board and exposed to light. While the image is seen as whole, the process produces small dots that have depths corresponding to how much exposure to light. Similar in past techniques, the dot hatching is subservient to the
subject as a means of approximating a photorealistic image, however, it is not subservient to a graphic outline anymore. The hatch was not intentionally created, but composes the entire image. The process takes authorship away from the maker.

With the advent of mechanized processes came Ben Day Printing utilized by Roy Lichtenstein in many of his works such as “Drowning Girl” c.1963 and “Mirror” c.1997. Lichtenstein uses the Ben Day printing as a way to comment on the economies of commercial comic and newspaper printing. By manually crafting the dots that were used in the mechanical reproduction of images, Lichtenstein took something that was supposed to be robotic and forced them to become the focus of the painting. The manual production pushed the comic imagery into high art. The strict dot pattern does not fill the graphic outline in many cases, bringing the control of the author back into the painting. The image is flattened, with no tonal information. The colors themselves do not aim to imitate real life, but rather continue to push the constructed reality. “Mirror” utilized the diagonal linear hatch as a commentary on the abstraction of cartoon mirrors. Lichtenstein said “Now, you see those lines and you know it means ‘mirror,’ even though there are obviously no such lines in reality. It’s a convention that we unconsciously accept.” The abstraction of the work calls attention to the fictitious, empty nature of the hatch as
symbolism.

The Linocut was a method of quickly producing images with new, cheaper materials available. Pablo Picasso’s “Buste de Femme au Chapeau” c.1962 can be read as a superimposition of blocks of zones of color, as each different color had to be printed separately on top of each other. The hatches, here, reinforce the flatness of the drawings, operating independently from the three dimensional form. Straight lines have their own logic, rather than following the logic of the subject. However, the lines still provide differentiated textures to each zone of the painting.  

The Linocut was produced by manually carving away at linoleum, printing from dark to light, completing the composite image on linoleum in a step-by-step process. The steps are visible in the final product, almost as a collapse of time.

Dot matrix printing brought the pixel itself to the forefront. Primarily used in printing text, each dot became integral to the whole composition. While still approximating the composite form, the relationship between form and unit became equal, where one could not exist without the other. Because it operates at such a small scale, the produced image is flattened to an abstract, two-dimensional artifact. The term “DPI” is the result of this form of printing.

Finally, screentone printing, as seen in S.P. Burke’s comic titled “Post-Modernism” c.1950 was the direct precursor to the
modern computer hatch. Patterns are transferred from pre-printed sheets of printed plastic onto paper. Although this technique was a manual version of computer printing, it had no regard for the image being created, but rather only provided a way to quickly fill space with patterns and textures to create general differentiations in tone. From these close readings of specific art pieces' relationships to their modes of production, it is possible to start to draw out motifs of the hatch and arrange them utilizing existing modes of categorization. The hatch, firstly, cannot be considered in relationship to painting practices because, as Clement Greenburg states in his essay titled “Modernist Painting,” the “limitations that constitute the medium of painting [are] the flat surface, the shape of the support, and the properties of the pigment.” The action of hatching inherently consists of removing material whether it be wood from a wood block or wax from a metal sheet. The does not necessarily conform to a rectangular frame, and is tied to reproduction. However the hatches can start to imitate the painterly and linear effects of paintings in their end products as defined by Heinrich Wölfflin. The linear means that all figures and significant subjects and surrounding forms are clearly outlined with clear, solid boundaries. Each figure is evenly illuminated and can be seen autonomously from its surrounding subjects. In contrast, the painterly effects references images that
have a single light source with the figures fused together with softer, more expressive brush strokes. Informed by these two art theorists, hatches, then are deployed as atmosphere, which is determined by the perceived compression and expansion created by the density and thickness of a line, effect which is informed by tonal information that blurs figures and edges, and finally signification which references external bodies of information such as material or program. By understanding the hatch’s historical lineage and ways in which to categorize the outcomes of the image making processes, it is possible for my thesis to delve into examining what the hatch means for architecture within a contemporary architectural atmosphere. To start to situate the project in the physical realm I have explored sites with inherent hatches integrated to the landscape and building typology that I can draw from, ultimately choosing a flower farm in Lompoc, California because of its neutral environmental conditions, inherent 3D elements, range of tonal values produced by the flowers themselves, and integrated architectural elements embedded with the program, specifically the traditional foursquare house. Starting first at the scale of individual building materials, this thesis explores the different ways hatches can start to reveal themselves based on atmosphere, effect, and signification through processes of “making.” Looking at materials such as wood, drywall, brick,
concrete, dirt, shingles and glass, the thesis aims to bring latent qualities of materials and examines ways in which it is possible to collapse multiple meanings on the same material. In William Hogarth’s The Analysis of Beauty, he speculates on the eye’s ability to read an object. He says to “let every object under our consideration, be imagined to have its inward contents scooped out so nicely, as to have nothing of it left but a thin shell, exactly corresponding, both in its inner and outer surface, to the shape of the object itself: and let us like-wise suppose this thin shell to be made up of very fine threads, closely connected together, and equally perceptible, whether the eye is supposed to observe them from without, or within; and we shall find the ideas of the two surfaces of this shell will naturally coincide. The very word, shell makes us seem to see both surfaces alike.”

Hogarth references the diminishing availability of objects to an individual’s vision by only perceiving the surface. By imagining “the within,” he directs us to a conceptual approach to visual culture that allows us to partially see an object in its totality via the visual reproduction of found subjects. Utilizing Hogarth’s base theology, the physical material studies produced aim to “see” each material in separate ways, each with their own truths via the re-representation of the materials through the categories of atmosphere, effect, and signification. Once again following Hogarth’s speculations, it is
critical to move from physical material studies to the drawing as a facilitator of the collapse of information to make latent qualities perceptible. Because of this, the thesis moves from the material studies and applies them at the building scale, taking note of building and landscaping practices.

This thesis is producing a body of knowledge and exploration surrounding critical ideas of the hatch, taking into consideration art and production practices to reinvigorate the current drawing practices with a depth of knowledge perviously lost. By critically situating this ubiquitous drawing technique, this thesis project aims to act as an outline for future reconsiderations of convention.
EMPTY SIGNIFIER

Unlike the plan, section, or axon, the hatch no longer has any inherent use. The hatch is used, now, as generic fills or abstract references to other bodies of information.
hatch as everything

hatch as drawing noise

hatch as diagram

hatch as landscape

hatch as screen

hatch as material

hatch as blurring

hatch as site zone

MOS, House No. 1

Geoffroy Marie Florentine

Andrew Zago, Property with Properties

Maya Alam, Transinterference

Ania Jaworski, Forum Pavilion

Maya Alam, Transinterference

Do Gwang Hun, Hakwon Urbanism

Geoffroy Marie Florentine

Design with Company, Collider Center
“COMPUTATION TECHNOLOGIES DIRECT US TOWARDS A PASSIVE TRUST IN WIDELY DELEGATED, YET OBFUSCATED, ACTIONS. THIS TENDENCY TOWARDS AUTOMATED AND ACCELERATED MODES OF ACTION COMPlicATES AND MAY UNDERMINE STRUCTURES OF REFLECTION AND CRITIQUE”

- Thinking Postdigital Aesthetics: Art, Computation and Design
  David M. Berry and Michael Dieter

The hatch, today, is used indiscriminately as a diagramming technique because of its quickness, legibility, and neutrality. The functional approach to the hatch in Illustrator, AutoCAD, and Rhino has eliminated any critical thinking or implication the technique itself has. We use this technique blindly without seeing any problems to the approach.

“HATCHING CARRIES CONNOTATIONS OF ROte VOCATIONAL PROCEDURE IN CONTRAST TO THE MORE FIGURATIVE AND RHETORICAL POSSIBILITIES INHERENT TO THE SILHOUETTE, THE CORNER, THE SPATIAL WIREFRAME, OR THE PARTICle PATH”

- Computational Hatching
  Carl Losritto

The hatch does, however, have qualities that lend themselves to spatial design. It is our responsibility now, to take a critical look at what contemporary hatches offer in relationship to historical precedence to better understand how we can critically engage the technique.
HISTORY

TO UNDERSTAND THE HATCH FULLY, IT’S NECESSARY TO EXAMINE HOW IT HAS BEEN USED IN RELATIONSHIP TO IMAGE PRODUCTION
WOODCUT

8th Century : Japan
1400 : Europe

Albrecht Dürer (1471–1528)

The Annunciation (The Life of the Virgin), c. 1503

The woodcut illustration by Dürer presents the entire image as a material-less composition. The outline of the image is dominant, with the hatch acting just as a fill, with no differentiation between resolution of linework in the foreground and background, with no blur even as recedes. Everything is homogeneous, with the figures almost blending in with the background, save for the decreased lines that render the figures. The hatch itself reinforces the constructed perspective as well as the placement of the subjects, with its spacing to distinguish light and shadow, sometimes blurring the subject into the environment and sometimes calling to attention certain elements.

The hatch is produced by carving the negatives of a mirrored image into the wood. Ink is applied to the smooth surface of the wood and printed onto paper. The hatch is produced by manual gouging of the medium.
ENGRAVING

1430s

Martin Schongauer (1445-1491)

Saint Anthony Tormented by Demons c.1470

source: https://www.metmuseum.org/toah/works-of-art/20.5.2/
This engraving piece elevated a technique that was derived from goldsmithing into high art. Cross hatching is mixed with parallel hatching to provide depth and texture to the demons. Tick hatching is used in the background sky to give a sense of atmosphere that does not detract from the subject of the image, but rather accentuates Saint Anthony’s vulnerability. The curved and horizontal lines on the demons accentuate movement and energy whereas the subject itself is rendered with smaller, straight lines to reinforce stoicism.

The hatch is produced by carving linework directly into a plate of metal. The gouged portions catch light based on depth of the carve, emphasizing deeper cut lines.
ETCHING

1430s

Giovanni Battista Piranesi (1720–1778)

The Smoking Fire c.1761

source: https://www.barnardartmuseums.org/art/262439
This etching utilizes the hatch technique as a way to reinforce the atmosphere and constructed fantasy of the scene. Primary lines follow individual subjects, but secondary cross-hatched lines reinforce the multiple perspectives while simultaneously reinforcing the multiple light sources present in the construction. The lines themselves are not independent anymore, but rather layers of scribbles that create boundaries and zones, reinforcing the frantic, uncomfortable nature of the scene. By divorcing from the graphic outline, he is able to flatten the image to create surreal scenes that don’t question impossible geometries and abrupt terminations.

The hatch is produced by carving out of a thin layer of protective wax (ground,) allowing for more fluid linework similar to pencil drawings. Unprotected portions of the metal plate are eroded via an acid bath. Authorship is shared equally by artist and technique.
Giulio Campagnola (1482–1518)

Young shepherd seated in a landscape looking toward an old man in the lower right, buildings in the background and a tree and mountain at left c. 1512

source: https://www.metmuseum.org/art/collection/search/372060
A fidelity of image rendering has occurred. The invention of the stipple etching technique allows for a greater gradation of light to darkness. No longer is it possible to visually examine the history and construction of the drawing, as the subject matter becomes more clearly defined. However, the image itself is simplified, with less detail in both the subject and landscape. With this technique, the dot is still subserviant to the line, only being used to fill in the outlines of the forms. The technique is no longer prioritized and exploited, but rather an emphasis on the image as a whole is pushed.

The hatch is produced by distributing dots of various sizes and densities within a set boundary. Similar to etching, the dots are carved out of a thin layer of protective wax and then eroded by an acid bath. The technique was a way to mimic the atmosphere produced by chalk drawings.
SCRATCHBOARD

1800s

Merritt Dana Cutler

Scratchboard drawing: A Technical Treatise c.1949

source: https://books.google.com/books/about/Scratchboard_Drawing.html?id=OKLZGAAACAAJ
The scratchboard was used as a rendering tool, and most similarly reflects the process of engraving while also taking on the same priority of the line as etching. The lines carved provided tone and high quality image rendering. However, singular subjects are most commonly shown through this technique, as backgrounds would be too time consuming to slowly reveal. The prioritization of line vs. fill fluxuates because of the technique of “revealing,” with some parts of the image fading into the background and some parts standing in stark contrast.

The hatch is produced by carving away at a top layer of black to reveal the white layer underneath. It is a direct translation of drawing to image production, recapturing lost authorship of past techniques.
PHOTOGRAVURE

1820s

William Henry Fox Talbot (1800–1877)

Dandelion Seeds c.1858

This mode of image making is a direct translation of object to drawing. The seeds were placed on a photosensitized metal board and exposed to light. While the image is seen as whole, the process produces small dots that have depths corresponding to how much exposure to light. Similar in past techniques, the dot hatching is subservient to the subject as a means of approximating a photorealistic image, however, it is not subservient to a graphic outline anymore. The hatch was not intentionally created, but composes the entire image. The process takes authorship away from the maker.

The hatch was produced by placing objects directly onto a surface and exposing it to light. The image is procued by small uncontrolled dots with depths corresponding to the amount of light it was exposed to. Now, images are produced by a photomechanical process where a light sensitive gelatin on a surface is explored to the negatives of a film strip. The same dots are produced to approximate a photorealistic image.
HALFTONE PRINTING

1850s

Stephen Henry Horgan (1854-1941)

New York Daily Graphic c.1873

Similar to photogravure, the halftone approximated hyperrealistic imagery via the dot. However, the dots used varied in diameter and incorporated a range of different spacings to achieve the tone of the building. This allowed for a photo-like image meant for mass reproduction at a small scale.

The hatch is produced entirely from a mechanical process using screens with punctures organized in a grid. The dots vary in size to mimic photographic tonage and is subservient to the image, postulating no external motivation.
POINTILLISM

1880s

Georges Seurat (1859–1891)

A Sunday on La Grande Jatte c.1884

source: http://www.artic.edu/aic/collections/artwork/27992
Seurat’s use of pointillism use a systematic pattern of small brush strokes to differentiate his art from impressionists. The technique was reliant on the subject matter to inform its color distribution, yet it operates on a different layer, as if it were just a filter applied to a rendered image. It prioritized the texture / pixel over the rendering. The act became more important than the image. The frame takes on the same system as the painting itself, blurring the distinction between the border of the drawing and real life.

The hatch is produced in an additive manner with brush strokes. With various colors overlayed on top of another in the same pixel language. The image emerges from the zones of colors. Authorship of the image-making is regained through this method of production.
BEN DAY PRINTING

1880s

Roy Lichtenstein (1923–1997)

Right: Drowning Girl, c.1963
Left: Mirror, c.1977

source: http://thewalkupblog.com/ben-day-dot-an-artists-dwelling-9/
Lichtenstein uses the ben day dot as a way to comment on the economies of commercial comic and newspaper printing. By manually crafting the dots that were used in the mechanical reproduction of images, Lichtenstein took something that was supposed to be robotic and forced them to become the focus of the painting. The manual production pushed the comic imagery into high art. The strict dot pattern does not fill the graphic outline in many cases, bringing the control of the author back into the painting. The image is flattened, with no tonal information. The colors themselves do not aim to imitate real life, but rather continue to push the constructed reality.

The hatch is produced manually through printing. The dots are overlayed on the painting and are well-defined circles, unlike the pixels of commercial comic and newspaper printing. Oftentimes, commercial dot printing result in small, blurry squares.

The mirror piece utilized the diagonal linear hatch as a commentary on the abstraction of cartoon mirrors. Lichtenstein said “Now, you see those lines and you know it means ‘mirror,’ even though there are obviously no such lines in reality. It’s a convention that we unconsciously accept.” The abstraction of the work calls attention to the fictitious, empty nature of the hatch as symbolism.
LINOCUT

1900s

Pablo Picasso (1881–1973)

Buste de Femme au Chapeau c. 1962

The Linocut was a method of quickly producing images with new, cheaper materials available. The painting can be read as a superimposition of blocks of zones of color, as each different color had to be printed separately on top of each other. The hatches, here, reinforce the flatness of the drawings, operating independently from the three dimensional form. Straight lines have their own logic, rather than following the logic of the subject. However, the lines still provide differentiated textures to each zone of the painting.

The Linocut is produced by manually carving away at linoleum, printing from dark to light, completing the composite image on linoleum in a step-by-step process. The steps are visible in the final product, almost as a collapse of time.
DOT MATRIX PRINTING

1920s

Unknown

source: https://upload.wikimedia.org/wikipedia/commons/0/02/Dot_matrix_example_text.png
Dot matrix printing brought the pixel itself to the forefront. Primarily used in printing text, each dot became integral to the whole composition. While still approximating the composite form, the relationship between form and unit became equal, where one could not exist without the other. Because it operates at such a small scale, the produced image is flattened to an abstract, two-dimensional artifact. “DPI” is the result of this form of printing.

The hatch in dot matrix printing is produced by a print head that moves back, forth, up, and down, producing dots via impact through a ink-soaked cloth onto paper. Because of the dot matrix, a variety of fonts can be created, unlike the original movable type.
CATEGORIZATION

ATMOSPHERE: PERCEIVED COMPRESSION AND EXPANSION CREATED BY DENSITY / THICKNESS OF LINES

EFFECT: TONAL INFORMATION THAT BLURS EDGES AND BOUNDARIES

SIGNIFICIATION: REFERENCES EXTERNAL BODIES OF INFORMATION

THESE EXIST ON A RANGE FROM VISUAL DEPTH TO GRAPHIC
LOCALIZED GROUPING

awareness of paper and the picture plane
LOCALIZED GROUPING

graphic to spatial limitations, contingencies
LOCALIZED GROUPING
manual markings
LOCALIZED GROUPING

graphic
TRANSLATIONS TO 3D

MATERIAL APPLICATIONS IN THE FOUND SITE
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