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# How to Draw

Course Guidebook

Professor David Brody  
University of Washington



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**David Brody, M.F.A.**  
Professor of Painting and Drawing  
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**P**rofessor David Brody has been a Professor of Painting and Drawing at the University of Washington in Seattle since 1996. He did undergraduate work at Columbia University and Bennington College and received his graduate degree in painting from Yale University in 1983.

Professor Brody has received numerous awards. He has been a Fulbright Scholar and a Guggenheim Fellow and has received the Basil H. Alkazzi Award for Excellence in Painting, a grant from the Elizabeth Foundation for the Arts, and two fellowships from the Massachusetts Cultural Council. At the University of Washington, he received two Royalty Research Fund grants and three Milliman Endowment for Faculty Excellence awards.

Professor Brody's paintings and drawings have been shown in close to 100 exhibitions in the United States and Europe. These include solo shows at Gallery NAGA in Boston, the Esther Claypool Gallery in Seattle, Gescheidle in Chicago, and Galeria Gilde in Portugal. His group exhibitions include shows at the Chicago Center for the Print; the Frye Art Museum and Prographica Gallery in Seattle; The Museum of Fine Arts at Florida State University; and The Painting Center, The Alternative Museum, and Bridgewater Fine Arts in New York City. His work has also been shown at ARCO Art Fair in Madrid, the RipArte Art Fair in Rome, the Trevi Flash Art Museum, the FAC Art Fair in Lisbon, and Art Chicago in the United States.

Professor Brody's work has been published and written about in two monographs and in many articles and reviews. An exhibit at the Esther Claypool Gallery in Seattle was described by *Seattle Weekly* as "daring, humorous, and superbly executed." According to *Artforum*, "Brody's ... paintings ... provide a stunning visual punch ... [and] are rendered with a bravura that is both compelling and hypnotic." And *Art in America* concluded, "A highly intelligent artist ... Brody is absolutely serious about

technique. An emphasis on fine drawing, delicate surfaces and careful considerations of color and light informs all his pictures.” In addition, Brody has been written about in many other publications, including *The Boston Globe*, the *New Art Examiner*, the Spanish journal *Lapiz*, and the Lisbon daily *O Público*.

Professor Brody has lectured or been a visiting critic at Carnegie Mellon University, the Massachusetts Institute of Technology, The University of Chicago, Harvard University, Capital Normal University in Beijing, and the China Art Academy in Hangzhou.

Professor Brody has had a parallel career in music. He has published five books on traditional music, including the best-selling *The Fiddler's Fakebook: The Ultimate Sourcebook for the Traditional Fiddler*. He has performed at festivals in the United States, Europe, and Canada; at Avery Fisher Hall and Symphony Space in New York City; and on Garrison Keillor's radio show *A Prairie Home Companion*. He has recorded with the Klezmer Conservatory Band and other artists on the Rounder, Vanguard, and Flying Fish labels. ■

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# How to Draw

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## Scope:

**T**he 36 lectures in this course are distilled from four decades of study, studio work, and teaching and communicate the most important and useful things to know about drawing—information that will greatly benefit novice artists.

The course presents drawing as a language and, as in many language courses, introduces ideas one at a time to allow you to fully examine each piece of the puzzle. The lectures progress cumulatively in a step-by-step fashion, with each new idea building on the previous ones. We'll start from simple units and move up to ever-greater complexity.

Each lecture or set of lectures deals with a key idea, concept, material, or technique that has been historically important to artists over the long history of drawing. As we'll see, although there have certainly been changes with time and place, there has also been a great degree of continuity in the language of drawing across continents and over the millennia that human beings have been making drawings.

The approach in this course is simple. Each lecture begins by describing and explaining a new concept or technique, which is then situated in its historical context and illustrated with visual examples. The examples include both masterworks from a range of periods and traditions in art history and student drawings meant to demonstrate that learning to draw is eminently attainable. The lectures themselves run about 18 hours, but working through all the exercises and projects could well keep you occupied for many months.

The course is divided into six sections. The first section, Lectures 1 through 3, introduces the long history of drawing, starting with some lines scratched into a piece of ochre found in a cave in South Africa dating back some 80,000 years or more and bringing us up to the present day. The introductory section presents the course in broad strokes and quickly gets you experimenting with the materials you'll be using throughout.

The second section, Lectures 4 through 14, focuses on the underlying grammar of drawing, referred to as *formal language*. Here, you'll learn to draw with different types of line, including contour, cross-contour, construction line, and gestural line. You'll learn how line creates shapes, both positive and negative, and how you can use simple shapes to draw many complex objects. You'll also see how you can use cross-contour line to transform flat shape into three-dimensional volume.

As we begin to draw more complex groupings of objects, we'll delve into composition. We'll learn how famous artists—spanning the Song dynasty in China, the Italian Renaissance, the French Impressionist period, and beyond—structured their drawings in this regard.

In Lectures 12 through 14, we'll learn how such artists as Leonardo, Dürer, Eakins, and Van Gogh used practical systems to arrive at accurate proportions and a convincing illusion of volume and three-dimensional space. You'll apply these same methods and techniques to your own drawing projects.

In the third section, Lectures 15 through 19, we'll learn about linear perspective. This powerful drawing system, developed during the Renaissance, radically changed the way future generations around the world would draw. It's not only at the heart of what Raphael and his Renaissance contemporaries were able to accomplish but has become ubiquitous in everything from the contemporary works of such artists as Anselm Kiefer, to video games and manga, to animated cartoons, such as *The Simpsons*.

In the fourth section, Lectures 20 through 30, we'll return to complete our examination of formal language, learning to incorporate value, texture, and color into drawings. You'll learn how artists think about palettes of value and how palettes suggest light and mood. You'll also learn to use value as a compositional tool and how you can create the illusion of volume, space, and light through modulations of light and dark. You'll see how you can further affect the feel of a drawing through mark-making and the use of texture. And you'll learn about textural approaches to creating value, including hatching, cross-hatching, and other mark-making systems.

We'll conclude the fourth section with an exploration of color. We'll learn about color properties and study the basics of color theory. As with value, we'll see how artists use these ideas and conceive of color in terms of palettes—groupings or limitations of color that help create specific qualities of light and mood. As we did with value, we'll learn how we can use color compositionally to create a visual hierarchy with focal areas and focal points. And you'll apply all these ideas in your own drawings to create different qualities of mood, light, and form.

In the fifth section, we'll focus on the human figure. The approach in this section is geared to help you draw figures from both observation and your imagination. We'll start with an examination of canons of proportion. Here, you'll learn how to build a figure using a set of measures. We'll complement this with a study of artistic anatomy, including both the skeletal and muscular systems. You'll also learn techniques for approaching the foreshortened figure. We'll combine what we learn about the figure with what we learned in our study of linear perspective, giving you the tools you need to draw figures from your imagination in imagined environments. This is just what Leonardo and Dürer did during the Renaissance, and it is the same method many contemporary animators and game designers use to develop their characters and environments.

In the final section, devoted to advanced projects, we'll look at some of the changes that occurred between the late 19<sup>th</sup> century and the present. We'll see how Renaissance spatial constructs evolved to include a broader understanding of pictorial space and how this related to many movements in art, including Impressionism, Cubism, and abstraction. We'll close with a discussion and a set of projects designed to help you identify the kind of art you want to make and some thoughts on how you can work toward that goal. ■

# An Introduction to Drawing

## Lecture 1

**T**he ability to draw naturalistically did not come easily to human beings. It took us tens of thousands of years to get a figure proportionate and believably seated in a chair, the chair on the carpet, and the carpet on the floor. The knowledge and methods we use to do these things today were developed and codified during the Renaissance. And you could argue that they represent the greatest set of technical advances the field has known. Many people, when they think about “learning to draw,” want to develop just these skills—getting the proportions right, getting the things to sit on the table, and perhaps even drawing a group of figures from the imagination. Although these skills are often mystified, they can, to an overwhelming degree, be learned, and with practice, you can make the ideas and methods your own. Those are our goals for this course.

### The Renaissance

Although just about every people and culture has produced beautiful and expressive artworks, discoveries in 15<sup>th</sup>-century Europe changed drawing forever. Before the Renaissance, no one had figured out how to create anything as remotely naturalistic as this watercolor (*John Biglin in a Single Scull*) by Thomas Eakins:



© Yale University Art Gallery

Bits and pieces had been learned and practiced for a period, but local advances were often swallowed up by time and forgotten. For example, from about the late 1<sup>st</sup> century B.C.E. to perhaps the 3<sup>rd</sup> century C.E., some Egyptians had their portraits painted on wooden panels, which were then attached to their mummies when the subjects died. These paintings, known as Fayum Portraits, are amazingly naturalistic for their time. But after about the 3<sup>rd</sup> century, this kind of naturalism would not appear again for hundreds of years.

In Europe, between the 1300s and the late 1400s, a group of artists figured out how to create a believable and proportionate illusion of three dimensions on a two-dimensional surface. Interestingly, the drawing concepts and techniques developed during the Renaissance and used by Leonardo da Vinci, Raphael, and others are commonly used today by cartoonists, video game designers, and animators.

But we mustn't think that people were visually challenged for tens of thousands of years and then, suddenly, from the Renaissance to the present, became so exceedingly talented that they were able to render things with verisimilitude. Instead, it's that the knowledge base improved radically. After the Renaissance, artists who had access to good information and worked hard to master their craft were able to learn things and draw in ways that their predecessors had never been able to. Rather than just absorbing a set of local symbols, these artists had methods for analyzing and drawing anything they came upon. And, as we'll learn, they also developed methods for constructing naturalistic-looking images from their imaginations.

### **Challenges in Learning to Draw**

Of course, talent plays a role in making art, but it's a much less important one than most people tend to think. In fact, it's difficult to tell how much talent someone has before he or she has put in a considerable amount of work, primarily because it's difficult to draw much if you have scant knowledge. Acquiring knowledge and putting it into practice are the two essential keys to finding out how well you draw. And in this quest, one of the most important elements is the willingness to put in a substantial amount of work. Students who engage at this level will improve significantly.

As you practice drawing, don't avoid working on what you're not naturally good at. You may feel comfortable with line and pencil but not with value and charcoal, or you may like gesture drawing but not linear perspective. You will do better if you apply yourself fully to everything and, in fact, apply yourself with extra energy to the things that you have less of a knack for.

Learning to draw is endless, like learning to cook, to play music, or to write well. You can be a student of these things for a lifetime, continually learning more. As you struggle to learn new things, the feelings of uncertainty will fade away; after a time, you'll realize that the struggle itself is enjoyable and that your efforts are dependably rewarded. How quickly and nimbly you learn something has little bearing on long-term results. Learn for yourself, at your own pace, and for your own sense of mastery.

### **Learning to See**

When we write, we think of a piece of paper as being flat. But to draw, we have to learn to see it as a depth of space. We want to look at the four edges of the page and see them as the four sides of a window frame. The white surface becomes a depth, like a room or a landscape, that we transform through the use of line, shape, mark, and value to suggest volume and space.

Many artists and professors say that learning to draw is all about learning to see, not seeing things to identify them but seeing them as they actually appear—the proportions, angles, values, and the real play of light and color. That's a much harder kind of seeing. It requires looking analytically and abstractly. In his book *Successful Drawing*, Andrew Loomis wrote, "Drawing is really difficult only to those who do not know what to look for." There's a peculiar paradox here. In order for us to draw things in a naturalistic or realistic way—in proportion—we must learn to see them abstractly.

Simple lines can have multiple and complex meanings. Line creates shape, and shape creates pattern. Shapes can also be arranged to create the illusion of three-dimensional volume. Those volumes can be transformed to appear like things in the world around us.

## **Drawing across the Centuries**

As mentioned at the beginning of the lecture, drawing took a great leap forward during the Renaissance, but that's not to say that human beings weren't making interesting and beautiful drawings long before the 1400s. Anthropologists tell us that modern *Homo sapiens* showed up somewhere between 100,000 and 200,000 years ago. And long before we have any records of writing, numbers, commerce, or nation-states, we have evidence of our ancestors making drawings. The oldest known examples, found in the Blombos Cave in South Africa, go back about 80,000 years or more. They consist of incised lines on pieces of ochre. These ancient incised lines form a pattern, and line and pattern are still very much with us today.

Most drawing we know of—at least as measured in years—is prehistoric and took place in caves. You've likely seen examples that feature mammoths, bison, and horses. The oldest cave drawings date to about 40,000 years ago, and the practice of cave drawing continued in Europe for about 30,000 years. In contrast, people have been drawing on paper for only a little more than 2,000 years. Paper was invented in the 2<sup>nd</sup> century B.C.E. in Han dynasty China, and its method of manufacture was kept secret from the West until the 8<sup>th</sup> century C.E.

During the early historical period, just about every culture or civilization on every continent practiced drawing in one form or another; there are stunning examples from every corner of the globe. In fact, many of our earliest written languages have origins in drawing. Chinese, spoken by more than 1 billion people today, has its roots in an ancient picture-based writing system going back more than 3,000 years, and the modern written language retains many picture-based characters.

## **Stylization**

Many people imagine artists standing in front of a still life, a landscape, or a model to make a drawing. But looking directly at something and drawing it is a relatively recent phenomenon, as is the idea of artists making their own kind of art, for that matter.

For most of time, from Blombos until fairly recently, people weren't looking at what they were drawing while they were drawing it. In most cultures, at

most times, drawing and the related arts consisted of using a set of more-or-less agreed-upon symbols that stood for things, such as a person, a tree, or an animal. We refer to this as *stylization*. From the historical record, it would appear that much of this stylization was determined by local convention, which also determined what to draw, where to draw, and what materials to use. Thus, the early cave artists in Europe followed a set of conventions regarding subject, materials, and technique. Later artists—Egyptian, Greek, Chinese, and others—followed their own conventions.

Yet despite the fact that art has changed over time and place, there has been a great deal of continuity. As we study drawing, we'll find that artists have been using many of the same principles of good drawing and design for thousands of years. Their command of craft and their use of line, shape, value, and color—to name a few of the factors we will explore—begin to explain why these works have stood out and been cherished by people of diverse backgrounds and beliefs over the centuries.

In this sense, this course is comprehensive. The lessons are firmly based in the game-changing discoveries of the Renaissance, but we will also learn from the work of great artists from a range of cultures covering a broad swath of time, from the ancient to the contemporary.

### Suggested Reading

Mendelowitz, *Drawing*.

Stokstad, *Art History*.

# Drawing Materials for Line

## Lecture 2

This lecture lists the materials we'll use for the projects in Lectures 4 through 19. We'll go into detail about graphite pencils, charcoal, erasers, brushes and ink, and drafting and measuring tools. In addition to these materials, you'll also need to get a pad of 18-x-24-inch white drawing paper and a 9-x-12-inch or 11-x-14-inch sketchbook. We'll close the lecture by discussing how you should set up your drawing area.

### Graphite Pencils

Graphite pencils come in varying degrees of hardness, which is controlled by the amount of clay that is mixed with the graphite. With less clay, the graphite is softer; with more clay, it's harder.

The primary scale used for artist-grade pencils is known as the European letter scale. There are 22 steps in this scale:

10B 9B 8B 7B 6B 5B 4B 3B 2B B HB F H 2H 3H 4H 5H 6H 7H 8H 9H 10H

The softest pencil is the 10B, and the hardest is the 10H. Historically, most people doing general drawing have used pencils in the 4B to 2H range. The very hard pencils are generally used for more technical drawing and highly detailed work. That said, it's well worth having a set of all 22 pencils.

A second scale, called the American scale, has five degrees: 1 2 2½ 3 4. Theoretically, the 1 is equivalent to a European B; the 2 to an HB, the 2½ to an F, the 3 to an H, and the 4 to a 2H. Neither the European nor the U.S. scale is standardized; thus, two pencils of the same number from different manufacturers may vary in their degrees of hardness. Not all brands and all qualities are alike either. For this reason, choose a set of pencils from one good manufacturer. Mitsubishi Hi-Uni makes a good complete set.

In addition to using a pencil sharpener, many artists sharpen their pencils using a utility knife and a sanding block, which allows the pencil to be formed into a number of different shapes.

Test your pencils by making a single straight line on a page with each one, noting the pencil you're using. Then, make a series of small lines or scribbles to get an idea of how each pencil is different. Note, too, that the way a pencil behaves is affected by the kind of paper you use.

Mechanical pencils are also great tools. The graphite for these comes in four thicknesses: 0.3 millimeter, 0.5 millimeter, 0.7 millimeter, and 0.9 millimeter. The graphite used for mechanical pencils ranges from about 4B to 4H.

### **Charcoal**

Along with graphite, charcoal is among the most common drawing materials. It comes in four basic forms: vine or willow, compressed, charcoal pencils, and charcoal powder. For our line drawings, we'll use vine or willow, which tends to be the most forgiving, that is, the easiest to erase.

This charcoal is called vine or willow because it's commonly made by charring pieces of vines or willow in kilns. Because no binder is used—it's just cooked wood—it turns to powder easily. That makes it easy to erase, but then, it's also easy to rub away a morning's work with a careless swipe of your hand.

Vine and willow generally come in four grades: extra soft, soft, medium, and hard. They also come in a variety of shapes and sizes, from thin to thick, from cylindrical to rectangular, and even in chunks. For line, the medium and hard cylindrical sticks work well.

### **Erasers**

Some artists avoid erasing; they want a pristine surface, and heavy erasing can modify the surface texture of the paper. Many other artists embrace erasure. Matisse, for example, made erasing very much a part of his drawing. In this course, erasing will be necessary for many of our projects.

Different erasers modify or erase what you draw in different ways. The factors involved here include erasing power, precision, ability to handle

large areas, amount of smearing, and residual marks made by the eraser itself. It's probably best to start with three erasers: a kneaded, a Pink Pearl, and a pencil-type eraser.

Using the kneaded eraser doesn't result in any crumbs, and in fact, the adhesive quality of this eraser can be used to lift crumbs off the page. It's also possible to modify the shape of a kneaded eraser. This eraser works well with vine charcoal and graphite and can be used to modify the darkness of a given line or area of value by gently pulling it across that section of the drawing.

The Pink Pearl eraser has a distinctive wedge shape and a sharp, knifelike edge. If you draw a line that's too thick, you can use a Pink Pearl fairly precisely to make the line thinner. To maintain that sharp edge, trim the eraser with a sharp knife. Pencil-type erasers are also useful for making precise erasures. Again, try your erasers with different types of pencils, charcoal, and paper.

### **Brush and Ink**

Two brushes will work well for drawing line: a small one, about 1/16 to 1/8 inch at the top of the ferrule (the metal piece that holds the hairs together), and another about 3/8 to 5/8 inches long. These types of brushes are made from animal hair or synthetic materials. The most expensive are labeled sable, though they're generally made using mink or weasel hair. For our purposes, synthetic sables, at a fraction of the cost, are fine.

When you buy your brush, it may feel a bit stiff. Many manufacturers dip the hairs in light glue to help maintain the brush's shape. Before you use a new brush, run it under warm water. Gently massage the hairs to remove the glue, then dry the brush.

Your brush should come with a small plastic cap. After you use the brush, rinse it, dry it, and replace the cap to keep the brush from getting damaged. It's difficult to control line or mark if the brush's shape becomes irregular.

Speedball Super Black is a good-quality deep-black ink. To avoid knocking over the bottle of ink when you're drawing, pour some of it into a small cup. Experiment with the brush and ink by making a thin line. It can be helpful

to brace your hand against the page so that you're not putting all the weight of your hand onto the brush. Then, try to make a thicker line. Make sure the brush is adequately charged and apply a little more pressure. Next, try creating a discontinuous line, allowing the brush to kind of skip along. Also, experiment with drying out the brush to get lines of varying darkness.

### **Drafting and Measuring Tools**

For basic drafting and measuring tools, you need a clear, gridded, 18-inch ruler; a T-square; and a 14- to 16-inch clear triangle. You also need a transparent grid and a viewfinder, which you can make yourself. The transparent grid is a sheet of clear film with a 1-inch-square grid on it. The viewfinder consists of two L-shaped pieces of cardboard that have been calibrated in line increments. You'll use this to help frame and compose your drawings.

The simplest way to make a grid is to go online and find a site that lets you generate and download custom graph paper. Enter the desired dimensions and print or photocopy the grid onto clear transparency film.

For the viewfinder, you'll need a piece of mat board or heavy cardboard that's at least 12 x 14 inches. First, lightly rule a 2-inch border around the rectangle with a well-sharpened 2H pencil. Next, using your utility knife and straightedge, cut out the center rectangle and put it aside. Turn the frame horizontally. From the upper left corner, measure 12 inches toward the right and make a vertical line. From the bottom right corner, measure 12 inches to the left and make a similar vertical line. Cut along both lines with your utility knife; you should have right angles that are 12 inches in either direction. With your 2H pencil and ruler, calibrate both right angles along their inner edges, measuring out from the 90-degree angle along each arm. Make a thin, light line at each 1-inch interval; then, number the inches. Hold the viewfinder together with two clips.

### **Setting Up to Draw**

If you're making small drawings—about 12 to 15 inches—you can easily draw on a table or with your drawing board supported on your knees and against the table's edge. For larger drawings, if you lay the paper flat on a table, the page will be in a foreshortened position; it will look like a trapezoid instead of a rectangle. As you can imagine, this makes controlling shapes

and proportions on the page more difficult. For this reason, larger drawings should be supported more or less vertically, using an easel.

Set up the easel so that the center of the page is about at the height of your collar bone. Both the page and easel should be at about 90 degrees to your line of sight. You should be at a distance of about 18 to 24 inches from the page to allow you to see as much of it as possible without moving your eyes or head. You should also have 5 to 8 feet of back-up room behind so that you can step back periodically and look at your drawing from a greater distance.

When you're working on still lifes, you'll need a second table positioned against a wall for your objects. An average-height table, about 30 inches, with a plain top is best. For many of our projects, white will be ideal for both the table and the wall behind. If your table and wall are not white, you can cover them with a large sheet of white paper or foam core.

When drawing from observation, it's good practice to put the easel or drawing board parallel to and just to the left or right of what you're drawing. Ideally, you want to be able to view your drawing and the subject at the same time without swiveling your head. When you back up, you want to be able to see both at once in the same planar orientation.

As we'll see, when drawing from observation, it's useful to be able to draw from different heights. Having a chair or easel that can be lowered or raised is helpful for this purpose.

Finally, you'll want sufficient light in the room so that you can see light lines and marks on the page. But make sure that the light doesn't throw glare or cast shadow on the page, both of which can be distracting.

### Suggested Reading

Cennini, *The Craftsman's Handbook*.

Guptill, *Rendering in Pencil*, chapters 1–3.

Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, “Beginner’s Media,” pp. 17–35, and “Dry Media,” pp. 184–207.

# Drawing Fundamentals and First Exercises

## Lecture 3

**M**any people have the idea that artists stand in front of a subject and draw what they see, but in fact, most of the drawing you have likely seen is the result of some mix of observation, construction, and abstraction. *Drawing from observation* means drawing what we see before us. *Construction* refers to methods for drawing that rely on building what we draw using shapes, geometric solids, and linear perspective. *Abstraction* refers to the way we bring abstract visual thinking to bear on the drawing decisions we make. An example would be thinking about how we divide a drawing—essentially a rectangle—into two horizontal sub-rectangles to signify a tabletop and a wall in a still life or the land and sky in a landscape. We'll learn more about these aspects of drawing as we move through the six sections of this course: (1) introductory materials; (2) line and formal language; (3) linear perspective; (4) value, texture, and color; (5) the figure; and (6) advanced approaches and projects. This lecture offers an overview of the course.

### Drawing as a Language

Drawing is a language. Thus, studying drawing can be similar to studying a new language. We start by learning about different kinds of line—comparable to learning a new alphabet. Next, we use line to draw shape, just as we use letters to form words. Then, we use shape to construct drawings of individual objects—like forming words into sentences. And we draw multiple objects together in coherent compositions—similar to organizing sentences into paragraphs.

In drawing, our grammatical parts are line, shape, volume, mark, value, and color, among other elements. If we want to make sophisticated drawings, we must understand how these pieces function in the visual realm.

### Examples Used in the Course

One art historical cliché describes the history of art as a series of advances through tumultuous breaks from the ignorance or overbearing restrictions

of past conventions. There's also much ink dedicated to showing how one culture's art is markedly different from that of another. No doubt, art has certainly changed across time and place, but at the same time, there has also been a great degree of continuity in the language of art across the continents and over the millennia of drawing practice.

The reason that many diverse people have used similar visual strategies is that our eyes and brains—our hardware and software—have remained pretty much the same for a long period. Thus, a large portion of the underlying visual mechanics of making drawings has remained fairly consistent. This is one of the reasons that we can look at art made by people who lived very different lives from our own and find the things they made evocative, potent, and beautiful. At a certain level, we “get it” because these works were crafted to speak to beings wired like ourselves.

Looking at examples of artworks from a range of periods, cultures, and geographic locations, we'll see that artists in different times and places have used similar visual strategies and techniques. Because their work has stood the test of time and local bias, it's reasonable to suspect that the visual ideas they've employed are good ones.

### **Analyzing Drawings**

Looking at drawings is as important to an aspiring draftsman as listening to music, tasting food, or watching a game is to an aspiring musician, chef, or athlete. But it's also crucial to make the shift to active analysis. Many of us drive cars, but our relationship with them ends there. Someone who loves cars and wants to understand them deeply takes cars apart and puts them back together again. To be a real student of drawing means that your relationship with drawing must become analytical. You must take drawings apart, reverse engineer them, and reconstruct them.

### **How to Use These Lectures**

Each lecture in this course is about 30 minutes long, but it will generally take you much longer than that to complete the drawing projects in the lectures. For this reason, you may want to stop and start the lectures as you draw. Of course, you can also watch each lecture all the way through once, then go back and replay it to do the exercises. Because one-on-one feedback is

helpful in learning to draw, you may also want to watch the lectures with a family member or a small group of friends who are also interested in learning to draw. This activity will allow you to offer one another feedback and constructive criticism on your drawings.

### Topics to Be Discussed

You can think of these 36 lectures as divided into six conceptual sections. The first includes introductory materials. The second focuses on line and introduces formal language or drawing's grammar. The third section provides an overview of linear perspective. The fourth bring us back to our discussion of formal language to cover value, texture, and color. The fifth section focuses on the figure. And the final section details advanced approaches and projects. In general, the progression of topics in these sections will be as follows:

- Contour, construction, and cross-contour line
- Aggregate shape
- Object-ground relations
- Positive and negative shape
- Composition
- Gestural line
- Proportion
- Principles for creating the illusion of three-dimensional space on a two-dimensional surface
- Linear perspective
- Value
- Mark and texture

- Color theory, properties, and palettes
- The human figure, canons of proportions, and artistic anatomy
- Advanced concepts and projects.

There is a natural progression in this sequence of study, from concentrating more on acquiring knowledge, skill, and technique to thinking about how to use skills in reference to specific content related to your own interests. The goal at the beginning is mastery of the breadth of accumulated knowledge. As you advance, you'll be able to apply this knowledge and skill to your own individual creative vision.

Take your time as you move through the course. If you do, you'll find each new piece building on what you've learned in prior lessons, and you'll be on your way to developing a depth of knowledge regarding many of the ways in which drawings are conceived and made. Whether you choose to fully work through all the problems or not, simply developing a conceptual understanding of the ways in which artists think and pursue their work will fundamentally change the way you see both art and the world around you.

### Suggested Reading

J. Paul Getty Museum, *Formal Analysis*.

Kennedy Center, *Formal Visual Analysis*.

Pumphrey, *The Elements of Art*, pp. 55–61.

# Line and Shape: Line and Aggregate Shape

## Lecture 4

**A**s we learned in the first lecture, people have been drawing lines and shapes for a very long time—at least 80,000 years. This is also the way most of us started drawing as children. Because it seems to come so naturally, drawing lines and shapes is a logical place to begin. In this lecture, we'll start by learning about two kinds of line: contour line and construction line. Then, we'll see how we can use these to draw simple shapes. By combining contour line, construction line, and shape, we can draw all kinds of things, including the kinds of objects commonly found in still lifes. We'll conclude the lecture by discussing a special kind of shape: aggregate shape. We'll see how we can use this to organize the various shapes associated with objects in a drawing.

### Contour and Construction Lines

*Contour lines* are often used to describe the outer edges of objects or to outline shapes. An example might be drawing a circle by putting your pencil on the page, following the circle's edge, and returning to the point of origin.

*Construction lines* (also called *diagrammatic lines*) are like scaffolding at a construction site. The scaffolding helps the workers build the building, but as the project moves toward completion, it's removed. In drawing, a construction line might be a centerline that helps you ensure the object you're drawing doesn't lean in one direction or the other. Artists may also use construction lines to figure out relative spacing and sizes in a drawing, but such lines are usually erased from completed drawings. Both construction lines and construction shapes help build more complex objects.

### Simple Shapes

As you begin to develop a vocabulary of shapes, you can put them to use to draw objects. For example, you can draw a wine bottle—an object commonly found in still lifes—using a centerline and four simple shapes: a large rectangle for the body of the bottle; a triangle for the “shoulders”; a smaller, thinner, vertical rectangle for the neck; and a much smaller

horizontal rectangle for the collar. You would then erase the centerline and soften the hard corners of the construction shapes to finish the bottle.

### **Practicing with Still-Life Objects**

Many things in our homes can be constructed using simple shapes, such as circles, ovals, rectangles, and triangles, especially when they're in an upright and frontal or profile view. Gather a few simple objects, such as a vase, a candlestick, a coffee mug, and a wine glass. Put one object at a time on your still-life table and analyze it. What constituent shapes could it be constructed with? Draw a centerline and construct each object using shapes. Check at each step for symmetry and proportion. Also try drawing some other objects, such as a house, car, bicycle, or furniture. Once you understand the basic principle of using construction lines, contour lines, and shape building blocks, try drawing from your imagination, too.

### **Aggregate Shape**

So far, we've seen how contour can be used to make shape, and we've seen how we can use contour and shape, with the aid of construction lines and shapes, to draw a wide range of things, both from observation and from the imagination. Often though, we're not just drawing a single thing but groups of things, such as objects and fruit in a still life or groups of trees and other elements in a landscape. In these cases, another kind of construction shape, *aggregate shape*, is useful. Aggregate shape is essentially the container for the objects in a drawing.

### **Suggested Reading**

Guptill, *Rendering in Pencil*, chapter 7, "Object Drawing in Outline."

Pumphrey, *The Elements of Art*, chapter 6, "Line and Dot," and "Shape," pp. 90–131.

Sale and Betti, *Drawing*, "Shape," pp. 99–106.

Smagula, *Creative Drawing*, chapter 4, "Line" pp. 84–87.

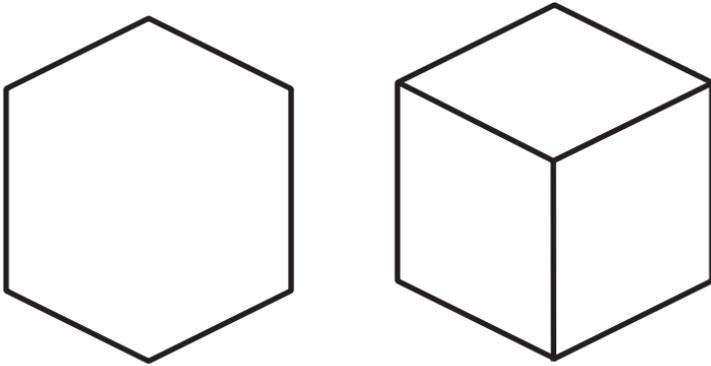
# Line and Shape: Volume and Figure-Ground

## Lecture 5

In this lecture, we'll learn about a third kind of line, cross-contour, and we'll see how it's related to an oblique shape. We'll also learn how oblique shapes are related to geometric solids. We can use this new knowledge to make the objects we draw appear three-dimensional. Related to aggregate shape, we'll introduce the concept of figure-ground relationships, which will help us structure our drawings in a more sophisticated way.

### Cross-Contour Lines and Geometric Solids

*Cross-contour lines* are those that exist inside contours. They magically transform flat shapes into volumetric solids. Consider, for example, a hexagon drawn with contour. By introducing three interior lines—cross-contours—we transform the hexagon into a three-dimensional cube.



### Foreshortened Shapes

By drawing cross-contours like the one in the example above, we create a new kind of shape: *oblique* or *foreshortened shape*. Such shapes are ambiguous. They can appear flat, but they can also express a recession in space. Thus, they're useful for creating the illusion of three dimensions on a two-dimensional surface.

## Integrating Contour and Cross-Contour

In the schematic drawing of the cube, the cross-contour and contours were presented as separate. And, at times, they may well be used that way. But it's also common to integrate them, to flow from contour into cross-contour.

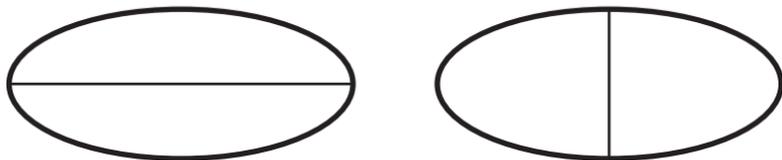
As noted earlier, at a certain level, we're not really drawing still-life objects or people; we're just drawing lines, and we have to decide where each line begins and ends. We move from the edge of the form, the contour, to the interior of the form, the cross-contour, and vice versa. We let the lines create clear overlaps to show what's in front and what's behind. This is one of the most elegant ways of creating the illusion of three-dimensional volume. Much of the "art" here involves making subtle choices about how this is done.

## Drawing Ellipses

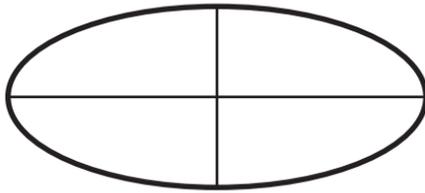
The things we see around us that are circular, such as plates, bowls, clocks, tires, and so on, are rarely seen from a vantage point where they appear truly circular. The only view in which these objects actually appear circular is when they're seen straight on, as in looking straight down at a plate. In all other views, we see them as foreshortened circles, or ellipses.

Drawing ellipses is challenging, and given that so many of the things we want to draw involve ellipses, it's a good idea to practice this skill.

When you're drawing ellipses, there are a couple things to check for. First, every ellipse can be thought of as having a horizontal and a vertical centerline.



These are referred to as the *major* or *long axis* and the *minor* or *short axis*. A true ellipse is symmetrical on either side of each axis. Thus, using centerlines can help when checking for symmetry.

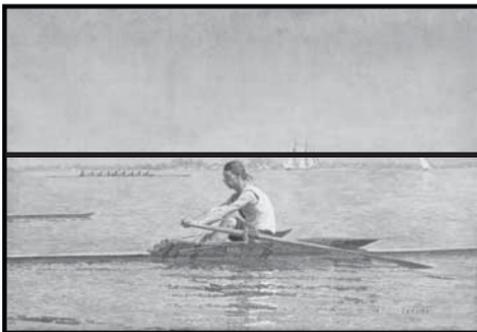


You should also make sure that the ends of the long axis are continuously rounded, rather than almond-shaped, and that the long curve is not flattened.

### Figure-Ground Relationships

Before we draw more complex still lifes, we need to tackle the concept of figure-ground relationships. In a drawing, the *figure* generally refers to the aggregate grouping or shape of the individual things or objects that we would commonly identify as the subject of the drawing. The *ground* is often what's defined by the larger divisions of the rectangle that sets the stage for the figure or aggregate shape. We might say that *ground* refers to the shape of what some people commonly think of as the background. But it's much more than that. It's the construct of the environment in front, to the sides, and in back of the figure.

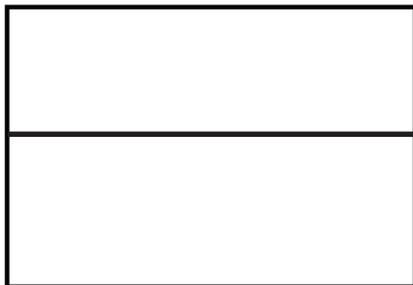
In the Eakins painting, the rower and scull are the figure, and the surrounding landscape is the ground. The ground, which is synonymous with the composition's rectangle, consists of two sub-rectangles, with the top rectangle being just slightly smaller. Again, rectangles create the shape of the drawing itself.



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Here, we've used a horizontal line to divide the rectangles describing the ground shapes, but we want to avoid thinking about this as just a line. It's useful to think about it in two seemingly contradictory ways at the same time.

Here's a rectangle divided by a line:



We can choose to see this as purely flat—as two rectangles meeting to form a larger one—or we could read it as expressing dimension; it could be a floor meeting a wall. This is just how we want to think about the ground. First, it is flat, made of large, flat shapes meeting to create the drawing's overall shape. Second, we want to think about the ground as being three-dimensional. Think about it as perpendicular, or right-angle, planes that meet back in space in one of the deepest parts of the drawing.

In a landscape, the major ground shapes or planes would refer to land and sky; in a seascape, to sea and sky; in a still life, to table and wall; and in an interior, to floor and wall. In terms of the underlying grammar of drawing, all these situations are similar.

## Suggested Reading

Chaet, *The Art of Drawing*, “Figure-Ground,” pp. 22–26.

Curtis, *Drawing from Observation*, chapter 10, “Cross-Contour.”

Norling, *Perspective Made Easy*, chapter 14, “Practical Uses of Cylinders in Drawing,” pp. 131–142.

Rockman, *Drawing Essentials*, “Different Kinds and Functions of Line,” pp. 59–65.

Smagula, *Creative Drawing*, chapter 4, “Line,” pp. 88–90.

# Line and Shape: Positive and Negative Shape

## Lecture 6

This lecture concerns another important kind of shape: negative shape, also referred to as inter-shape. When artfully considered, negative shape, like figure-ground relations, makes the things we draw and the composition itself much more powerful. In addition, it's a useful tool for helping to establish accurate proportions. In this lecture, we'll also learn to use our viewfinders. We'll see how, when drawing observationally, we can analyze shape, select what we draw, and determine the shape of a drawing using this device.

### Negative Shape and Format Shape

When artists draw, they're not just drawing shapes to represent things. They also consider and draw shapes that represent the spaces between things—shapes to represent where things are not. Artists are preoccupied with the relationships between the “stuff”—the objects they want to represent—and the “non-stuff,” the three-dimensional space within which the stuff exists.

In drawing, all the stuff of the world obviously becomes shape. But the non-stuff—the three-dimensional space existing between the stuff—becomes specific and expressive shape, as well. We call these shapes *negative shapes*.

### Format Shape

When you draw a shape—a positive—on the page, you actually get at least two shapes—the positive and its accompanying negative. Often, depending on the first shape and its relationship to the page, you may get many more negatives.

In the two-dimensional visual arts, positive and negative shapes together create the overall structure and shape of the drawing, painting, print, or photograph. We refer to this final shape—the shape of the artwork itself—as the *format shape*.

## Using the Viewfinder and Practicing Drawing Negative Shapes

Below are a few tips for using the viewfinder correctly:

- First, stay in one place, in a fixed position. If you move backward or forward or from side to side, even slightly, you'll see a different framing, which translates to a different image.
- Hold the viewfinder at a constant distance from your head. The easiest way to do this is to make sure that your arm is always fully extended.
- Hold the viewfinder perpendicular to your line of vision, which is generally perpendicular to the floor. If you don't, the opening will not be a true rectangle but a trapezoid.
- Finally, close one eye—always the same eye.

When doing the negative shape exercise, keep these tips in mind:

- Use one sheet of paper, such as basic printer paper, for each drawing. Center your format shape in the page and outline it with a 2H or 4H pencil. This allows you to modify the format on any side if it will benefit the drawing.
- Turn your page in sympathy with the drawing's shape. If the framing is horizontal, turn your page horizontally. If vertical, turn the page vertically.
- Think of drawing from observation as choosing and framing. Try to choose and frame visual situations that will yield a drawing with strong and interesting negative shapes.
- Think about what you choose to draw. Spend some time walking around with your viewfinder just framing things as you see them around your home. Look for compelling negatives.

- Plants often have interesting shapes between their stems, leaves, and flowers. If you draw outdoors, look at the spaces between trees. In a single tree, notice the spaces between the limbs.
- Try to set up still lifes purposefully to bring out the negatives.
- Once you've finished a couple of drawings, take a step back and ask yourself: Do your lines convincingly create negative shape? When you cover the positives, do the negatives come out forcefully? Are the large inter-shapes or negative shapes being used to build the composition and assert the rectangular format itself? Are the large negative shapes active?

### **Skill Building**

The concepts we've learned so far are all connected:

- We can make shapes out of contour line.
- We can create the illusion of volume using cross-contour, oblique shapes, and geometric solids.
- We can construct objects using contour, shape, cross-contour, oblique shapes, and geometric solids, often with the use of construction lines.
- We can organize the objects in our drawing using aggregate shapes. Aggregate shapes help us create visual groupings. They contain and place what it is we want to draw within the drawing's shape.
- We can conceive of the space around the main objects or subject as large, flat shapes—ground shapes. These shapes form the shape of the drawing itself.
- We can conceive of yet another kind of shape that expresses the distances and spaces between things: negative shape. Our drawings will benefit when the negative shapes are as tangible and compelling as the objects themselves. Negative shapes are also useful for checking the proportions of the positives, or the objects.

- The positives and negative fit together like puzzle pieces to create the shape of the drawing—the format shape.

### Suggested Reading

Curtis, *Drawing from Observation*, chapter 6, “Positive/Negative Shape.”

Pumphrey, *The Elements of Art*, “Ground,” pp. 40–43.

Sale and Betti, *Drawing*, “Positive and Negative Space,” pp. 107–115.

# Composition: The Format and Its Armature

## Lecture 7

We've been working our way up in degrees of complexity. We started at the microcosmic level with line. We then moved on to shape, then a single object, then several objects. Next, we turned shape into volume and drew multiple volumetric objects, considering aggregate shape and object-ground relations. Finally, we learned about positive and negative shape. These last ideas took us well beyond drawing isolated objects and gave us a more sophisticated idea about how the parts of a drawing relate. Though we didn't name it, we were starting to talk about composition, which is really nothing more than organization—organizing parts of a drawing into a coherent whole. In this lecture, we'll talk about the underlying structure of rectangles because that's the shape of most of the drawings we make. Artists refer to this structure as the *armature*.

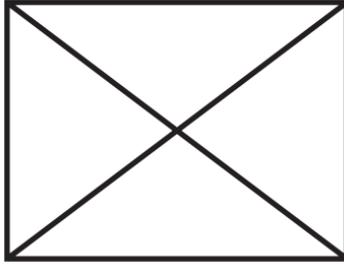
### Drawing the Armature

Most drawings have a rectangular shape made of constituent shapes that relate to the rectangle. Drawings benefit when all the internal shapes have a relationship with the shape of the drawing itself.

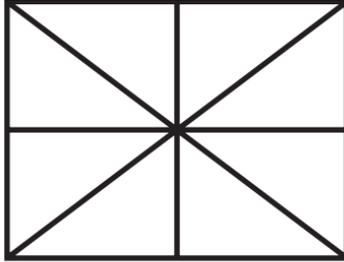
To understand the rectangle a bit more, put a sheet of paper on your drawing board in the landscape position. Then, draw a rectangle that's 9 x 12 inches in the center of the page.



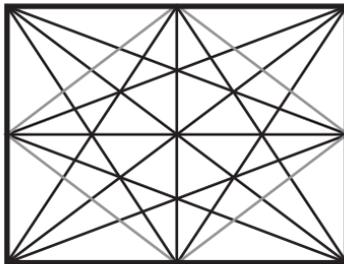
Start by connecting opposite corners with diagonal lines.



The intersection of these two lines creates the center of the rectangle, which suggests two more lines: a horizontal and a vertical through the center point.



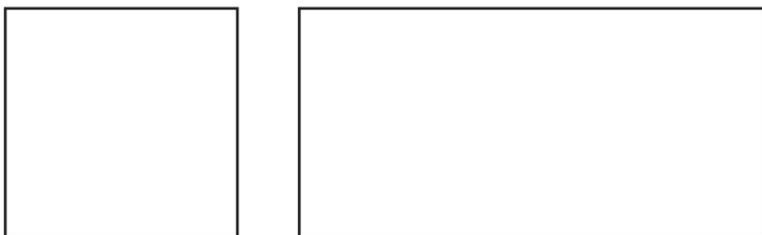
From here, we have many potential points to connect: the diagonals of the vertical halves, the diagonals of the horizontal halves, and the diagonals of the four quadrants. Ultimately, these lines create what artists call the rectangle's *armature*.



Some artists envision a more scaled-back version of the armature, and others, a more complex version. And of course, not all artists draw armatures in their rectangles, but doing so in a range of different rectangles is useful, especially if you pay attention to the shapes and relationships that emerge as you add each new line. Drawing armatures is a great way to develop sensitivity to the underlying structure of the format's shape.

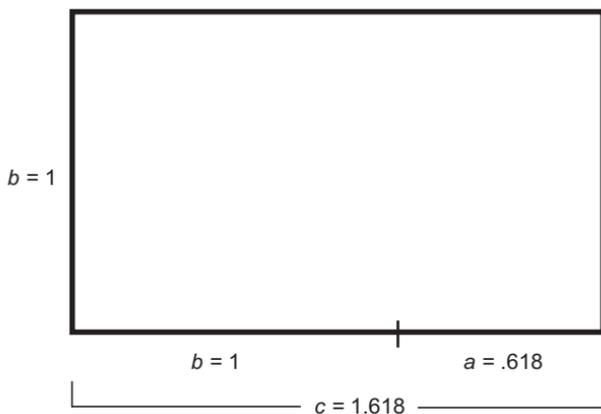
### Ratios in Rectangles

The essential character of every rectangle is defined by the relationship of its verticality to horizontality. That relationship can be expressed by a ratio. A rectangle with a 1:1 ratio is a square; it feels solid and stable. A rectangle with a ratio of 1:2 feels expansive and panoramic.



You may have heard of something called the golden rectangle, which is based on the golden ratio. It goes back more than 2,000 years to the Greek mathematician Euclid, who was among the first to define it. The ratio itself is 1.618 and is represented by the Greek letter  $\phi$  (phi).

In the golden rectangle, the relationship of the height ( $b$ ) to the overall width ( $c$ ) is the same as the relationship of  $a$  to the height,  $a$  being the remainder if we subtract the height from the width. Mathematically, this is written as:  $a/b = b/c$ , or  $0.618/1 = 1/1.618$ . To put it more succinctly:  $a$  is to  $b$  as  $b$  is to  $c$ .



Many have studied the golden rectangle in significant architectural and artistic works, from the Parthenon in Athens to Hagia Sophia in Istanbul, from Leonardo’s *Mona Lisa* to Mondrian’s abstract paintings. But scholars disagree about the extent to which artists have relied on it. After exploring it, you should decide for yourself whether it’s in any way special to you.

### Suggested Reading

Aristides, *Classical Painting Atelier*, chapter 2, “Composition,” pp. 19–43.

Curtis, *Drawing from Observation*, chapter 9, “The Golden Mean,” pp. 93–114.

Hamm, *Drawing Scenery*, “Introduction to the Basics of Scenery Drawing,” pp. 1–15.

Loomis, *Creative Illustration*, pp. 27–28, 35–39, and 47.

Pumphrey, *The Elements of Art*, “Format,” pp. 40–49.

Rockman, *Drawing Essentials*, “The Golden Section,” pp. 39–45.

# Composition: How Artists Compose

## Lecture 8

Choosing the right kind of rectangle for a given drawing is crucial. The drawing's basic character will be flavored by that choice. Artists often choose to orient the format in sympathy with the subject. Although there's no rule about this, you'll find that most landscapes and still lifes are horizontal, and most full-length portraits are vertical, except, of course, when the subject's lying down. Most people make the same choice instinctively when they take snapshots. Generally, artists want the various parts of a drawing to relate to one another, and they want to construct a unified whole out of the parts. Thus, we'll often find that the largest shapes, the object and ground and the aggregate shapes, relate to the drawing's armature. In this lecture, we'll look at some of the ways in which artists apply an understanding of the underlying structure of the rectangle to their drawings.

### Low, Mid, and High Horizons

One of the most common compositional strategies we see is a division of the format rectangle into two horizontal sub-rectangles. In the Eakins watercolor, this division occurs near the midpoint. Other works may use a thinner rectangle below and a wider one above (*low horizon*) or a large rectangle below and a smaller one above (*high horizon*).



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## Other Divisions

Of course, the primary divisions in a drawing don't need to be horizontal. Artists also make use of vertical divisions. And in some cases, you might want to think in terms of dividing the rectangle into thirds, diagonals, and quarters. Yet another compositional strategy is to slightly skew the main division in the ground. In other words, the division sits along a diagonal that divides the rectangle into two wedge shapes, something like the blade of a guillotine.

## Focal Point, Focal Area, and Compositional Shapes

This discussion of large compositional shapes leads naturally to the subject of focal area and focal point.

There's a reason that most people aren't aware of the ground when they look at a drawing: Artists purposely construct their drawings so that we focus on the objects. But the artist must pay a great deal of attention to both the focal point and the ground so that the viewer experiences the hierarchy of visual events in a specific way.

In Eakins's watercolor, the focal point is clearly Biglin's head and upper torso. The focal area is Biglin in his scull. Why? First, Biglin and his scull represent the largest figure and boat in the watercolor. They dwarf all similar events. All else being equal, we'll look at the large thing first. Next, Biglin is in the center. All else being equal, we'll look to the center first.

Direction also plays a role here. Not all directions attract the same attention. All else being equal, horizontals are sleepest; verticals, a bit more energetic; and diagonals, the most dynamic. If we eliminate Biglin and his boat, what remains is very horizontal, with a couple of minor verticals and tiny diagonals. The result is sleepy. Biglin supplies the directional fireworks. He and his oar create the zig-zagging lightning bolt in the composition's center.

Many drawings and paintings—even stylistically different ones—use these and similar abstract strategies to create focal points and focal areas in a composition.

## Balance and Visual Weight

We've seen that the center of the format is an important place. Of course, artists don't always locate their focal point in the center, though drawings often find their balance in relationship to it. And balance is a key compositional concept.

We can imagine the bottom horizontal of the format as a plank sitting on a fulcrum. Every line or mark we make has what we refer to as *visual weight*, and just about all the artworks you know are structured to balance in one way or another. You won't see the plank tipping too much in one direction or another.

There are many options in structuring balance. In the Biglin watercolor, Eakins's strategy is based on centering, complemented with counterweights to the left and right. Biglin occupies the center; he's balanced. The thrust of his arm on the left is counterbalanced by the oar on the right. In the foreground, we get the major weight in the center—Biglin's reflection—and there are equal counterweight reflections to the left and right. On the water behind him, we get a portion of a cropped scull and the long scull on the left. That's countered by the two sailboats on the right. The events in the landscape and sky balance out, as well.



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## Arranging Furniture

Everything we've discussed so far has to do with ordering and balancing things in relation to a given rectangle. In that sense, composing a drawing is similar to arranging furniture, which we do in relation to the proportions of a given room. How we arrange the furniture depends on the room itself. What kind of rectangle it is? How long? How wide? We also create aggregate groupings and relationships when we arrange furniture. In your living room, for instance, you position the area rug, sofa, coffee table, and armchair so that the individual objects form a grouping.

Most drawings, prints, and paintings are rectangles, and most artists structure their compositions in relation to the specific rectangle they've chosen, though in most cases, as with the works we've seen, they don't end up looking geometric. But the act of composition seeks to tie the specific subject matter to the underlying structure of the given rectangle. The structure generally remains hidden—unless you look for it.

## Self-Critique Questions

There are several key points to consider when working on compositional problems like the ones we've covered in this lecture:

- Choose what you draw carefully.
- Take time to select a point of view and framing.
- Think about the large planes and planar divisions, such as the tabletop and wall in a still life, floor and wall in an interior, and land and sky in a landscape.
- Relate observed reality to large geometric shapes and draw through the format in sympathy with this.

Here are some questions you can ask yourself as a guide in critiquing your own work:

- Is the whole format activated?

- Are there dead areas?
- Does the composition balance?
- Does the drawing feel alive and fresh?
- Is there a unique perception or point of view?
- Does this perception come to life on the page?
- Does the drawing have a focal point and a focal area?
- Is there a strong sense of design in the composition that directs the viewer to move through the drawing in a particular order?
- Have you looked at what you're drawing closely and with an intelligent and analytic eye?
- Do your objects sit convincingly in relation to the large planes?
- Are you creating space and volume convincingly?
- Have you been attentive to clarifying overlap situations?

### Suggested Reading

Loomis, *Creative Illustration*, pp. 29–34 and 47–53.

Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, chapter 8, “Composition,” pp.138–160.

Pumphrey, *The Elements of Art*, chapter 5, “The Organizational Components of Art,” pp. 62– 89.

Rockman, *Drawing Essentials*, “The Principles of Composition,” pp. 22–38.

# Line and Shape: Line Attributes and Gesture

## Lecture 9

**A**t first glance, line might seem a simple matter, but as you begin to look more closely, it reveals a surprising degree of complexity. There are quite a number of choices to make when using line and a great deal of “art” involved in making those choices. So far, we’ve discussed three kinds of line: contour, cross-contour, and construction line. In this lecture, we’ll dig deeper. We’ll learn about the attributes of line that directly bear on its function and expressive potential, and we’ll learn about a new kind of line, gestural line.

### Types of Line and Their Attributes

The visual attributes of various lines account for the way a drawing “feels”—its expressive quality. Major attributes of line include the following:

- Value: light versus dark
- Width: thick versus thin
- Continuity: continuous versus discontinuous
- Length: long versus short
- Direction: horizontal, vertical, or diagonal
- Shape: straight, angular, or curvilinear
- Degree of closure: a range running from straight with no closure to curving and fully closing in on itself, making a shape
- Speed: drawn quickly, slowly, or at any speed in between
- Texture: smooth versus rough.

## **Value and Width**

Line value can be controlled by pencil choice—a soft pencil produces a darker line than a hard one—and pressure applied when drawing.

Line width is controlled by pressure (increased pressure results in increased width), the way in which the pencil comes into contact with the page (point versus side), and the way in which the pencil is sharpened (sharp edge versus flat wedge).

These first two factors, line value and width, are often taken together and referred to as *line weight*. The greater the line weight, the greater the contrast to the page. And, all else being equal, the part of the drawing with the greatest line weight will function as a focal point and draw the viewer's eye to that section. This is a primary means for creating a hierarchy in a line drawing.

## **Continuity**

Some lines are discontinuous or fragmented (sometimes referred to as *implied lines*), while others are continuous. Highly continuous lines present things in sharp focus, while discontinuous lines may create the appearance of broken edges and things seen peripherally. Greater line weight and continuous line create focal zones and, all else being equal, tend to pull forward in space. Lighter, thinner, and discontinuous lines receive less of the eye's attention and, all else being equal, recede in space.

## **Length**

Related to continuity and discontinuity is line length. Varying line lengths can be used to create rhythm in a drawing, just as in music, where varied durations or lengths of notes create audible rhythm.

## **Direction**

Another factor affecting line is direction and stability. As we've noted, horizontals are stable, at rest; verticals are less so; and diagonals are the most dramatic lines.

### Shape, Degree of Closure, and Speed

Lines can be relatively straight, angular, or curvilinear and flowing. Related to a line's shape is its degree of closure. Some lines in a drawing may be very open; they make no move toward closure. Others, however, close to make clearly delineated shapes. In some cases, lines may exhibit degrees of closure. They begin to suggest shape but don't fully close in on themselves. Lines are also imbued with character by how quickly or slowly they seem to be drawn.

### Texture

Line texture is often the product of the way the line interacts with the paper's surface. Not surprisingly, a smooth surface yields smooth lines—lines that are consistent in value, both internally and along the edges. But a textured paper—one with a noticeable tooth, such as many charcoal or watercolor papers—results in rougher lines. Such lines have irregularities both internally and along their edges.

### Combining Attributes

Overall, you can think about each of these attributes as existing on a sliding scale. You can increase or decrease any of the factors and make a fairly unlimited number of line types by combining diverse attributes. For instance, you could make a thick, light, short, straight line, drawn slowly, with a lot of texture. Or you could make a dark, thin, long, curved line, drawn quickly and smoothly. In the end, these types of choices contribute to the way we experience a drawing emotionally.

Line attributes are also affected by the artist's choice of materials. Different tools and papers or surfaces have different intrinsic qualities and personalities that will create different opportunities and limitations. In addition, line attributes are affected by how you physically draw. To test this out, try drawing by moving only your fingers; then, move only your wrist, arm, or shoulder. You'll see that each of these choices can affect the lines you draw.

### Gestural Line

Rather than trying to find the specific boundaries and edges of objects or planes, *gestural lines* describe the approximate location and character of things. Gestural line generally has the attribute of speed and some quality of

wildness. It's much less sober and orderly than the kind of contour or cross-contour lines we've seen in Eakins.

In the example below, although it's clear what's being depicted—an older man holding a small child—the lines are abstract and scribbled. If we zoom in on the man's head, we see that a line whips from the back of the skull over the ear to a point and back into the ear itself. The lines don't necessarily hew to the edges of objects or parts of objects, and they're certainly removed from the idea of outlining. With the gestural approach, we often note the wildness and speed of the lines and multiple lines that result in the approximate definition of edges and changes of plane.



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A useful way to think about gestural line is that it combines the work that contour, cross-contour, and even construction line each do separately. And it does all that much more rapidly than you could do with contour, cross-contour, and construction line separately. But the emphasis is on approximation, not certainty.

In using gestural line, you want to skip over the surface in a discontinuous manner, quickly flitting back and forth across the page, not moving sequentially along a line. Your goal is to find approximate positions, directions, and amounts through a series of repeated tests and probes.

As you probe for visual data, ask yourself these questions:

- Where will the drawing begin and end?
- What will be the format shape?
- Where are the large divisions?
- What are the farthest points to the right and left of the aggregate shape?
- What are the farthest points up and down?
- How would you describe the negative shapes between the objects?
- How far does your eye travel from one side of the arrangement to the other?
- What are the widths and heights of the objects?

### Suggested Reading

Brown and McLean, *Drawing from Life*, chapter 4, “Line.”

Curtis, *Drawing from Observation*, chapter 4, “Intuitive Gesture.”

Sale and Betti, *Drawing*, chapter 2, “Learning to See,” pp. 33–71.

Smagula, *Creative Drawing*, chapter 4, “Line.”

# Composition: Shape and Advanced Strategies

## Lecture 10

In this lecture, we'll conclude our investigation of composition. We'll start by looking at some of the major attributes of shape. Then, we'll dig deeper into the compositional strategies that artists use in their work. Now that we've studied gestural line, we can also apply it to test out these new compositional structures.

### Types and Attributes of Shape

Different kinds of shapes, like different kinds of line, have different attributes or qualities. And most of us associate different feelings or sensations with shapes because of these differences. Attributes of shape include the following:

- Geometric (including rectilinear and curvilinear) versus organic.
- Degree of symmetry.
- Degree of complexity. All else being equal, we generally reward complexity—a source of visual excitement—with our attention.
- Personality. Rectilinear and symmetrical shapes generally appear serious and sober; curvilinear shapes can appear elegant and flowing; and asymmetrical, loopy shapes can seem humorous.
- Degree of closure. Open shape equals gentle overlap and continuity; closed shape indicates emphatic overlap and discontinuity.
- Degree of stability.

All these are important compositional factors and, ultimately, affect the expressive quality of a drawing.

### Compositional Strategy: The Target or Bull's Eye

With all this in mind, let's return to some examples of compositional strategies used by artists. A balanced strategy related to the use of symmetrical shape is what we might call the *target* or *bull's eye*. It uses centered rings or successive units of framing to bring the viewer into the center of the drawing.

Several compositional factors can be used to bring the viewer into the target's center, including contrasts of shape, contrasts in degree of density and complexity of line or mark, and contrast of direction. All these factors are used to induce a viewer to look to the target's center first and the outer rings later. We prompt the viewer to attend to the parts of the drawing in a certain order, which is one of the goals of composition.

### Compositional Strategy: Repetition, Variation, Pattern, and Visual Rhymes

Repetition and variation are key compositional concepts in their own right. Musical composition can revolve around this structural idea, as well. A Bach two-part invention is all about repetition and variation, as are popular songs. Choruses repeat, and verses vary, generally, with the same melody but new lyrics. This would indicate that we like a certain amount of repetition, but too much is monotonous.

We can see this idea of repetition with variation in the Eakins watercolor. Note the many horizontal events: Biglin's scull, the scull's reflection in the water, other sculls, wavelets in the water, the landscape in the distance, and striations in the sky. This is often referred to as *visual rhyming*. Shapes and directions are repeated rhythmically to create relationships among the parts.



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### **Spatial Considerations: Bas-Relief and Three Depths of Space**

So far, we've looked at relationships that occur on the surface of the drawing, basically, in the realm of the flat. We've seen how artists organize what they want to draw in relation to the geometry of the specific rectangle they've chosen. We've also seen that there's a relationship between the main things being depicted—the ostensible subject—and the environment in which they sit.

In addition, we've noted that we must think in two ways simultaneously. First, we have to think about how things relate flatly—to the rectangle's edges and armature. Second, we have to think about how they relate to any illusion of depth. Inextricably related to both of these considerations is the specific spatial organization of the drawing.

Shallow spatial depth is referred to as *bas-relief* ("low relief"). Think here about the slightly raised profile of Lincoln on a penny.

Deeper spatial organization may be achieved through the use of three depths. Again, in the Eakins watercolor, water and the reflection of Biglin are located in the foreground, the main subject is located in the mid-ground, and there's a depth of space with a number of supporting events occurring in and around the horizon. This approach to composition is often accompanied by placing the main subject in the topographical center of the page.

### **Composition and Narrative**

The way we pose things and organize them on the page in a drawing can also have narrative import. In an old-fashioned family portrait, for example, the father might be elevated over the other family members to highlight his position as head of the family. In a modern advertisement, a political leader might be posed in the center of his advisors.

### **Uncomposed Drawings**

Not all drawings are composed in the ways we've discussed in this lecture, primarily because not all drawings are intended as complete or finished artworks in their own right. Some drawings concern themselves with problem solving; others function as exercises to explore perspective, pattern, or color relationships; and others are done as studies in preparation

for more involved works. The choices we make regarding how we draw are often based on the goal we have for the drawing in question.

### Suggested Reading

Curtis, *Drawing from Observation*, chapter 9, “Composition,” p. 279.

Guptill, *Rendering in Pencil*, chapter 10, “Composing Your Drawings,” p. 110.

Smagula, *Creative Drawing*, chapter 7, “Composition and Space,” pp. 150–167.

# Proportion: Alberti's *Velo*

## Lecture 11

We're now ready to turn our attention to proportion and measurement. In this lecture, we'll learn about the discoveries and methods that led to some radical changes in 15<sup>th</sup>-century European art. These discoveries would spread over the globe and are still very much with us today. As mentioned in the first lecture, human beings have been drawing for more than 80,000 years, but until the European Renaissance, no one had figured out how to convincingly depict a three-dimensional space on a two-dimensional surface. Then, in a relatively short span of time, a little more than 100 years, artists were able to create this illusion. In this lecture, we'll work with some of the tools that enabled this leap forward in naturalistic representation.

### Early Explorations in Proportion

One of the first individuals involved in exploring the ideas that led to later artistic discoveries about proportion was an Arab scholar, Ibn al-Haytham, popularly known as Alhazen. In Europe, he was followed by Leon Battista Alberti, Luca Pacioli, Piero della Francesca, Filippo Brunelleschi, Leonardo da Vinci, and Albrecht Dürer. The latter were all interested in the intersection of optics, mathematics, and art, and they enlarged on Alhazen's and one another's discoveries. A number of them published their own seminal works describing newfound systems, tools, and methods.

Around 1490, Leonardo described a method for drawing accurately. It involved placing a pane of glass perpendicular to the artist's line of vision and drawing what was seen directly on the glass. The availability of affordable plate glass may have played a significant role in this type of experimentation. Having seen the three-dimensional world coherently reduced to two-dimensions may well have fueled the great leap forward to naturalistic representation.

In his later book *Instruction in Measurement*, Albrecht Dürer wrote, "There is yet another method of copying an object ... and it is more practical than

using a glass pane.” Dürer was talking about a device called the *velo*, or “veil.” The device had also been discussed about a century earlier by the Renaissance polymath Leon Battista Alberti. Essentially, the *velo* was a grid of threads stretched on a frame that allowed anything seen through it to be transcribed on paper by noting the  $xy$  coordinates.

### Drawing Proportionate Foreshortened Figures

For most of history, people drew things in their iconic positions. In this position, the silhouette of the object would tell us what it is. This also happens to be the position where the long axis of the subject is perpendicular or parallel to the ground. Think of an upright person or a bottle; that position is perpendicular to the ground. A person lying down horizontally would be parallel to the ground. In Egyptian art, the avoidance of other positions accounts for some of the distorted anatomical depictions, with the head in profile; chest facing forward, and legs and feet, once again, in profile. By and large, people avoided other views of objects for about 80,000 years.

All the millennia of avoidance indicate the challenges of drawing objects in certain positions, such as a limb projecting outward from the picture plane. Alberti and Dürer tell us how to tackle this difficult problem: by measuring. Find grid coordinates. Note where and in which grid unit on the vertical picture plane all the important points are located. Then, mark these same points on the second picture plane, the page. Measure carefully and plot enough coordinates, and you get a rather sophisticated connect-the-dots drawing. Artfully connect the dots, and you get a proportionate foreshortened figure. It was this fixation with measurement that fundamentally changed drawing.

The essential idea behind using the *velo* is the same as tracing on glass or studying a reflection in a mirror, for that matter. The three-dimensional world viewed on a vertical plane—here, the gridded picture plane—looks flat. That makes it parse-able. With the *velo*, we have the added aid of  $xy$  coordinates. We don't even have to worry about drawing a complicated object. We just have to place the coordinates.

## Suggested Reading

Alberti, *On Painting*.

Brown and McLean, *Drawing from Life*, “Learning to See,” pp. 44–45.

da Vinci, *A Treatise on Painting*.

Dürer, *Underweysung der Messung* (1525).

———, *Underweysung der Messung* (1538).

———, *The Painter’s Manual*.

Eakins, *A Drawing Manual*, “Linear Perspective,” pp. 47–54.

Hockney, *Secret Knowledge*.

# Proportion: Accurate Proportion and Measure

## Lecture 12

In this lecture, we'll concentrate on the tools we use to arrive at correct proportions. We'll start by reviewing the tools we've already discussed: the centerline, building-block shape, large ground shapes, aggregate shape, eyeballing, negative shape, and Alberti's *velo*. Then, we'll add some new tools: the clock-hand method for determining angles, standard units of measure, level lines and plumb lines, and the method of sighting the half. Although we will study each of these separately, as you use them, you'll find yourself combining them seamlessly in your own way. They'll become part of the way you naturally draw.

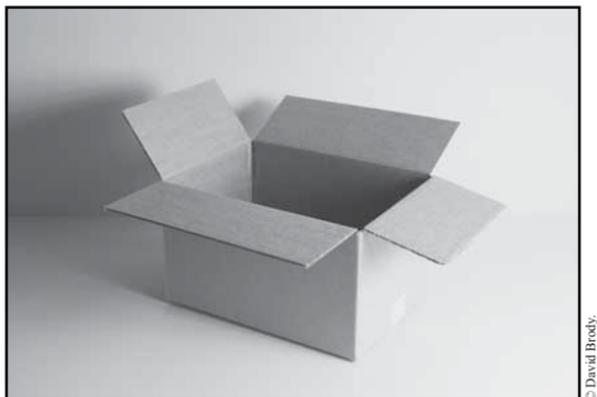
### Tools for Accurate Proportion and Measurement

The tools for accurate proportion that we've already discussed include the following:

- Centerline, a type of construction line that helps establish an object's placement within the drawing and helps maintain the subject's direction. The centerline also serves as an aid in drawing shapes proportionately in relation to the object's center.
- Constituent or building-block shapes, which help relate both the left and right sides and the width-to-height proportions of an object or part of an object.
- Large ground shapes, which set up proportions for the whole drawing.
- Aggregate shape, or the simple shape that contains the subject and captures the height-to-width proportion. Using ground and aggregate shapes together defines and helps control the overall proportions in a drawing.

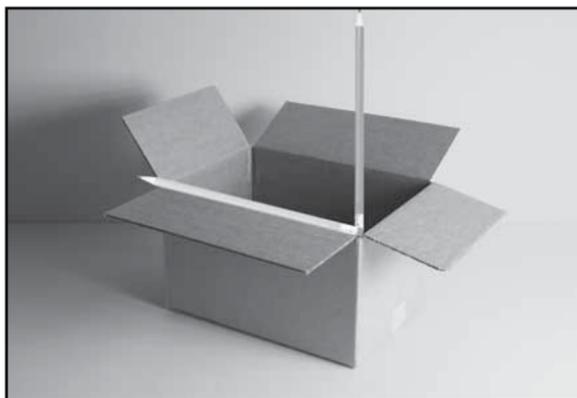
- Eyeballing, that is, looking at the shape you've drawn and asking yourself if it corresponds to what you're seeing.
- Negative shape, which we tend to see more accurately than positive shapes because we have no preconceptions about what they look like. This allows us to see them in a purely visual and analytic manner. Taken together, a group of negative shapes will reveal the silhouette of an object in accurate proportion.

The first exercise in this lecture is to make a drawing of a box similar to the one shown below. Follow the steps outlined, concentrating on the large ground shapes and negative shapes, as well as the other tools we've discussed so far. As a second exercise, see how you can apply the grid to the box drawing.



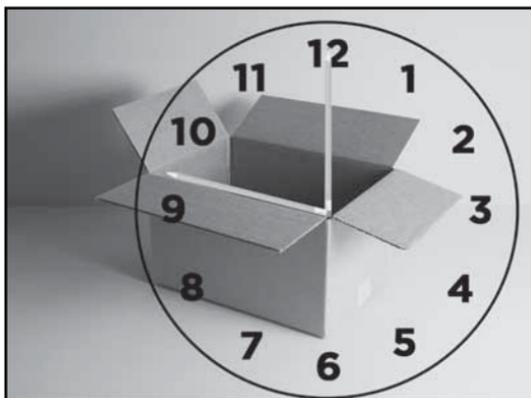
### **Determining Angles with the Clock-Hand Method**

Our next tool represents a means for quantifying tricky angles. To understand the idea behind the clock-hand method, hold a pencil out in front of you with your left hand, vertically, point up. Closing one eye, rotate the pencil so that it comes into line with the angle of the box. Then, take a second pencil in your right hand and place it pointing straight up from the eraser end of the first pencil.



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Now, imagine that the pencils are hands on an analog clock face, and tell the time. Here, we have about 13 minutes to noon. This method represents a way to quantify and remember an angle.



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We just read this angle as an acute one, but we could equally read it as obtuse. Depending on whether you're right-handed or left handed, one way or the other may be more comfortable.

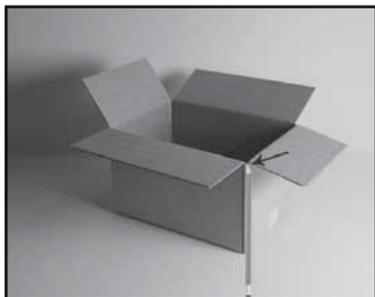
Once you've practiced this method a couple of times, you can imagine the hour hand, and you'll need only a single hand and pencil to measure the angle. The most important thing to remember here is to hold your pencil

parallel to an imaginary picture plane, as if it were held against a glass plane perpendicular to the floor. You don't want to tip your pencil into space.

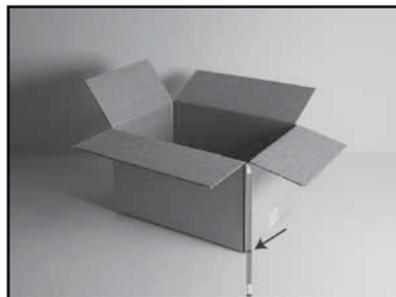
### **A Standard Unit of Measure**

We've all seen images of an artist, standing in front of an easel, holding out his arm, closing one eye, and looking out over his thumb. This is a version of another tool we can use to create accurate proportions: a standard unit of measure. Here, you identify some part of what you're seeing to be used to measure everything else. In choosing the unit of measure, there are two factors to keep in mind: its orientation and its scale. Regarding orientation, you want something that is parallel to the picture plane, not anything that recedes into space. In fact, it's best if what you choose is a self-contained unit and is vertical or horizontal. Regarding scale, the unit you choose can't be too big or too small.

In the case of the box, the front edge may be a good choice. Although it's a couple degrees off true vertical, it will work for the purposes of this drawing. Hold a well-pointed pencil vertically, with the point up. With one eye closed, outstretch your arm fully, and align the pencil's tip with the top of the standard unit of measure. With your thumb and first finger, hold the pencil at the base of the standard unit. This allows you to capture the unit on your pencil, which you can then use to measure across the picture plane.



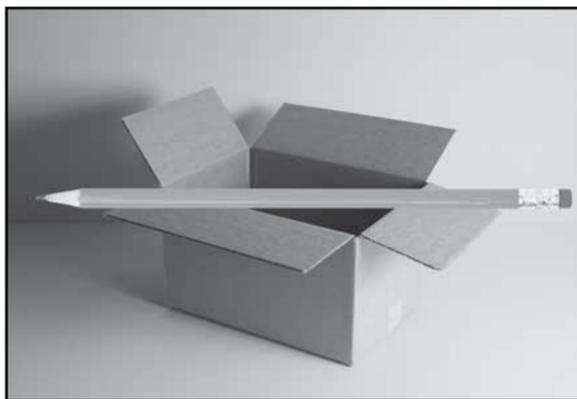
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### Level Lines and Plumb Lines

Yet another tool is either a horizontal level line or a vertical plumb line. Turn your pencil horizontally and line it up with any point, say, the far left inside corner of the box. Then, look to see if anything to the right lines up with it. In this case, there doesn't seem to be perfect alignment, but we can tell that the far right inside corner is just a bit higher than the left.



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Of course, you can also use this technique vertically to create a plumb line. Both tools—the level line or the plumb line—can be used to see how things line up and to understand how different points or edges correlate.

With these new tools—clock hands for angles, a standard unit of measure, and level and plumb lines to locate positions—make a second drawing of the box. At first, you should follow the instructions for using these tools as you would a recipe, but once you've worked with them for a period of time, you'll find yourself using them in a much more fluid, organic way. Our method here is to break down the processes into understandable pieces, but as you use them, they'll become natural, embedded in the way you scan everything you see.

## Sighting the Half

Related to some of the tools we've studied is an approach called *sighting the half*. This is another method to help you imagine an even grid over your subject and measure through your drawing. You'll then find the key points that help you draw proportionately.

## Drawing as an Interrogative Process

As you're beginning to realize, drawing can be an interrogative process. We ask one question after another: How does the picture plane divide? What's the largest shape? What's the angle of that diagonal? How long is it? A drawing can represent the sum of an artist's responses to these questions.

### Suggested Reading

Curtis, *Drawing from Observation*, chapter 7, "The Perceptual Grid," pp. 61–74, and chapter 8, "Proportion," pp. 75–92.

Loomis, *Figure Drawing for All It's Worth*, "The Visual Survey Process," pp. 88–89.

Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, chapter 3, "Learning to See Deeply," pp. 38–56.

Rockman, *Drawing Essentials*, pp. 4–22.

# Creating Volume and Illusionistic Space

## Lecture 13

**A** central theme in our discussions about proportion revolved around the challenges of translating three dimensions into two. In this lecture, we'll look more broadly at how we create flatness, volume, and space. The surface we generally draw on—a piece of paper—is flat. In addition to controlling proportions, we often want to create the illusion of three-dimensional space on that flat surface. Broadly speaking, we can differentiate between two types of dimensionality: the volume of an object itself and the dimensionality of the environment that the object occupies—the space. Putting these two pieces together, we get volumetric form in space; we'll explore that process in this lecture.

### Creating Illusionistic Space: 12 Principles

As we've noted, learning to draw is related to learning to understand what we see. A number of factors govern the way we perceive depth of space in the world around us, and these same factors correlate with ways we depict space on the page. The 12 primary factors are as follows:

- Overlap
- Diminishing size
- Position along the page's vertical axis
- Position relative to the format's edges
- Diagonals creating spatial depth
- Foreshortened shapes
- Cross-contours
- Value, light, and shadow

- Value and atmospheric perspective
- Level of detail
- Color and atmospheric perspective
- Subject matter of recognizable size.

### **Overlap**

The first and among the most powerful factors governing our experience of depth is overlap. We know one person is in front of another because the first person partially conceals the second from view. Not surprisingly, overlap was one of the first factors artists recognized and used in their drawings.

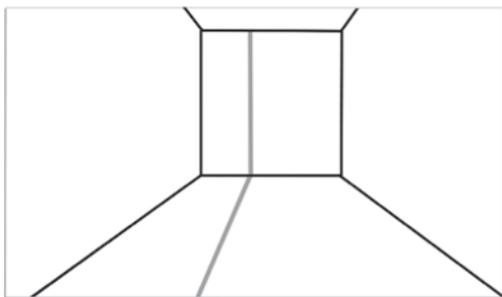
### **Diminishing Size**

A second factor here is relative scale. We look out into the world and see two things that we know are the same size. If one looks smaller than the other, we know that the smaller one is farther away. Similarly, if we see two things in a drawing that we know to be similar in size but one is drawn smaller than the other, we will, all else being equal, feel that they're in different spatial locations. This creates a volume of space between the two.

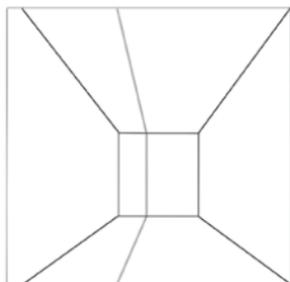
### **Position along the Page's Vertical Axis**

Another factor affecting the sensation of depth of space is position along the vertical axis of the format.

In looking at a naturalistic drawing or a painting, as your eyes move up the vertical axis of the page, you are most often moving back in space. This imitates our experience in life. Look down at your feet; then, keeping your eyes focused downward, lift your head and allow your gaze to travel away from your feet into increasingly greater depth, until you hit the back wall of the room you're in.



On reaching the back wall, if you continue to lift your head, you'll eventually reach the ceiling. Then, you begin to return back toward yourself, finally reaching a point on the ceiling directly above your feet—right where you started.



We find this spatial permutation in many works where we're looking into an interior and in certain landscapes.

### **Position Relative to the Format's Edges**

The next factor has to do with the subject's relationship to the format's edges. Figures or objects that intersect the edges of the format shape can appear closer to us in space.

### **Diagonals Creating Spatial Depth**

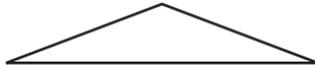
With regard to space, there are two types of diagonals: those that define the edge of an object or part of an object that is parallel to the picture plane and those that create the illusion of a recession in space.

It took human beings a long time—most of the 80,000 years that our species has been drawing—for someone to realize that a diagonal could also create the illusion of depth on a two-dimensional surface.

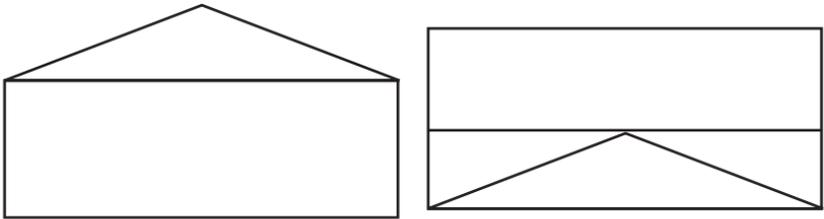
### **Foreshortened Shapes**

As we've noted, not all shapes read as strictly flat, especially those that contain diagonals, which can pitch us back into space. We've referred to these kinds of shapes as *foreshortened shapes*.

A triangle can simply be a triangle—as flat as the piece of paper it's drawn on.



Or that same triangle could read as the top plane of a prism receding in space or a road receding back to the horizon.



Trapezoids, which are essentially truncated triangles, function in the same way, as can parallelograms. The ellipse, a curvilinear shape, acts similarly.

### **Cross-Contours**

As we discussed in an earlier lecture, cross-contours can be instrumental in creating a sense of three-dimensionality, turning shape into volume.

### **Value, Light, and Shadow**

Value can affect our understanding of space and volume in a number of ways. First, a shift from light to dark can describe the play of light on three-dimensional form and indicate volume. If there's no light, we don't see any three-dimensional form. With a little light, we begin to see a modest amount of form. But a strong directional light gives the best evidence of volumetric

structure. The planes of an object turned toward the light will appear lighter, and those turned away will appear darker. The shift from light to dark is evidence of the underlying planar shift, which translates to volume. The use of varying degrees of light and dark to simulate the passage of light over form and create volume is referred to as *chiaroscuro*.

In drawing, we speak about two kinds of shadow: object shadow and cast shadow. *Object shadow*, as the name implies, refers to the shadow on the part of an object that is turned away from the light and, as we've said, reveals form. *Cast shadows* describe the planar surface on which they fall and, thus, can reveal form, too.

### **Value and Atmospheric Perspective**

Another way that value affects our perception of depth is through *atmospheric* or *aerial perspective*. This is what we experience when we see a distant mountain or building. The distant object looks less clear than when we're close to it. The darks get lighter, and many of the bright lights get dimmer. The object appears to fade somewhat into the atmosphere. Another way of saying this is that value contrasts can appear to diminish with depth. This is accompanied by changes in the way edges appear. Up close, they're clear and precise, but from a distance, they appear fuzzier. The use of atmospheric perspective not only gives us space but can also create the illusion of airiness or atmosphere on the page.

### **Level of Detail**

The next principle is related to atmospheric perspective. It concerns the amount of detail we're able to see at any given depth. Clearly, we see more detail up close and less as something recedes from sight.

### **Color and Atmospheric Perspective**

The next factor is color. We'll discuss this in much greater depth later in the course, but for now, suffice it to say that distance affects color similarly to the way it affects value.

We think of color as having three attributes: (1) hue (the color's blueness, yellowness, or redness), (2) saturation or intensity (the color's level of purity versus neutrality), and (3) value (lightness or darkness). Look at the water

in the foreground of the Eakins watercolor and note the saturation. Now, compare that with the saturation of the water in the area behind Biglin's scull, extending to the horizon. The difference is marked: The color is much more saturated in front and much more neutral as we recede. Unsurprisingly, this is accompanied by a shift in value contrast, as well. There is more contrast in the foreground and less as we recede.



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A second effect regards the type of color, warm or cool. All else being equal, warm colors will tend to advance, and cool will tend to recede. However, greater saturation generally trumps the effect of warm advancing and cool receding. In other words, a saturated blue bowl—a saturated cool color—will advance easily against a neutral warm color, such as a beige wall or table. High value contrast can often override high saturation, too.

### **Subject Matter of Recognizable Size**

The final principle has to do with subject matter. Space is more measurable if it contains something that has a more or less recognizable measure. If we see a boat on the ocean from a distance, we may not be able to tell its size, but if we see figures on the deck, we'll be better able to gauge the size of the boat and the space that contains it.

## Suggested Reading

Pumphrey, *The Elements of Art*, chapter 7, “Space.”

Rockman, *Drawing Essentials*, “The Illusion of Space and Depth on a Two-Dimensional Surface,” pp. 46–51.

Sale and Betti, *Drawing*, Part II, “Spatial Relationships of the Art Elements.”

# Six Complex Drawing Projects

## Lecture 14

**T**hus far in the course, we've seen how line can make shape; how basic shapes, along with construction lines, can be used to construct objects; and how oblique shapes and cross-contour can turn flat shapes into three-dimensional volumes. We've also learned about composition. We've seen how we can create strong structures for drawings by relating the negatives to the positives and by relating large aggregate shapes to the even larger ground shapes that create the shape of the drawing itself. In addition, we've seen how artists relate what they draw to the armature of the format shape. We've learned how to use gestural line to do the work of contour, cross-contour, and construction line. We've also explored 12 methods for arriving at accurate proportions and learned another 12 principles that can be applied to create the illusion of volume and space on a two-dimensional surface. In this lecture, we'll take on some challenging drawing projects to begin to synthesize this knowledge.

### Drawing Projects

To make the concepts and techniques we've discussed so far your own, in this lecture, you'll apply what you've learned to a number of intriguing and increasingly complex drawing projects: a still life of boxes, a still life of books, a translation of a complex figure painting, a complex interior with a staircase, a figure in an interior, and a self-portrait in an interior. As you work through these projects, ask yourself the following self-critique questions:

- Is the format shape defined?
- Are the ground shapes defined?
- Is there a large aggregate shape that makes sense in the format?
- Are the large positive and negative shapes well-organized?

- Are you composing well? Are you relating what you're drawing to the format's armature?
- Do all the planes read convincingly in space?
- Are you using line weight spatially? Are you able to use line weight to make some things appear nearer and others farther away?
- Are you using line weight compositionally? Are you able to use line weight to create zones of greater and lesser focus?
- Does the object or figure read convincingly in relation to the ground?
- Are the proportions accurate?
- Is the whole drawing activated? Are there dead areas?

### Proportions

In each of these projects, you'll be working to arrive at accurate proportions. If something is eluding you, apply the tools we've learned to see if you can find a solution:

- Centerline
- Building-block shape
- Large ground shapes
- Aggregate shape
- Eyeballing
- Negative shape
- The gridded picture plane

- The clock-hand method of determining angles
- A standard unit of measure
- Level lines and plumb lines
- The technique of sighting the half.

### **Common Spatial Problems**

Beyond proportion, much of the challenge in these drawing projects is related to creating a believable sensation of three-dimensional space. Again, recall the 12 principles we've discussed related to spatial illusion:

- Overlap
- Diminishing size
- Position along the page's vertical axis
- Position relative to the format's edges
- Diagonals creating spatial depth
- Foreshortened shapes (flat shapes that allude to planar structures)
- Cross-contours
- Value (light)
- Value (aerial perspective)
- Amount of detail
- Color (aerial perspective)
- Subject matter of recognizable size.

## Pitfalls in Drawing Naturalistic Space

There are a number of pitfalls to avoid when trying to draw naturalistic space. The first has to do with carefully positioning your subject in the format's shape. Many beginning students position the subject or some part of it so that it lines up with an edge of the format. The result is generally a flattened image. To avoid this, think compositionally. Use large aggregate shapes to position your subject at the outset and work from the general to the specific. This way, you'll be able to control the locations of all the major components relative to the drawing's shape.

Another common problem is drawing what we know, not what we see. Our preconceived shape ideas of most things are limited and differ from how the shapes appear from a specific and often oblique point of view. Thus, it's a common error to draw the top planes of objects, such as tables and beds, too large; we know that these are relatively expansive surfaces, but from many common points of view, they can shrink to an oblique sliver. The way to avoid this is to use a standard unit of measure to gauge the vertical distance from the front edge to the rear and the clock-hand tool to gauge the diagonals of these kinds of planes.

Another common problem involves inaccurate diagonals and even diagonals going in the wrong direction. Again, using the clock-hand tool can help, as can looking out through the gridded viewfinder. This allows you to check the diagonal in reference to the horizontals and verticals of the grid. If something still eludes you, remember Leonardo's advice about tracing on a piece of glass, or do a phantom trace in the air. You could even take a picture of the problematic angle and trace over it with your finger on the screen.

There's a similar problem with flattening objects by drawing their curvilinear cross-contours as horizontals. This applies to everything from the curving top of a bowl to stripes on a shirt curving around an abdomen. It also applies to facial features, such as lips, that naturally follow the curving plane of the head. When drawing your own features, close one eye, look in the mirror, and trace over the curve with a pencil or your finger. Do this several times to get a good feel for the form.

Line weights are also crucial. Many beginners don't pay attention to the actual lines they're drawing—how light or dark or how thick or thin the lines are. And they don't pay attention to how lines relate to one another on the page. Take a look at your drawing and ask yourself which line or lines grab your attention. Which ones advance in space and which ones recede? Just look at the lines themselves, abstractly. Then, ask yourself which lines should be creating focal points and focal areas and which ones should be advancing and receding. Edit your drawing accordingly.

In addition to line weights, also pay attention to line overlaps. A line attached to something in the background that overlaps something in the foreground will confuse the spatial reading.

A last and common problem is something we might consider as the opposite of overlap. This occurs when something in one spatial location—something in the foreground, for instance—lines up with something in another spatial zone, such as the background. This can flatten the space in a drawing.

### Suggested Reading

Review as needed Suggested Readings for Lectures 5 through 14.

# Linear Perspective: Introduction

## Lecture 15

The next five lectures lay out the basics of linear perspective. We'll learn to apply many of the most important concepts and techniques related to perspective that artists have used over the centuries. Linear perspective calls on us to use our analytic abilities, and many people enjoy learning about it. But others believe that art should be all about emotion. For those people, it's important to bear in mind that even a seemingly spontaneous watercolor, such as Eakins's *John Biglin in a Single Scull*, is the result of deep thought about perspectival spatial construction. Even Vincent van Gogh, often mistakenly portrayed as running on manic genius, took great pains to learn perspective. He understood that it would free his expressive ability. In this section of the course, we'll cover many technical aspects of drawing, but the underlying ideas are all applicable to freehand sketching; they will help you understand what you're seeing much more rapidly and with greater clarity.

### Defining *Perspective*

The methods we've studied—using plumb lines, units of measure, and other visual tools to create a convincing sensation of proportion and depth of space—are referred to as *empirical perspective* and *nonlinear perspective*.

Empirical perspective relies on observation, rather than a set of rules. And it works fine when drawing many things observationally. Nonlinear perspective refers to overlap and to manipulations of clarity of edge, value, or color to create the illusion of spatial depth.

Our area of study, *scientific linear perspective*, is a method of drawing that relies on geometric principles. It uses a set of rules regarding the way lines recede to vanishing points. Linear perspective enables us to create form in space and control proportions.

Linear perspective isn't new to you. You experience it every day, whether you're walking down a city street or staying at a resort hotel.



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Our experience of linear perspective is generally unconscious, but it's at the heart of the way we understand and navigate our way through space. Becoming conscious of what you understand intuitively will be invaluable in helping you learn to draw.

### **History of Perspective**

In an earlier lecture, we mentioned an Arab scholar, Ibn al-Haytham, or Alhazen, who wrote on many subjects, including optics and visual perception. His book, titled the *Book of Optics*, was translated into Latin in the late 12<sup>th</sup> or early 13<sup>th</sup> century and was later translated into other European languages. Many scholars point to this text as a foundation for the development of linear perspective in Europe.

Lorenzo Ghiberti, the Renaissance Florentine who designed the ornate doors of the Baptistery next to the Duomo, cited Alhazen frequently. And Ghiberti's sometime-colleague, sometime-competitor Filippo Brunelleschi is generally credited as being among the first to demonstrate how linear perspective worked. The knowledge then spread across Europe and, indeed, around the world and would maintain an enduring presence in art.

### **Terms to Know**

Linear perspective depends on a fixed monocular view of the world, similar to looking through the viewfinder of a camera. The position of that one unmoving eye is called the *station point*.

The most common forms of linear perspective also assume that the single eye is looking straight ahead, parallel to a flat ground plane. This is called the *center line of sight*.

Another key concept in linear perspective is the *horizon*. That's where the sky and earth would appear to meet if the ground were perfectly flat and nothing, such as mountains or buildings, blocked the view. Note that the height of the station point, or eye level, of the person drawing is the same as the horizon. As eye level is elevated, the horizon rises and the ground plane appears to increase in area. As eye level is lowered, the horizon follows and the ground plane becomes foreshortened.

There are three basic types of perspective: *one point*, *two point*, and *three point*. The basic conceptual unit used to understand perspective is the block. In one-point perspective, we see the face of a block parallel to the picture plane, and all the horizontal edges receding away from us as diagonals would appear to meet at a single vanishing point. In two-point perspective, the faces of the block are angled away from the picture plane. The edge of the block is closest to the picture plane, and the edges of the block's planes appear to converge to two different points—one on the right and one on the left. Three-point perspective describes situations where the line of sight isn't parallel to the ground plane, that is, we're looking up or down. In addition to a right and left vanishing point, a third point placed below the object produces a sensation of looking down or a third point placed above results in the sensation of looking up.

### One-Point Perspective Basics

One of the things the early developers of perspective noted was that we see different views or planes of an object depending on its height and lateral position. As an object moves along a vertical or horizontal axis, the planes we see shift.

In one-point perspective, there are three main kinds of lines. Horizontals describe width; verticals describe height; and diagonals describe depth. In Leonardo's *Last Supper*, we see this at play. Horizontals and verticals describe the front plane of the table; diagonals describe its depth. The height and width of the back wall are described by horizontals and verticals, while the depth of the room is described by diagonals.

Leonardo's painting has a mid horizon. The vanishing point is located on Jesus's right eye. If you remember, the horizon is a function of the eye level of the viewer. Pictorially, our eye is at the same height as Jesus's eye.

We see the same thing in Raphael's 16<sup>th</sup>-century *School of Athens*. Here, the horizon and vanishing point are a bit lower and coincide with the two central figures, Plato on the left and Aristotle on the right. We're looking up at them.



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In both of these cases, linear perspective is used compositionally, as well as spatially. All the receding diagonals point to the main subject or subjects: Jesus in *The Last Supper* and Plato and Aristotle in *The School of Athens*.

Van Gogh uses a higher horizon in *The Night Café*, which gives us the sensation of looking down at the pool table and room. He also places the vanishing point off to the left, giving us a larger right wall and a smaller left one.



© Yale University Art Gallery.

### Summing Up One-Point Perspective

Let's list some of the most important factors governing one-point perspective:

- It's used to describe blocks that have one face parallel to the picture plane. To draw these kinds of objects, we use horizontals to express width, verticals for height, and diagonals converging to a vanishing point to express depth.
- In one-point perspective, all block-like objects reveal a front plane parallel to the picture plane.
- Opaque objects straddling the horizon reveal neither a top nor a bottom plane.
- Objects below the horizon reveal a top plane, and objects above the horizon, a bottom plane.
- Objects to the right of the vanishing point reveal a left side, and objects to the left of the vanishing point, a right side.

- Objects on a vertical axis straddling the vanishing point reveal no side planes.
- As planes get closer to the vanishing point, they appear more foreshortened; as they move away, they appear lengthened.
- One-point perspective looks most naturalistic when what we draw is relatively close to the vanishing point. When objects are placed too far away from the vanishing point, they begin to distort.

### Suggested Reading

Norling, *Perspective Made Easy*, pp. 1–30.

Rockman, *Drawing Essentials*, pp. 140–151.

# Linear Perspective: The Quad

## Lecture 16

**N**ow that we have a general understanding of one-point perspective, we'll use it to create a solid, believable, and complex architectural landscape—a drawing of two buildings on a ground plane. Then, we'll move inside the buildings and draw furniture in the interiors. You'll also have the opportunity to take what you've learned and add other things to the drawing, such as a kitchen, a bedroom, even a ping-pong table or a swimming pool. Once you get a good grasp on using one-point perspective, you can create all kinds of things out of your imagination.

### Pointers for the Quad Exercise

In any complex perspective drawing, there are a number of points to keep in mind. For example, it's common to generate many construction lines that won't be included in the finished drawing. Part of the craft involves managing all these lines so that the drawing doesn't turn into a jumble. Keep the construction lines light and thin.

Keep in mind, too, that small inaccuracies in measurements become exponentially problematic as these kinds of drawings unfold. Take your time with the drawing. If something doesn't line up, erase and redraw. Doing so will save you time in the long run.

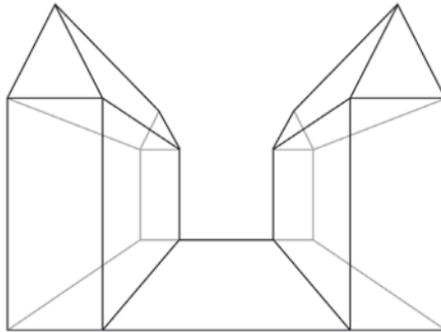
Finally, you need to learn to manage your graphite, which can easily get picked up on the sides of your hands, your T-square, or other tools. Check periodically, and if anything is getting dirty, give it a quick wash and dry.

### The Quad

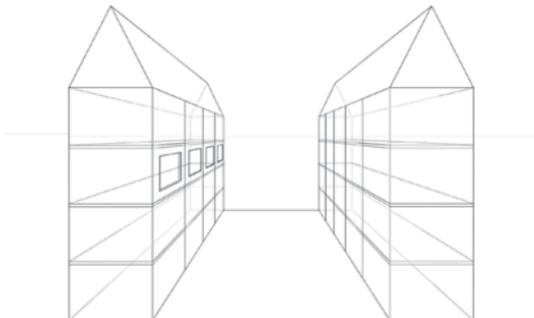
Our subject for this drawing is two similar buildings separated by a rectangular open space. As we proceed with the first building, you'll note that its front face is made of two simple shapes: a rectangle and a triangle. The building itself is made of two simple volumes: a block for the base and a prism for the roof. We will construct all this starting with line, turning line into shape and shape into volume. Although our goal may be to draw things that feel convincingly

real, we make those things out of abstract elements: lines and shapes. We can't actually make a building. All we can draw are lines.

After you've completed the first building, you may want to pause the lecture and work through the construction of the second on your own, following the same steps. Working through those steps repeatedly will allow them to become second nature to you. For your reference, here's what the exteriors of the two buildings should look like:



Once we've completed the exteriors, we'll add three equally spaced floors above the ground floor of each building and windows in the long foreshortened and receding planes facing the quadrangle. We'll then go inside the buildings and begin to construct some furniture. By the end of the lecture, your buildings should look like this:



## Suggested Reading

Auvil, *Perspective Drawing*.

Montague, *Basic Perspective Drawing*.

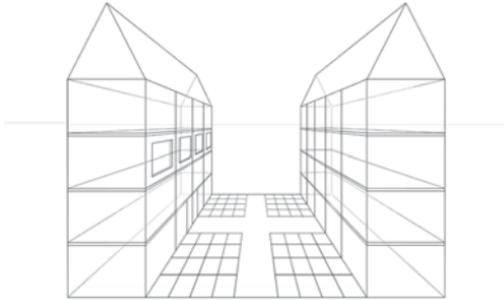
# Linear Perspective: The Gridded Room

## Lecture 17

In this lecture, we'll focus on perspectival grids. First, we'll draw one into the quad we started in the previous lecture. We'll also talk about further possibilities for that drawing. Then, we'll look at some of the ways we can use grids to measure the depth of space in a drawing.

### Drawing a Receding Grid in the Quad

We'll begin this lecture by adding a grid in the open space of the quad drawing from our previous lecture. From there, we might add a path and doors.



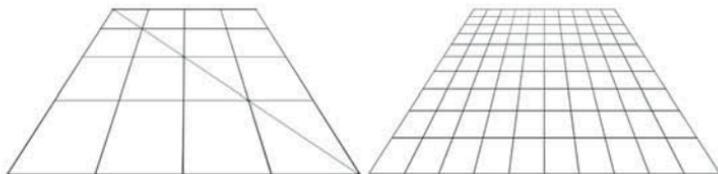
Working through the quad drawing will give you a grasp of many of the basic principles used in one-point perspective. You can make it your own by spending more time with this drawing, repeating and embroidering on the procedures we've used. For example, you can add more interior furnishings. On the exterior, you could construct volumetric doors or create windows of varying sizes, thicknesses, and types. On a grander scale, you could extend out on either side of the buildings we've constructed or extend from the buildings and quad both forward and backward in space.

## Using a Grid in Perspective

For our next project, we will take the perspectival grid a bit further. If we grid all the planes in a drawing, we're able to make specific measurements in space. This can be particularly helpful in drawing from the imagination. It allows us to scale all the elements we want to draw. We can easily place a table that's 2½ feet tall, 3 feet wide, and 6 feet deep in the center of a room. We can draw a 7-foot-tall man standing on top of the table and place a 6-foot-tall woman standing 15 feet behind him. We can even draw things in specific locations in midair, such as a 2-foot cube floating 6 feet off the floor.

We've seen how we can create a grid on a receding plane, such as a wall. We used this to create bays for windows and to construct a gridded pattern in the quad. Although this method allows us to control the number of receding grid units, it doesn't allow us to control their shape.

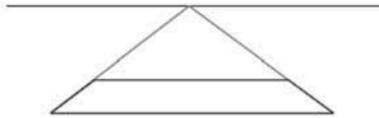
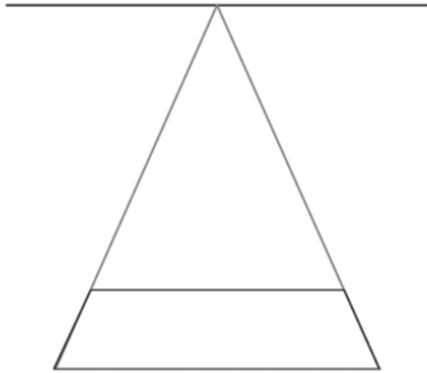
With this method the grid units' shapes are a function of the larger trapezoid they sit in and the number of receding diagonal divisions. Having fewer divisions along the axis, or ground line, results in less-foreshortened grid units. Having more divisions results in more foreshortening.



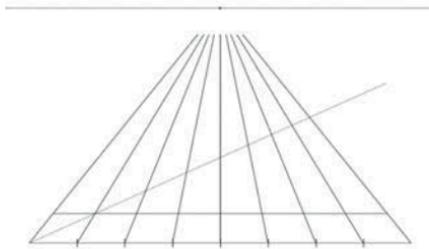
If we want to determine the number of grid units along the ground line and want to control the shape of the grid units, we must adjust the procedure for creating the grid.

Using this new method, we estimate the first recession—the vertical height of the first row—based on the height of the horizon.

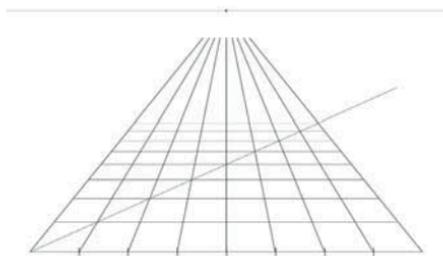
With a high horizon, we'd make the first recession taller. With a low horizon, we'd make it shorter.



Then, we'd draw a diagonal, very light and thin, through the opposite corners of one of the bottom foreshortened squares and carry that diagonal across our receding lines.



Next, we'd draw a horizontal at each of the points where this diagonal traverses those receding to the vanishing point.



### Drawing a Gridded Room

Our next project is to draw a gridded room. As we work through the drawing, keep in mind that all the lines here are construction lines. In other words, we're drawing the grid so that we can locate other things later, and we're using construction lines to create the grid itself. You'll want the horizon line and the construction lines used to generate the grid to be the lightest and thinnest. As we did in the quad drawing, keep your pencils well-sharpened to control line thickness. And take time with each step; small errors can compound, resulting in major headaches.

We'll then add basic shapes for a door, a bulletin board, a light fixture, and a box. You'll use what you've learned about perspective to make the objects feel three-dimensional and specific.

### Suggested Reading

Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, "Perspective and Forms in Space," pp. 161–171.

Norling, *Perspective Made Easy*, "Dividing a Surface," pp. 144–154.

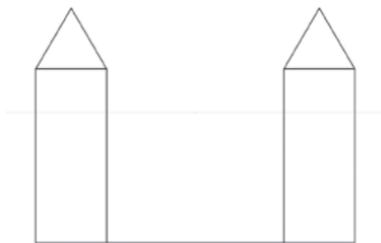
# Linear Perspective: Ellipses and Pattern

## Lecture 18

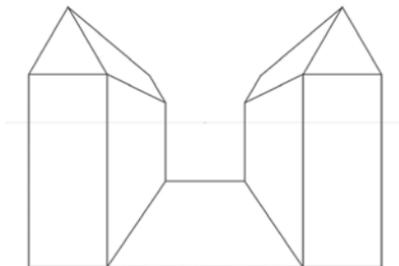
**Y**our next major project will be a complex drawing from your imagination using perspective, but before you undertake that, we'll add to our knowledge base. We'll begin with a further discussion of vanishing point placement. From there, we'll learn how to draw curvilinear forms and pattern in perspective. You'll then begin drawing an imagined room, putting together many of the ideas we've discussed, including format shape, composition, line weight, and space and volume.

### Moving the Vanishing Point: The Quad

The same frontal view will produce different drawings as we position the vanishing point at varying heights and in different positions laterally. For example, this is a front-face view of the quad:



The horizon height and central vanishing point we used produced this result:



Leaving the front face but elevating the horizon gives us a different view, as does lowering the horizon or moving the vanishing point to the left or right. Thus, the vertical and lateral placement of the vanishing point is an important choice.

### **Curvilinear Forms in Perspective**

As noted earlier, certain shapes are ambiguous. Ellipses are like trapezoids and parallelograms and fit into this ambiguous category.

An ellipse could be the shape of a mirror hanging on the wall or the shape of a serving platter seen from directly above. Both of these are flat shapes parallel to the picture plane. In contrast, an ellipse could be the shape of a car's tire or a round table seen at an angle. Both objects represent a plane receding in space.

We have many circular things around us—cups, plates, bottles, clocks, tires, coins, and so on—but we rarely see them as circles. Most of the time we see them foreshortened—as ellipses. Thus, learning to draw ellipses is useful. Here are a some points to keep in mind as you practice drawing ellipses, whatever their size, shape, or position in space:

- They fit neatly into rectangles.
- They're symmetrical along each axis.
- Their quadrants are identical.

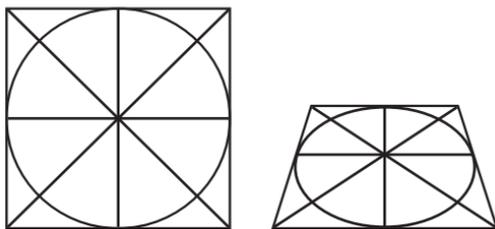
To get started, draw four different rectangles with simple internal armatures, then draw each rectangle's ellipse. Here are some tips for this exercise:

- Make sure your lines are touching the proper points. You may find it helpful to rotate the page as you draw. That's also a good way to refresh your view and check proportions.
- Make sure to check the rounding at the end of the long axis. It shouldn't be pointy.

- Check for flattening on the long curves of each ellipse.
- Symmetricality is vital. Use the negative shapes in the rectangle as aids; they should be identical.
- If you get stuck, make a tracing of the ellipse and rotate the tracing above the original drawing. That will give you a read on symmetry.

### The Foreshortened Ellipse

As we've seen, a circle fits into a square, and a flat ellipse fits into a rectangle. But an ellipse that's representing a foreshortened circle can also be thought of as fitting into a foreshortened, or perspectival, square.



In other words, if we draw ellipses into trapezoids that represent squares in perspective, we'll produce perspectival circles. We can use the same kinds of construction lines that we used to draw a circle in a square to help us construct an ellipse in a foreshortened square.

Note that in the foreshortened view, the major axis divides the ellipse into perspectival halves—larger below and smaller above. The reason for this is that equal halves do not appear equal in a foreshortened view. The half that's closer looks larger, and the half that's farther away looks smaller.

### Cylinders, Cones, and Spheres

Paul Cézanne once wrote: “Treat nature by the cylinder, the sphere, [and] the cone, everything in proper perspective so that each side of an object or a plane is directed towards a central point.” Although Cézanne was a revolutionary artist, the sentiment he expressed here is traditional. He's saying that we should draw using basic geometric volumes and that we

need to relate them to a vanishing point. Following Cézanne's advice, we'll build on the ellipse to draw the basic curvilinear building blocks (the cone, cylinder, and sphere) in perspective.

### Pattern and Perspective

As mentioned at the beginning of the course, our ancestors enjoyed the beauty of pattern tens of thousands of years ago. To this day, we have pattern on our clothes, on floor tiles, and on drapes and wallpaper. It's ubiquitous. With the advent of perspective, artists found that they could adapt pattern to perspectival grids, as Raphael did in the ground plane of *The School of Athens*.



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Beyond its aesthetic appeal, one of the reasons artists use pattern in perspective is that it acts like cross-contour. It makes planes take on spatial orientation. There are three main reasons for this:

- Pattern consists of repeating units. In perspective, these units diminish in size as they recede, giving the viewer a clear depth signal.

- Pattern placed in perspective either has or implies diagonals, which create spatial depth.
- A pattern wedded to a perspectival grid exhibits foreshortened shapes.

Patterns can range from highly repetitive and regular to extremely varied. Generating patterns becomes complex very quickly, but looking at some of the basic methods can stimulate your imagination. After generating patterns, you can also tessellate them, that is, put one patterned tile next to another. In addition, assigning value or color to a grid or pattern will bring out different groups of shapes and different object-ground relationships. Try generating some pattern studies by drawing on graph paper.

Transferring a pattern to a perspectival grid is a matter of remembering the steps you took to generate the pattern and repeating them in the foreshortened grid. Once you've created some patterns, return to your drawing of the gridded room. Look through the pattern studies you just did, and apply the best ones to the different planes of the room.

### **Drawing Project: A Constructed Space in One-Point Perspective**

As a project for this lecture, you'll make a line drawing of a room using one-point perspective to construct a believable and measurable space. The under-drawing here will be a fully gridded room, with grid units that are foreshortened squares. The lines that structure the drawing will be of three primary types: horizontals to express width, verticals to express height, and diagonals to express depth. Of course, you could use curvilinear structures, too.

As you work on this drawing, keep in mind the topics we have discussed previously, including the importance of the format shape, of thinking compositionally, and of paying attention to line weights. Begin with some quick gestural drawings of an imagined room. Think about the major planes in the room—the back wall, floor, ceiling, and two side walls—and the rectangle they form; this will be the format shape. Then, consider your grid unit and scale, but again, work quickly and gesturally. You can work out the specifics when you scale up your drawing.

## Suggested Reading

Rockman, *Drawing Essentials*, “The Illusion of Space and Depth on a Two-Dimensional Surface,” pp. 51–187.

Stevens, *A Handbook of Regular Patterns*.

# Linear Perspective: Advanced Topics

## Lecture 19

In this lecture, we'll conclude our discussion of gesture drawing applied to compositional studies using perspective. You'll also learn how you can relate your knowledge of linear perspective to drawing freehand, from observation. In this course, we separate topics, such as perspective, in order to be able to study them closely. But each artist synthesizes all the pieces we've been learning in his or her own way. Also in this lecture, we'll introduce the basics of two-point perspective, methods for dealing with sloping planes, and three-point perspective.

### Applying Gesture Drawing to Compositional Studies

The goal in using gesture drawing in compositional studies for the constructed space drawing project is to run through a number of different ideas with the goal of finding the best composition. In such small drawings, you don't need much detail, but you should be able to answer several key questions:

- What is the room like? What do the five major planes look like?
- Where is the horizon? Is it high, mid, or low?
- Where's the vanishing point? Is it right, left, or centered?
- What is the drawing's format shape—horizontal, vertical, or square?
- What's the approximate scale of the grid measure at the baseline?

Once you've answered these questions, measure your compositional sketch and scale up the important measures, including the format shape, the position of the horizon, and the vanishing point. Follow the procedures outlined earlier to grid the drawing, and you're ready to make the drawing itself.

If you want to use specific kinds of windows, doors, furniture, or other objects in your drawing, search in books or online for images and data. Then,

project what you've learned about the planar nature of the objects into the specific perspectival position and in the specific scale you want.

### Drawing from Observation Using Linear Perspective

For most of this section on linear perspective, we've been plotting things out with triangle and T-square, but we've just seen that we can also incorporate perspectival thinking with gestural drawing from our imaginations. Such thinking can be useful when applied to freehand drawing from observation and for a range of subjects, including still lifes, interiors, and landscapes. It helps you quickly see and understand what's going on in complex visual situations.

A good way to practice this, at first, is to pick subjects that have a clear perspectival recession. Next time you're on a plane or train, take out a sketchbook. Notice how the seats and overhead bins are all united by diagonals moving toward a vanishing point. Or try sketching outdoors, looking down a street. You'll see how the cars parked along the curb relate to the same vanishing point as the curb, sidewalks, and other elements.



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Find your eye level in the drawing; that's the horizon. Try to see how all the things around you could be conceived of as blocks, prisms, cylinders, cones, and spheres, all related to a ground plane and the horizon. Locate the

vanishing point or points. Draw with horizontals, verticals, and diagonals related to those points. Start with large structures and move from the general to the specific as your basic measures are set.

### **Two-Point Perspective**

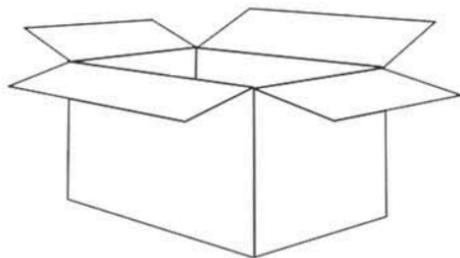
Although one-point perspective is very useful, it has clear limitations. It's great for describing a receding hallway or a room where the back wall is parallel and the side walls are perpendicular to the picture plane. It's equally useful for describing such objects as blocks in a similar spatial orientation, with a face that is parallel to the picture plane and other surfaces that are perpendicular. Vertical lines describe height; horizontals describe width; and diagonals, receding to a common vanishing point on the horizon, describe depth.

But if the object is positioned so that it no longer has a face that is parallel to the picture plane, one-point perspective will not work. Verticals will still express the height of the room or block, but the horizontals are gone. We are left with diagonals shooting back in two different directions: one to a right vanishing point and one to a left vanishing point. In other words, one- and two-point perspective describe objects that are positioned differently relative to the viewer and the picture plane. To start to get a grasp on two-point perspective, we'll repeat an exercise we did for one-point perspective: drawing nine blocks.

### **Sloping Planes**

Using one-point and two-point perspective, we're able to describe objects with planes that are parallel, perpendicular, or angled to the picture plane. We can also describe an object that is parallel or perpendicular to the ground plane. But if we tip the object at an angle, we need a new set of procedures. The tipped plane of an object is called a *sloping* or *incline plane*.

We've actually already drawn an object with multiple sloping planes, though we didn't speak about it in those terms. This was the open box we drew in an earlier lecture. We'll draw a similar box now, but this time, instead of relying on observation, we'll use what we know about linear perspective and sloping planes to construct the drawing.



### Three-Point Perspective

One- and two-point perspective assume that the viewer is looking straight ahead, that his or her centerline of vision is parallel to a flat ground plane. In contrast, three-point perspective assumes that the viewer is tilting his or her head, looking up or down.

As with two-point perspective, in three-point perspective, we have right and left vanishing points to express width or depth. But we also have a third vanishing point expressing height. We'll practice this form of perspective by drawing a block as if we're looking down at it.

#### Suggested Reading

Loomis, *Successful Drawing*, "Perspective the Artist Should Know," pp. 29–66.

Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, "Perspective and Forms in Space," pp. 171–183.

# Value: How Artists Use Value

## Lecture 20

All the drawings we've done thus far have been line drawings, primarily because it's easier to learn about proportion, measurement, composition, and linear perspective when we're just dealing with line. But now, we're ready to draw into all the areas between the lines. We'll do this first with value, followed by mark making, texture, optical value, and color. Many people, when they think about value, think primarily about shading. Although shading is one of the things that value is used for, it's only one among many. In this lecture, we'll take a comprehensive look at the ways artists think about and use value.

### A Nine-Step Value Scale

*Value* refers to neutral or achromatic tone. *Chroma* means “color”; thus, *achromatic* means “no color.” These achromatic tones extend from the brightest white, through intermediary grays, to black. The word *value* is also used to describe the relative lightness or darkness of a color.

We know what black and white are. Gray, though, is a much “grayer” subject area. Although we might describe something as light gray or dark gray, we don't usually get much more specific than that. Artists, however, quantify gray by using a value scale, such as the nine-step scale shown below:



### Value Palettes and Mood

Using the concept of a value scale, we can think about a drawing as existing in a specific range of value—a *value palette*. Drawings with values on the light end of the scale are said to have *high-key* value; those with values on the dark end are said to have *low-key* value; and those with values in the

central range have *mid-key* value. Of course, some drawings also use a full range of value.

The choice of a tonal palette literally sets the tone for the drawing. It creates the governing mood, sense of light, and time of day. It's at the heart of how we experience the drawing on an emotional level.

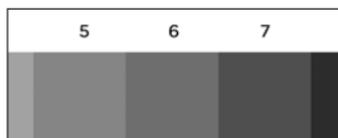
The greater the value range in a drawing's palette, the greater the opportunity for high contrast. A palette of white and black will generally feel strong and aggressive. The tighter the value range, the lower the opportunity for contrast. A palette of four dark grays will feel much more subdued. A drawing with white, black, and many of the steps in between can result in some high contrast areas balanced by others that have much more gentle transitions.

### Compositional Value

Although most non-artists are aware of shading, they're generally unaware of the importance of value as a key compositional tool. Value can divide the page into large constituent compositional shapes. We can control the viewer's eye and create focal points and focal areas through value contrast. All else being equal, viewers will focus on the area of highest contrast first. As you draw, determine what's important in your work and use the tools of drawing, including value contrast, to lead the viewer through your composition. In other words, let your use of value reiterate what you've done through placement, direction, choice of subject matter, and narrative intent.

### Relative Value and Simultaneous Contrast

In looking at the value scale, you may have noticed that each square appears to be a little darker on its left edge and a little lighter on its right edge.



This is an optical illusion and an instance of what is referred to as *simultaneous contrast*. The left edge appears darker because it's next to something lighter;

the right edge appears lighter because it's next to something darker. White will also appear brighter as its ground becomes darker and brightest when set against black. Black will appear darker as its ground gets lighter and darkest when set against white.

We experience value relatively, which means that we won't know how any value really appears until we see it in context—next to all abutting values. Imagine that you're drawing a still life of two bottles on a table in front of a wall. Beginners will tend to finish the objects first, then add the cast shadows, and finally, the wall and table. But given the relative nature of value, it makes much more sense to look at the central area, where we see the interior sides of the bottles and where those two sides meet the intersection of the wall and table. If you can give an indication of what happens at this set of intersections, you'll be able to understand how the different values affect one another.

Developing such a key area can give you a clear idea of the overall value range or value palette in a drawing. Based on this, you can lay in general values for the back wall, table, and bottles. In this way, you see all the value relatively and can move toward greater detail and specificity from a solid base.

Another good practice is to work from the back to the front in a drawing because whatever is behind the main subject or objects—such as a wall—must be overlapped to truly feel as if it is behind. The same thing is true for whatever is underneath the main subject or objects, such as a table; it must be overlapped to feel underneath the objects. This means that the actual graphite or charcoal marks and smudges that the bottles are drawn with should overlap the graphite or charcoal of the wall, not vice versa. Beginners who don't do this often wind up with a halo of light around their objects. They finish the objects first, then they try to draw what's behind them. But because they're afraid to mar the edges of what they've drawn, they stop the value of the wall or table short of the object's edge. This makes the wall and the spatial environment feel unbelievable and discontinuous.

In most cases, if you develop the habit of working from back to front, the overlaps of edge will work to your advantage. Once you've found the general value palette by putting value into a juncture where key edges meet, go to the largest plane in deep space, such as the wall, then address the tabletop, and

finally, the bottles. If they're physically drawn on top, they'll feel in front. In addition, the walls, tables, floors, and similar large planes often account for the largest shapes in the drawing, and it's much easier to attend to their values first.

### **Space: Atmospheric Perspective**

In an earlier lecture, we spoke about atmospheric or aerial perspective. We saw how, on a light to mid ground, dark marks and shapes tend to advance in space, while lighter, fainter marks and shapes tend to recede from the picture plane. Another way to say this is that events of greater value contrast will tend to project forward in space. Those of lesser contrast will tend to recede. As with line, much of the art here involves balancing a compositional or hierarchical use of value with a spatial one.

### **The Effects of Light on Nominal Value**

We've spoken about many of the "big picture" uses of value in drawing and can now turn to value as it relates to objects. When we look at things around us, we identify some as lighter and others as darker. We'd likely agree that a white shirt is lighter than a black shirt. This is true under what might be termed "normal" light conditions. An object's value under these conditions is called its *nominal value*.

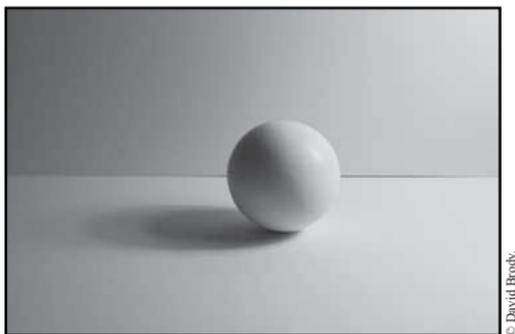
However, light affects nominal value. Put the same black shirt in front of a strong light, and the planes receiving the light will become light gray. If the shirt has a somewhat reflective surface, some planes or parts of planes may even appear close to white. Thus, although objects have a given nominal value, their actual value is a function of light, and that's compounded by the object's surface qualities. Because of this dependence on light, the range of values that a given object might display is infinite. The primary factors contributing to perceived value in this regard are the strength of the light source, its distance from the object, and its angle and direction.

### **The Direction of Light**

One of the factors affecting whether an object appears flat or three-dimensional is light. Ambient and diffuse lighting reveals little planar change. Similarly, a light source directly behind a subject produces a silhouette—another fairly flat view. And placing the light source directly in

front of the subject also tends to minimize the appearance of planar changes and result in relative flatness.

To bring out three-dimensional form, we generally light from the side. This breaks the object into distinct planes: light ones facing the light and darker ones turned away from the light. Light coming from the side produces *chiaroscuro* (“light-dark”). When objects have both light and dark planes, we experience them as being three-dimensional. Thus, moving from light to dark to imitate the effect of light is a dependable way to create the illusion of three-dimensionality in a drawing.



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Artists generally describe the passage of light over form in steps, such as the nine listed below:

- Highlight: the brightest area
- Light: a broader light area surrounding the highlight
- Mid-tone, or halftone: precedes the true shadow side of the object
- Penumbra: the beginning (lighter part) of the form shadow
- Core of the shadow, or umbra: darkest part of the form shadow
- Reflected light: occurs when light hits a surface and bounces back onto the object

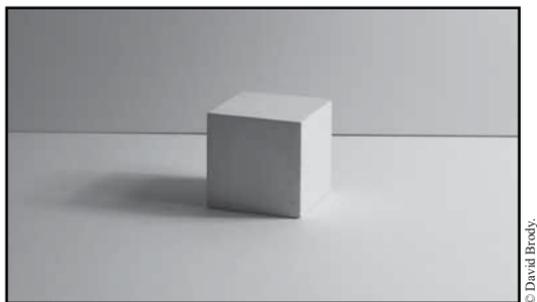
- Reflected shadow: the cast shadow of the object reflected back onto itself
- Cast shadow: occurs when the object blocks light rays from reaching a plane behind it
- Light reflected from the object into the shadow.

Artists don't always use nine steps of value. Some use fewer, and some use even more gradations. However, thinking about these nine steps gives us a reasonable reference for analyzing what's going on with light on objects in nature. It's also a useful template for analyzing value and light in drawings and paintings. And it's extremely useful conceptually when drawing from your imagination.

When we draw observationally, we won't always see light and shadow divided up into these nine steps. That will depend on the light source or sources and the nominal value and reflectivity of the surfaces involved.

Cast shadows can be extremely varied. In strong sunlight, for instance, shadows appear uniformly dark, but in very diffuse light, shadows can be dim. The appearance and quality of cast shadow also depend on the height of the light source, its direction, its intensity, and its proximity to the object.

We've seen how light plays out on a sphere, an object with a continuous surface. In contrast, a block is discontinuous, giving us clear edges at each plane change. Note that each of the planes has a much greater uniformity of value than the continuous plane of the sphere, though the side plane evidences a clear shift from lighter to darker as it recedes from the light source.



### **Steps of Light in Drawings and Paintings**

If we understand the way light moves over a continuously curving surface and the way it moves over a faceted surface, we have the basics to apply to most of the things we see around us. Spheres and spheroid objects, such as eggs, bowls, and breasts, take light in a graduated way. When we draw these kinds of forms, we modulate the value with greater continuity. In contrast, blocks and block-like forms, such as tables, walls, and the heads of people with chiseled features, retain a much greater consistency of value within each plane. Many artists actively use these kinds of geometric forms as a means of conceiving of the way light affects the things they want to draw.

### **Suggested Reading**

Boyer, <http://www.artinstructionblog.com/drawing-lesson-a-theory-of-light-and-shade>.

Pumphrey, *The Elements of Art*, “Value and Color,” pp. 147–161.

# Value: Drawing Materials for Value

## Lecture 21

**T**o draw with value, we'll need to expand on our use of materials. This lecture reviews some of the materials we've been using, including graphite, charcoal, and erasers, and covers additional materials needed, such as fixative, dip pens, portfolios, and lighting. We'll also look at paper in detail and learn how to make test sheets to understand how different papers, materials, and techniques interact.

### Graphite

You can make areas of value with the point or sharp edge of a wedge-sharpened pencil, but if you want more even gradation, use the flat face of the wedge. If you have a set of 18 to 22 pencils, sharpen the first to a wedge, the next to a point, and so on. This will give you a good range of tools for both line and value.

As mentioned earlier, graphite also comes in solid sticks. Most are soft, in the range of 2B to 6B. Such sticks can be sharpened into wedge or square shapes to make different kinds of lines or areas of value.

When using your sanding block, save the graphite powder. You can apply it with a brush or other tool to create smooth areas of value in your drawings.

### Charcoal

Vine charcoal will not create a deep black; for this, you need compressed charcoal, which is made by mixing charcoal powder with varying amounts of binder and clay. Some manufacturers add black or dark pigments to enhance the color. The proportion of binder and clay to powder determines the charcoal's hardness—more clay for harder charcoal and less clay for softer. Compressed charcoal is commonly labeled soft, medium, and hard or with a system similar to that used for pencils. As with pencils, the grading of charcoal varies from one manufacturer to the next.

Charcoal pencils are useful for more detailed work. These pencils are made of compressed charcoal encased in wood. Some manufacturers label them extra soft, soft, medium, and hard. Others label them similar to graphite pencils, with grades ranging from 6B to 2H. You can sharpen charcoal pencils with a sharpener or a knife and sandpaper, but be gentle. These pencils are more brittle than graphite. A near relative of the charcoal pencil is the carbon pencil. It, too, gives deeper blacks than vine or willow charcoal, but like compressed charcoal, it is harder to erase.

Again, save the powder you produce when sharpening your charcoal.

### **Blending, Spreading, and Applying Value**

A number of tools can be used to blend, spread, and apply material, including a chamois cloth for large areas and tortillons and blending stumps for small areas. Tortillons and blending stumps are both pencil-shaped tools made of rolled paper. Tortillons are small and pointed at one end; stumps vary in size, are denser, and are pointed at both ends. Brushes—from stiff bristle brushes to softer ones—are also useful for blending. Many artists also use their fingers for blending and get fine results. Note, however, that the oils in your skin can mix with graphite or charcoal and discolor it. These oils may also make the material difficult to erase.

### **Erasers**

It's a good idea to experiment with different erasers to see how they work with your various drawing tools. For example, kneaded erasers tend to smear the darkest materials, such as charcoal and charcoal pencil when they've been applied heavily.

As you explore value more, you'll find that an eraser can also be used as a tool to draw light lines, marks, or shapes into areas of value. To make a thin, light line, try the Pink Pearl or pencil-type erasers against a straightedge.

Some artists use a tool called an erasing shield. This is about the size of a credit card and made of thin metal. It has a number of punched-out openings of different shapes and sizes. You can place the shield over a part of your drawing and erase through the opening to control the erasure.

**Fixative**

Fixative is a spray varnish that artists use to protect their drawings. It comes in two basic types, workable and final. Use workable if you intend to continue working on a drawing after you spray. Use final when your drawing is finished. Once you've sprayed a drawing with either workable or final fixative, you won't be able to change what you've sprayed, so make sure you've done any blending or erasing you might want before spraying. When you spray, aim for a light, even coat. A single spray is often enough for light to medium graphite. For heavy pencil and charcoal, you may need two to three coats. For successive coats, alternate the direction of application and make sure to wait until each coat is fully dry before spraying again.

Fixative can darken tonal values if oversprayed, and it can change value, chroma, and saturation, especially with delicate pastels. It's always a good idea to do some test sprays before fixing a drawing using a new material or paper. Similarly, if you pick up a new brand of fixative, do several tests.

Note, too, that there are some safety concerns with fixative. Follow the instructions on the can and the material safety data sheet (MSDS) before using.

**Pen and Ink**

Dip, or nib, pens are excellent drawing tools. Dip pens consist of a nib and holder. Nibs vary in size and shape, from very small crow quills to larger, more robust shapes. Some are pointed; others are round, flat, oval, or oblong. To start, get one flexible pointed nib and a couple others of differing sizes and shapes. Also, get one holder for each nib.

Some manufacturers use a protective coating on nibs to prevent rust, but the coating can impede ink flow. To remove it, scrub new nibs gently with an old toothbrush, warm water, and dish soap. Make sure to rinse and dry your nibs after each use, as well.

Getting rid of ink is much more difficult than getting rid of charcoal. Some manufacturers make ink erasers, although these work best for small areas. You can also try scraping away ink with a utility knife. Again, this won't work on large areas or with lightweight papers.

## Paper

As we begin to explore value, texture, and color, paper choice becomes increasingly important. A number of variables and specialized terms are associated with drawing papers.

Perhaps the most obvious variable is color. Papers run the full range of color and value. Most of the time, we draw on white paper, but even papers classified as “white” exhibit differences. Notably, some whites are warmer, while others are cooler. Such differences can have a real effect on the way a drawing feels. For example, a portrait of a doctor drawn on warm white paper might convey caring and empathy, while one done on cool white paper might feel more analytical and clinical.

Probably the second most obvious paper characteristic is texture or surface. Papers can be very smooth, very rough, or anywhere in between. Different manufacturers use a host of terms to denote surface quality; some of these are listed in the table below:

Very Smooth	Smooth	Light- to Medium-Textured	Medium	Rough
Ultra smooth	Smooth surface	Fine tooth	Medium surface	Rough surface
Plate surface		Laid finish	Regular surface	
True plate	Hard finish	Textured surface	Semi-tooth	Coarse surface
High surface	Hot pressed (HP)		Vellum surface	High tooth
			Kid surface	
			Cold press (CP)	

Another factor affecting surface in some papers is grain direction, though not all papers have a pronounced grain. When the grain is parallel to the long dimension of the paper, it’s referred to as *long grain*. When parallel to the short dimension, it’s *short grain*.

Some papers also have a starch, glue, or similar synthetic material applied to the surface, referred to as *size* or *sizing*. This coating creates a barrier between the paper's surface and its fibers, helping to prevent unwanted bleeding when using wet media. It can also make a paper more easily erasable.

Another important paper factor is thickness. The thickness of a piece of paper is referred to as its *caliper*. This is generally measured in thousandths of an inch or in millimeters. Another measure of thickness is *ply*. One thickness or one sheet is one-ply. Two-ply means that two sheets have been glued together to create a thicker sheet. The word *bristol* is also used to refer to multi-ply papers.

Papers are also classified and often named by weight. The weight referred to is known as the *basis weight*. That's the weight of a ream of a given paper at its *basis size*. Note that the basis size is not always the same as the sheet size. For example, the 20-pound paper for your printer is 8½ x 11 inches, but the industry basis size for this kind of paper is 17 x 22 inches. This means that a ream of this paper, with sheets measuring 17 x 20 inches, would weigh in at 20 pounds. The basis size for most watercolor papers is 22 x 30 inches, and for drawing papers, 24 x 36 inches.

The best artist-grade papers are made of cotton linter. These are the short fibers that cling to the cotton seed as it's ginned. Hemp and wood pulp are also commonly used to make papers.

Another important consideration with paper is permanence, and the enemy of permanence is acidity. For this reason, many papermakers add alkaline substances, such as calcium carbonate, as a buffer. Acidity and alkalinity are measured on the pH scale, which runs from 0 to 14. Low pH is acidic; high pH is alkaline; and 7 is neutral. Archival papers generally score in the 7.5 to 9.5 range.

As you attempt more ambitious drawing projects, you should experiment with better-quality papers. Buy single sheets of 10 different papers, cut each into 6 pieces, and label each piece on the back with the paper's name. With 5 of each of the 6 pieces, make yourself a small sketchbook. With the remaining 10 pieces, make some test sheets using a variety of different

materials, including soft and hard pencils, graphite sticks, different types of charcoal, pens, and brushes and ink. Try blending and erasing on these test sheets. You'll learn a tremendous amount through this activity. As you touch each of your materials to each sheet of paper, you'll immediately feel the distinctive interaction of a given material with a specific paper.

Although papers are labeled for different uses and materials, such as drawing, charcoal, pastel, watercolor, etching, and so on, any paper can be used for any purpose, though, the labeling is not meaningless. For clear, articulated line drawings, a smoother, harder paper is generally desirable. Charcoal and pastel papers tend to have more tooth, or texture. Watercolor papers tend to be stiffer and more textured, while printmaking papers tend to be smoother.

### **Portfolios**

Portfolios range from simple, inexpensive cardboard types to more high-end versions with zippers and other enhancements. For storage at home, the inexpensive cardboard ones are fine. If you're carrying your drawings around, something more protective and durable may serve you better over time. Make sure to bring a portfolio when you go out to buy paper and leave the paper in the portfolio for storage.

### **Lights**

Finally, for a number of the projects done from observation using value, you will need a light for your still-life table. Either a floodlight on a stand or a clamp light attached to the vertical support of a floor lamp will work well.

## **Suggested Reading**

Chaet, *The Art of Drawing*, chapter 4, "Media and Materials."

Guptill, *Rendering in Pen and Ink*, chapters 1–3.

Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, "Wet Media," pp. 208–227.

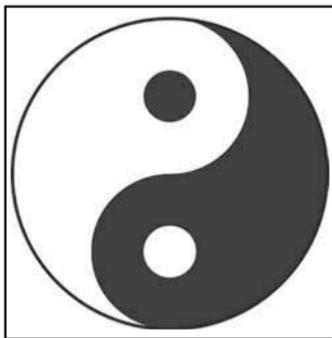
# Value: Black and White and a Value Scale

## Lecture 22

In an earlier lecture, we learned how artists use value to create mood, space, and the illusion of light on form. Artists also consider the way the overall arrangement of light and dark creates pattern or rhythm at an abstract level. This is true no matter what the value palette is—whether it’s white and black or a full value scale. Values are not simply copied from observation but are considered holistically in their interactions. This is related to the way we think about shape. Although a given shape may relate to the shape of an object, it should also relate to the negative shapes with which it connects. Together, the positives and negatives combine to create the shape of the drawing. In this lecture, we’ll learn how to create both positive and negative shapes of value.

### Yin and Yang

The Japanese word *notan* literally means “shade” and “light.” It refers to principles of design governing the interaction and patterning of dark and light shapes. The idea is that the dark completes the light and the light completes the dark. Together, they create the whole. The Chinese *yīnyáng* symbol demonstrates this principle and translates similarly. *Yīn* means “overcast” or “shady,” the negative principle. *Yáng* is the “sun,” the positive principle. Together, the dark negative and light positive shapes forge the whole, with nothing left over.



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We see this at play in many paintings and drawings. In many cases, the light tones are not drawn but created by surrounding dark tones. For this reason, we need to learn how to create both positive and negative shapes of value. Creating the dark ones feels natural. The light ones are a bit more challenging because we draw them indirectly—by creating dark negatives around them.

### Defining Edges with Value

As we've seen, line does a great deal of work for us. Among the first things we noted about line is that it can create shape by defining the edge of something, such as a circle or a bottle. It can also define the edge where two planes meet, such as a tabletop or floor meeting a wall. In addition to using line, we also want to be able to define edges with value.

In the value scale, you'll note that there are no lines—just value shapes. We read the tones as shapes because where they meet, the values are different; these differences establish the edges of the shapes. We can do the same thing in a drawing, that is, establish edges with changes in value, doing the same work that we might have done earlier with line.



### Creating Volume and Light with Black and White

After you have practiced drawing positive and negative shapes with value instead of line, the next step is to create three-dimensional form in light using black and white shapes. We'll do this first by imagining some basic forms in light, then working from direct observation. Working only in black and white can help you think about using value compositionally—that *notan* notion of the play of lights and darks across the surface—while also creating the illusion of light. Keep these steps in mind when working from observation:

- Use your viewfinder to find a point of view, composition, and format shape that interests you.

- Pay particular attention to the large positive and negative shapes and how they fit into the format you've chosen.
- Also pay attention to the large groupings of light and dark caused by planar changes and cast shadows.
- As you did with single objects drawn from your imagination, rule out the format on your paper with a light pencil. Then, translate all the values you see into either white or black shapes. You want to make this translation or reduction based on choices that will maximize the illusion of depth and volume.

### Returning to the Value Scale

We've now seen that we don't have to copy every value to get a convincing sensation of light, space, and volume. In fact, we can translate those values into just two: black and white. But now, we're ready to use a fuller range. One exercise to help you begin thinking about the range of values is to create your own nine-step value scale using charcoal. For this exercise, don't try to copy the values from the scale shown above. Start on the outside and work toward the center, imagining and adjusting the values as you go.

After you complete the exercise, ask yourself:

- Is 5 accurately gauged as the midpoint between 1 and 9?
- Are 3 and 7 accurate as midpoints between 1 and 5 and 5 and 9, respectively?
- Are 2, 4, 6, and 8 gauged accurately as midpoints between their neighboring values?
- Are there any sub-groupings? Are there any squares that feel as if they group more with some than others?

### Gestural Value Sketches

Before we move onto more complex value drawings, it's a good idea to incorporate value into your quick gestural compositional studies. As we saw

earlier with line, it can be helpful to try out several different compositional strategies before committing to a drawing. And as we get into value, completing a drawing can demand an even greater investment of time. You can save time and frustration by doing some preliminary value sketches.

Using any materials you like, make some quick drawings that use different value palettes compositionally, allowing them to structure the hierarchy in your drawings. Start with some simple forms from your imagination and three values, a light, a mid-tone, and a dark. Then, try different value palettes.

Next, set up some still-life objects and repeat the exercise. Experiment with the light source, too, varying its direction, height, and distance from the objects. Then, try making gestural value sketches using an interior or a landscape as your observational source.

### Suggested Reading

Bothwell and Mayfield, *Notan*.

Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, chapter 6, “Value and Color,” pp. 96–114 .

# Value: Eight Complex Drawing Projects

## Lecture 23

**W**e've now looked into the ways in which artists think about value. And you've gotten some hands-on practice creating value shapes, the illusion of light and volume with black and white, and steps of value. In this lecture, we'll outline eight drawing projects that are designed to get you started using value with a range of subjects. We will also briefly recap some of the major topics we've covered in order to relate them to the new projects using value.

### Review

Let's briefly recap some of the major topics we've covered:

- First, we can use gestural line, quickly and incisively, to do the work of contour, cross-contour, and construction line, and we can add value to gestural line drawings. Such drawings are helpful for finding the best composition for a complex project.
- We can construct many things we want to draw using contour and basic shapes as building blocks, often using construction lines as an aid.
- Oblique shapes and cross-contour lines can make the things we draw feel three-dimensional. When working with value, contour and cross-contour lines can appear as edges where one value meets another.
- It's important to think compositionally and organize disparate objects into large aggregate shapes related to the ground shapes. These aggregate shapes generally create the shape of the drawing itself.
- The shape of the drawing has an underlying abstract structure. Earlier, we saw how we could create strong compositions by

relating negative shapes to positives. We've now seen that those negatives and positives can be created out of value shapes, and these can be organized to form visual pattern within the format.

- We studied 12 methods for arriving at accurate proportions and another 12 principles that can be applied to create the illusion of volume and space on a two-dimensional surface.
- We also learned about linear perspective. We're aware that which planes and how much of any given plane we see depend on eye height and point of view.
- In recent lectures, we learned that we can think about value as occurring in steps from white to black. And we've seen how we can create mood by being selective in our choice of value palette.
- By controlling contrasts, we can create a visual hierarchy with cascading zones of focus. And we can create volume and space within the palette and within the hierarchy by showing the effects of light as it moves across a three-dimensional form and by modulating value to create atmospheric perspective.

### **Tips for Value Drawings**

Here are some suggestions that apply globally to the projects in this lecture:

- First, analyze the value situation you see. Squint at the scene in front of you to cut down on the amount of detail you're able to discern. An effect of this is to diminish many of the smaller value changes so that you see the larger changes that have the greatest impact.
- Make small, quick compositional studies with broad generalizations about value. Find the large value groupings first.
- If you want to analyze a particular instance of value, try this trick: Cut a small hole in the center of a mid-gray piece of cardstock.

Look out at your subject so that the value or color fills the hole you've made, and read the value against the viewer.

- When you're looking at the effects of light, try to understand what's causing the specific effect. Is it the result of direct light or reflected light? It's much easier to draw something if you understand why it looks the way it does.
- A common pitfall is to try to copy every detail of light and shade without understanding what's producing those details. The result can be an incoherent pattern that doesn't succeed in representing what you're trying to draw.
- Analyzing what you're seeing is important, but remember, nothing has a fixed value. The value of an object depends on our focus. If you copy the value of everything you see while you focus on it, you will inflate all the value contrasts. Try focusing your eyes on the most important place, the focal point. Note how you see all the other visual events while focusing on this point. They'll have less contrast and their edges won't be as well-defined.
- Think hierarchically. Don't copy value; organize it. In a still life, you generally want less contrast between the wall and tabletop and more associated with the objects in relation to one another and to their environment.
- Work from the general to the specific. When applied to value, this means putting in large areas that approximate the overall values in the drawing. This approach allows you to see the drawing whole at an early stage. Then, lighten and darken within the approximation as needed.
- A practical way to begin a drawing that will have a fairly full range of values is to use a light tone, a mid-tone, and a dark tone. But note that the light shouldn't be white and the dark shouldn't be black.

- It's not a hard-and-fast rule, but if you reserve the occurrence of the darkest dark against the lightest light for the intended focal point, you'll be well on your way to having it assert itself as such.
- When drawing with charcoal use vine or willow to find proportions and block in general value. Once this has gelled, use compressed charcoal and charcoal pencils to deepen the darks and work in greater detail.
- You may want to try one or more of these projects as a *reductive drawing*. This type of drawing involves lightly outlining the format shape on the page with vine charcoal, then creating an even mid-tone to fill the shape. You shouldn't see any outline—just a rectangle of mid-gray for the format shape. Erase the mid-tone to create lights and darken it to create darks.
- Choose one of the suggested projects for this experiment: Try interpreting the same subject, lit in the same way, as an overall light drawing (high key) and an overall dark drawing (low key). Then create a version restricted to mid-values. This exercise will give you a sense of how much freedom you have to modulate a subject in different tonal keys and how these keys pay off in terms of mood and emotion.
- Take time and care setting up and lighting your subjects. Use your viewfinder. Evaluate your subject from a variety of points of view. If you think compositionally when setting up and in locating the best point of view and format shape, the drawing will make sense much more readily.
- Keep some white foam core on hand to reflect light back onto your subject. This can enhance the reflected light on the subject's surface and help make it feel more three-dimensional.
- Finally, give yourself different light situations. Try different intensities of bulbs or set up a still life by the light of a window on a bright day, a cloudy day, and at night. If you draw outside on a day

when the sun is strong, you'll note strongly delineated shadows. Return to the same scene on an overcast day, and you'll see that the shadows are much more minimal.

### **Working with Colored Objects**

Although we are not yet drawing with color, below are some tips for drawing objects that have color:

- Color has three attributes: hue (the attribute that gives the color its name), saturation (the color's level of purity), and value (the lightness or darkness of the color).
- For the projects in this lecture, focus on the color's value. The idea here is to learn to see the value as distinct from the color's hue and saturation. You want to be able to see the world as if you were a black-and-white camera.
- As we've already noted, you want to establish a mood, a hierarchy, and the sensation of light and space. Essentially, you have to translate color into value, keeping all this in mind.
- When setting up a still life, if you want the objects to dominate, make sure the two ground colors have less contrast, one to the other, than the objects have to the ground and to one another.
- Start with three or four objects at the most. In choosing them, think about how they'll affect one another hierarchically. Two darkish objects placed against a dark ground will group together with the ground. Imagine, for example, two bottles of red wine against a violet drape of similar value. There's not much contrast in that scene. If you add a light, cream-colored vase upstage, you will get color and value working together compositionally. The cream-colored vase will be the focal point.
- You might also try starting off with colors that are closely related. For example, you could choose objects and grounds that are all in the yellow-orange family. Start with lighter, more neutral tones for the

ground; then, use a couple of objects that are somewhat darker and more saturated but still light. They will read as more important than the ground. Light the scene from the side to produce chiaroscuro, and all the objects will gain in contrast. Finally, add a red object as the focal point. This object will be the darkest thing in an otherwise light environment and will have the greatest light/dark contrast.

### Suggested Reading

Aristides, *Classical Drawing Atelier*, chapter 4, “Value,” pp. 52–65, and “Sphere Drawing,” pp. 124–125.

Loomis, *Successful Drawing*, “Complex Forms in Light,” pp. 89–95.

Smagula, *Creative Drawing*, chapter 5, “Value,” pp. 108–131.

# Value: Side Light and Cast Shadow

## Lecture 24

In the past few lectures, we've concentrated on the use of value in drawings done from observation, but we also want to use value in drawing from the imagination. Learning something about projecting cast shadows will help you gain greater confidence in doing this. As we've done with many problems, we'll build from simple geometric forms. The goal is to wed your knowledge of geometric solids and perspective to ideas about value to create believable objects in light and shade drawn from your imagination. Because this topic is really part of linear perspective, it's often termed the *perspective of shadows*. It involves step-by-step schematic procedures, but like the rest of linear perspective, once you understand the underlying principles, you can apply it freely, basically eyeballing how you want to construct light and shade in your drawings.

### Cast Shadow Variables

As we've already seen, a number of variables affect the way we see the form of an object and the cast shadow it produces. The strength of the light source is a primary factor. All else being equal, the sun will dwarf a 300-watt bulb, and a 300-watt bulb will dwarf a match. The type of light is another factor. Sunlight is different from moonlight, which is different from an incandescent ceiling fixture, which is different from a fluorescent one, which is different from a flashlight or a campfire. And the shadows created by a strong, focused light—say, bright sun on a cloudless day—are different from those created by diffuse light on a gray and overcast day.

The position of the light source relative to the object—both its distance and its angle—is another important variable. Imagine that you're looking directly at an object. Light could come from any direction in relationship to that object. If it came from directly in front, the result would be a partially or fully obscured shadow because the shadow will be overlapped by the object itself. Light coming from directly behind the object leaves it in silhouette; here, the cast shadow projects out toward the viewer. Light could also come from the right or left side and from any of the oblique angles in between

these first four positions. With a concentrated light source coming from either the right or left side or from a right or left oblique angle, we'll get the effects of chiaroscuro, as well as defined cast shadows. This is why many naturalistic works are lit in this way. This lighting brings out the form of the object, and the cast shadows help define the spatial orientation of the ground or other large planes.

Further, the shape and spatial orientation of the object producing the shadow have a measurable effect on the cast shadow. Similarly, the planar orientation of the surface receiving the shadow influences the shape of the cast shadow.

All these factors combine to increase the complexity of drawing cast shadows. However, as we've done in the past, we'll start with a simple situation and build from there. First, we'll look at a stripped-down side-lit situation. We'll build from this base and learn how to project cast shadows of blocks and curvilinear solids in one- and two-point perspective. Then, we'll learn about compound surfaces receiving shadows and inclined planes throwing them. In the next lecture, we'll look into light coming from oblique angles, both in front of and behind the object. We'll also take a look at artificial light.

### **Important Principles of Side Light**

As we move through the drawing exercises in this lecture, keep these principles in mind:

- In linear perspective, we consider all light rays coming from the sun as being parallel.
- To draw the shadow of a vertical that's perpendicular to the ground plane, extend a horizontal from the base of the vertical to meet the ray of light.
- With side light, the shadow of a horizontal edge recedes to the same vanishing point as the edge itself.

As you're working through variations on the drawing exercises in this lecture, try changing the variables. For example, try a given situation with a low horizon, then a high horizon. Keep in mind that the lower the horizon, the

more oblique the shadow, and the higher the horizon, the wider the shadow. You might also try different locations and angles for the light source, which will translate to different shadow lengths. If you go through the exercises methodically several times, you'll begin to develop an instinctive feel for how the shadows should relate to one another, to the point of view, and to the time of day.

### Suggested Reading

Auvil, *Perspective Drawing*, chapter 8, “Cast Shadow,” pp. 59–74.

Norling, *Perspective Made Easy*, chapter 16, “Shade and Shadow,” pp. 155–166.

# Value: Oblique Light and Cast Shadow

## Lecture 25

In this lecture, we'll complete our discussion of cast shadows. We'll cover oblique light coming from both the front and the rear of objects, artificial light, multiple light sources, and a method for determining shadows of irregular forms. We'll then discuss a number of drawing projects that will allow you to apply the knowledge you've gained about value and about constructing cast shadow.

### Oblique Light

With oblique light coming from the front, cast shadows will recede into space. With oblique light coming from the rear, cast shadows will project forward into space. In this lecture, we'll walk through several exercises that explore how we project cast shadows in oblique light. Key points to remember include the following:

- A cast shadow has two major components: angle, or direction, and length. The light ray's intersection with the angle, or direction, of the shadow determines length.
- To project the shadow of an object in oblique light, we need a new kind of vanishing point: a *shadow vanishing point*.
- We also need a *shadow trace point*. This is a point where light rays intersect a 90-degree vertical passing through the shadow vanishing point.
- All shadow directions from a given light source converge toward the same point, the shadow vanishing point.
- All shadow lengths are defined by rays of light converging toward the shadow trace point, where they intersect shadow directional lines.

- With light coming from the front, as we move laterally away from the shadow vanishing and trace points, the cast shadows get longer and the angle of the shadow to the vertical edge becomes more obtuse. As we move closer, the shadows get shorter and the angle becomes more acute.
- With light coming from the back, as we move laterally away from the shadow vanishing and trace points, the cast shadows get longer, but the angle of the shadow to the vertical edge becomes more acute with distance. As we move closer, the shadows get shorter, and the angle becomes more obtuse.
- When drawing from the imagination, the angle of the shadow and shadow length can be important compositional choices.

### **Artificial Light**

In many ways, artificial light combines aspects of the various types of light we've studied so far. To explore artificial light, we'll draw an interior with a single light source on the ceiling. We'll locate the shadow vanishing point directly below the light source, on the ground plane. In this situation, the shadows of objects in front of the shadow vanishing point will project forward in space. Objects behind the shadow vanishing point will project back, behind the objects. And objects straddling the shadow vanishing point will project horizontally away from it. In this exercise, we'll project the cast shadows of a block, a cone, a cylinder, and a sphere.

### **Light and Irregular Forms**

Of course, many things we draw, such as still-life objects, trees, and people, are irregular. For many of these objects, using a bounding rectangle helps you project shadows in oblique and artificial light.

### **Summing Up Cast Shadows**

In the last two lectures, we've looked at five cases of cast shadow projection. In each case, we built the shadows using vertical heights associated with an object. To construct the shadows, we determined the direction or angle of the shadow and its length. The shadow's direction or angle originated from the base of the vertical. The length of the shadow

was determined by a light ray glancing the top of the vertical. The point where the shadow's angle and light ray intersected defined the length of the vertical's shadow.

In the first case we looked at, left sidelight, the direction of the light and shadow was horizontal to the right. In right sidelight, the direction of the light and shadow was horizontal to the left. In both cases, the shadow's length was defined by the angle of a light ray intersecting the shadow's direction.

The third case was oblique light from in front of an object. Here, shadows of verticals receded behind the object to a shadow vanishing point on the horizon. The lengths of the shadows were determined by the intersection of a light ray with the shadow directional line. All the rays converged to a shadow trace point located on a vertical trace directly below the shadow vanishing point.

The fourth case was oblique light from behind an object. Here, shadows projected forward in space from a shadow vanishing point on the horizon. The lengths of the shadows were determined by the intersection of a light ray with the shadow directional line. All the rays converged to a shadow trace point located on a vertical trace directly above the shadow vanishing point. In this case, the point can be conceived of as being the light source itself.

The fifth case was an artificial light in a room. Here, the light rays radiated outward from the light source. They glanced the tops of verticals and continued to the ground plane to intersect the shadows' angle or direction. These angles originated in a shadow vanishing point located on the ground plane directly below the light source. The resultant shadows splay out from the center.

For the light to be consistent in both oblique and artificial light, all the shadows of vertical elements must recede to the same shadow vanishing point. The lengths of all the shadows must be defined by a light ray intersecting the shadows' directional lines. All light rays from a given light source converge at a shadow trace point located directly above or below the shadow vanishing point.

## Multiple Light Sources

Our goal has been to understand how to draw convincing three-dimensional form from the imagination using value to imitate the effects of light. Using a single light source is the clearest way to make form feel three-dimensional. But you could certainly experiment with using multiple light sources. For example, you could draw a single object and project all five light situations we've discussed.

With light coming from every side, the planes become evenly lit. One potential effect of this is to make form feel less solid or three-dimensional; many artists are interested in exploring such forms. Multiple light sources might also be of interest when the focus of the drawing is not really the object but the choreography of patterns of light and shadow. You might also be interested in looking at contrasting light sources, such as outdoor light from a window combined with interior light from an incandescent bulb. This situation can be especially interesting if you're working in color.

## Continuing Projects

You now know quite a bit about value, light, and shade and about constructing shadow. With this knowledge, consider trying these drawing projects:

- Draw into the cast-shadow drawings you've done in this and the previous lecture. Add value to all the planes and to the objects. As you think about using light and shade to create volume, also think about overall mood and value palette. And remember to consider hierarchies of contrast—how you use value compositionally.
- Play with projecting shadows onto different kinds of surfaces. Make sure the cast shadow reflects the angle or curve of the plane on which it falls.
- Draw geometric solids from your imagination, starting with a sphere. Practice working with the nine steps of light we discussed in an earlier lecture. Then try a block, a cone, and a cylinder. Finally, put a group of solids together in a still life.

- Invent a room, imagine a window as your light source, and construct a still life consisting of geometric solids in the room. Include a pattern on the floor based on a grid.

### Suggested Reading

Loomis, *Successful Drawing*, “Light on the Basic Forms,” pp. 79–88.

Montague, *Basic Perspective Drawing*, chapter 8, “Shadows and Reflections,” pp. 145–154.

# Texture: Mark Making and Optical Value

## Lecture 26

In common speech, *texture* refers to the look and feel of a surface or material. In drawing, the word *texture* is used in three distinct but related ways. First, there's the actual three-dimensional texture of the drawing itself. This encompasses both look and feel and includes the physical texture of the drawing surface and materials. Next, there's visual texture, which relates to look only. A crazy scribble and a set of carefully ruled parallel lines are the same to the touch, although visually, they have a different feel. This kind of visual texture is connected to artistic approach. The third type of texture is related to the texture of the subject: Think hair versus skin or wood versus marble. Some artists take great pains to simulate these kinds of textures in their drawings and paintings, while others are more interested in the weave of the drawing itself. In this lecture, we'll begin to explore texture and mark making.

### Actual Texture

Today, actual texture plays a much greater role in painting than in drawing, but it has a significant place in drawing's history. Before papyrus and paper, people scratched their drawings into rock. Such drawings are called *petroglyphs* ("rock carvings"). One example is the Anasazi Newspaper Rock in Utah.



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Drawing with incised lines has also been commonplace in ceramics. And many types of printmaking, such as woodcuts and engravings, depend on incised mark and line; these can be felt on the blocks used to make the prints, though not on the prints themselves.

A number of 20<sup>th</sup>-century artists also used incised line as a drawing tool, but the most common way we experience actual texture in drawing is in the paper. As noted in an earlier lecture, paper can be very smooth, very rough, and any texture in between, and the choice of surface in a drawing is significant. For example, pencil on smooth paper allows for fine detail. In contrast, to achieve the kind of optical mixing of value he wanted in his drawings, Georges Seurat chose a paper with tooth. If you'd like to see how this works, drag charcoal lightly over a rough paper; you'll note that the dark material catches on the high ground, while the recessed part of the paper's texture remains white. Nevertheless, at a distance, our eyes mix the black and white, and we see gray. The lighter the pressure you use, the lighter the gray that will result, but if you push the charcoal into the paper's crevices, you'll get robust darks.

### **Visual Texture: Hatching**

The second type of texture we encounter is purely visual. So far, in the drawing projects we've undertaken we've generally applied value in a smooth and continuous way, but we can also use a wide variety of lines and marks to create optical value with a range of textures.

For example, one type of mark used to generate tonal value is *hatching*. This is made of nothing more than lines. If the lines are drawn close together, the result is a dark gray. If they're spaced out, the result is a lighter gray. Discontinuous line, the number of hatch directions, staggered hatching, line thickness, and even the speed of execution (deliberate versus gestural) also affect the kind of value created with hatching.

Another important factor in hatching is the hatch's direction. One common approach is to have the hatch follow the form of the subject like a cross-contour. Value changes that capture the play of light on planes already create the illusion of three dimensions. Applying the value following the axis or

axes of the form compounds this illusion. Hatching may also imitate the direction of the light source.

Use a nib pen, brush and ink, and graphite to try some hatching. Make some swatches at first, varying the spacing, the number of directions, and the line continuity. Then draw some geometric solids using hatching.

Here's a review of ways in which hatching can be controlled:

- Through spacing: Closer spacing equals darker values.
- Through continuity or discontinuity of line: More continuous lines equal darker values.
- By varying the lengths of the lines moving into the light: Staggering line lengths can create the sensation of a graduated value.
- By varying the thickness of the line: Thicker lines result in darker values.
- By changing the tonal value of the material: With ink, for lighter values, dry the brush or add water to the ink; with pencil or charcoal, use a range from hard to soft and vary the pressure as you draw.
- By increasing the number of hatch directions: More directions result in an increase in darkness and density of the hatch.

When working with hatching or other mark-making systems, remember to think compositionally. Organize the value with the drawing's focal hierarchy in mind.

### **Other Forms of Mark Making**

Hatching and cross-hatching are important modes of mark making, but the catalog of human mark making is vast. Among the first tools our ancient ancestors used were their own hands, as can be seen in the Cueva de las Manos in Argentina.



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Of course, using the hand as a mark-making device is still with us today. The contemporary American artist Chuck Close, for example, used his thumbprint as a mark-making device to create a series of portraits. The central idea here is that we can use any type of mark to create optical value if we apply the principles we used in hatching: Wide-spaced, discontinuous, light marks will read as light value; dense, overlapping, and dark marks will yield a darker value.

As an experiment in mark making, lightly outline a dozen or more one-inch squares on a piece of paper. Fill each with a different kind of mark or optical value. Vary the density, continuity, and pressure to create different tones. If you get stuck, think adjectively. Try to make textures that are delicate, sharp, scratchy, blunt, bushy, coarse, choppy, fuzzy, jagged, and fluffy. You might even keep a sketchbook of different kinds of marks—single hatches, cross-hatches, curving marks, wavy marks, stippled marks, scribbles, and so on. In each case, the marks might be thin or thick, light or dark, short or long, slow or fast, and rigid or flowing. You can also craft your own mark-making tools with sticks, tongue depressors, and other common items. As a follow-up project, apply these textures to form.

### Suggested Reading

Guptill, *Rendering in Pencil*, chapter 4, “Interpreting Nature’s Tones and Textures,” pp. 31–40.

———, *Rendering in Pen and Ink*, chapter 4, “Practice in Tone Building,” pp. 25–28, and chapter 5, “Elementary Steps in Value Study,” pp. 29–31.

# Texture: How Artists Use Texture

## Lecture 27

In this lecture, we'll learn more about how artists use texture, mark, and optical value. We'll begin by studying drawings by five artists. As we'll see, each drawing has a pronounced textural personality and mood that are related to formal and material choices. We'll then go into detail about the primary factors that affect texture in a drawing, including paper or drawing surface, modifications made to the surface, choice of drawing tool, and more. We'll close with a look at creating simulated or trompe l'oeil textures.

### Texture and Materials

Seven primary factors affect texture:

- Paper or drawing surface
- Modifications made to the paper or surface
- Choice of drawing tool
- Preparation or modification of the tool
- Application method (e.g., drawing directly on the surface versus transferring material via a brush)
- Physical technique (e.g., hand motion, pressure applied)
- Modification of the mark (e.g., compounding, blending, smearing, smudging, and erasing).

In combining these seven factors, the number of textural possibilities is nearly infinite.

## **Paper or Drawing Surface**

As we've noted, papers span a wide variety of surface patterns, both regular and irregular, with textures from very smooth to very rough. Using a smooth paper for a still life of shiny, reflective objects could be a reasonable choice because the paper itself is shiny and reflective. With a smooth paper, the light bounces off an even surface, as opposed to a textured paper, in which many different planes reflect light in different directions, reducing shininess. In contrast, using a rough paper could be a reasonable choice for a landscape featuring a craggy cliff on a stormy night. The point here is that a given paper can have qualities that relate to the subject of the drawing.

Surface texture also affects the ease with which you can draw different kinds of edges. With less tooth to the paper, it's much easier to draw clear, crisp edges and develop small details. This might be desirable for a detailed study of a branch and some leaves. But to draw the same branch on a tree in a forested area in the distance, a more textured surface could help to create the sense of a mass of foliage.

As we've already noted, it's also the tooth that pulls the material off the drawing implement and holds it on the surface, which can affect how dark the material looks. With the same material and the same pressure applied, a toothier paper can create a darker value than a smoother one.

## **Modifications to the Paper or Surface**

A portion of a paper's surface can be modified to make it smoother or rougher. For example, to make paper smoother, burnish it with the back of a spoon, the side of a butter knife, or even a dense eraser. To make it rougher, use a piece of 220-grit sandpaper.

## **Choice of Drawing Tool**

Like paper, drawing materials have their own textural characteristics. For example, graphite is shiny and reflective, while the family of carbon and charcoals is comparatively matte. Again, with a still life of shiny objects, it would be reasonable to use graphite on a smooth paper. Both the graphite and the paper are relatively reflective. With a stormy landscape, charcoal on a rougher paper could be a reasonable choice. That's not to say that it would

be wrong to draw each of these subjects with different materials. It's just that they'll feel different—more reflective or more matte, smoother or more jagged, crisper or more atmospheric—depending on the tools used. Such characteristics are at the heart of how a drawing feels.

### **Preparation or Modification of Drawing Tools**

An additional factor in creating texture is preparation or modification of your drawing tools. For example, earlier, we learned a number of ways to shape a pencil's tip: pointed, flattened, or turned into a wedge. Each of these shapes creates different textures.

In using wet media, you can dilute the ink or partially dry the brush before applying it to the surface. And you can use different brush shapes and types of bristle.

### **Application Method**

As we've seen, the method of application also affects texture. Materials can be applied directly or indirectly to a surface. For example, graphite or charcoal can be rubbed with a tortillon, a blending stub, a brush, or a chamois, then transferred to the surface. Powdered graphite or charcoal could be applied similarly. Artists also use many other tools as applicators, including felt, facial tissue, paper towels, cotton swabs, and make-up sponges.

With wet media, the range of application tools is extremely varied, including brushes of all sizes and shapes, countless types of nibs, and sponges. Blotter paper or other absorbent materials can be used to modify wet media on the drawing surface.

### **Physical Technique**

The way in which marks are physically made is influenced by a number of factors, including the position of the surface in relation to the body (on an easel versus on a desk), the joint of motion (shoulder, elbow, wrist, or fingers), the position of the hand, and the amount of pressure exerted.

## **Modification of the Mark**

Once you have some mark on the surface, you can modify it in many ways. Indeed, the number of textural possibilities skyrockets as you begin to layer, combine, blend, smudge, smear, and erase. Exploring the possibilities of mark modification could fill hundreds of sketchbooks over many years.

When you combine materials, you need to be aware of their native characteristics. Pay attention to how the order of application affects the way materials appear on a given surface. For example, graphite is slick, and many materials won't adhere to it well. It's easier to put graphite on top of charcoal or ink than vice versa—but there's no harm in trying unlikely combinations.

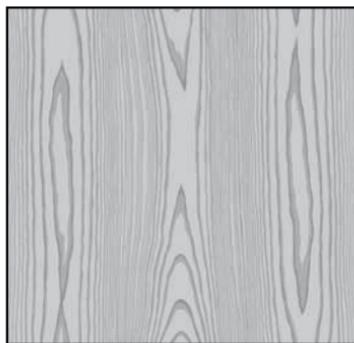
## **Simulated or Trompe l'Oeil Texture**

Students often ask how to draw the texture of metal, rock, or water, but there is no single drawing “recipe” that will work. Metal, for example, can be shiny stainless steel, rusted iron, or bent aluminum. Rock can be a jagged cliff or polished marble. And water might be in a pitcher at lunch or in the ocean at night. Further, the way each material looks is affected by a host of factors, such as spatial location and light. A distant tree reveals much less of its bark's surface texture than one up close. And we'll see more or less texture depending on the position, distance, and strength of the light source. For all these reasons, providing specific instructions for drawing these elements is of limited use.

That said, there are ways to study specific textures. The key is to determine the distinguishing visual characteristics of a subject at a given distance and in a given light source, then relate that information to specific drawing materials and procedures.

In drawing simulated textures, start simply. Do a study of just one interesting texture, not a full-blown drawing. For example, find a piece of wood with an interesting grain pattern.

First, analyze the material to determine its underlying visual characteristics. With certain textures, a black-and-white photo of the object can help you see the underlying characteristics more clearly. Or try making a rubbing or a photocopy. A photo, rubbing, or photocopy will each have much less visual data than the objects themselves, which can work to your advantage in trying to distill a principle. In looking at this example of wood grain, a black-and-white photo reveals that you could lay down a fairly consistent ground of value, then use a darker, nearly vertical mark to draw the echoing grain shapes.



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You might also make a study of a reflective surface, such as an empty paint can from the hardware store. Before you start drawing, think about what material and paper you want to use. On a test sheet, experiment with blending tools and erasers to approximate the quality of the edges you see in the reflections on the can. Above all, study the can carefully to understand exactly what in the room is being reflected on its surface, rather than just copying a random pattern of lights and darks.

You can apply these same methods of analysis to rock, fur, water in a glass, or anything else that piques your interest.

### Suggested Reading

Sale and Betti, *Drawing*, chapter 6, pp. 193–222.

Smagula, *Creative Drawing*, chapter 6, “Texture,” pp. 132–149.

# Color: Color Theory and Color and Light

## Lecture 28

The next three lectures focus on color. First, we'll look at some definitions and notions surrounding color theory. Then, we'll explore how color functions in nature. Finally, we'll analyze a number of artists' paintings and drawings to see how they actually use color. And you'll have the opportunity to apply what you learn in a range of exercises and drawing projects.

### Pastels

For the drawing projects in our lectures on color, use chalk pastels. These are made from pigments ground into a powder and held together with a water-based binder. They're relatively easy to use, especially if you've worked with charcoal.

Pastels run from soft and powdery to hard and brittle. The soft pastels spread and blend more easily, while the hard pastels can be sharpened to a point with a knife or razor blade for more precise work. Some manufacturers make pastel pencils that can also be used for more detailed work.

Pastels can be purchased both individually and in sets. If you purchase them individually, try these 14 colors to get started: green, blue, blue-violet, red-violet, red, orange, yellow, yellow ochre, raw sienna, burnt sienna, Van Dyke brown, white, black, and gray. If you purchase a set, look for a similar range of colors.

Many manufacturers make light-to-dark gradations of their colors and number these. The darkest version usually gets the lowest number; the purest grade gets a middle number; and the lightest gets the highest number. A good way to expand on a basic set is to get three of each color. For example, choose a green and get the darkest, purest, and lightest versions. Another way to build on a set is to get three versions of the same color with different qualities. For example, purchase an iconic blue, another blue toward green,

and another toward violet. You might also expand your collection by buying both soft and hard pastels in similar colors.

As with most of the materials we've discussed, there is no standardization among manufacturers. Two "ultramarine blues" made by two manufacturers may well be different. And there are a wide variety of color names, some particular to a single manufacturer.

Pastels, like graphite and charcoal, can be hatched, blended, layered, and manipulated in myriad ways. Pastel papers tend to have a fair amount of tooth, which serves to abrade the chalk and hold it to the surface.

### **Color and Light**

As you may remember from high school physics, Isaac Newton passed white light through a prism and observed that it split apart into bands of color. He described the spectrum he saw as consisting of seven colors: red, orange, yellow, green, blue, indigo, and violet. The number of colors derived from Newton's belief that the color spectrum had an underlying connection with the seven-note musical scale and the number of days in the week, among other things. Newton arranged the colors in a circle—the first color wheel.

Physics tells us that color is determined by the distance between waves (wavelength) of a given wave of light. This is referred to as *wave quality*. Red has the widest wavelength; as we progress around Newton's circle, wavelengths get narrower.

An object or substance appears to be a certain color because it reflects waves of that length and absorbs all others. All else being equal, the lightness or darkness of an object or substance is determined by the quantity of light waves it reflects or absorbs. White objects, such as white drawing paper, reflect most light waves. Black substances, such as ink, absorb most light waves.

### **The Color Wheel**

Newton also showed that he could pass his bands of colored light back through a prism and get white light, but pigments behave differently. If you mix seven pastels to match Newton's seven colors, you won't get white but a darkish mud.

For artists, the most basic group of colors consists of a triad: red, yellow, and blue. These are referred to as *primary colors* because they can't be produced by mixing other pigments. The next three colors are known as *secondary colors* and are made by mixing the primaries. As most of us know, yellow and blue produce green, blue and red produce violet, and red and yellow produce orange. If we mix intermediary steps between any of the six primaries and secondaries, we get six new colors, referred to as *tertiaries*. These are yellow-green, green-blue, blue-violet, violet-red, red-orange, and orange-yellow. And we could mix each of these 12 colors with its neighbor to create another 12 hues. As more transitional colors are added, the visual path around the color wheel becomes smoother.

On the wheel of primaries and secondaries, the colors that are next to one another are called *adjacent* or *analogous colors*. Here, each color shares something with its neighbor. Orange and yellow both share yellow; orange and red both share red. These represent smoother transitions than yellow to red. A general principle in applying color in a given drawing is to use colors that share common elements where you want smoother transitions.

Colors are also thought of as having temperature. Yellow, orange, and red are the warm colors, while green, blue, and violet are cool. Like the warm and cool groups, there are other, more subtle, groups. For example, the three colors that share yellow—yellow, orange, and green—form a group. Note, however, that not all adjacent colors are equally similar. The temperature divide is significant. A pure yellow feels more similar to a pure orange than to a pure green. Although yellow and green share yellow, green contains blue, a contrasting cool color. Yellow and orange share yellow, and neither contains anything cool; thus, they share warmth, as well.

Other significant groupings include those that contain two primaries and their secondary, or two parents and their offspring, such as yellow, blue, and green; blue, red, and violet; and red, yellow, and orange.

The opposite of analogous colors are *complementary colors*. These pairs of colors sit opposite each other on the color wheel, putting each one as far away as possible from its opposite. The three complementary pairs are yellow and violet, orange and blue, and red and green. While analogous

colors share a component color, complements have nothing in common. For example, there's no yellow in violet and no violet (or red or blue) in yellow.

We could say that analogous colors are like two grays. They have contrast—we can tell them apart—but they share some elements. Each has some amount of black and some amount of white. But complementary colors are extreme. They're like black and white, with none of one in the other.

The three pairs of complements have different personalities. The yellow-violet pair has the greatest value contrast of the three, followed by orange and blue. Red and green are the most similar in value.

### **Properties of Color: Hue, Value, and Saturation**

In an earlier lecture, we noted that each color has three attributes: hue, value, and saturation. *Hue* coincides with the color's name; it's the yellow, green, or blue character of the color. *Value* refers to the color's lightness or darkness. (Any color can be made lighter by adding white, known as a *tint*, or darker by adding black, known as a *shade*.) *Saturation* refers to the color's level of purity. We can create versions of any color, stretching from very gray at the achromatic end of the scale to the most intensely saturated at the other. When you change the value of a color by adding white, black, or some other neutralizing color, you also lower the saturation.

### **Color and Contrast**

If drawing with value is like playing checkers, drawing with color is like playing three-dimensional checkers. With value, an area can be either lighter or darker. Thus, tonal value in and of itself offers one kind of contrast. With color, we can have contrasts happening along three scales simultaneously: hue, value, and saturation. If all three are the same, the color will be identical, and we won't see any distinction between two shapes. But if we vary one factor even a bit—say, keep the hue and saturation about the same but lighten the value—we get contrast and differentiation. Varying all three attributes results in high contrast.

As we've seen, warm to cool represents one type of contrast. Another is contrast of amount. All else being equal, the greater the amount of a given color, the more dominant that color will feel.

## **Simultaneous Contrast of Hue, Value, Saturation, and Temperature**

In the first lecture on value, we learned that value is relative. White surrounded by black will appear brighter, and black surrounded by white will appear darker. We experience color similarly. Red appears brighter if surrounded by black and dimmer if surrounded by white. Colors also appear more saturated as the ground's hue moves from similar to complementary.

In terms of drawing, this means that it's smart to block in overall color first. Because the way color reads is contextual, finishing one object before going on to the next can result in real problems. The color that looked right at first could look all wrong when an abutting color is added.

## **Color and Content**

It's important to note that color has symbolic meaning. Some such meanings are local and culturally specific, while others associations are more widespread. Not surprisingly, the warm colors—red, orange, and yellow—are often associated with heat, warmth, fire, sun, and energy. Red is particularly associated with heart, passion, and love, but it can also signify blood, violence, and danger. Green has associations with growth, life, and freshness, and blue is often construed as calm or sad. In the West, white is associated with day, reason, calm, and purity. Black has associations with night, terror, and death but also with elegance and romance. Of course, many of these associations are matters of local culture. Among the Chinese, white is associated with death, and red is the color of prosperity.

## **Light and Color in Nature**

Most of what we've discussed so far would come under the heading of color theory. But in order to use color in drawing, it helps to understand how we actually see color. We talk about the nominal color of an object as its *local color*. But when we look at most things, we actually see many more colors than the local color, and the colors we see are influenced by environmental factors, including the color of the light source, the direction of light, and the reflectivity of the object's surface and the surrounding objects and surfaces.

These same factors hold true indoors and outdoors, but outdoors, other factors come into play, as well. For example, the atmosphere lends its color to what we see. As hills and trees recede into space, they take on more and

more of the color of the atmosphere itself. That's because, with distance, there's more atmosphere between you and what you're seeing. A sun-filled sky can tinge everything with golden tones. Other skies might suffuse a landscape with blue, brown, or gray.

### Steps of Light in Color

In the lectures on value, we saw that we could create the illusion of light and volume using anywhere from two to nine values. With color, the number of possibilities for modulating form increases exponentially. For example, volume can be created by modulating a single color from light to dark, from warm to cool, or from light to dark and warm to cool simultaneously. In the next lecture, we'll learn more about how we can use and create form in just about any kind of color palette.

### Suggested Reading

Albers, *Interaction of Color*.

Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, "Color," pp. 114–121.

Pumphrey, *The Elements of Art*, "Value and Color," pp. 147–187.

# Color: How Artists Use Color

## Lecture 29

In the last lecture, we looked at both landscape photos and artworks and saw how color creates a quality of light and mood. And mood is an important consideration in making a drawing; it leads us to select a specific palette. Within the confines of a given palette, we can create a visual hierarchy, using color and value to structure focal areas and focal points. We also saw that we can attend to the illusion of space, volume, and light with color. In this lecture, we'll look at the work of a number of artists to learn how they use specific color palettes.

### Working with Color

As you begin to work with color, try to pay attention to your everyday feelings about it. Many people viscerally feel the difference between a blue sky and a cloudy one or the difference between a field of flowers in the afternoon sun and a dingy bus station at night. Why do some places feel uplifting, romantic, scary, or depressing? Analyze what's going on around you in terms of color and use what you learn in your drawings.

You actually know a lot more about certain aspects of color than you might think. For example, you coordinate the colors of the clothes you wear every day, and you know that business attire projects a serious mood through its fairly neutral palette. With casual clothes or sports clothes, the palette is more saturated, and the mood is lighter. Similarly, you've likely thought about mood and palette in decorating your home or office. You may have a brown study or a yellow bedroom. Each of these palettes projects a different mood.

We're also constantly barraged with the work of professional designers and illustrators who put color to work to create mood and evoke an emotional response in order to sell us things. Examples of this can be found everywhere—even the cereal aisle of your local supermarket. The sweet children's cereals are packaged with bright, saturated colors, while the healthy, whole-grain options have much more neutral packaging. Try

to become more aware of how color is used around you by professional designers and note your reactions.

### **Palette and Mood**

In the last lecture, we saw how a sense of light, mood, and emotion can be affected through palette choice. The essential character of a palette is defined through limitation. Artists have used certain common color limitations, or palettes, for centuries. These palettes include the following:

- **Monochromatic.** Working with a monochromatic palette is really a form of working with value, though hue plays a part. A blue painting will feel different—cooler and icier—than a warm gray or an orange painting.
- **Expanded monochrome.** This type of palette admits a bit of color outside the monochrome.
- **Dominant hue.** Related to both the monochrome and expanded monochrome palettes is the dominant hue palette. Here, the artist chooses a range of colors and mixes a sufficient quantity of one other hue to each one to ensure that the one hue will be dominant.
- **Analogous.** A next step in palette complexity is the analogous palette. This type of palette uses colors that are next to one another on the wheel. Examples include red-orange-yellow, orange-yellow-green, and green-blue-violet.
- **Complementary.** Another common palette is one based on complements. These include: yellow-violet, orange-blue, and red-green.
- **Split complementary.** Related to the complementary palette is the split complementary. Examples include yellow with red-violet and blue-violet, red with yellow-green and blue-green, and blue with yellow-orange and red-orange.

- Double complementary. This palette is based on two sets of complementary colors, for example, red-green and orange-blue. The Eakins watercolor we've looked at throughout the course uses this palette.
- Earth tone. The neutral earth-tone palette is also common. This type of palette was used quite a bit by Picasso, Georges Braque, Juan Gris, and others during the heyday of Cubism.

### **Color Application: Flat Color, Open Color, and Gradations**

Another set of factors to be aware of in working with color has to do with the relationship of color to shape. Here, *flat color* refers to broad areas of unmodulated color enclosed in a shape. This is the way many of us colored in pictures as children: Draw the shape of the apple and color it in red. One of the hallmarks of this use of color is that the colors of individual things don't partake of the color of a light source, nor does color reflect from one object to another. Color remains in its bounded shape.

With *open color*, we see marks and multiple small areas of color within shapes, and the edges of the shapes themselves are much less strictly defined. This approach is common when areas or surfaces are built out of mark and the sensation of color depends on optical mixing.

Another way in which shapes are treated with color is through *gradation*, moving from, say, light to mid-dark to dark. This approach is most common in naturalistic work, where the goal is to create a convincing illusion of three-dimensional form in space.

### **Summing Up Color Principles**

Here are some important principles we've learned about color:

- When using color, a first and defining choice is palette selection, which inflects light, mood, and emotion—the overall flavor of the work.
- Once you've made that decision, the next step is to think hierarchically and compositionally. Think about relative

contrasts; in other words, consider relative hue, value, and saturation contextually to move the viewer through your drawing. Remember, areas of higher saturation and value contrast will become focal zones.

- Pay attention to the effects of atmospheric perspective. With distance, objects take on the color of the atmosphere. When things are closer to us, their colors appear to have greater value contrast and greater saturation. As they recede, they have less value contrast and saturation.
- All else being equal, warm colors will tend to advance and cools to recede, but saturation will generally trump this principle. In other words, a saturated blue bowl—a cool—will easily advance against a backdrop that is a neutral, warm tan.

### Suggested Reading

Guptill, *Watercolor Painting Step-by-Step*, chapters 7–10, pp. 65–98.

Loomis, *Creative Illustration*, “Color,” pp. 145–179.

# Color: Color Drawing Projects

## Lecture 30

**W**e concluded the last lecture with a discussion of atmospheric perspective and saw that we can create the illusion of spatial depth using color. We'll continue in this lecture with a discussion of how we make objects appear three-dimensional. Then, we'll move into a number of drawing projects that use color.

### **Color and Volume**

If we draw a block with all planes identical in color, we get relative flatness. But if we make a differentiation in color, we can get dimension.

We can create volume in any palette and in any range of values. We can also increase the contrast, lighten or darken the value range, or shift into another hue. And we can accompany a change in value with a change in saturation, making the color more saturated in the light and less so away from the light. We can also modulate the hue in this progression across the planes of an object. We could start with a warm, say an orange, on the plane closest to the light, and move to a cool, say a blue, on the plane farthest from the light.

Artists use specific palettes to create a mood and quality of light, and they use relative contrasts of hue, value, and saturation to create a visual hierarchy of focal points. Within the given palette and hierarchy, artists create the illusion of space, volume, and light. Thus, it's reasonable to start a drawing by asking: What's the intended mood or flavor? Make a determination about mood and palette first, and let all else follow.

If you're working from observation, use the same principles. That means carefully considering the color and value of all the elements in a still life as you set it up, including the wall, table, and lighting. When working from a landscape, it means organizing the color you see and interpreting it in a way that serves the mood of the drawing.

## Pastels and Palettes

In these lectures on color, we've outlined different palettes, including analogous, complementary, and so on. Working with a palette means making a selection of pastels to use for a given drawing. The goal here is to limit the number of colors while maintaining a range from light to dark and saturated to neutral. This yields both cohesion and the opportunity for contrast. For instance, for an orange-blue complementary drawing, you might select a cool blue; a warm blue; a saturated orange; an earth orange; a dark, neutral brown; a gray; and a white. Note that this selection includes a warm and a cool version of your cool color, a saturated and an earth version of your warm color, a dark, and two neutrals, giving you the opportunity to mix a great range of colors. For analogous palettes, follow the same model. For instance, for a yellow-green palette, you could select a saturated yellow; an earth yellow; a cool green; a warm green; a dark, neutral brown; a gray; and a white.

It's a good idea to create test sheets to play with the relationships of the pastels you plan to use in a given palette before making a drawing. This will give you options when you approach the drawing.

### Palette Exploration: Drawing Geometric Solids

As an exercise for this lecture, we'll do a series of drawings to explore color palettes; control hierarchy; and create space, volume, and light. Keep the compositions here simple. First, divide a rectangle along a horizontal to yield a tabletop and wall. Then, imagine a block, sphere, cylinder, cone, or other solid lit by a single light source. Next, think about mood and palette. Use value and color hierarchically so that the object is the focal point, and use color within the given palette to create the illusion of volume, space, and light. Think in four to nine steps of light as you move across the large planes of the table and wall and the object itself.

For this exercise, use colored paper, which immediately asserts mood and provides an underlying unifying hue for the drawing. This shared hue allows you to create smooth transitions where you want them. Where you don't want smooth transitions, work opaquely so that the paper is less visible. Try a number of variations of palettes and papers.

Monet loved these kinds of experiments. He often repeated the same painting or drawing over and over again but varied the light, mood, and palette. Look online to find his series of *Haystacks*, *Waterloo Bridge*, *The Houses of Parliament*, and *Rouen Cathedral*. You'll find multiple versions of each that explore color and light.

## **Color Projects**

Once you've made some color studies of geometric objects, try creating a still life from your imagination. The utility of working from your imagination is that you can't copy details. You have to think abstractly about the large color relationships. Start by making small, monochromatic, gestural sketches in pen or pencil to find a composition. Then, look at your single-object color studies to get ideas about possible palettes to apply to the still life and do a small color study. This can consist of just smudges of color that relate to the shapes in the composition. Line up your color studies and take a couple steps back to judge the overall flavor and mood. To make the drawing, use the same principles you used to draw the geometric solids. The goals of this exercise are to:

- Select a range or palette of color and value to create a mood.
- Use that palette to create a hierarchical structure that features focal areas and focal points.
- Create the illusion of volume, space, and light within the hierarchical structure.

As you work, keep in mind these key points from earlier lectures:

- First, make sure you're thinking compositionally. Be attentive to the format shape and its large divisions and to positive and negative shapes. Build your objects using shapes and geometric solids.
- Be aware of the eye height or horizon, which will indicate how much of any plane you will see.
- Work from the large decisions to the small, adding detail last.

Also make sure that your paper's color relates to the color system with which you're working. You might start with fairly neutral colors, which will allow you to attend to proportion and placement first. Once these issues have been resolved, add analogous or complementary colors, working up from lower to higher saturations.

Follow this exercise with a still life drawn from observation, but take the same care with the palette. Be prepared to drape a wall or table and be choosy with your objects and the type and direction of light. Think about how everything relates in terms of mood, hierarchy, space, and volume.

### **Unnamable Color**

A common problem people have when starting out with color is that they conceive of it in terms of namable color—primaries, secondaries, and the like. These are all useful, but a command of all the grays—and the ability to see the grays as color—is all but essential.

Similarly, many beginners see a white bowl or a black hat and immediately grab the white or the black pastel to fill in that section of a drawing. But the white bowl is rarely white, and the black hat is rarely black. When we look at something that's nominally white or black, we're actually seeing a whole range of color.

Just as with value, light is the reason we see any color at all. The color that anything appears to be is directly related to the color and strength of the light source. It's also tied up with the way in which surfaces share color through reflection. When we look at any given area, we're often seeing the accumulation of multiple factors creating the instance of color. In many cases, the differences are small. For example, a gray may be just slightly warmer, cooler, darker, or lighter or more to the yellow and away from the red. The more you look analytically, the more you'll learn to see these small differences in color.

A good exercise that can help you analyze unnamable color is to draw a still life of white objects on a white table in front of a white wall. As you work, you'll find that almost nothing is truly white. Instead, there is a great deal of color, color reflection, and interaction.

Often, students believe that they're not getting as wide a range of color as they'd like in a drawing. In response, they may wind up using every pigment in their kit, resulting in a depletion of mood and hierarchy. In many cases, a better approach is to try to find more color within the palette's restrictions. Remember, color is relative. By changing an abutting color, you can make an existing color feel lighter or darker, more neutral or saturated, or warmer or cooler.

Many times, you don't need a new namable color. For example, if you're working in a red-green complementary system and you feel that your red is not projecting enough, you can modify the ground rather than adding a new color to accentuate the central red object. There's no rule here, but because most people err on the side of too many random colors, it's useful to look for some less obvious solutions.

### **Additional Projects**

Make a portrait or self-portrait that brings to bear all the thinking you used in setting up your still life. Keep in mind that the environment, lighting, point of view, costume, and palette all combine to create mood and meaning. And remember, every surface can be affected by reflected color, including flesh.

Next, take a cue from Monet and go outside. Draw at different times of day under different weather conditions. A sunny day or a gloomy, overcast day each presents a palette—a defined range of color with a specific emotional thrust. After drawing several landscapes from observation, bring your drawings inside. Use these drawings, as well as your knowledge about composition, space, and color, to construct a second landscape from your imagination.

Finally, as we've noted, environmental factors influence color. Using two different color and light environments in the same drawing can be an interesting project. One classic way to approach this problem is to use an interior with a view out a window. Less common, though no less interesting, is to look from the outside into an indoor space.

## Suggested Reading

Eagle, *Pastel Painting Atelier*.

Enstice and Peters, *Drawing*, chapter 10, “Using Color in Drawing,” pp. 216–229.

# The Figure: A Canon of Proportions

## Lecture 31

The next four lectures focus on the figure. We'll start with constructive figure drawing. As the name implies, this involves building the figure using a set of principles. A great deal of drawing involves proportion and measure, and that applies here, too. We want to control the figure's proportions. Thus, we'll start with linear proportions for the figure—what's termed a *canon of proportions*. Then, we'll apply volumetric solids to make the figure dimensional. Next, we'll look at both the skeletal system and the major muscles in the body to see how we can use anatomical landmarks based on this knowledge. We'll also see how we can locate a figure in a believable spatial environment by relating what we've studied about the figure to linear perspective. In the final lecture in this section, we'll discuss a number of drawing projects involving the figure.

### Human Proportions

Students routinely ask what the correct proportions are for drawing a figure. Both the historical record and nature would indicate that there's no right answer to this question. Indeed, in his book *Master Class in Figure Drawing*, the teacher and artist Robert Beverly Hale wrote, "The forms of the body have no exact shape and never have had except in the mind of the individual artist. They have always varied according to the knowledge, the style, and the time of the artist. They have always been created by the artist to conform to his ultimate purpose. ... Drawing is not a mere act of copying, but a highly creative act controlled by the artist's expressive intent."

If we think of almost any artist, we can see that each interprets or reinvents proportions of both male and female figures to suit his or her own purpose. As Leonardo put it, "We, by our arts, may be called the grandsons of God." In this field, you get to make any kind of figure you want to.

To some extent, the human proportions we see in art are related to the wide range of proportions we see in nature. Think, for a moment, about runway

models, sumo wrestlers, ballerinas, NBA players, and jockeys; these categories evince widely different sets of proportions. Although you may notice fewer extremes, the same is true of any random group of people you see at the supermarket or on the subway.

In the early 1500s, Dürer became very interested in human proportions. He wrote, “I know of no one who has written about a system of human proportion, except a man, Jacobus [Jacopo de Barbari], a native of Venice. He showed me how to construct a man and a woman based on measurements. I was greatly fascinated by his skill and decided to master it.” And master it he did. Dürer made hundreds of drawings of variations on human proportion while experimenting with different methods of figure construction. This work culminated in a lengthy study of the subject, published in 1528 and titled *Four Books on Human Proportion*. Like his other book on drawing, this work is all about measure.

Returning to the question about correct proportions, there is no one answer—not in art and not in the world in which we live. There are endless combinations. But following in Dürer’s footsteps, we can start with one set of proportions, then play with variations.

### **Constructing Human Figures**

Before we begin drawing complex figures, it’s useful to return to some of the procedures introduced in one of the first lectures. We found that we could draw complex still-life objects more easily by breaking them down into simple constituent shapes—rectangles, trapezoids, hemispheres, and so on. We’ll follow that same idea as a first project in drawing the human figure.

For this project, we’ll adopt the method Dürer used in his 1528 book, drawing three views of the same figure: a front, or anterior, view; a side, or lateral, view; and a rear, or posterior, view. After completing this drawing, you’ll have a ready method for inflating, compressing, lengthening, or shortening any of the pieces you want, and with practice, you’ll be able to create figures with the kinds of proportions you want to draw.

The general steps for this exercise are as follows:

- Because humans are basically bilaterally symmetrical, draw a vertical centerline.
- Establish height proportions. Divide the centerline into segments with horizontal lines to mark locations for anatomical events, such as the top of the shoulders, bottom of the chest, and so on.
- Establish width measurements, that is, distances to the right and left from the centerline that define the width of the shoulders, the width at the top of the pelvis, and so on.
- Draw 16 specific shapes to block in the figure's proportions, then introduce contrapposto to make the figure feel more natural.
- Introduce cross-contours and geometric volumes to create the illusion of three-dimensionality.
- Integrate the cross-contours with contours to create a more naturalistic figure.

As is common in figure drawing, we will use the head as our standard unit of measure.

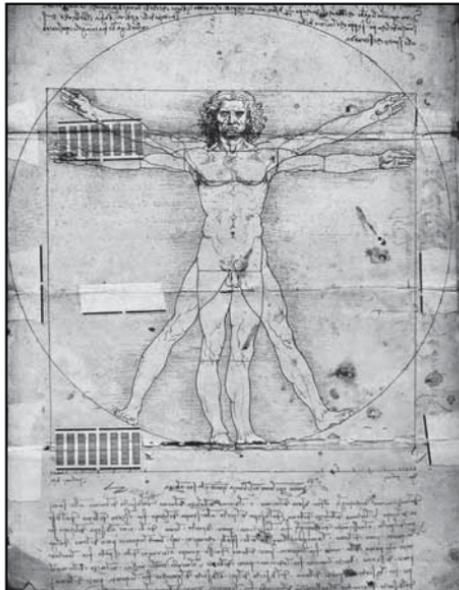
### **Variations in Male and Female Proportions**

There are clear differences between the male and female body. Of course, the obvious ones are breasts and sexual organs, but there are also differences of measure that affect overall shape. Chief among these is the shape of the pelvis. The male pelvis has a greater height-to-width ratio. In the female, the ratio is greater width to height. In addition, the opening in the male pelvis is more constricted, and the male pubic arch is more angular and acute. The female's is more curved and obtuse.

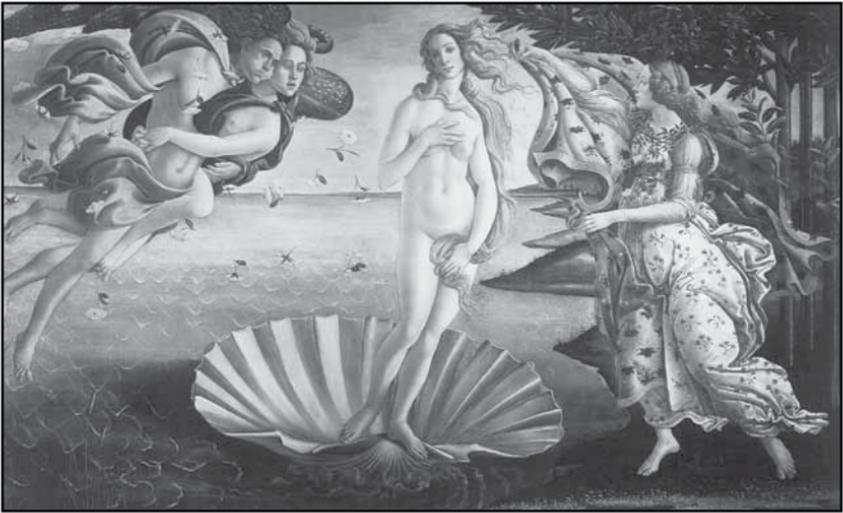
From the Renaissance to contemporary superhero comics, artists and illustrators have also adopted certain conventions for male and female figures. Common among them are the following:

- The male is drawn taller, and the female is shorter.
- Overall, the female is drawn more curved, and the male, more angular.
- The male's shoulder width is greater than that of the female
- The female's hips are wider.
- When we look at the relationship between shoulders and hips, the male has wide shoulders to narrower hips. The woman's shoulders and hips are more equal in measure.
- The female's torso and limbs are made slimmer in ratio to their height.

We see some of these same differences in the images below by Leonardo and Botticelli.



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## Contrapposto

The figure we've been drawing is in a static position, facing straight forward, with everything lining up horizontally and vertically. But we don't generally stand like that. Instead, we tend to put more weight on one foot. This position is called *contrapposto*. The shoulders, hips, and knees line up on a diagonal. With a standing figure, the hip taking the weight goes up, while the other hip is low. The bottom of the pelvis and the knees follow suit. The shoulders move opposite to the hips and thighs.

Try to apply this idea in your drawing of the figure. You'll note that the angles of the shapes change rather than the shapes themselves. The whole assemblage rotates together.

In this lecture, we've seen how we can use a canon of proportions to draw a figure. We've also seen how small changes in proportion and position can influence the feel of the figure. We'll continue this drawing in the next lecture, adding two more views, posterior and lateral, and we'll learn how to make the figure feel more three-dimensional.

## Suggested Reading

Dürer, *Four Books on Human Proportions*.

Dürer and Strauss, *The Human Figure by Albrecht Dürer*.

Loomis, *Figure Drawing for All It's Worth*, "Ideal Proportion," pp. 26–29.

Reed, *The Figure*, pp. 9–19.

Winslow, *Classic Human Anatomy*, "The Proportions of the Whole Figure," pp. 249–261.

# The Figure: The Head, Hands, and Feet

## Lecture 32

In this lecture, we'll continue with the figure drawing we began in the previous lecture. We'll start by blocking in the side (lateral) and back (posterior) views. In general, the procedure will be to carry over the measures from the frontal figure, then more or less retrace the steps we took in the last lecture. We'll start with a straightforward figure without contrapposto, then erase and adjust lines for a more natural stance. After completing all views of the figure, we'll look in detail at drawing the head, hands, and feet.

### The Head

After walking through a drawing of the anterior, lateral, and posterior views of a figure, let's turn our attention to the head. Individual heads, like individual bodies, vary in their proportions and their degrees of symmetry. But there are a couple formulas, or canons, that are widely used as starting points.

In the anterior view, we used the proportion of 3 to 4 for the head's width to height. Start the head by drawing a 3-by-4-inch rectangle for this view, followed by vertical and horizontal centerlines and an egg shape or ovoid. Divide the horizontal into fifths, then do the same with the lower vertical half. Next, follow these generic steps to fill in the features:

- The eyes ride the horizontal half, so place the irises on top of the centerline, in the center of the second and fourth horizontal fifths. Draw the upper and lower lids of each eye to extend across each eye measure.
- Place the tip of the nose on the second fifth of the vertical and the center of the lips at the third. Carry a vertical down from each eye's center. Let the length of the lips extend from one of these verticals to the other.

- For the eyebrow, measure one eye's width straight up from the lower lid and make a mark. Draw the eyebrow.
- Place the top of the ears above the top of the eyelid but below the eyebrow. The bottom of the ears should be in line with the tip of the nose. The ears can extend beyond the rectangle.
- Make the nose one eye wide, wings included. Locate the top of the nasal bone—where the plane of the nose begins to project forward from the face—at about the top of the eyelid.
- To describe the planar structure of the head, add verticals at the temples. You might also indicate that the jaw overlaps the ears, and the ears overlap the side plane of the head.
- Then, draw the neck, indicating that it is overlapped by the jaw.
- Place a couple lines for the cheekbones and, perhaps, a mark or two to create a front plane of the chin.

Of course, many people have narrower heads, wider noses, or longer ears, but these general steps give you a template from which you can create endless variations.

Also, when using these fairly flat linear systems, it's important to remind yourself that the head is three-dimensional. In the anterior position, the tip of the nose is closest to the viewer; the eyes, farther away; and the ears, at a distance behind. The front plane of the head can exhibit curvature, as well.

### **Hands and Feet**

Hands have the reputation of being difficult to draw—and for good reason. Hands are quite complex, with more than 25 bones and more than 30 muscles. The number of possible configurations of the hand is much larger compared to other parts of the body, such as the head. And unlike the head, ribcage, arms, or legs, the hand is much less symmetrical. Add to that all the different points of view from which the hand is seen—from above, from below, and foreshortened—and the result is a great deal of visual complexity.

To begin to make some sense of the hand, we start with measure and shape. As with the figure and head, actual hands may be thinner, stubbier, or different in myriad other ways, but these general steps will get you started:

- It's easiest to conceive of the hand in three parts: the large shape encompassing the palm or back of the hand minus the fingers, a shape for the fingers, and a final shape for the thumb.
- Start with a tilted rectangle for the palm, a bit taller than it is wide. Above that, draw a trapezoid, just a bit shorter than the rectangle below it and wider on the right. That's a rough shape for the four fingers. The upper shape is a little shorter than the bottom shape because the longest finger—the middle finger—is not usually as long as the palm.
- The fingers attach along a curve, with the pinky attaching at the lowest point on the right. Draw an arc from where the second finger will be. Rise above the dividing line at the middle finger and down below for the location of the pinky.
- You'll notice that the top of your fingers follow an arc, as well. Draw a second arc for the fingertips.
- Divide the top of the palm in four. Because the hand is in a relaxed position, there will be a slight bit of web between the fingers. The more the fingers spread, the larger this gets.
- Then, draw four tapering shapes for the fingers. The middle finger should be longest. The second and fourth fingers should be about the same length; the pinkie should be considerably shorter and can fall partially outside the guide shape.
- Add the two creases at the joints that divide the fingers, more or less, into thirds along an arc.
- We'll approach the thumb in parts: (1) Draw a triangular shape from the top of the palm on the left to a point out to the left at about

a quarter to a third of the palm's height. This will approximate the base of the first joint of the thumb. (2) Add a diagonal down into the rectangle. Following that diagonal, draw a curving, blade-like shape for the thumb. It should register close to the top of the palm, although this measure changes as the thumb moves. (3) Draw a curving line from the base of the thumb to the palm.

Now, we'll round and edit the construction shape.

- The wrist is thinner than the hand itself—about three fingers wide. Make this adjustment on both the thumb and pinky sides.
- Add some cross-contours to the thumb and others to the fingers.
- The interior of the palm has three groups of pads and several prominent creases. We can use further cross-contours to describe some of these forms. And we can include a cross-contour at the wrist.
- As a last step, look at your own hand and modify your drawing with the goal of making it closer to what you observe.

Other points to note about drawing hands include the following:

- If you hold your hand laterally, you'll see that the creases where the fingers meet the palm are higher than the knuckle on the back. This makes the fingers look longer from the back. And the body of the back of the hand can appear shorter than the palm side.
- Block out the large shapes first. Start with simple shapes. A trapezoid, rectangle, or ovoid can often be used for the body of the hand.
- When it makes sense, use an aggregate shape or shapes for the fingers. When an aggregate shape doesn't make sense, use an individual shape or shapes for one or more fingers.

- Next, block out the three-dimensional structure using geometric solids. Each finger can be constructed using three hinged, tapering solids, either blocks or cylinders. Then, naturalize what you've drawn.
- In relating the hand to the figure, you can conceive of it as about two-thirds to three-quarters of a head in length.
- Notice that if you relax your hand, the inside is concave (bowl-like), while the outside is convex (ball-like). The fingers naturally bend in toward the center of the palm.
- For additional practice, draw your hands in all the typical positions in which you find them, such as holding a pen or texting.

Feet are generally easier to deal with than hands because they're more unified in shape and volume. The toes are shorter and have a more limited range of motion than the fingers. Again, we can construct a general template for drawing feet; using that, you can practice drawing your own feet in many different positions.

## **Volume**

What we've been doing here with the figure is, in some ways, similar to what we did in some of the first lectures as we started to tackle still-life objects: Start with a centerline and place simple, flat shapes in relation to measure. The next step was to use geometric solids and turn the flat shapes into volumes. We'll do the same thing here with the figure.

In his *Master Class in Figure Drawing*, Robert Beverly Hale wrote, "Beginners in figure drawing should spend a lot of time drawing simple geometric forms ... like the cube, sphere, cylinder, or ovoid form." Elsewhere in the same work, Hale wrote, "When drawing the ribcage the experienced artist doesn't start his drawing with a detail, such as the nipple or the navel, as a beginner usually does. Instead, he first visualizes the ribcage in the simplest form he can—a box. ... He has learned to visualize all complex forms in terms of very simple masses."

To begin to add dimension to our figures, we'll combine rectilinear solids with elliptical cross-sections. This will help us define planes and capture the rounded quality of many of the figure's forms. For this exercise, make some photocopies of your figure drawing so that you can easily draw over and alter your original image. It's best to make light copies. Once you've finished adding volume to all three views, make 5 to 10 additional copies for use in the next lecture, where we'll learn how we can make the figures we've drawn feel more naturalistic.

### Suggested Reading

Loomis, *Figure Drawing for All It's Worth*, "The Heads, Hands and Feet," pp. 171–188, and "Planes," pp. 76–77.

Reed, *The Figure*, "Heads and Hands," pp. 75–115, and "Construction," pp. 20–45.

Winslow, *Classic Human Anatomy*, "The Proportions of the Whole Figure," pp. 249–261.

# The Figure: Artistic Anatomy

## Lecture 33

Such artists as Leonardo, Michelangelo, Raphael, Rubens, and many others studied human anatomy, and many artists do so to this day. The reason for this is that knowledge of what's going on below the surface can be a great aid in drawing what's visible on the surface. In this lecture, we'll discuss the skeletal system and major muscles and draw these systems into our figure views.

### Naturalizing the Figure

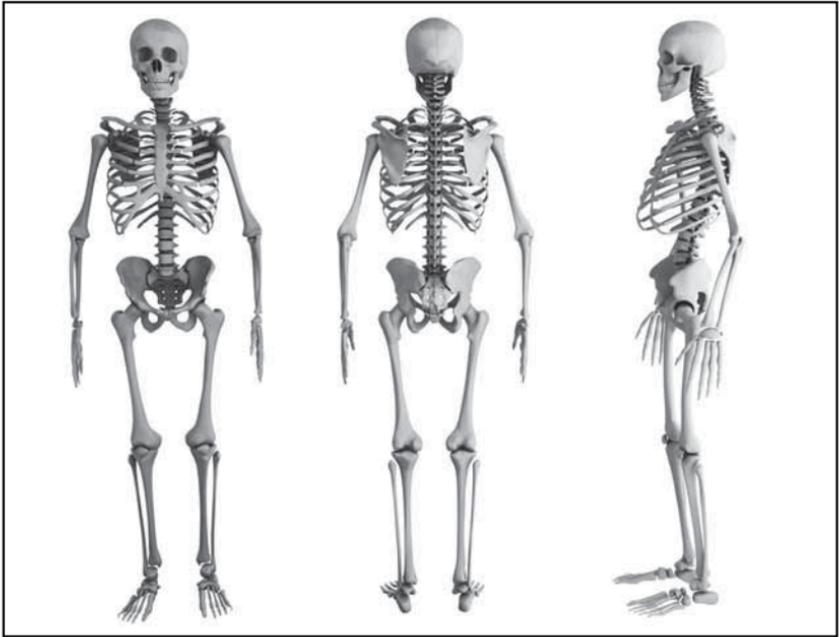
At the beginning of the course, we discussed the interplay of contour and cross-contour lines and saw how their skillful integration could create volume. Using the copies you made of your drawing from the last lecture, try experimenting with different ways of moving from contour to cross-contour and compare the results.

Make use of the measure, contour, and cross-contour lines you've already created to bring out a more naturalistic, less mannequin-like figure. You'll find that, in fact, you have to change very little to make this happen. A slight rounding of a line does a great deal in this regard. After doing several variations with line, you can also try adding value to your figures.

Once you've made some experiments, naturalize the figure in your original drawing, using line alone, without adding any hatching or value.

### The Skeletal System

There are more than 200 bones in the human body, but many repeat left and right, and about half are in our hands and feet. Let's take a tour of the major bones from top to bottom.



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The skull has a front plane, right and left side planes, a top plane, a rear plane, and a split-level underside. The bottom of the back of the skull is higher than the under-plane of the chin. In drawing, it's crucial to pay attention to this structure. The large frontal bone of the forehead in relation to the temporal fossae on either side signals the change of plane from front to side. The zygomatic bone, or cheekbone, reiterates this. All the joints in the skull are rigid, with the exception of the mandible, or jaw, which can move both up and down and from side to side.

Attached to the base of the skull is the spinal column. This is the longest section of bone in the body. The vertebrae are similarly shaped and are separated by intervertebral discs. Below the spinal column are the sacrum and coccyx. The upper 24 vertebrae are divided into three sections (cervical, thoracic, and lumbar), each curving in a different direction, which lends the spine its snakelike undulations. The curving shape of the spine is easily visible in the lateral view. It accounts, in part, for the zigzagging spatial thrusts of the neck, ribcage, and pelvis, respectively.

These three vertebral sections are followed by the sacrum, attaching to the pelvis, and the smaller coccyx, projecting to a point. Once again, the assembly of the sacrum and coccyx curves away from the preceding section, the lumbar vertebrae. Depending on an individual's build and body fat, we may see traces of the vertebrae in a rear or partial-rear view. The sacrum can also be a visible landmark through the soft tissue.

The next bone mass is referred to as the *shoulder girdle*, which includes the clavicles; scapulae; and the sternum, or breast bone. Skeletal elements of the front and rear connect in this assembly, and it provides the housing where the head of the humerus (the bone of the upper arm) connects. Studying the scapula and its connection to the clavicle and humerus from multiple points of view will help you understand how the arms connect to the torso.

The sternum is tie-shaped and is located at the front and center of the ribcage. As we know, there are 24 ribs, 12 on each side. All attach to the sternum via cartilage and directly to the spinal column in the rear. The ribcage curves around the body from back to front, with the ribs sloping diagonally downward. The mass of the ribcage defines the three-dimensional structure of the upper torso.

Along with the ribcage, the pelvis is another crucial structure in figure drawing. It's the second largest bone mass. Again, remember that it's three-dimensional, something like an upside-down helmet. The top edge of the pelvis is called the *iliac crest*. This coincides with the top of the mini-skirt shape we drew. The wide bottom of the mini-skirt shape is defined by the top portion of the femur.

In both the arms and legs, the section of the limb closest to the trunk has one bone; the next section, two; and the feet and hands come in at more than 25 each. In the arm, the large upper bone is the humerus. The two smaller bones of the lower arm are the ulna and radius.

The large upper bone of the leg is the femur. On the front of the femur at the knee is the patella. In the lower leg, we find the larger tibia and the much thinner fibula. The bottoms of these bones contribute to form the ankles.

As already noted, both the hands and feet have numerous bones, but these can be grouped into three main sections. In the hand, the first section consists of eight carpal bones. The next section contains the five metacarpals in the palm, followed by the phalanges in the fingers, with two joints in the thumb and three in the other fingers. This structure is more or less repeated in the foot: seven tarsals, followed by metatarsals and phalanges, or toes. At the heel end, the bone of the heel is the calcaneus.

Having a mental picture of the comparative lengths of the major bones and bone groups helps when thinking about proportions. Using the skull's height as a metric, we find that the clavicle, scapula, sternum, sacrum, and hand are somewhat smaller. The ulna, radius, pelvis, and foot are a bit longer. Next in size are the ribcage, humerus, tibia, and fibula—all about one and a half skull heights. The femur is about two skull heights, and the spine is about three.

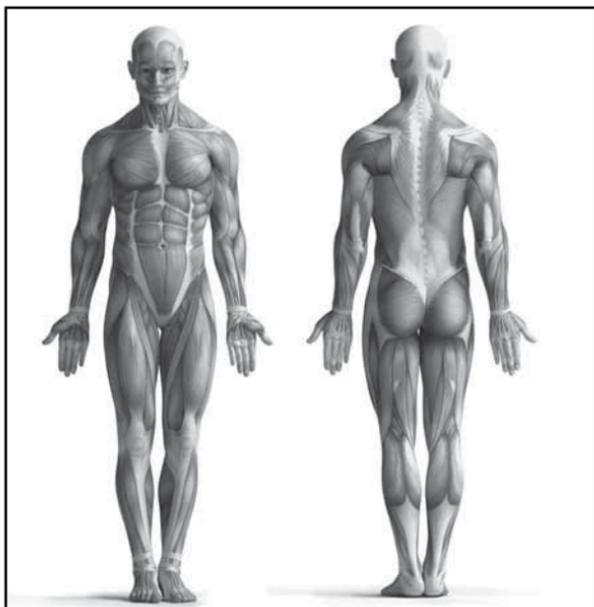
Not all the bones are equally visible on the surface. The major landmarks include the following:

- Frontal bone of the forehead
- Temporal fossae
- Zygomatic bone
- 7<sup>th</sup> cervical vertebra
- Jugular notch and sternum
- Front and top of both clavicles
- Scapulae
- Bottom of the 10<sup>th</sup> rib
- In the arm, the elbow—the meeting of the humerus, radius, and ulna; at the wrist, the ulna on the pinky side and the radius on the thumb side

- In the pelvis, the iliac spine and the anterior superior iliac crest
- In the rear, traces of the sacrum
- In the leg, the great trochanter of the femur; at the knee, the patella; on the outside, both the bottom of the femur and the top of the fibula; on the inside, the top of the tibia; in the mid-lower leg, the front of the tibia; and the ankles.

## The Major Muscles

The muscles, which are much more numerous than the bones, are divided into two main types: voluntary and involuntary. The voluntary muscles are attached to the skeletal structure and are the ones we consciously move. In drawing, these are the muscles in which we're interested. Let's begin by looking at the 13 most prominent muscles of the torso. For most, we'll consider their shape, where they attach to the bone, and their function. Then, we'll chart the major muscles of the legs and arms.



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Although bones have fixed shapes, muscles don't; they change shape as they relax or contract. When body builders compete, they flex and pose in positions to maximize the visual expression of a muscle or muscle group.



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Although we can discuss the nominal shapes of the muscles, it's important to remember that the actual shape is the result of a combination of factors, including the state of the muscle (relaxed, contracted, or in between), the body type of the individual, and the point of view.

Muscle attaches to bone via tendons. Anatomists make a distinction between two types of muscle-to-bone attachment: origin and insertion. Bones of origin tend to remain fixed. The bones that receive insertions are the ones that tend to move when the muscle is contracted.

Starting at the neck, the most prominent muscles of the upper torso include the following:

- Trapezius: large diamond-shaped muscle of the back

- Sternomastoid, or sternocleidomastoid: located on either side of the neck
- Deltoid: originates along the outer half of the clavicle and along the top spine of the scapula
- Pectoralis major: central muscle of the chest
- Serratus: any of three muscles that originate along the sides of the first eight or nine ribs and collect and insert under the scapula on each side
- Rectus abdominis: abdominal muscle
- External obliques: curve around to the side of the abdomen
- Latissimus dorsi: large triangular muscle of the back
- Rhomboid: group of muscles sandwiched between the trapezius and deltoids above and the latissimus dorsi below
- Infraspinatus, teres minor, and teres major: three muscles that cover the back of the scapula
- Erector spinae (sacrospinalis): deep muscle of the back.

The major muscles of the legs include the following:

- Sartorius: crosses from the outside of the hip to the inside of the knee
- Quadriceps: set of four muscles in the front of the thighs
- Adductors: set of five muscles of the inner thigh originating on the pelvis
- Glutes (gluteus): set of three muscles in the buttocks.

## Suggested Reading

Brown and McLean, *Drawing from Life*.

Visiblebody.com, SkeletonPremium and MusclePremium.

Winslow, *Classic Human Anatomy*.

# The Figure: Drawing Projects

## Lecture 34

In the first part of this lecture, we'll finish our discussion of human anatomy. In the second, we'll review the steps involved in figure construction and highlight a few tips that will help you avoid common pitfalls in figure drawing. We'll then discuss a range of projects: drawing a standing self-portrait, using stick figures, melding figure drawing with linear perspective, and drawing foreshortened figures.

### Continuing with the Major Muscles

In the last lecture, we left off with the glutes. Continuing our inventory, additional major muscles in the legs include the following:

- Hamstrings: group of muscles in the upper leg, below the glutes
- Extensors: group of muscles in the front lower leg; involved in the motion of the foot and toes
- Gastrocnemius: calf muscle; attaches to the Achilles tendon and heel bone
- Soleus: partially overlapped by the calf
- Peroneus longus and peroneus brevis: involved in the motion of the feet.

Major muscles in the arms include the following:

- Biceps: main muscles in the front of the upper arm
- Triceps: main muscles along the back of the upper arm
- Anconeus: muscle directly below the triceps, at the elbow

- Flexors: group of muscles in the front of the lower arm; involved with moving the wrist and fingers
- Extensors: group of muscles in the back of the lower arm; involved with moving the wrist, hand, and fingers.

The best way to begin to absorb all the bones and muscles we've covered is, of course, to draw them. Look online for illustrations to follow and take your time as you continue this study. You could easily spend 15 to 25 hours on the figure in three views—setting up the initial vertical and horizontal measures, drawing basic shapes, constructing the three figures, inserting the skeletons, and adding the muscles—but it will be time well spent.

Once you've completed this investigation, you'll have a much fuller awareness of how bone and muscle relate to the figure, but remember, with many figures, you won't see much of either. Bodybuilders and athletes aside, fat and skin obscure the view. Overall, fat collects most around the center of the body, in the chest, abdomen, buttocks, and hips, followed by the thighs and upper arms. We see less fat on the lower legs and arms and the least on the hands and feet.

### Review of Figure Construction Steps

Before we begin our figure-drawing projects, let's review the construction steps we took in this last drawing:

- Start with linear measure—two horizontal and three vertical lines defining the figure's height in the format shape.
- Divide the vertical measures into head-height units and relate anatomical events to this scale. Using the same scale, establish widths.
- Using this scaffolding, draw 10 simple shapes to represent the ribcage and upper torso, pelvis and lower torso, thighs, lower legs, feet, upper arms, lower arms, hands, neck, and head.
- Introduce contrapposto.

- Add volume through cross-contour. First, draw lines in the long axes to create planes or facets, then draw ellipses or ovoids to further the illusion.
- Integrate contour and cross-contour lines to create a greater sense of naturalism.

Here are a few more general tips to help you avoid common pitfalls in figure drawing:

- Start with the whole, meaning some kind of linear measure or aggregate shape placed on the page. This lets you control composition and helps you avoid the beginner's problem of running out of room.
- Work from the general to the specific. It's difficult to keep the proportions and composition together if you start with details.
- Remember that the figure is three-dimensional. Everything has  $x$ ,  $y$ , and  $z$  coordinates.
- Regarding anatomical knowledge, use it as an aid in drawing your figures, but keep in mind the intent of your drawing. In other words, showing more bone and muscle isn't always better.

Practice drawing all these muscles into half of the anterior and posterior views of your figure and fully into the lateral view. If you want to use colored pencils for this project, get a set of eight: yellow, orange, red, blue, brown, gray, black, and white. Imagine the light coming from a single direction. Where the muscles swell toward the light, make them lighter. Where the muscles taper, where they're overlapped, and where they're away from the light, go darker.

### **Project: Self-Portrait in Three Views**

For additional practice with figure proportion, try a standing, full-length self-portrait in three views. The goal here is to analyze a figure observationally in terms of measure and to note actual, as opposed to canonical, proportions. To complete this project, follow these steps:

- Set up the page as you did for the drawing of the figure in three views.
- In order to see your proportions clearly, wear a bathing suit, a leotard, or shorts and a tank top.
- Choose an expressive posture and decide on the positions of your arms and legs.
- Start with the anterior view. Take the measure of your head with your pencil. Then, measure your body height in heads and calibrate the central vertical axis according to this number. Number the head heights.
- Note what landmarks occur at each head height. For example, the nipples might be located at the second head, the naval at the third head, and so on. When important landmarks don't coincide with a head height, make a line where the landmark occurs and an accompanying notation.
- Once you have the heights established, plot the widths.
- With the anterior view plotted, carry the measures to the posterior and lateral views. Then, turning your head, add any other measures you need for these views. If there's something you can't see, have someone take a picture and use the photo to clarify.
- Draw the basic shapes in relation to your measure marks. Check the proportions and adjust.
- Add volume and integrate contour and cross-contour lines to arrive at a more naturalistic figure.

As a second project, use a model to draw another standing figure. Working on this project with a number of different body types will help you develop a sense of the range of human proportions. It also makes you aware of the three-dimensional structure of the body and how structures in the front, side, and rear relate.

Another good project is to invent your own set of proportions. Such a drawing might consist of a subtle variation on the proportions you used in the initial drawing of three figural views, or it could be something more extreme. You might try drawing a child, a weight lifter, or a runway model. Given the body type you're imagining, consider what you might see of the underlying anatomy on the surface.

### **Project: Stick Figures**

The humble stick figure can be a useful starting point in figure drawing because it can capture the figure in a specific position that might otherwise seem difficult. Stick figures also enable you to capture movement that you can build on later. Starting with a simple stick figure, you can add a trapezoid or ovoid for the ribcage and another for the pelvis. Then, follow with the other eight body shapes. If you add tapering cylinders for the body parts, you'll have volume.

In an earlier lecture, we saw how we can apply gestural drawing to linear perspective—by roughing in some planes and finding the vanishing point and the horizon. If you combine stick figures with linear perspective and a gestural approach, you have a ready method for quickly drawing complex figures in environments.

### **Project: Figures in Perspectival Space and Foreshortened Figures**

The last projects in this lecture are focused on constructing figures in perspectival space. We start with a figure using line in one-point perspective, followed by two-point perspective, followed by the addition of value and color.

Now that you've had a good introduction to figure drawing, you might also try drawing a foreshortened figure. Use a model and your grid for this project. Remember, it's all about measure and a conscientious use of cross-contour and overlap. If you stick to outline, the figure will be flat, not volumetric.

## Suggested Reading

Brown and McLean, *Drawing from Life*, “Foreshortened Figures,” pp. 48–60.

Hamm, *Drawing the Head and Figure*.

Loomis, *Successful Drawing*, “Projection of Figures (in Perspective),” pp. 67–77.

# Advanced Concepts: Pictorial Space

## Lecture 35

**A**fter working diligently through the many projects in this course, you have some real knowledge and ability at your disposal. You'll likely want to put it to use to make drawings that speak to your own concerns and ambitions. In developing your work, it's useful to be aware of the range of traditions and subjects that have been important in the history of drawing, as well as trends in contemporary art. In this lecture, we'll trace a broad outline of that history, starting back where we began in the first lecture in the Blombos Cave and moving into the present.

### **Pictorial Space from Earliest Art**

We can chart the whole history of art from the perspective of pictorial space. Going back to the 80,000-year-old drawing incised on a piece of ochre that we saw in Lecture 1, we noted line, shape, value, and pattern. Fast-forward 50,000 years to the drawings in Chauvet Cave, and we get line, value, and overlap. Move forward another 27,000 years to Egypt, and we get line, shape, value, pattern, color, and a clear embrace of spatial illusion, although the world was still depicted as fairly flat.

About 2,000 years later, in Song dynasty China, we have line, shape, value, pattern, color, overlap, and shapes that tilt back into space. By this time, human beings had clearly discovered a great deal about the compositional uses of color and value, using high-contrast events to bring out figures and much more muted value and color contrasts in the ground.

Move ahead another 200 years to northern Italy, and the list of artistic techniques and discoveries becomes longer. We have line, shape, value, pattern, color, overlap, oblique shapes, and three-dimensionality. We have space constructed out of planes: rooms with articulated walls, floors, and ceilings. And we see the effects of light, with more light on the top planes and less on the side planes.

A brief 175 years later, in his *Last Supper*, Leonardo presents a unified theory of line, shape, value, pattern, color, overlap, oblique shape, and value as light creating volume in space. We also see a lifelike and predictable spatial recession that includes both linear and atmospheric perspective.

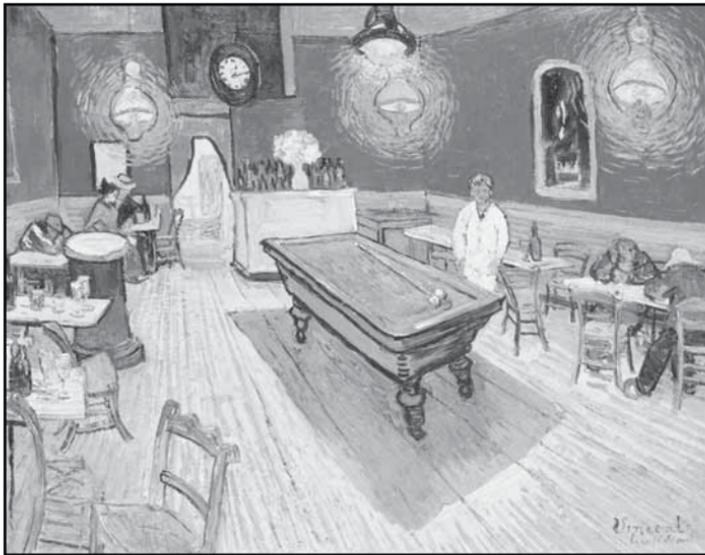
Artists and their clients or patrons, at least in Europe, were fairly happy with this accumulation of riches. They spent the next 400 years or so playing with this idea of pictorial space. A drawing or painting was essentially like the inside of a box. Even in a landscape, the box metaphor held. Eakins's watercolor was done about 375 years after Leonardo's *The Last Supper* but shares many of the same hallmarks.



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### Pictorial Space in Later Art

In the late 19<sup>th</sup> century, things began to change. Van Gogh painted *The Night Café* in 1888, 15 years after Eakins did his watercolor. Although he was respectful of linear perspective, Van Gogh seems to have kicked and squashed the tidy Renaissance box. The planes were now bent and mangled.



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The color was pumped up to levels far beyond unnamable, and even though we see the lights and the cast shadow of the pool table, we don't really see the effects of light on form—the figures, furniture, or wall planes. The surface is animated and the space is partially flattened by all the excited mark-making and texture that sits on the surface, not in it.

With later artists, such as Monet and Cézanne, volume and symmetry lost further ground. As you recall, the fundamental Renaissance discoveries that led to naturalistic drawing were based on an apparent contradiction. Renaissance artists found that if you closed one eye—always the same one—measured carefully, and tabulated the results on the page, the result resembled the way we think we see with two eyes. But what if we actually looked at the subject with two eyes and tabulated those results? Or what if we paid attention to the way one eye was seeing, then switched to the other?

As we walk around, we think we're seeing a clear, steady, single photographic image. Of course, the reality is that we're constantly seeing two distinct images at the same time, representing two distinct points of

view that are actually several inches apart. You'd think this view would make life extremely difficult, but our "software" straightens the world out for us. *Our* reality is that we're seeing one image, though *the* reality is different.

Artists in the late 19<sup>th</sup> century, Cézanne prominently among them, began to draw and paint while embracing a binocular view of the world. In the early 20<sup>th</sup> century, Picasso went even further; he wasn't just looking with two eyes but moving his head as he looked, taking in views from straight on, from the side, upwards, and downwards. He was making a mash-up of points of view, which have their similarity with both Egyptian and pre-Renaissance works. For Picasso and many of his contemporaries, the Renaissance tradition of depicting a receding space along a ground plane seen from a fixed viewpoint imposed severe limitations on drawing. Indeed, one way of understanding drawing and painting of the late 19<sup>th</sup> century and throughout the 20<sup>th</sup> is as an exploration of the many possibilities that exist in pictorial space. A complex world exists between flatness or two-dimensions and the Renaissance version of the illusion of three-dimensions.

Piet Mondrian's trajectory and body of work are compelling in this regard. He was born in 1872, a year before Eakins did the *Biglin* watercolor. He studied at the Academy of Fine Arts in Amsterdam and, by age 28, was an accomplished artist. Many of his early works were landscapes, and he clearly absorbed many of the same things we've studied in this course, particularly those relating to composition and spatial illusion.

Mondrian died in 1944 at age 71, and his later work might seem completely removed from the early landscapes. But there's a clear evolution to be discovered. If we compare some of Mondrian's landscapes, such as *Row of Eight Young Willows Reflected in Water*, to his later work, we begin to see that the underlying structure of the landscape is based primarily on horizontals intersecting verticals—essentially, a grid.

As we've said, in painting and drawing, what's most important is not what you're looking *at* but what you're looking *for*. What Mondrian was looking for in his mid-30s were landscapes that would sit on the format's surface and

have a grid-like aspect: vertical trees and a horizon reflected straight down into water. What he eventually found was that he could do away with the objects and retain the grid-like structure. Along the way, he also found that he could get rid of the structure of the Renaissance box itself.

Van Gogh kicked the box in. Monet pushed it up against the picture plane. Cézanne mangled it. And Picasso and Braque shattered it like glass. But Mondrian eliminated it altogether. The drawn or painted world was pushed up against the picture plane.

### **Ambiguous Space**

If you spend some time studying Mondrian's later works, such as *Broadway Boogie Woogie*, you'll find that he uses many of the principles we've learned regarding the manipulation of illusionistic space. But rather than using them to reinforce one message, as he did in his earlier paintings, he uses them to contradict one another, producing what we refer to as *ambiguous space*.

Starting in the late 19<sup>th</sup> century, many artists were, in one way or another, interested in the idea of ambiguous space—configurations that can be read in multiple ways, as two-dimensional, three-dimensional, or somewhere in between. These ways of thinking—the questioning of the kind of space codified in the Renaissance—resulted in both a change in the way many artists thought about representation and in many forays into abstraction.

From the first lecture in this course, we've said that learning to draw is really about learning to see, and you're probably seeing much more now than when we began. Two questions to ask yourself as you move forward are: What do you want to draw? How do you want to draw it?

In the final lecture, we'll talk about a number of projects that will let you build on what you've learned and help you experiment with a range of approaches, with the goal of helping you answer these questions and find areas that are of particular interest to you.

## Suggested Reading

Enstice and Peters, *Drawing*, chapter 1, “The Three-Dimensional Space of a Drawing,” pp. 20–46, and chapter 2, “The Two-Dimensional Space of a Drawing,” pp. 47–58.

Hockney, David. *I Am a Space Freak*.

Rockman, *Drawing Essentials*, “Different Kinds of Space,” pp. 50.

Sale and Betti, *Drawing*, “Categories of Space,” pp. 80–98, and “Organizing the Picture Plane,” pp. 273–297.

Shan, Ben, *The Shape of Content*.

# Advanced Drawing Projects

## Lecture 36

Thus far, this course has covered the bulk of what students might learn in the first three years of university-level drawing classes. This final lecture will outline some intermediate and advanced projects. Although the lecture itself is about 30 minutes, the projects could take six months or more to realize. Some are directly related to topics discussed in the last lecture. They'll help you expand on what you've learned and try some alternative approaches, guiding you in your search to find your own areas of artistic interest.

### Artistic Approach

In the last lecture, we posed two questions: What do you want to draw? How do you want to draw it? In developing your own drawing, these two questions are pivotal.

Many art classes are organized around such subjects as still lifes, interiors, landscapes, and the figure. In understanding these nominal subjects, it's critical to note the importance of approach. Although one artist might approach a still life with purely formal concerns, another might approach it to explore a particular theme, such as mortality, fertility, or consumerism. For example, most Cézanne still lifes are formal, but many other European still lifes are narrative. For example, the general goal of the sub-genres known as *memento mori* and *vanitas* was to remind European Christians that life here on earth is temporary.

Approach can be partially designated by a term, such as Impressionism, Cubism, Baroque, or Pop Art. Such terms have their uses, but they tend to be imprecise. Degas and Monet are often lumped together as Impressionists, yet their methods and approaches were quite different. Similarly, Van Gogh and Gauguin are considered Post-Impressionists, but their drawings and paintings have distinct concerns.

Overall, it's often more useful to ask what kind of problem an artist was interested in or what the goal of a particular project was. These kinds of questions can be accompanied by those that help us reverse-engineer the work and understand the methodology: What were the materials? What was the procedure?

Often, the reason a drawing looks the way it does is that the artist was tackling a specific problem and, in response, invented or adopted a set of procedures. When you consider these questions, you develop a more profound understanding of what's behind a given work. And understanding things in this way puts you in a better position to understand how you might work on similar problems or on problems that intrigue you.

### **Intermediate Projects**

The following intermediate projects are designed to help you relate technical and formal considerations—line, shape, space, composition, proportion, value, texture, and color—to your own subject matter and content. They are also meant to prompt you to explore different means for creating drawings, including observation, construction, and abstraction.

#### **Abstract Drawing Based on a Figurative Painting**

Our first intermediate project is an abstract drawing based on a figurative painting. The idea here is to develop a drawing with a spatial structure that has depth but doesn't function like a Renaissance window or box. It's space without gravity.

To begin the project, select a complex naturalistic figurative painting, one with a compelling structure. The goal is to abstract the structure or architecture lying beneath the figurative elements. The resulting drawing should consist of lines and shapes that you will then use to create your drawing. This is where your own invention comes into play.

Begin to use line weight to suggest a hierarchy. Turn the lines and shapes into planes and volumes but without reference to gravity. To aid in this, you might want to rotate the paper every 15 minutes as you draw. Each time, respond as if the bottom edge had gravity. In the end, many of the assertions will contradict one another, but you'll have succeeded in creating a very

different kind of visual space than in prior drawings. As a final step, you could take the drawing back into figuration, adding any elements you might want; at the same time, try to avoid the primacy of a floor plane and a single point of view.

A related project entails drawing the rectangle's armature and using this as a jumping-off point to improvise with abstract volumetric structures in space. One essential idea is that abstraction and figuration are not opposites but intimately connected; they exist along a continuum.

### **Multiple Points of View and Scale Changes**

For another project that will extend your understanding of composition and space, start observationally, but instead of drawing from a fixed point of view, draw from multiple viewpoints. Instead of drawing any of the things you see just once, repeat them as many times as needed. And instead of keeping all the proportions related naturalistically, allow them to vary to serve the composition.

One variant of this project is to minimize the shift of location and retain all proportions accurately. Draw in one location for 15 or 20 minutes, then move a couple of feet to the right. Draw what you see from this view on top of the first. Then, move a couple feet to the left of the first view and repeat. As you draw, see how you can weave the three views together.

### **Earlier Drawing as Source Material**

Using one drawing you've made as source material for another allows you to have a dialogue with yourself surrounding visual themes. And as we've said, this is the way many artists build a body of work: They let one piece suggest a second, a third, a fourth, and so on.

Start with the drawing you did from multiple viewpoints as a source for a new drawing. You're no longer drawing directly from observation but from a drawing you just made. At this point, you might add some value, say, 10 to 20 percent hatching while the rest of the drawing remains line. Assign the hatching to what should be the focal area and focal point.

**External Source Material**

For the next project, continue working with multiple viewpoints and multiple scales, but ask yourself what you'd like the drawing to be about. Define a theme or idea. You can use any of your prior drawings as source material or make new and specific studies for this drawing. To find a theme, look to a wide range of source material, from other artworks, to literature, to something from popular culture.

**Figure Study Combined with Source Material**

Next, you could tackle a related project with a more traditional spatial construct. Select a figure drawing you've done and use it as if it had been made as a study for a more complex drawing. The central idea is to imagine a new environment for the figure and create or search out the materials you'll need, such as perspective studies, photographs, and so on, to be able to depict the environment convincingly. As you work, consider the following questions:

- What is the subject?
- What is happening in the drawing?
- Where is the figure located?
- What kind of place is this?

It's a good idea to do some preliminary gestural sketches to work out your composition, then get the source material you'll need to complete the drawing.

**Model in a Narrative Pose**

You might also find an opportunity to pose a model in a specific environment with narrative intent. In forming the pose, consider what the person is doing and why. Think about the mood of the scene and the subject being addressed. Also consider the room where you're drawing and how a section of it could be transformed. Will you put the model in the center of the room, in a corner, by a window? What kind of light will you use—strong directional light, candlelight, light from a television or laptop?

You can work through your ideas before meeting with the model by making small sketches to help you visualize what you might want to set up. Once you've set up the scene you intend to draw, take some time to look at it carefully and ask yourself how it could be improved.

### **Imaginary Self-Portrait**

For this project, draw yourself from direct observation, but complete the rest of the drawing using linear perspective and other constructive methods.

### **Advanced Projects**

Our last set of projects is more advanced. Although you'll still be dealing with a range of technical issues, your main goal is to locate areas of personal interest and relate these to drawing. Remember that an area of personal interest can be anything, from nature, to the grotesque, to politics, to geometrical pattern, and much more. An area of interest can also be formal, as in Monet's interest in color and light or Mondrian's interest in the relation of two-dimensional to three-dimensional space.

### **Locating Subject and Content**

The goal of the first advanced project is to locate content or subject matter. Find source material that's meaningful to you, such as a traditional artwork, an element from popular culture, a passage from literature, a piece of music, or even a chart or diagram. Then, ask yourself the following questions about the materials you've gathered:

- What is the subject?
- How is it being presented formally?
- Why do you feel the presentation is successful?
- How do you intend to use the source material you've chosen?

Next, determine what drawing materials you'll use and at what scale. As you continue to think about your drawing, again, ask yourself a few questions:

- Do you intend to make a line drawing, a drawing that's partially line with some or full value, or a drawing that depends on color?
- How will your drawing be composed?
- How will you address space and proportion?
- Will you use mark or texture?

When you've completed your drawing, give yourself a critique. Ask yourself what's working well and what's not. Also consider whether the subject or content is something you might want to pursue. If it is, you might use this drawing as the basis for others. If it isn't, identify a new theme or subject and try the project again.

### **Charcoal on Primed Canvas**

As you've discovered, working through all these projects takes time and effort. One way to surprise yourself and get varied results is to use materials in unexpected ways. For example, try a value drawing using charcoal on a piece of unstretched canvas primed with gesso. You'll find that the canvas is very forgiving; it takes a great deal of erasure with little wear and tear.

### **Triptych: Line Drawing Using Black and White Acrylic**

Another structure you might use to further develop your subject matter is the triptych, a work made of three separate panels. As a further challenge, you could try this project using black and white acrylic on three sheets of a heavier artist's grade paper. Work with the paint as a drawing medium, using the black to create line and the white to eliminate it.

### **Drawing Using Non-Art Store Materials**

This final project brings us back to the Blombos Cave, where we began in Lecture 1. People have been making art for a long while but have had paper for only a fairly short period—and have had the convenience of art stores for even less time. The challenge is to make a drawing without any art store materials. One of the opportunities here is to capitalize on the way materiality relates to a given subject or might even suggest a subject.

## Your Future in Drawing

Drawing, like many other pursuits, returns dividends in proportion to investment. The more you put into it, the more you're likely to get out. And the more you work on areas that are difficult for you, the more you'll advance well beyond what you assumed were your own limitations. Evaluate your skills and be frank about your areas of greatest difficulty. As you zero in on those aspects and practice them repeatedly, the difficulty will diminish. Above all, find what you love to draw. This will motivate you and lead you to your own creative discoveries.

### Suggested Reading

Cembalest, "How Edward Hopper Storyboarded *Nighthawks*."

Enstice and Peters, *Drawing*, chapter 8, "Subject Matter," and chapter 11, "Visualizations."

Rockman, *Drawing Essentials*, chapter 4, "Developing Ideas, Resolving Problems and Evaluating Results."

Sale and Betti, *Drawing*, chapter 10, "Thematic Development," pp. 299–326, and chapter 11, "A Look at Art Today."

Sewell, ed., *Thomas Eakins*, "The Camera Artist," pp. 239–255, and "Photographs and the Making of Paintings," p. 225–238.

Smagula, *Creative Drawing*, chapter 11, "Exploring Themes," and chapter 12, "Image and Idea."

## Additional Activities

### Lectures 1–3

For those looking for a broad history of art as a companion to help situate what they're learning about drawing, *Janson's History of Art* is one the standards for the Western canon. Another is *The Story of Art* by E. H. Gombrich. For a more inclusive worldview, Stokstad and Cothren's *Art History*, weighing in at a hefty 1,240 pages, is highly regarded. It starts with prehistory and, in addition to the Western canon, covers Asia, Islam, Africa, and the Americas. Though out of print, Daniel Mendelowitz's 1966 book *Drawing* is a good introduction to the history of (mostly) Western drawing from prehistory to the early 20<sup>th</sup> century.

Quite a few books have good introductory sections on getting to know your materials. The chapter "Media and Materials" in Bernard Chaet's *The Art of Drawing* contains much useful information. Arthur Guptill's books *Rendering in Pencil* and *Rendering in Pen and Ink* have excellent sections, as well. In the first book see, chapter 2, "Equipment and Studio," and chapter 3, "Preliminary Exercises." In the book on pen and ink, see chapters 2 through 5.

### Lectures 4–11

In the lectures, we covered only a fraction of the many artists who use line, shape, volume, and composition in compelling ways. Below are listed a few names, with search terms when applicable, that will bring up many more excellent examples.

Note: Specific sites are listed for some works. If a work is not easily found, its listing includes the name of a book from the bibliography for this course in which it appears.

### Contour and Cross-Contour Line

Alexander Calder drawings  
Juan Gris Line drawings  
George Grosz drawings  
Al Hirschfeld drawings

Jean-Auguste-Dominique Ingres line drawings  
Gustav Klimt drawings  
Gaston Lachaise drawings  
Sol LeWitt drawings  
Henri Matisse line drawings, including *Nude in the Studio* (pen and ink, 1935)  
Pablo Picasso line drawings

### **Line and Volume**

Luca Cambiaso, especially his preparatory drawings

### **Gestural Line**

Honoré Daumier drawings  
Willem de Kooning drawings  
Frank Gehry drawings  
Rembrandt van Rijn drawings

### **Shape**

Arshile Gorky  
Fernand Léger drawings  
Henri Matisse cut-outs  
Joan Miró drawings  
Donald Sultan drawings

### **Positive and Negative Shape**

Richard Diebenkorn drawings  
M. C. Escher  
Philip Pearlstein drawings  
Fairfield Porter  
Euan Uglow

### **Composition**

Balthus (Balthazar Klossowski de Rola)

Max Beckman  
Edgar Degas  
Piero della Francesca  
Lucian Freud  
Edward Hopper  
Rembrandt van Rijn drawings

### Lectures 12–14

In his 2001 book *Secret Knowledge*, the artist David Hockney advanced the theory that the great changes evidenced in the Renaissance were traceable to the use of such optical devices as the *camera lucida* and *camera obscura* to project images onto a surface and trace them. As part of this project, he put together what he termed *The Great Wall* of art. It's a compilation of reproductions of art historical works arranged chronologically that shows a distinct change in the 15<sup>th</sup> century, when artists' ability to portray subjects naturalistically took off. A Google search will turn up a number of images of the wall, as well as articles about his project.

For those interested in the subject of mechanical devices used by Western artists, Martin Kemp's book *The Science of Art* has an excellent chapter on the subject.

Although the thought of drawing or painting a still life of books might not at first seem an exciting proposition, artists have done remarkable things with this idea. For example, the contemporary artist Vincent Desiderio painted a tour-de-force image titled *Cockaigne* that you can view at <http://www.hirshhorn.si.edu/collection/vincent-desiderio-cockaigne/>.

If you search the subject "still life of books," you'll find works by a number by 17<sup>th</sup>-century Dutch artists, including Jan Davidszoon de Heem. Many of the works you'll find fall within the larger category of *vanitas*. The idea expressed here is that knowledge is fleeting and, thus, a vain pursuit. Many of these images also contain skulls or snuffed-out candles to further illustrate the point.

Still life can be much more than just a bunch of random objects posed on a table. For additional inspiration, look for *Agnus Dei* by the 17<sup>th</sup>-century

Spanish artist Francisco de Zurbarán. Next, fast forward a couple hundred years to Frida Kahlo's still lifes of fruit. They're clearly set up and composed to bring out visual references to sexual organs and fertility. Finally, the contemporary artists Audrey Flack, Wayne Thiebaud, and Janet Fish each have a fresh take on the form.

## Lectures 15–19

### Perspective

Robert Bechtle drawings

Jacopo Bellini drawings

Leonardo da Vinci, *Study for the Adoration of the Magi* (c. 1481)

Rackstraw Downes drawings

Thomas Eakins, *Perspective Study for the Biglin Brothers Turning the Stake, The Pair Oared Shell, Perspective Study for Baseball Players Practicing*

M. C. Escher

Anselm Kiefer

Giovanni Battista Piranesi drawings

### Three-Point Perspective

Charles Sheeler, *Delmonico Building* (lithograph, 1926,

<http://www.metmuseum.org/toah/works-of-art/68.728>)

## Lectures 20–30

As in the earlier section on formal language (Lectures 5–11), there are many excellent examples that could be added to what we looked at in this section of the course. Below are listed a few more individuals who are well worth looking up.

### Value, General

Kent Bellows

Edgar Degas monotypes

Sidney Goodman

Francisco Goya drawings

## Value, Compositional Use of Value

Akira Arita drawings

John Luke, *Self-Portrait* (pencil on paper, Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, p. 27)

John Singer Sargent, *Study of a Nude Man* (c. 1874–1880, Rockman, *Drawing Essentials*, p. 93)

## Value, Chiaroscuro

Caravaggio

Alfred Leslie drawings

Georges Seurat drawings

Giovanni Battista Tiepolo drawings

## Value, Black and White

Aubrey Beardsley drawings

Honoré Daumier, *Don Quixote and Sancho Panza* (c. 1850,

<http://www.metmuseum.org/collection/the-collection-online/search/333888>)

## Value, Positive and Negative Shape

Richard Diebenkorn drawings

Emil Nolde, *Harbor* (brush and ink, c. 1900,

<http://www.artic.edu/aic/collections/artwork/23101>)

*Notan*

A. R. Penck drawings, black and white

## Value, Gesture and Compositional Sketching

Edward Hopper, *Study for East Side Interior* (chalk and charcoal on paper, 9 x 11½ in., 1922, [http://whitney.org/WatchAndListen/AudioGuides?play\\_id=845](http://whitney.org/WatchAndListen/AudioGuides?play_id=845)), *Study for Evening Wind* (1921, Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, p. 149) drawing for *Morning Sun* (1952, Brown and McLean, *Drawing from Life*. p. 29).

## **Planar Head**

Planar heads are available from <http://www.planesofthehead.com>.

## **Texture and Mark**

Texture and mark are used expressively in a range of drawing types. If you pull up the Charles Schulz characters Charlie Brown and Pigpen, you get a very clear illustration of how potently mark affects the character of the subject portrayed.

### **Texture and Mark, General**

Pieter Bruegel, *The Beekeepers* (pen and brown ink, 1568)

Honoré Daumier drawings

Jean Dubuffet drawings

Alberto Giacometti drawings

Philip Guston drawings

William Kentridge drawings and animations

Roy Lichtenstein drawings

Henry Moore drawings

Saul Steinberg drawings

### **Texture and Mark, Cross-Hatching**

Hiëronymus Bosch drawings

Pieter Breughel the Elder drawings

Paul Cadmus drawings

R. Crumb drawings

David Levine drawings

Raphael (Raffaello Sanzio) drawings

Peter Paul Rubens drawings

### **Texture and Mark, Simulated Textures**

Kent Bellows

Vija Celmins

Audrey Flack

René Magritte, *The Thought Which Sees* (graphite, 1965,  
[http://www.moma.org/collection/object.php?object\\_id=35714](http://www.moma.org/collection/object.php?object_id=35714))  
Catherine Murphy, *Paint Jacket Pockets* (pencil on paper, 2002,  
[http://www.moma.org/collection/object.php?object\\_id=96790](http://www.moma.org/collection/object.php?object_id=96790))

Sylvia Plimack Mangold drawings

Mark Tansey

## Color

Pierre Bonnard

Yvonne Jacquette

Wayne Thiebaud

Édouard Vuillard

In addition, below are listed a number of color websites that may prove interesting:

- *ColorCube*, <http://www.colorcube.com/illusions/illusion.htm>. This site provides visual illustration of some optical effects.
- *Color Matters*, <http://colormatters.com>. This site focuses on color in relation to symbolism, marketing, and a number of other related subjects.
- *Color Palette Generator*, <http://www.degraeve.com/color-palette/>. This site allows you to upload an image and create a set of swatches related to the image.
- *A Breakdown of Color in Film Stills*, <http://imgur.com/a/PyRly>. Analyzes movie stills in terms of the color palettes used in the shots.
- *Movies in Color*, <http://moviesincolor.com/>. Like the preceding site, this one also analyzes movie stills in terms of the color palettes used in the shots.

## Lectures 31–34

### The Figure, General

Jean-Auguste-Dominique Ingres drawings

Jacopo da Pontormo drawings

Raphael (Raffaello Sanzio) drawings

### The Figure, Anatomy

Bernhard Siegfried Albinus

Andreas Vesalius

### The Figure in Perspectival Space

Henri de Toulouse-Lautrec, *The Laundress* (1888, Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, p. 41)

### The Figure, Foreshortened

Giovanni Paolo Lomazzo, *Foreshortened Nude Man* (Mendelowitz, Faber, and Wakeman, *A Guide to Drawing*, p. 43)

Andrea Mantegna, *Lamentation of Christ* ([http://en.wikipedia.org/wiki/Lamentation\\_of\\_Christ\\_%28Mantegna%29](http://en.wikipedia.org/wiki/Lamentation_of_Christ_%28Mantegna%29))

Additionally, here is a list of some prominent artists who have done substantial work with the figure over the past 50 years. Their work represents a broad range of approaches.

Steven Assael

Paul Cadmus

George Condo

R. Crumb

John Currin

Richard Diebenkorn

Marlene Dumas

Eric Fischl

Lucian Freud  
Gregory Gillespie  
David Hockney  
John Koch  
Alfred Leslie  
Loretta Lux  
Elizabeth Peyton  
Alice Neel  
Philip Pearlstein  
Jenny Saville  
Luc Tuymans  
James Valerio

### Lectures 35–36

To figure out where you want to go, it can be helpful to look at a wide array of work and see where you feel some kinship. The following three lists for further research include either contemporary artists who are currently active or artists who were active during the last 100 years. Most are artists who weren't mentioned in the lectures or in these accompanying notes. Needless to say, these lists are far from inclusive, and as you search each individual, you'll come up with 5 or 10 others artists who are or were in some way associated with your initial target.

The first list highlights abstraction because many people who otherwise have a real interest in art find abstraction challenging. However, some of what you've learned about drawing in this course should offer inroads to other work that might at first be difficult to appreciate. If you've kept abstraction at arm's length, here are some artists you might look up:

Willem de Kooning  
Arthur Dove  
Marsden Hartley  
Howard Hodgkin  
Franz Kline  
Emma Kunz  
Kazimir Malevich  
Kurt Schwitters

Sean Scully  
Terry Winters

Below are a few artists who straddle abstraction and figuration:

Louise Bourgeois  
Cecily Brown  
Richard Diebenkorn  
Philip Guston  
Philip Pearlstein  
Gerhard Richter  
Matthias Weischer

Finally, the following artists span some of the enormous range of figuration we've seen over recent decades:

Jean-Michel Basquiat  
William Beckman  
Paul Cadmus  
James Castle  
Vija Celmins  
Sue Coe  
John Currin  
Tacita Dean  
Jan De Vlieghe  
Rackstraw Downes  
Marlene Dumas  
Eric Fischl  
Ann Gale  
Gregory Gillespie  
Ignacio Ituria  
Yvonne Jacquette  
William Kentridge  
John Koch  
Catherine Murphy  
Alice Neel  
David Park

Ed Paschke  
Jenny Saville  
James Valerio

A last note: Don't be afraid to change or try new things. Although some artists have been consistent over the decades of their lives, many others have embraced change. A look at the careers of such artists as Edvard Munch, Picasso, Matisse, Mondrian, or Philip Guston can be instructive in this regard.

# Bibliography

## Drawing: Contemporary Sources

Aristides, Juliette. *Classical Drawing Atelier*. Watson-Guptill, 2006. A solid and well-illustrated introduction to drawing based in post-Renaissance and pre-20<sup>th</sup>-century practices and techniques in the West.

———. *Classical Painting Atelier*. Watson-Guptill, 2008. A companion to Aristides's drawing book. For the purposes of this course, this volume has useful chapters on composition and value.

———. *Lessons in Classical Drawing*. Watson-Guptill, 2011. A third volume from Aristides that includes a DVD tutorial.

Bothwell, Dorr, and Marlys Mayfield. *Notan: The Dark-Light Principle of Design*. Dover, 1991. A good introduction to *notan*, discussed in Lecture 22.

Boyer, Sheri Lynn. <http://www.artinstructionblog.com/drawing-lesson-a-theory-of-light-and-shade>. Many of my students have found this site helpful. It provides an overview of value and light and shade.

Chaet, Bernard. *The Art of Drawing*. 3<sup>rd</sup> ed. Harcourt Brace Jovanovich, 1983. A good, straightforward text. Provides clear explanations and examples of line, value, texture, and figure-ground relationships. Also includes a good chapter on materials.

*Character Design*. <http://pinterest.com/characterdesigh/>. This site is popular among my students who have an interest in concept art, comics, manga, and video games.

Curtis, Brian. *Drawing from Observation*. McGraw-Hill, 2009. This source contains a great deal of good material, with a focus on observational drawing. The explanations are clear and in-depth. The many illustrations also help the reader understand the topics under discussion.

Eagle, Ellen. *Pastel Painting Atelier*. Watson-Guptill, 2013. Although a number of books in this bibliography have a section or chapter devoted to pastel, this book represents a comprehensive introduction to the subject with many fine illustrations by a range of artists.

Enstice, Wayne, and Melody Peters. *Drawing: Space, Form and Expression*. 2<sup>nd</sup> ed. Prentice Hall, 1995. This book contains all the materials commonly presented in a college-level drawing course. It's well-organized, with a wealth of reproductions of artists' works, including many contemporary examples.

Faber, David L., and Daniel M. Mendelowitz. *A Concise Guide to Drawing*, 8<sup>th</sup> ed. Cengage Learning, 2012. Another comprehensive college-level drawing book. Covers all the important formal elements with sections on still life, landscape, and the figure. Also contains many helpful visual examples, including contemporary ones.

Goldstein, Nathan. *The Art of Responsive Drawing*. 3<sup>rd</sup> ed. Prentice Hall, 1984. A thorough book with much useful information.

Guptill, Arthur L., and Susan E. Meyer, *Rendering in Pencil*. Watson-Guptill, 1977. This is one of my favorite books on drawing. It is thorough and provides clear explanations. Note: Arthur Guptill, Jack Hamm, and Andrew Loomis were all primarily illustrators and were first published in the early to mid-20<sup>th</sup> century. They each wrote multiple texts on drawing, many of which are listed in this bibliography. Their books are decidedly different in character from books published from the 1970s onward and geared to the college classroom (e.g., those by Enstice, Faber, Goldstein, Mendelowitz, Rockman, Sale, Smagula, and others.). Guptill, Hamm, and Loomis tend to be more prescriptive, with a greater reliance on recipes. Also, some of the drawing examples of female nudes veer toward the pin-up, and some drawings of different "ethnic types" would make most contemporary readers cringe. That said, these men were extremely knowledgeable and wrote in clear and concise terms. There is a wealth of good information in their respective volumes.

———. *Rendering in Pen and Ink*. Watson-Guptill, 1997. Like the book on pencil, an excellent work.

Hamm, Jack. *Drawing Scenery: Landscapes and Seascapes*. Perigee Trade, 1988. Hamm starts out with many basics about composition. He then goes on, in his encyclopedic way, to catalog 38 kinds of trees, many other kinds of rocks, and cloud types charted by altitude.

———. *First Lessons in Drawing and Painting*. Perigee Trade, 1988. Although this book is not comprehensive, it includes plenty of excellent information.

———. *How to Draw Animals*. Perigee Trade, 1983. If you want to draw animals, this is a good place to start. Hamm starts with some anatomical basics. Then, he runs through scores of different animals, pointing out differences among species. For example, he doesn't just give you one bear but contrasts the Kodiak with the polar, grizzly, black, Himalayan, sloth, and Malayan varieties.

The J. Paul Getty Museum. *Formal Analysis*. [http://www.getty.edu/education/teachers/building\\_lessons/formal\\_analysis.html](http://www.getty.edu/education/teachers/building_lessons/formal_analysis.html). This link provides an introduction to formal analysis.

The Kennedy Center. *Formal Visual Analysis*. <https://artsedge.kennedy-center.org/educators/how-to/from-theory-to-practice/formal-visual-analysis>. This site lists many formal language terms with concise definitions.

Loomis, Andrew. *Fun with a Pencil*. Titan Books, 2013. There's a fair degree of overlap in Loomis's books, but they all have excellent information, including this one. This volume concerns itself a bit more with cartooning than the others.

———. *Successful Drawing*. Titan Books, 2012. An excellent book with good sections on basic forms, form in light, linear perspective, and relating the figure to perspective.

Mendelowitz, Daniel M. *Drawing*. Holt, Rinehart and Winston, 1967. This is not a how-to book but, instead a good introduction to the history of (mostly) Western drawing from prehistory to the early 20<sup>th</sup> century.

Mendelowitz, Daniel, David L. Faber, and Duane Wakeman. *A Guide to Drawing*. 7<sup>th</sup> ed. Cengage Learning, 2006. From the same publisher and by some of the same authors as *A Concise Guide to Drawing*, above, this source has many of the same materials.

Pumphrey, Richard. *The Elements of Art*. Prentice Hall College Division, 1996. Though introduced as a book on design, not drawing, this volume provides an excellent introduction to formal language and many important aspects of two-dimensional art.

Rockman, Deborah. *Drawing Essentials*. Oxford University Press, 2009. A well-thought-out book with chapters on all the major topics generally covered in a college-level drawing course.

Sale, Teel, and Claudia Betti. *Drawing: A Contemporary Approach*. 5<sup>th</sup> ed. Thomson Wadsworth, 2004. A fairly comprehensive book, with many good explanations and illustrations.

Smagula, Howard J. *Creative Drawing*. 2<sup>nd</sup> ed. McGraw-Hill, 2002. Yet another thorough and well-illustrated book covering the major topics generally discussed in a university drawing course.

Stevens, Peter, S. *A Handbook of Regular Patterns*. MIT Press, 1981. An excellent and comprehensive book on pattern. The text is clear, analytical, and accompanied by a wealth of illustrations.

### **Drawing: Historical Sources**

Ackerman, Gerald, and Graydon Parrish. *Charles Bargue and Jean-Léon Gérôme Drawing Course*. ACR, 2011. This is a reprinting of the 19<sup>th</sup>-century *Cours de Dessin* of Charles Bargue, a French lithographer, and Jean-Léon Gérôme, the academician known for his orientalist paintings. The method involves copying drawings of plaster casts, starting with line to block out shape, then volume attached to planar structure. This is used as a guide to then apply value. The young Pablo Picasso made copies of a number of these drawings.

Alberti, Leon Battista, and Martin Kemp. *On Painting*. Penguin, 1991. A seminal 15<sup>th</sup>-century text on drawing and painting.

Cennini, Cennino d'Andrea. *The Craftsman's Handbook*. Dover, 1933. Among the first Western manuals on artistic materials and procedures. Written in 15<sup>th</sup>-century Italy, it describes many of the methods for making materials and their application.

da Vinci, Leonardo. *A Treatise on Painting*. Dover, 2005. <http://www.treatiseonpainting.org>. This is a translation of a text based, at least in part, on Leonardo's manuscripts. A number of versions were published in Europe during the 16<sup>th</sup> and 17<sup>th</sup> centuries. It is somewhat fragmented but interesting nonetheless. Multiple early editions can be viewed at the link listed above.

———. <http://www.universalleonardo.org/>. This site, curated by Martin Kemp, has an excellent selection of Leonardo's drawings and manuscript pages.

de Honnecourt, Villard. *The Sketchbook of Villard de Honnecourt*. Edited by Theodore Bowie. Indiana University Press, 1959. A 13<sup>th</sup>-century sketchbook of drawings with subjects spanning figures, animals, and architecture. This source is noteworthy for our course because it constitutes an early example of a draftsman using simple geometric shapes to draw more complex objects (plates 35 through 38). Plate 35 has the inscription "Here begins the method of representation."

Dürer, Albrecht. *Four Books on Human Proportions*. <http://brbl-dl.library.yale.edu/vufind/Record/3783330>. The entire 1528 volume containing Dürer's exploration of human proportions is available as a pdf at this site.

———. *Underweysung der Messung*. <http://brbl-dl.library.yale.edu/vufind/Record/3529943>. The original German text printed in 1525.

———. *Underweysung der Messung*. <http://brbl-dl.library.yale.edu/vufind/Record/3529943>. An additional eight pages published in 1538.

Dürer, Albrecht, and Walter Strauss. *The Human Figure by Albrecht Dürer: The Complete Dresden Sketchbooks*. Dover, 1972. <https://archive.org/stream/>

bub\_gb\_1vEEAAAAYAAJ#page/n51/mode/thumb. A collection of many of Dürer's annotated figure studies done in preparation for his 1528 publication *Four Books on Human Proportion*.

———. *The Painter's Manual*. Abaris Books, 1977. An English translation of Dürer's *Underweysung der Messung*.

Eakins, Thomas. *A Drawing Manual*. Philadelphia Museum of Art, 2005. This is an unfinished book written by Eakins based on his teaching at the Pennsylvania Academy of Fine Arts. Though fragmentary, it shows the kind of analytical and quantitative thinking that engaged him.

Koller, E. L. *Light, Shade, and Shadow*. Dover, 2008. This book was originally published in 1914. Though a slim volume, it covers the perspective of shadows in some detail.

Ruskin, John. *The Elements of Drawing*. Dover, 1971. Ruskin was better known as an art critic than an artist, but he was an accomplished draftsman nonetheless. His book, originally published in 1857, is heavier on text and has fewer illustrations than most contemporary books on drawing. That said, much of the information here is relevant.

Speed, Harold. *The Practice and Science of Drawing*. Dover, 1972. Originally published in 1917, this is a well-known text on drawing, much of it dealing with both line and mass.

Vasari, Giorgio. *Vasari on Technique*. Dover, 2011. This 1550 text on methods in architecture, sculpture, painting, and design was written by the well-known author of *Lives of the Artists*. It gives us a contemporary view of the materials, methods, and techniques used by Renaissance artists.

### **Linear Perspective**

Auvil, Kenneth W. *Perspective Drawing*. 2<sup>nd</sup> ed. McGraw-Hill, 1996. A concise and thorough book with clear illustrations.

D'Amelio, Joseph. *Perspective Drawing Handbook*. Dover, 2004. This book was originally published in 1964. It is well-illustrated and covers many of the most important concepts related to one- and two-point perspective.

Montague, John. *Basic Perspective Drawing*. 6<sup>th</sup> ed. Wiley, 2013. Among the clearest and most thorough books on linear perspective. The newest edition includes a key code that gives you access to a website with instructional videos.

Norling, Ernest R. *Perspective Made Easy*. Dover Publications, 1999. This book was first published in 1939, and its illustrations may look somewhat dated. That said, the subject is well-presented. Both the text and illustrations communicate the essential points in a vivid way.

Robertson, Scott, and Thomas Berling. *How to Draw*. Design Studio Press, 2013. A good recent book on perspective. It covers all the basics and has detailed sections on drawing cars and planes.

Veltman, Kim H. *Linear Perspective and the Visual Dimensions of Science and Art*. Deutscher Kunstverlag, 1986. This is not a how-to book. Instead, it's a historical study of Leonardo's writings on, and use of, perspective and related subjects. Contains a great deal of fascinating material.

## **Figure Drawing and Anatomy**

Bridgman, George B. *Bridgman's Complete Guide to Drawing from Life*. Sterling, 1952. Bridgman taught figure drawing and anatomy at The Art Students League in New York City for many years. This book includes his own drawings, accompanied by explanations of the major body parts. There is also a chapter on drapery.

Brown, Clint, and Cheryl McLean. *Drawing from Life*. 2<sup>nd</sup> ed. Harcourt Brace, 1997. A comprehensive guide to figure drawing. Many of the formal considerations are covered in the first section on fundamentals. This is followed by a section on anatomy and another on composition and expression.

Goldstein, Nathan. *Figure Drawing*. 4<sup>th</sup> ed. Prentice Hall, 1993. A good overview of figure drawing. Well-illustrated, with chapters on structural, anatomical, and expressive approaches

Hale, Robert Beverly. *Master Class in Figure Drawing*. Watson-Guptill, 1991. This text is distilled from Hale's anatomy classes at The Art Students League in New York. Hale moves through the major structures of muscle and bone in the human body, relating them to choices made in drawings by important artists from Leonardo to Rubens.

———. *Lectures on Artistic Anatomy and Figure Drawing*. [http://www.joan.com/art\\_video.htm](http://www.joan.com/art_video.htm). These videos of Hale teaching at The Art Students League in New York provide excellent material. There are 10 talks in all, each covering a section of the body, as follows: Lecture 1, Rib Cage (78 minutes); Lecture 2, Pelvis (81 minutes); Lecture 3, Leg (74 minutes); Lecture 4, Foot (72 minutes); Lecture 5, Shoulder Girdle 1 (77 minutes); Lecture 6, Shoulder Girdle 2 (68 minutes); Lecture 7, Arm (76 minutes); Lecture 8, Hand (80 minutes); Lecture 9, Head and Skull (80 minutes); Lecture 10, Head and Features (97 minutes).

Hale, Robert Beverly, and Jacob Collins. *Drawing Lessons from the Great Masters*. Watson-Guptill, 1989. This book analyzes artists' drawings in relation to the use of line, light, plane, and anatomy.

Hamm, Jack. *Cartooning the Head and Figure*. Perigee Trade, 1986. As the title suggests, this book is all about cartooning. The examples are decidedly early to mid-20<sup>th</sup> century, but there's a great deal of excellent information here. Hamm had an encyclopedic personality. There are pages devoted to charting scores of cartoon noses, ears, and lips. A wonderful book to leaf through.

———. *Drawing the Head and Figure*. Perigee Trade, 1988. A great introduction to constructive figure drawing. In other words, the approach is not about observation but about using systems of measure and shape to draw figures from your imagination. Concerns itself a bit less with constructing three-dimensional form than either Loomis or Reed.

Loomis, Andrew. *Drawing the Head and Hands*. Titan Books, 2011. An excellent introduction to the subject.

———. *Figure Drawing for All It's Worth*. Titan Books, 2011. Contains a great deal of good information about measure, anatomy, constructing the figure from blocks, and drawing from observation.

Reed, Walt. *The Figure*. 30<sup>th</sup> ed. North Light Books, 1984. An excellent book with chapters on figure construction and anatomy.

Thomson, Arthur. *A Handbook of Anatomy for Art Students*. 5<sup>th</sup> ed. Dover, 2011. This book is primarily text with some illustrations. It contains thorough descriptions of the major anatomical structures of the body.

Vanderpoel, John H. *The Human Figure*. Dover, 1958. Considered one of the early-20<sup>th</sup>-century classics on the subject, this book was originally published in 1935. Like many books of the period, it has more text than illustration, and some contemporary readers find the prose difficult. That said, there is a wealth of good information to be found here.

Visiblebody.com. SkeletonPremium and MusclePremium. These apps let you move through all the important bones and muscles, which are rendered in three dimensions. You can rotate them and see them in motion, as well. This is one of the best ways to get a clear idea of how the various anatomical structures relate. The apps are compatible with many phones, tablets, and various operating systems.

Winslow, Valerie L. *Classic Human Anatomy*. Watson-Guption, 2009. Among the most recent and comprehensive books on anatomy for the artist. It does a good job of outlining and illustrating the important bones and muscles.

## **Color**

Albers, Josef. *Interaction of Color*. Yale University Press, 2006. Albers was a student, and later, a colleague, of Itten's (see below) at the Bauhaus. His book has become one of the standards used in art schools and universities in the United States. The strengths of his approach center on bringing out

optical relationships, namely, how color is relative. A single color can be made to appear darker or lighter, warmer or cooler based on the surrounding colors—hence, the *Interaction* in the title.

*A Breakdown of Color in Film Stills*. <http://imgur.com/a/PyRly>. A good site that breaks down the color palettes in film stills into swatches.

Guptill, Arthur L. *Oil Painting Step-By-Step*. 9<sup>th</sup> ed. Watson-Guptill, 1978. Though primarily a book on oil painting, this source includes several useful chapters on color.

Guptill, Arthur L., and Susan E. Meyer, *Watercolor Painting Step-By-Step*. 2<sup>nd</sup> ed. Watson-Guptill, 1968. Similar to the oil painting guide above, this book has several excellent chapters on color.

Itten, Johannes, and Faber Birren. *The Elements of Color*. Van Nostrand Reinhold Company, 1970. Along with Albers's book, Itten's is one of those most used in U.S. academia today. The two approaches are similar.

Loomis, Andrew. *Creative Illustration*. Titan Books, 2012. As with all Loomis's books, there's excellent information here on many aspects of drawing, including line, tone, composition, and perspective. Also includes a useful chapter on color.

Robertson, Jean, and Craig McDaniel. *Painting as a Language*. Cengage Learning, 1999. Although primarily a book on painting, this source includes a good chapter on color, as well chapters on space, the picture plane, and abstraction.

## Drawing and Painting Materials

Many of the contemporary drawing books listed above have excellent chapters on materials. In addition, several books that deal solely with this subject are listed below.

Chaet, Bernard. *An Artist's Notebook: Techniques and Materials*. Holt, Rinehart and Winston, 1979. This book has a lengthy chapter on drawing materials. Also includes a chapter on color.

Doerner, Max. *The Materials of the Artist*. Mariner Books, 1949. First published in 1921. Before Mayer published *The Artist's Handbook*, this source was among the most thorough and up-to-date texts on the subject. Like Mayer's work, it deals primarily with painting materials.

Eastlake, Sir Charles Lock. *Methods and Materials of Painting of the Great Schools and Masters*. Dover, 2001. This book, by a former president of the British Royal Academy, was originally published in 1847 as *Materials for a History of Oil Painting*. It is a lengthy volume—more than 1,000 pages—covering historical painting methods and techniques in the West.

Gettins, Rutherford J., and George L. Stout. *Painting Materials*. Dover Art Instruction, 2011. Originally published in 1942 and written by two specialists affiliated with the Department of Conservation at Harvard's Fogg Art Museum. This is a technical work with extensive information on pigments, mediums, and supports.

Gottsegen, Mark David. *The Painter's Handbook*. Watson-Guptill, 2006. Among the most recent, useful, and readable of the books listed here. The recipes are clear and concise. There is also a good introductory chapter on common drawing materials and papers.

Mayer, Ralph. *The Artist's Handbook*. 5<sup>th</sup> ed. Viking, 1991. First published in 1940, this book remains one of the standard references in the field. It is mostly concerned with painting materials but includes chapters on pastel and watercolor.

Speed, Harold. *Oil Painting Techniques and Materials*. Dover, 1987. First published in 1924, this book is regarded by many as a classic, covering traditional oil painting materials and techniques.

Turner, Jacques. *Brushes: A Handbook for Artists*. Design Press, 1992. A fairly comprehensive look at brushes used with a wide range of materials.

Van de Wetering, Ernst. *Rembrandt: The Painter at Work*. University of California Press, 2009. An interesting book that examines Rembrandt's materials and painting methods.

## Health and Safety

McCann, Michael. *Artist Beware*. Lyons Press, 2005. This book has become a standard in the field.

Rossol, Monona. *The Artist's Complete Health and Safety Guide*. Allworth Press, 2001. Along with McCann's book, this is a well-reviewed and highly regarded text on the subject.

## Artists' Writings, Interviews with Artists, and Artist Video Clips

Along with the more hands-on texts, it's useful to get a sense of what a range of artists actually think about. Below is a modest selection spanning artists' writings, interviews with artists, and clips of artists at work.

Ashton, Dore. *Picasso on Art*, De Capo Press, 1988.

Bacon, Francis. *Fragments of a Portrait*,

[https://www.youtube.com/watch?v=xoFMH\\_D6xLk](https://www.youtube.com/watch?v=xoFMH_D6xLk). *Francis Bacon's Last Interview*, <https://www.youtube.com/watch?v=p-d9TdRYUaQ>.

*Francis Bacon Rare Interview, 1971*,

<https://www.youtube.com/watch?v=aFDiemYxuvA>.

Baselitz, Georg. *Georg Baselitz Talks about Farewell Bill*,

<https://www.youtube.com/watch?v=A6ipu0KzUds>.

Cembalest, Robin. "How Edward Hopper Storyboarded *Nighthawks*."

<http://www.artnews.com/2013/07/25/how-edward-hopper-storyboarded-nighthawks/>.

da Vinci, Leonardo. *The Notebooks of Leonardo da Vinci*. 2 vols. Edited by Jean Paul Richeter. Dover, 1970.

Desiderio, Vincent. *LCAD Vincent Desiderio Painting Demo*,  
[https://www.youtube.com/watch?v=GxRN9tcN6pQ&list=PLnCjvdddc6\\_45u4kYcwZJCbj\\_xmWcyfbr](https://www.youtube.com/watch?v=GxRN9tcN6pQ&list=PLnCjvdddc6_45u4kYcwZJCbj_xmWcyfbr).

De Vliegheer, Jan.  
<http://www.youtube.com/watch?v=-T4ZW8NZOeA&feature=youtu.be>.

Fischl, Eric. *Dive Deep: Eric Fischl and the Process of Painting*.  
<https://www.youtube.com/watch?v=MWpYD4LWpVc>.

Freud, Lucian. *An Exclusive Tour of Freud's Studio*,  
<https://www.youtube.com/watch?v=4YMV4EyaPMM>. *Lucian Freud's Rarest Interview*, <https://www.youtube.com/watch?v=i5KcT4PBh2M>.

Gauguin, Paul. *The Writings of a Savage*. Viking, 1978.

Henri, Robert. *The Art Spirit*. Basic Books, 2007.

Hockney, David. *David Hockney by David Hockney*. Abrams, 1977. *I Am a Space Freak*,  
<http://channel.louisiana.dk/video/david-hockney-i-am-space-freak>.  
*Photoshop Is Boring*,  
[https://www.youtube.com/watch?v=oAx\\_aYGmpoM](https://www.youtube.com/watch?v=oAx_aYGmpoM). *Who Gets to Call It Art*, <https://www.youtube.com/watch?v=CjfIKymXMa4>.

Kahlo, Frida, with an introduction by Carlos Fuentes. *Diary of Frida Kahlo*. Bloomsbury, 1995.

Katz, Alex. <https://www.youtube.com/watch?v=p1bA6Sbk24Y>.

Kiefer, Anselm. <https://www.youtube.com/watch?v=qmn-w2J68pU>.

Klee, Paul. *Diaries of Paul Klee*. University of California Press, 1968.

Kuspit, Donald. *Fischl: An Interview with Eric Fischl*. Vintage, 1987.

Lundin, Norman, and David Brody. *Norman Lundin: Selections from Three Decades of Drawing and Painting*. University of Washington Press, 2006.

Matisse, Henri. *Matisse on Art*. Phaidon, 1973.

Redon, Odilon. *To Myself: Notes on Life, Art, and Artists*. George Braziller, 1996.

Richter, Gerhard. *Gerhard Richter Painting*, <http://www.youtube.com/watch?v=yF6EluMNR14>. *Gerhard Richter in the Studio*, <https://www.youtube.com/watch?v=ExfNJDh4K1g>.

Richter, Gerhard, and Hans Ulbrich-Obrist. *The Daily Practice of Painting*. The MIT Press, 1995.

Shan, Ben. *The Shape of Content*. Harvard University Press, 1992. This volume contains six essays by Shahn delivered in 1956–1957 at Harvard University as part of The Charles Eliot Norton Lecture series. Shahn writes clearly and succinctly about art. Students of this course will find the final essay, “The Education of an Artist,” of particular interest.

Sylvester, David. *The Brutality of Fact: Interviews with Francis Bacon*. Thames and Hudson, 1990.

Van Gogh, Vincent. *Letters of Vincent Van Gogh*. Penguin, 1998.

Wellington, Hubert. *The Journal of Eugene Delacroix*. Phaidon, 1995.

### **Compilations of Artists' Writings**

Chipp, Herschel B. *Theories of Modern Art*. University of California Press, 1984. This volume includes writings by many 19<sup>th</sup>- and 20<sup>th</sup>-century artists, from Paul Cézanne to Henry Moore.

Goldwater, Robert, and Marco Treves. *Artists on Art*, Pantheon, 1974. This volume includes artists' writings from the 14<sup>th</sup> to the 20<sup>th</sup> centuries.

Harrison, Charles, and Paul Wood. *Art in Theory, 1900–1990*. Blackwell, 1995. As the title indicates, this book covers the period 1900–1990 with writings by many artists and writers, from Gauguin and Freud to Barbara Kruger and Richard Serra.

## **Art History and Criticism**

This short list contains texts referenced in the course and a few others that are either comprehensive or will serve as introductions to aspects of art history or criticism.

Davies, Penelope. *Janson's History of Art*. 8<sup>th</sup> ed. Pearson, 2010. One of the standards used in university art history survey courses covering the Western canon at length.

Fineberg, Jonathan. *Art since 1940*. 3<sup>rd</sup> ed. Pearson, 2010. As the title indicates, this book covers art since 1940. Though not comprehensive, it's a readable overview that will give the reader a sense of the important individuals and ideas during this period.

Gombrich, Ernst. *The Story of Art*. 16<sup>th</sup> ed. Phaidon Press, 1995. One of the bestselling introductions to the history of (mostly) Western art. Well written and accessible.

*Grove Dictionary of Art*, Oxford University Press, 1996. This 34-volume work is as comprehensive as anything available. Not something you're likely to buy for your home library, but major libraries will have a copy. It's extremely useful for getting information and references for any topic you might become interested in.

Hickey, Dave. *Air Guitar: Essays on Art and Democracy*. Art Issues Press, 1997. A collection of essays by one of the more witty contemporary critics. It can serve as an introduction to some contemporary thought on art.

Hockney, David. *Secret Knowledge*. Studio, 2006. Artist David Hockney advances the theory that the great changes evidenced in the Renaissance were traceable to the use of such optical devices as the *camera lucida* and *camera*

*obscura*. He argues that artists from Van Eyck to Caravaggio to Ingres used them to project images onto a surface and trace them. There is also a BBC documentary on the same subject that makes for interesting viewing (<http://youtu.be/ynrmfBnhWSo>).

Hughes, Robert. *Nothing If Not Critical*. Penguin Books, 1992. Hughes was the art critic for *TIME* magazine for many years and one of the most prominent art critics of the late 20<sup>th</sup> century. This is a collection of his essays on both historical and more contemporary artists. The prose is unusually lucid.

———. *The Shock of the New*. Knopf, 1991. An excellent introduction for anyone interested in beginning to understand what might be termed “modern art.”

Kemp, Martin. *The Science of Art*. Yale University Press, 1992. This is a fascinating book for those interested in many of the more quantitative aspects of art. It covers the relationship of science to art in the West from the Renaissance through the 19<sup>th</sup> century. It includes an interesting chapter on mechanical devices used in drawing and painting. The appendix boasts one of the most lucid and concise descriptions of the principles underlying linear perspective.

Kleiner, Fred S. *Gardner's Art through the Ages: A Global History*. 2 vols. 14<sup>th</sup> ed. Wadsworth, 2012. Another standard comprehensive text used in university art history courses.

Sewell, Darrel, ed. *Thomas Eakins*. Philadelphia Museum of Art, 2001. Include several excellent articles on Eakins's working methods.

Stokstad, Marilyn, and Michael Cothren. *Art History*. 4<sup>th</sup> ed. Pearson, 2010. An inclusive world history of art. Starting with prehistory, it covers Asia, Islam, Africa, and the Americas, in addition to the Western canon.