How do you teach from a printed book? Following in the wake of Gutenberg’s invention, artisans began to teach their craft not through oral instruction, the community of the workshop, or direct apprenticeships, but instead through the printed manual. Although there were earlier written manuscripts for artisans, such as the twelfth-century *De diversis aribus* by Theophilus Presbyter or Cennino Cennini’s *Il libro dell’arte* (ca. 1390), print was a medium by which traditionally held ‘guild secrets’ and artistic practices became widely disseminated among craftsmen, laymen and scholars alike. In the seventeenth century, printers and publishers initiated methodologies of teaching within the printed manual that reflect contemporary developments in early modern philosophical and proto-scientific discourse. Like René Descartes’s famous search for ‘clear and distinct’ (*claire et distincte*) ideas, the pedagogue-publishers of printed artist manuals began to develop methods to convey ‘clearly and distinctly’ their printed lessons. In order to establish clear and distinct ideas, the illustrations of the artist manual moved from expressing a sensory experience of the world to an ‘intellectual,’ or geometric knowledge. This article will examine one such manual, the 1685 *L’art de dessiner* of Maistre Jean Cousin, revue, corrigé et augmenté par François Jollain, Graveur à Paris (Plate 1). A study of this printed book at once places Descartes’s philosophical ‘revolutions’ within a contemporary discourse of ‘print culture’ and in turn, shows how Descartes’s own writings illuminate the pedagogies of the seventeenth-century printed artist manual.

*L’art de dessiner* is adapted from one of the most famous early modern drawing manuals, Jean Cousin’s *L’art de portraiture* (1595), issued in at least thirteen editions between 1595 and 1685. Between the 1595 *L’art de portraiture* and Jollain’s 1685 *L’art de dessiner*, Cousin’s manual underwent significant changes at the hands of various publishers. Geometry is the foundation for drawing within both the 1595 and the 1685 manual and both include a geometric lesson. But the variations between these two geometry lessons demonstrate the changing foundations in the representation of the world. A close study of the 1595 *Livre de portraiture* in comparison to the 1685 *L’art de dessiner de Maistre Jean Cousin, revue, corrigé et augmenté par François Jollain, Graveur à Paris* demonstrates fundamental transformations in the approach to drawing, the pedagogy of the printed artists manual and the relationship between perception and representing the world.

The 1685 *L’art de dessiner* published by François Jollain commences the drawing practice with a geometry lesson (Plate 2) and two lessons entitled *Exact description des yeux et leurs parties* (Plate 3) and *De la composition & proportion de l’Oreille* (Plate 4). In contrast to Jollain’s 1685 version, Cousin’s 1595 *Livre de portraiture* begins with the proportions of the human head; there is no introductory lesson to geometry; the lessons on parts of the eyes and ears and the body’s skeletal structure are non-extant. In the 1595 *Livre de portraiture*, the geometry lesson is an appendix at the back of the manual, a final point of reference for the student. Here, Cousin refers to the reader as a craftsman (*ouvrier*) and mentions the use of geometry within the craft of masonry. Cousin grounds the 1595 manual within a physical geometry, based upon using both a compass, and hands-on proportions - literally laying the hands on the body in order to grasp variations in length and distance; for example the proportions of the hand are understood in relationship to the nose. This practice of proportion parallels drawing lessons for architecture from the first manual published in print, Leon Battista Alberti’s *De Re aedificatoria* (1485). Cousin, like Alberti, outlines step-by-step instructions based upon the use of geometry and a compass. Although the 1595 *L’art de
portraiture includes illustrations, pupils could follow the directions within Cousin’s text without necessarily having to refer to the illustrations. With the geometry lesson placed in the back as an appendix, the illustrations within Cousin’s 1595 L’art de portraiture struggle to present the drawing instruction, a series of steps. As has been discussed by scholars in regards to the architectural treatise, it is difficult to illustrate within one image a diachronic series of instructions.

Synchronically Illustrating the Eye

The architectural historian Mario Carpo argues that the architectural treatise composed by the Italian sixteenth-century architect Vignola (1507-1573) was a revolution in presenting images that could be read ‘synchronically,’ – all at once. In his Regole delle cinque architettura (1562), Vignola mastered presenting graphic figures that were clear, distinct and legible. An expert of the printed manual, Vignola presents comparative illustrations that allow a direct grasping of the internal differences among the various forms. The influence of Vignola’s architectural pictures not only in regards to the development of architectural treatises but also in relationship to drawing manuals for the human body should be considered further. Before publishing his 1685 version of Cousin’s manual, in 1671 François Jollain released Vignola’s treatise in French Règles des cinq ordres d’architecture de M. Jacques Barozzio de Vignole, nouvellement revues, corrigées et réduites de grand en petit, par Jean le Pautre, avec plusieurs augmentations de Michel Ange Bonaroti.

Although the influence of Vignola on Jollain’s augmentations may not perceived directly, like Vignola’s Regole, Jollain created a drawing manual that established a relationship between reader and image so that the image could be read ‘synchronically’ instead of diachronically in relationship to the instructions. Jollain established the ability to ‘grasp synchronically’ within his geometric introduction. Introducing the manual with a geometric lesson (Plate 2), instead of including the lesson as a reference in the back (as in Cousin’s 1595 Livre de porttraiture), the 17th century edition centers the pedagogy of drawing within an attentive study of the basics: the single line, intersection and point. With its clear and distinct vocabulary and presentation of geometric basics, Jollain makes the principles of Euclidean geometry available to any reader. This foundation leads into the drawing of the eye, focusing on the lines of brow, lid, pupil and the eye’s center point the iris.

In Exact descriptions des yeux & de leurs parties, the author explains that although one many consider the ‘exterior’ and ‘interior’ parts of the eye, he will speak only of the exterior, for this is what the painter must know. The illustration stages eight eyes in variations of gazing (Plate 3). If we read the illustration left to right, the first eye stares out at the manual’s pupil and acts as the ‘legend’ for reading the other eyes. This eye-as-legend legibly articulates the relationships among the eyeball, eye socket, eyebrow, tear duct, pupil and iris. In restricting the developing draftsman to the exterior, the author removes the sensory from drawing, so that the eye and its surrounding geogra-
phy of socket and brow consist only in their size, shape, and motion in relationship to the other eyes and to the surrounding space of the printed page.

Instead of providing the various proportions between the iris, the pupil, and the white of the eye, Jollain names the parts of the eye and gives a brief explanation for why it is that the pupil is sometimes smaller or larger (depending upon light and the size of the object of its gaze). The illustrations of the eye stress the “eye as object of information” rather than as a conduit for sensory knowledge of the world. The engraver treats two of the eight eyes that compose the lesson like singular shapes – not attached to a body, and rotates the eyes as though they were freeform objects in space that may be turned upside down, on their side and right side-up. The eye is stripped of an ‘interior’ and presented as an object of study, an object to know about, rather than a sensory organ through which one sees the world.

From A-E: An Intuitional Seeing

The additions of the introductory geometric lesson and the engravings of the eyes-as-exterior-solids reflect changes within seventeenth-century perceptions of both drawing and the world. Jollain’s manual is constructed not only in what he ‘augmented’ to the 1595 L’art de portraiture but also what he omitted. The 1595 version of Cousin’s manual begins with a text to the lecteur, amateur de pourtraiture. Within this introductory text, absent from the Jollain’s 1685 volume, Peinture is likened to a mirror. It is something created, an artifice. The letter to the reader concludes with a description of the arts as an imitation of things seen. (travaillent après l’imitation des choses vues) Building upon a geometric foundation, treating the world as a place that can be known as well as seen, the 1685 manual uses words and images to construct an understanding of drawing as a mode of knowing and conveying information instead of as a reflection, - as in a mirror, of perceiving the world. Even before Jollain’s augmentations, in 1642 Cousin’s manual began to reflect contemporary currents in philosophy and language in its appended title: La vraye science de la pourtraicture descrite et demonstree par Maister lean Covsin, Peintre & Geometrien tres-excellent. La vraye science, as the title suggests, takes drawing to a point where it begins to reflect a science. The exact description of the eyes and their parts moves drawing from the imperfect reflection to the ‘scientific truth.’

Jollain’s attempt to make the process of drawing, clear, distinct and exact, - ‘like a science,’ is part of a seventeenth-century discourse that sought to find and convey ‘clear and distinct’ ideas, most famously embodied in the philosophy of Jollain’s contemporary René Descartes, who wanted to find la vraye science to prove God’s existence. Descartes bases his vraye science on a new method of intuition manufactured upon a geometric foundation and aligned to a separation from the sensory. As will be seen, Descartes’s methodology resonates with Jollain’s. Through Descartes’s early attempts in his La Geometrie (1637) at what would later be called ‘analytic geometry,’ Descartes sought to develop an intellectual grasping of
form that could be immediately and clearly understood, separate from sensory knowledge. In a text written ca. 1628 to establish his methodology, *Regulae ad Directionem ingenii* (Rules for the Direction of the Mind), Descartes breaks with an older understanding of intuition based upon the sensory perception of the world.\(^1\) Descartes’s development of a mode of intuition separated from sensually perceiving the world elucidates the opening geometric lesson to Jollain’s manual. Introducing the student to drawing through geometry, instead of including it as an avertissment in the back, establishes the drawing practice not within the immediate and sensual copying of the face and body, - as within Cousin’s 1595 *Livre de portraiture*. Instead, *L’art de dessiner* demands that the pupil grasp in a more rational way the foundational lines, intersections and points, thereby building a drawing intuïtion that is not based upon knowing the world sensually but instead understanding the world as a series of geometric coordinates.

Descartes’s discussion of intuition and the mental cultivation of it further illuminates the 1685 manual: “Thus, if for example, I have first found out, by distinct mental operations, what relation exists between the magnitudes \(A\) and \(B\), then what between \(B\) and \(C\), between \(C\) and \(D\), and finally between \(D\) and \(E\), that does not entail that I will see what relationship is between \(A\) and \(E\), nor can the truths previously learned give me a precise idea of it unless I recall them all.” In order to grasp the relationship between \(A\) and \(E\) Descartes relies on ‘intuition,’ which is built through a repetitious continuum of running over the forms: “To remedy this I would run over them many times, by a continuous movement of the imagination, in such a way that it has an intuition of each term at the same time that it passes on to the others, and this I would do until I learned to pass from the first relation to the last so quickly that there was almost no role left for memory and I seemed to have the whole before me at the same time.”\(^2\) This is the foundation of the 1685 introductory geometric lesson (Plate 2), an exploration of the relationships between lines, curves, points and intersection. The 1685 manual’s beginning with geometry, instead of the various divisions and multiplication of the human face through the compass, attempts to build the intuition for drawing as distinct intuïtion established through the ‘science-like’ initial instruction.

For Descartes, as opposed to previous scholastic theories of ‘intuition,’ it is not “the fluctuating testimony of the senses or the deceptive judgments of imagination as it botches things together,” but the conception of a clear and attentive mind, “which is so easy and distinct that there can be no room for doubt about what we are understanding.”\(^3\) Descartes’s definition of intuition resonates with these strange disembodied engravings of eyes, which also sought to teach a process of grasping the world not through the senses as witnesses to what is seen, - the eye pictured as a body-less form shifting in space - but instead through an understanding of representing the world built through a process of discovering the ‘clear and attentive’ mind, founded within the study of basic geometry.

Indeed Descartes refers to the artisan to clarify his ‘new’ and specific understanding of intuition. Descartes describes how artisans “who engage in delicate operations, and are used to fixing their eyes on a single point, acquire through practice the ability to make perfect distinctions between things, however minute and delicate.”\(^4\) The introductory ‘augmented’ illustrations of *L’art de dessiner* echo the development of attention through the careful treatment of a single point. Like Descartes’s craftsman, the manual begins with the various points made by the compass, an illustrated study in making the points, intersections and lines to build various abstract shapes and finally the shape of the human face.

It is not that Jollain necessarily read Descartes’s *Geometrie* and thereby grasped the form of intuition that Descartes established within his *Regulae*, or that Jollain even necessarily saw the circulating manuscript of the *Regulae*, although this is not impossible considering his profession as a publisher and engraver. But more importantly, the manual that Jollain published in 1685 reflects a new approach to understanding the modes of representing the world, influenced by developments in print, discourses of *la vraye science*, and changed understandings in how-to read a printed image. Looking at the development of artisan’s manuals in conjunction to the philosophy of Descartes illustrates that Descartes’s own work may be contextuali-
zed within the ‘print revolutions’ of his day. Descartes’s infamous search for ‘clear and distinct’ ideas that are grasped intuitively may reflect not only his desire to move away from Scholasticism but also changes occurring within the printed book itself, which like Descartes, was trying to improve its pedagogies. Like Descartes, publishers-as-pedagogues sought a methodology to teach the reader to intuitively grasp clearly and distinctly the points, lines and curves that compose the world of the printed book.

Endnotes


2. De Piles 1715, Abrege, S. 447. “Pour ce qui de Jean Cousin, il marquera un édifice délicieux, il étudia les quatre styles de Sene, et l’attache qu’il eut pour les beaux arts dans sa jeunesse l’y rendit profond, et surtout dans les parties mathématiques, qui conduisent à la régularité du dessin : aussi a-t-il été assez correct en cette partie de la peinture, et il en a donné un livre au public, qui s’est imprimé une infinité de fois, et qui, seul, quoique trés-petit et de peu d’apparence, conservera long-tems la mémoire de Jean Cousin.” For an introduction to the various editions of Cousin’s manual, see: Didot 1872, Étude sur Jean Cousin, S.118-124.

3. “La ligne perpendiculaire ou à plombs est marquée A. la ligne à niveau ou niuelle B. la ligne penchant tant qu’un costé que d’autre, autrement dite Diagonale, que les Menuisiers appellent ligne à angle test marque C. la ligne pucte D. la ligne courbe, qui se fait avec le compass E. & intersections yuyantuyant : soçvoir l’intersection de la ligne perpendiculaire, & de la ligne à niveau, qu’on dit Orthogonale, & que les Massons appellent le trait quarré, & est marque G. “intersection de lignes courbes marquée H. Et l’intersection de la Diagonale avec la ligne à niveau, & la ligne perpendiculaire marque I. Toutes les lignes & intersections se peuvent faire pare lignes punctées, comme il plaist à l’auteur.” Cousin 1595, Livre de portrature.

4. The importance of proportion is stressed in the title of the opening lesson: Proportion et mesure de la teste veve de front, et particularitez d’icelle. “La teste veve de front ou par devant, se depeint par le moyen d’un cercle ours tour de compass, la moitie duquel est de ligne apparente, l’autre moitie de ligne punctee de la ligne diametrale à niveau punctee, posant la pointe du compass sur l’extremite d’icelle, se forme le traict de la ioue d’un costé itusques au menton par une ligne courbe, saissant le semblable à l’opposte, se forme l’autre ioue, qui nous donne l’ouele en poin te, comme un ouef, puis trauersant le centre du cercle itusques à l’intersection des deux lignes courbes qui nous foment les lois par une ligne perpendiculaire sur icelle, fait marquer quatre me sures egales, qui sont marques dehors l’ouele 1,2,3,4. & sur la ligne du milieu qui separe l’oueles en deux, faire les yeulx, ayant divisée la ladicte ligne en cinq parties, sur pa seconde & quatrieme partie, & l’oeil sera divis en trios parties; don’t la prite du milieu sera le tour de la prunelle, comme il appert à l’oeil separé, mar que A, puis à la tierce mesure sur la perpendiculaire, faut for mer le nez de l’espace d’un oeil, continuant sur ladite perpendi culaire la quartsieme partie qui est depuis le nez itusques au menton, la faut, duizer en trios, & sur la premiere partie faut for mer la bouche, prent la mesure du coin de l’oeil, puis le nez itus ques à la ligne du nez, & la grosseur du col, de la moitie de la teste, comme il se voit en la figure où n’y a que la traict, duquel on en fait celle qui est ombragée.” Cousin 1595, Livre de portrature.

5. As Mario Carpo points out, Alberti’s treatise (although published in print in 1485) was written about twenty years earlier and is indebted to the tradition of the written manuscript rather than the printed book. This is evident in the absence of illustrations and Alberti’s warnings to future manual copyists, see: Carpo 2001, Architecture in the Age of Printing, S. 119.


7. The manual first was published in 1452, but its print edition came out in 1485.

8. It is extremely important to note that the drawing manual to which Cousin’s is most similar, Crispin van de Passée’s Licht der teeken in schilderkonst (1643-44), also was published following van de Passe’s own publishing of Vignola’s treatise in 1629. Regola dell cinque ordini d’archittettura di M. Giacomo Barozzio di Vignola, con la nova aggiunta di Michel-Angelo Buonarroti = Regle de vii ordens der architektur / ghestet by M. Iacob Ba rozzio van Vignola. Met een nieu by-vongetsel van Michel Angelo Buonarotie. = Rege della cinque ordini d’architettura di M. Jac ques Barozzio di Vignole. Avec une augmentation nouvelle de Michel Ange Bononorte. = The Rule of the V. Orders of architecture composed by Mr. Iacob Barozzio of Vignola. With a new augmentation of Michel Angelo Bononori, and divers others archi tects according to the Italian fashion. T’Utrecht.

9. “Les Yeux, organes de la vue, sont situez dans deux cavitex de la teste, appelés Orbites: on peut y considerer leurs parties exte rieures & interieures; je dirai seulement quelquechose des exte rieures que le Peinte doit necessairement connoitre. Les sourci les sont à l’extremite du front couvert de poil qui sert à défender & omer les yeux: la partie qui est vers le nez, s’appelle la tête des sourciers, l’autre s’appelle la queue; l’espace qui est entre les deux se nomme l’entrecote, qui est de la motie d’un oeil vis à-vis de leur tête. Les paupieres servent à couvrir les Yeux, & les defender des injures externs; le poil de la superieure sont courbex vers le haut, & ceux de l’inferieure en bas; les parties où elles se joigent sont appelées les coins des yeux, celui qui est auprès du nez s’appellent le grand angle, ou l’angle interne; l’autre qui est vers le temps, le petit ou externe ; au grand angle on voir und glandule, qu’on aappele glandule lachrimale. Ce qui nous paroit des parties internes toute la prunelle descouvert, & d’autant qu’elle est blanche on l’appelle vulgairement le blanc de l’oeil, le cercle que nous appelions la prunelle de l’oeil, est une partie de la tunique appelée uvée, ou ce tissu de fillamens qui fait la tunique cilaire, laquelle est aussi percée par le devant pour laisser passer les rayons au fond de l’oeil. Cette partie qui fait l’iris ou la couronne, est verte, bleue, ou noire selon les divers tempe ramens du cerveau & des yeux, & la couleur de l’uvée; le milieu au travers duquel on voit les humeurs de l’oeil, est fort noir, & se di late ou se resserte selon la force ou la foiblesse de la lumiere, ou encore selon la petitesse de l’objet.” Jollain 1685, S. 8.


11. The publisher Guillaume Le Bél’s efforts to advertise Cousin’s work as the vraye science coincide with Descartes’s own search for a methodology that will be the vraye science to describe and demonstrate the relationship between the mind and the body and God’s role in the perceiving world. “Mais après que l’ay reconnu qu’il y a un Dieu qu’il devoir pour qu’en mesme temps l’ay recon nu aussi que toutes choses dependent de luy, & qu’il n’est point trompeur, & qu’en fuite de cela l’ay jugé que tout ce que je conçoy clairement & distinctement ne peut manquer d’estre vray: encoure que je ne pense plus aux raisons pour lesquelles l’ay jugé cest easter veritable, pourcause que je me ressouvenir de l’auoir clairement & distinctement compris, on ne me peut appor ter aucune raison contraire, qui me le face jamay reouer en doute; & ainsi l’ay une vraye & certaine science.” Descartes 1647, Meditations.

on of intuitive thinking to a scientific, theoretical mode of thin-
king, see: Blumenberg 1969, “Wirklichkeitsbegriff und Möglich-
keit des Romans,”; Blumenberg 1975, Genesis die kopernikani-
schen Welt.
13. Descartes 1628, Regulae, Bd. 10, S. 521; Descartes, Rules, S.
33.
14. Descartes 1628, Regulae, Bd. 10, S. 368-370; Descartes, Rules,
S. 14.
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Plates
Plate 1 Princeton University, Marquand Library Department
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Plate 2 Princeton University, Marquand Library Department
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Abstract
René Descartes is famous for his epistemological
search for ‘clear and distinct’ ideas. As Descartes ob-
served the relationship between his own perception
and the objects of the world, printed drawing manuals
also confronted the connection between a subject’s
perception and objects. Driven by the medium of
print, seventeenth-century artistic pedagogical me-
thods paralleled Descartes’s own pursuit after trans-
parency. Comparing two versions of an important
printed drawing manual, Jean Cousin’s L’art de por-
traiture, one version from 1595 and the other from
1685, this article demonstrates how print publishers
developed pedagogical methods that, like Descar-
tes’s investigation, conveyed information clearly and
distinctly. Drawing pedagogies moved away from an
interweaving of Platonic solids and a sensual investi-
gation of the world to a utilization of geometry that al-
lowed students to visibly and immediately grasp the
perceptual relation between objects and bodies.

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