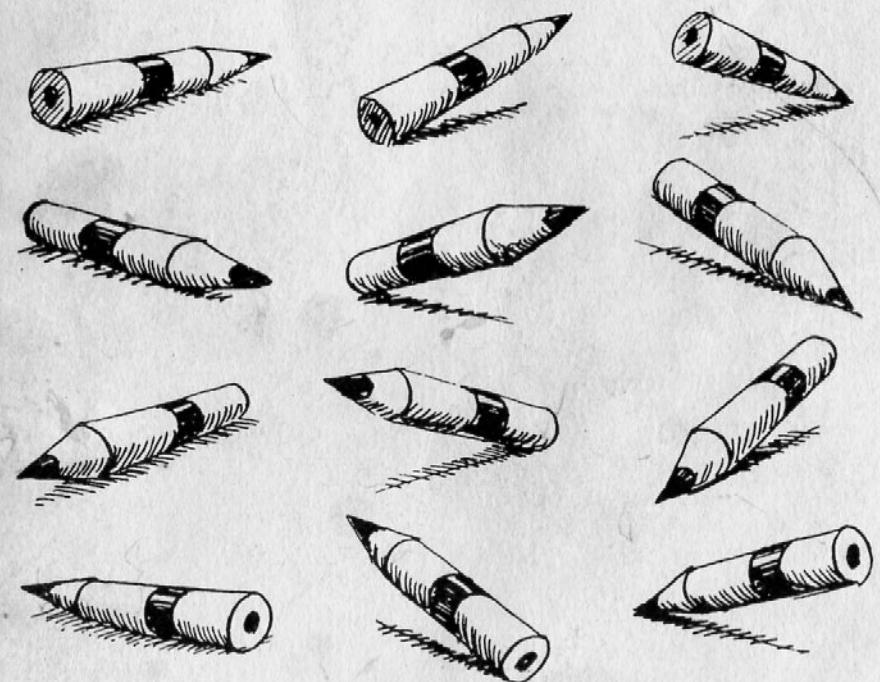


Drawing Textbook



Bruce McIntyre

Drawing Textbook

The teaching and
utilization of drawing
for educational purposes

Bruce McIntyre



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Audio-Visual Drawing Program
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Education Through Drawing

The Objective of the Audio-Visual Drawing Program

Several times each day in more than a million American classrooms, occasion calls for a simple description or explanation of such things as a spinning wheel, a kangaroo, an ox-cart, or an igloo. Seldom can any of these things be described through the use of words alone. Social studies, such as Farming, Clothing, Transportation, or Community Helpers, call for countless visual descriptions which cannot be fulfilled when spontaneous need arises either because of inadequate picture files or the immediate inaccessibility of other visual aids. Solution of this problem would greatly enhance learning on the part of some twenty-odd millions of elementary school children in addition to an untold number of secondary and college-level students in this country.

In each piece of ordinary chalk, there are potentially at least two dozen such excellent, on-the-spot, made-to-order, intriguing visual aids as can supply ninety percent of the missing visual descriptions. Picture a teacher who can unfold these priceless visual aids from a piece of chalk who can produce a visual description of a spinning wheel, a kangaroo, an ox-cart, or an igloo, with the same ease and speed with which she would write on the blackboard. Picture a teacher who can display with her chalk visual descriptions of many kinds of birds, animals, flowers, trees, insects, fish, and reptiles, as well as such man-made things as machinery, dwellings, tools, utensils, clothing, furniture, and vehicles. It is the aim of the Audio-Visual Drawing Program to train just such teachers.

As more and more teachers produce visual descriptions on the blackboard, we will find increasing motivation on the part of pupils to do the same—they will want to emulate their teachers in being actual conveyors of visual knowledge, not content with mere recognition of it. Literally millions of bits of visual knowledge which now lie almost dormant in illustrated dictionaries and encyclopedias, such as the descriptions of certain animals, birds, and flowers, will come to life, and begin to circulate and be discussed through the drawings of our teachers and pupils.

Why Johnny CAN DRAW

Ancient Greek philosophers taught that earth, water, air, and fire were four basic elements. Even children, today, know that water is H_2O and that earth, water, air, and fire are not the basic elements. Unveiling the true elements has enabled science to skyrocket. Art "scientists" today are still presenting as basic elements of drawing:



the cube, cylinder, cone, and sphere. Johnny's ability to draw will skyrocket when Johnny is taught the real elements of drawing:

Surface



Size



Surface Lines



Overlapping



Shading



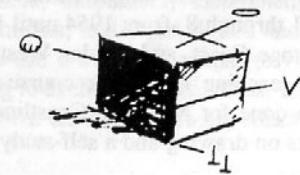
Density



Foreshortening



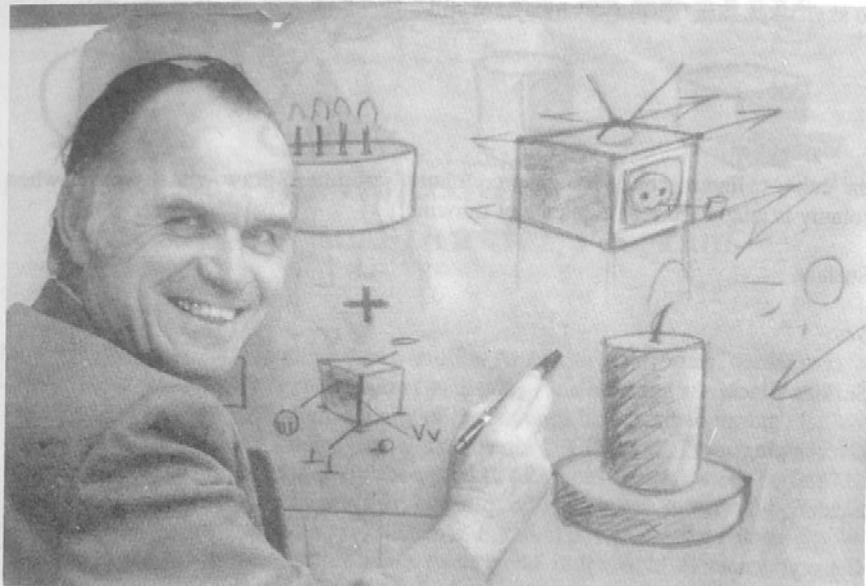
No artist in the world can draw a cube, cylinder, cone, sphere, or anything else in perspective without using one or more of these elements. This drawing of a cube, for example, makes use of four elements.



The "spec" in perspective means to see, as in spectacles, spectator, etc., and deals with the optical illusion or apparent depth or three dimensions created in drawing on a flat surface. The elements of drawing are the tools used by everyone who knows how to draw and are, in fact, the elements of perspective. The vanishing-point system, explained in a very complex and scientific manner in drawing books and encyclopedia under PERSPECTIVE, is an explanation of how to line things up and nothing more. It is more accurate to present the vanishing-point system as ALIGNMENT.

Drawing CAN be given to Johnny in its true elements, and alignment can be presented for what it really is, and Johnny CAN draw.

The Author



Bruce McIntyre was an artist with the Walt Disney Studios from 1937 until 1949 except for two years in the service. He taught children to draw in the Carlsbad Elementary Schools, grades 1 through 8, from 1954 until 1979. Bruce McIntyre also taught evening classes at Orange Coast and Golden West Colleges for many years. Many summers were spent teaching one week courses throughout the country. Television courses were also done for NBC and Coastline Community College. He has written a number of books on drawing and a self-study course for people to teach themselves or their children.

The Story of Drawing

The Communication of Visual Knowledge

Last summer I stepped into an elementary-school classroom during the Social Studies period. There was a chart on the wall listing the things that the children wanted to know about Guatemala. Among the questions on the chart were: "What kind of houses do they live in?" "What kind of clothes do they wear?" and "What kind of transportation do they have?" The class was trying to answer the first question, "What kind of houses do they live in?" When I heard that the houses in Guatemala are like the houses in Mexico, I smiled at the inadequacy of words to communicate visual knowledge. I looked at the other questions: "What kind of clothes do they wear?" "What kind of transportation do they have?" These questions, too, called for visual descriptions. Every school day, from virtually every classroom in the United States there echoes a cry for visual description of one kind or another.

Can you picture a civilization in which the communication of visual knowledge is no longer a problem — a society in which the teacher, when a visual description is called for, would merely pick up a piece of chalk and draw the picture on the blackboard, and students in such a society who, through drawing, are able to exchange, communicate, and discuss visual information? Imagine what it would be like if all educated people—all teachers, carpenters, electricians, physicians and surgeons, biologists, botanists, machinists, and other skilled and professional people from all walks of life—were able to use drawing to exchange visual ideas to the same extent which they now use writing to exchange verbal ideas. It is the aim of the Audio-Visual Drawing Program to promote universal drawing education until we have just such a society.

Taking the Student from Where You Find Him

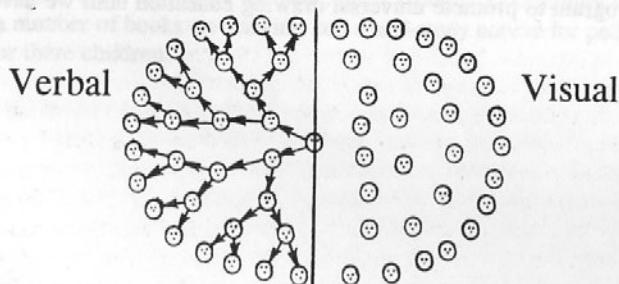
In undertaking such a program, it seems wise to lean heavily upon an old, reliable educational principle - begin with what the student already knows. The average person knows that he is unable to draw and defies anybody to teach him. He has many deeply-rooted, preconceived ideas about drawing and the teaching of drawing which form a strong wall of inhibitions between him and his ability to draw. If we are to begin with where the student is, or with what he already knows, we must bring him back through his inhibitions to the starting point, so that he will be "ready" to learn to draw.

Drawing and Art

Too many people, whether they know how to draw or not, believe that a course in drawing is a course in art — that a person studying drawing is a person studying art. This concept tends to prevent many people who do not wish to become artists (and many do not) from learning how to draw. More important to society than the teaching of drawing as a subject of art, is the teaching of drawing as a means of communicating visual knowledge. A real problem in the communication of visual knowledge exists throughout our educational system and is explained in part by Edgar Dale of Ohio State University:

After visiting hundreds of classrooms in the last two or three years, I cannot help believing that the blackboard is inadequately used by teachers and reports from other observers confirm me. I refer here to drawings and sketches on the blackboard not word statements, of course. A teacher usually defends himself on the grounds that, "he never could draw". He knows, of course, that a ruler enables him to draw a straight line, a compass to make a circle; it is the free-hand sketch that stops him. †

That this is only part of the problem, can be seen by comparing our ability to communicate verbal knowledge (left side of the diagram) with our virtual inability to communicate visual knowledge (right side of the diagram).

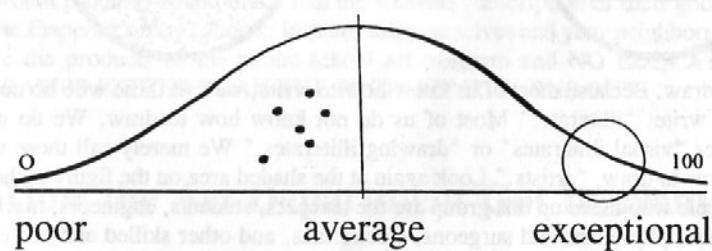


† Edgar Dale, *Audio-Visual Methods in Teaching*, New York: The Dryden Press, 1951, p. 272.

The source of information is represented by the person in the center of the diagram. Let us use for an example of information an airplane. The man in the center knows the speed of the airplane; he knows the range, the number of men in the crew, and other similar verbal information. He gives this information to two people. These two, in turn, because they are able to transmit verbal knowledge, relay the information to others and so on until the verbal information reaches all concerned. The man in the center also knows the shape of the airplane but, because he is unable to draw, he cannot convey this visual knowledge to anyone else. Even if a picture were available, the information could not be relayed beyond those in immediate contact with the source of information. It follows that, to treat this problem in visual communication properly, we should teach not only the teacher (source of information) how to draw, but also teach the students to draw so they can carry the information home and relay it to others. Otherwise, the student develops only a visual recognition vocabulary and cannot pass information visually. Let us think of drawing primarily as a means of transmitting visual knowledge and teach it accordingly.

Talent and Drawing

What better, more comforting excuse can a person have for not learning to draw than the conviction that he is utterly void of talent? Even art educators concluded, a long time ago, that "Where talent is lacking, the teaching of drawing is of little value." How many people are going to learn to draw with this idea in their heads? Let us look at a visual image of this concept on the Normal Probability Curve.



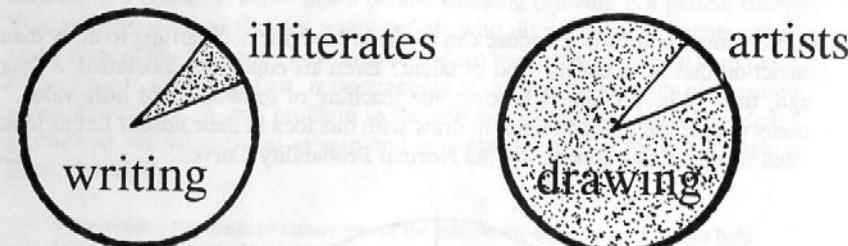
Most characteristics, if they could be measured, would fall into a distribution like this. If we assume a theoretical "drawing talent" and illustrate the distribution of such talent on this curve, few people would show "0" or poor talent, most people would show average talent, and few people would show "100" or exceptional talent. The popular concept is that the few people who know how to draw (less than 5 per cent) come from the talented side of the curve (circled). One very popular drawing textbook, *The Natural Way to Draw*, says, "The sooner you make your first 5000 mistakes, the sooner you will be able to draw." Most of our so-called artists learned how to draw by exactly this method — they made their 5000 mistakes. The type of person who is willing to fritter away his time trying to guess how to draw is not usually found in the top brackets of any curve. More than likely, many of our so-called artists have less real drawing ability (illustrated by dots on illustration) than some of our more

intelligent people who did not care to waste their time trying to guess how to draw. When we put the teaching of drawing on a sound basis and remove the guesswork, we will be opening the doors to a great number of intelligent people who would otherwise not consider learning to draw.

Artists and People Who Know How to Draw

We usually call a person who knows how to draw an "artist." This is merely a convenient way of saying that the person knows how to draw. If we are going to teach all educated people how to draw, we should make it clear that we are not making artists of them. To clarify today's popular concept, let us look at the following diagrams comparing our attitude toward people who know how to write with our attitude toward people who know how to draw.

The pie diagram on the left represents our attitude toward people who know how to write. The pie diagram on the right represents our attitude toward people who know



how to draw. Because most of us know how to write, we call those who do not know how to write, "illiterate." Most of us do not know how to draw. We do not call ourselves "visual illiterates" or "drawing illiterates." We merely call those who do know how to draw, "artists." Look again at the shaded area on the figure at the right. The people who make up this group are the teachers, students, engineers, machinists, carpenters, physicians and surgeons, electricians, and other skilled and professional workers with a real need for a means of exchanging, communicating, and discussing visual ideas. It is for this group that we should plan our drawing program.

Evaluation on of Our Public-School Art Program

It is being overly generous to say that 5 per cent of our college graduates know how to draw. There is no successful drawing program in our public schools and educators know it — but what can they do? To whom can they turn? Art people have long been recognized as supreme authorities in the field of drawing education and their procedures have, as yet, been virtually unchallenged, except among themselves.

Leading educators, because they themselves are unable to draw, have felt that they are not in a position to evaluate the art program. Let us take a lesson in evaluation from the following story:

When in Europe, during the last war, General Eisenhower wanted to find out how well the troops were eating. He thought that he could best find out by asking one of the enlisted men, which he did. "The food's perfect. It couldn't be better." was the answer. Eisenhower then asked, "What are your duties?" "I'm the mess sergeant," replied the G.I.

If you will evaluate our public-school art program, do not ask the art supervisor. The reply would probably sound much like the weavers' description of their goods in the tale, *The Emperor's New Clothes*. Instead, ask yourselves and your neighbors because you are the products of the public-school art program and NO EDUCATIONAL PROGRAM IS BETTER THAN THE PRODUCT IT TURNS OUT.

How the Art Department Got Its Name

That art leaders today do not include the teaching of drawing among their objectives, does not render the foregoing comments inapplicable. For almost a hundred years, educators tried to teach *Drawing* in our public schools. Their methods were unorganized and too few people learned how to draw. These educators, instead of evaluating their own teaching methods and objectives, looked at the work of their pupils and concluded that, "Where talent is lacking, the teaching of drawing is of little value". Instead of abandoning their program, they merely incorporated a number of related activities and changed the name to "Art". This transition is mentioned in the following words by Mr. Whitford, a leader and writer in the art field: "This term [drawing] continued to be used to designate the art program after many other types of activities were introduced."[‡]

[‡] William Garrison Whitford, *An Introduction to Art Education*, New York: D. Appleton and Company, 1929, p. 7.

By changing the name of the program from Drawing to Art, those responsible virtually killed the chances of our having a sound program. To illustrate this point, let us make a comparison with the fields of arithmetic and writing:

mathematics
ARITHMETIC

literature
WRITING

~~ART~~
~~drawing~~

We know that our schools are doing a relatively good job of teaching arithmetic and writing. When we send a child to school, we can feel somewhat sure that he will be taught how to write and how to do arithmetic. We can be almost as sure that he will not be taught how to draw. Educators realize that arithmetic is the basis of mathematics. They know that a child must learn arithmetic before he can study mathematics. In our elementary schools, we teach arithmetic — not mathematics. The order is important. Again, educators realize that children must learn to read and write before they can study literature. Literature is regarded as something above and beyond the fundamentals of writing. In our elementary schools, we teach writing, rather than literature. Here again, the order is important. Our children first learn how to write and how to do arithmetic. If they wish to continue in these fields after they learn how to write and how to do arithmetic, they enter the advanced fields — literature and mathematics. It would be foolish to disregard this order. In the field of drawing and art, this order is completely disregarded. We are trying to teach art without first teaching the basis of art. As long as we continue in this manner, our program will remain unsound and our time, money, and effort will bring little in return.

Taste In Drawing

Many art supervisors and teachers maintain that there is no "right" and "wrong" in drawing. They feel that drawing is a matter of taste and that no confining rules can be laid down. They say that "rules" inhibit the child and suppress his "originality." Keeping in mind that nearly all of our children are learning how to read and write and how to do arithmetic, and that virtually none of them is being taught how to draw, let us weigh one method of teaching against the other. We know that our children are learning how to read and write and how to do arithmetic — they learn because they are given sound, concrete, tangible material which they can grasp and take home. In arithmetic, they are given numbers and rules for addition and multiplication and told that there is a right and a wrong way. They learn the right way. In writing, though it is a creative field, children are not expected to create how to write. They are given an alphabet and rules of spelling and grammar.

123 ABC

$$2 \times 3 = 6$$

Arithmetic

cat dog

Writing

They are told what is right and what is wrong and their papers are graded accordingly. They learn the right way. In a drawing program where there is no right and wrong and no rules, the children have nothing tangible to grasp and nothing to take home. They do not learn the right way; they do not learn the wrong way; they do not learn.

Trying to teach drawing without an organized system is like trying to teach music without a scale, a staff, a clef, and without any musical symbols.

Objectives

One of the main objectives of today's public-school art program is "Free Expression (creative self expression)." We know that people who do not know how to draw cannot express themselves freely. Teachers, for example, who cannot draw, cannot express themselves freely on the blackboard. The intended meaning of "Free Expression" is really expression free from rules (anything goes), but this kind of an objective leads nowhere. The other objective, "Appreciation," is something which must come from within and cannot be imposed from without. If the subject is understood — if the student knows how to draw — appreciation will follow, and so will free expression. If the subject is not understood — if the student does not know how to draw — neither appreciation nor free expression can exist in the true sense of the word.

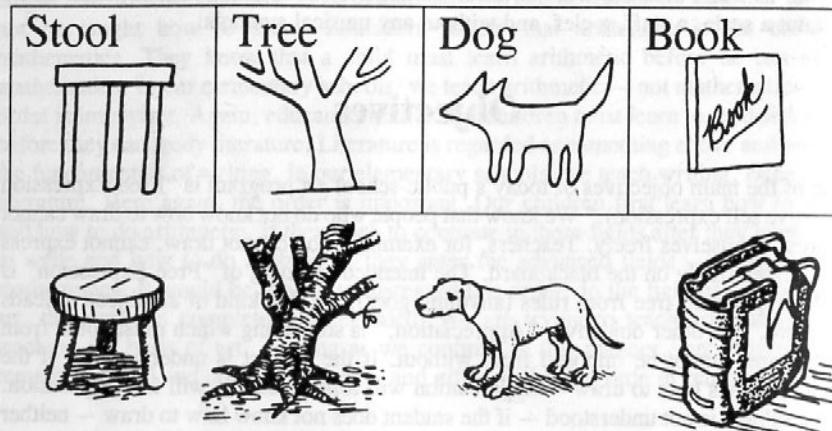
Art Materials

Many art supervisors and writers of beginning drawing books feel that an abundance of art materials is essential to a sound drawing program. They do not realize that expensive art materials are utterly wasted in the hands of those who do not know how to draw. Expensive art materials contribute nothing to the instruction and certainly do not take the place of instruction. However, in the hands of someone who does know how to draw, even an inexpensive piece of white chalk is increased many times in value. In each piece of chalk, there are potentially at least two dozen excellent, on-the-spot, made-to-order visual aids. The worth of audio-visual equipment such as slide-making materials and over-head projectors is multiplied many times when in the hands of a teacher who knows how to draw. Supplying slide-making materials for the teacher is not going to teach her how to draw — neither is supplying art materials for the student going to teach him how to draw. The value and soundness of a drawing program lie not in the abundance of art supplies, but in the instruction alone. This

instruction should be given without the inhibiting art "atmosphere," using only simple materials such as ordinary pencil, paper, blackboard, and chalk. Those who know how to draw have something to paint. Those who do not know how to draw paint only the flat paper and usually waste their paints in so doing. Expensive art materials are for those who know how to draw. They should not be used as a substitute for instruction.

Subject Matter

The difference between the person who knows how to draw and the person who does not is that the person who knows is able to draw into the flat surface of the paper, giving a feeling of depth or three dimensions, while the person who cannot draw tends to draw "flat" with little feeling for three dimensions, or depth. Teaching how to draw



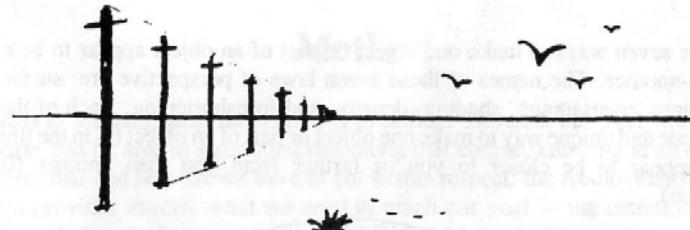
"into" the paper and how to control the three-dimensional appearance of objects in a drawing is teaching how to draw. Teaching color, design, composition, lettering, anatomy, or structure of objects is not teaching how to draw into the paper and is not teaching how to draw. Instead of trying to use anatomy to teach drawing, we should use drawing to teach anatomy. Before teaching color, design, and composition, we should teach drawing so that our students will have something to color and something to arrange in their pictures. Teaching color, design, and composition to someone who does not know how to draw is like teaching flower arrangement to someone who will never have any flowers.

Drawing Books

Most of us have seen books on the market titled, "How to Draw Horses," "How to Draw Dogs," "How to Draw This," and "How to Draw That". The only thing missing from these books is the "How to Draw". These books might better be titled, "What Horses Look Like," "What Dogs Look Like," "What This Looks Like," and "What That Looks Like". A person who already knows how to draw can use these books to add to his drawing vocabulary, but one who does not know how to draw will not learn from these books. He will still have a tendency to draw things "flat".

The Vanishing Point System

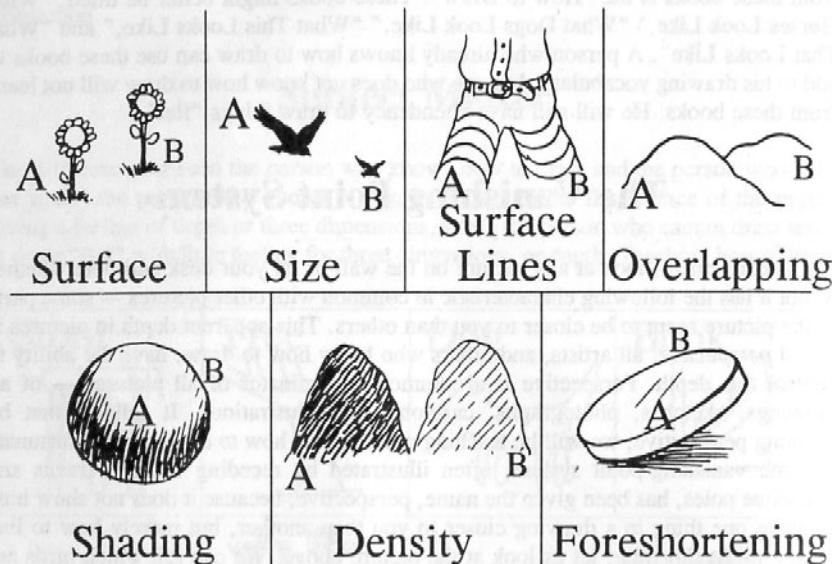
If it is convenient, look at any picture on the wall or on your desk and note whether or not it has the following characteristic in common with other pictures — some parts of the picture seem to be closer to you than others. This apparent depth in pictures is called *perspective*; all artists, and others who know how to draw, have the ability to control this depth. Perspective is a common denominator of all pictures — of all drawings, sketches, photographs, cartoons, and illustrations. It follows that by teaching perspective, we will be teaching our students how to draw. It is unfortunate that the vanishing-point system, often illustrated by receding railroad tracks and telephone poles, has been given the name, perspective, because it does not show how to make one thing in a drawing closer to you than another, but merely how to line things up. To illustrate, let us look at the picture above. We can tell which birds are



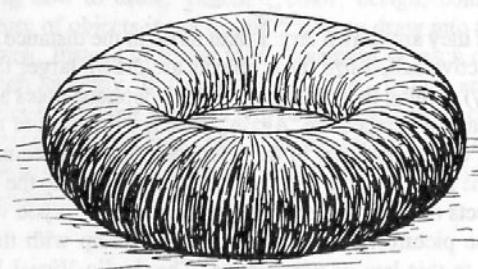
closer to us because they are drawn larger than those in the distance. This is according to the law of perspective called *size* (near objects are drawn larger than corresponding objects farther away). Lining these birds up, as the telephone poles are lined up, would add nothing to this law of perspective. Again, there is a little tuft of grass in the picture which seems closer to you than any of the telephone poles. It seems closer because it is drawn closer to the bottom of the picture. This is according to the law of perspective called *surface* (objects on the ground usually appear closer to you when drawn closer to the bottom of the picture). Lining this tuft of grass up with the telephone poles would add nothing to this law of *perspective*. The Audio-Visual Drawing Program reserves the name, perspective, for those laws which cause some things in a picture to appear closer to you or farther from you than others; it calls the vanishing-point system, which shows how to line things up, by the more fitting name, *alignment*.

The Seven Laws of Perspective

Reprinted from EDUCATIONAL SCREEN, September, 1952



There are seven ways to make one object or part of an object appear to be closer to you than another. The names of these seven laws of perspective are: surface, size, surface lines, overlapping, shading, density, and foreshortening. Each of these laws is a separate and unique way to make one object or part of an object (A in the illustration above) appear to be closer to you or farther from you than another (B in the illustration).



To show how these seven laws combine to make a drawing, we will use a simple example: a doughnut drawn in perspective.

(1) The near part of the doughnut is drawn closer to the bottom of the picture, making use of the first law of drawing, *surface*.

(2) The near part of the doughnut is drawn larger, making use of the second law of drawing, *size*.

(3) Surface lines "wrap around" the doughnut and help to give it three dimensions, making use of the third law of drawing, *surface lines*.

(4) The near part of the doughnut overlaps the far part, making use of the fourth law, *overlapping*.

(5) Shading is used to help give volume to the doughnut, making use of the fifth law of drawing, *shading*.

(6) The near part of the doughnut is drawn darker and with more detail than the far part, making use of the sixth law of drawing, *density*.

(7) The whole doughnut is foreshortened, making use of the seventh law of drawing, *foreshortening*.

It should be pointed out that no one can draw anything in perspective without using one or more of these laws. Conversely, anyone who understands these laws and knows how to use them will be able to draw almost any object, provided he knows the shape of that object. By training people in the use of these seven laws, we shall be teaching drawing as a visual teaching tool.

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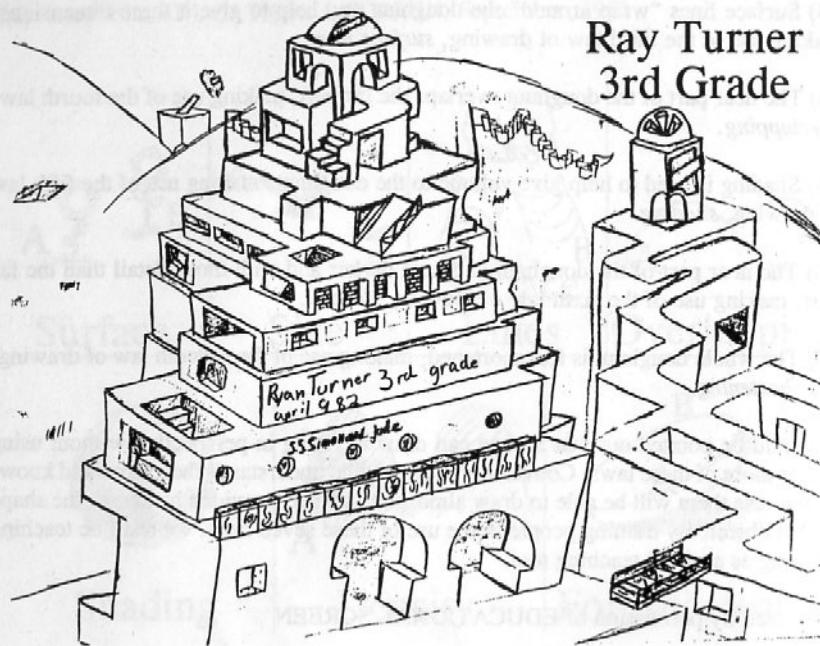
Method

Method is to teaching what navigation is to sailing. To reach our goal, we must plot our course and be able to steer ourselves along that course, knowing at all times how far we've gone and how far we have to go. In this respect, the Audio-Visual Drawing Program provides exactly what we need to reach our goal — the communication of visual knowledge. A diagram of the Audio-Visual Method will reveal three phases in teaching how to draw — SEVEN LAWS, POSITIONS, and ALIGNMENT — which prepare students for a final phase — EDUCATION THROUGH DRAWING. The seven laws are the essence of drawing. The positions are taught so that students will not fall into the undesirable habit of drawing things in flat profile. Alignment is taught to show students how to line things up in a three dimensional drawing. There are 222 exercises in the Audio-Visual Drawing Program which are to TEACH, to TEST, and to GIVE PRACTICE in the three phases of drawing just mentioned. From these



exercises, the teacher can tell at all times how far each student has gone and how far each has to go to reach his goal — the communication of visual knowledge.

Ray Turner
3rd Grade



Ed Ebright
4th Grade



How To Use This Book

This book is designed for use at all levels from the first grade through adult classes. Because so few adults know how to draw at all, it is best that this course start at the beginning. The students use ordinary pencils and paper — newsprint, the size of typing paper. The paper is divided into six squares for six exercises — the usual number for one lesson. The lessons start out by introducing the foreshortened circle and the foreshortened square. Remember we are teaching how to control three-dimensional shapes on a flat surface — we are not teaching about the shapes themselves. We have selected shapes or things at random that will best show the use of certain principles of drawing.

The teacher at the board draws slowly one part of the exercise at a time, explaining all he can about why the part is drawn as it is. He tries to explain so clearly that every student drawing with him will turn in a perfect paper. When the teacher gets the first set of papers back he will know what he is up against. For the second lesson, some of the exercises can be repeated and mistakes corrected until the students understand the principles involved. In the first grade, the class will probably not get beyond the first four or five lessons for the entire year but every weekly lesson will be selected from the first five. The exercises become more difficult as they progress through the book. Lots of repetition will assure a steady progress in learning to use the principles of drawing. Six new exercises per week will require an entire school year. Below the high school level it is best not to try to complete the book. The same exercises can be used over and over again as the children move through the grades. When the child can draw anything in the book without looking he is ready to go on his own. The first step to going on one's own is to draw a secret city such as those shown in this book. The exercises can be presented in many different ways. The first is to explain almost every line with the students drawing with the teacher. The second is for the teacher to draw the entire object explain the hard parts and let the students draw it. The third is for the teacher to draw the exercise, erase it and have the students draw it. The fourth is for the teacher to hold up an enlarged drawing of the exercise for the students to study, then draw without looking any more. The fifth is for the teacher to draw just part of the exercise and have the students finish on their own papers. The sixth is to give students a flash glimpse of the thing to be drawn. The seventh is to tell the students verbally what to draw. At all times, students are encouraged to add extras or to re-design the object whenever they wish. Primary children can use crayons if they want to. They may draw with pencil and color with crayon. The meat of the teaching begins to form when you look at the papers turned in.

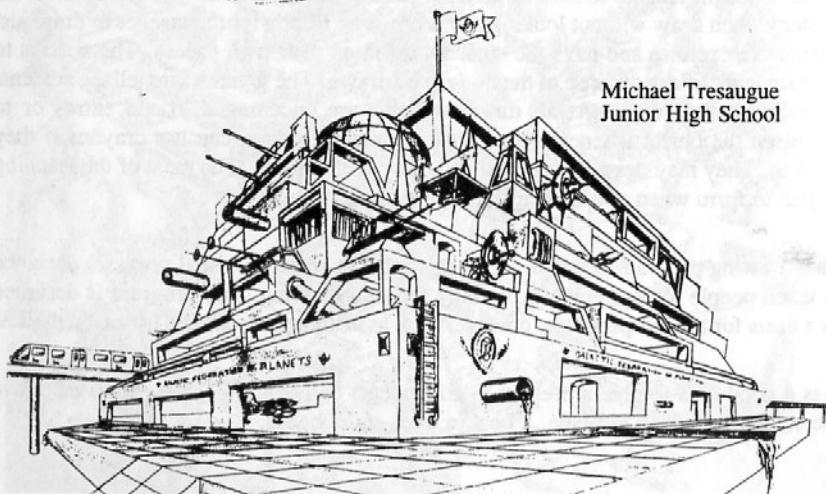
This drawing program is not an art program but is an audio-visual program designed to teach people to communicate visually through drawing. The program is designed as a basis for any art program, however, just as arithmetic is a basis for mathematics.

It is a good idea to give a pre-test to all students before starting the exercises. Have the students draw an airplane, a boat, a tree, and a house.

SECRET CITIES



Chris
Mitchel
4th Grade

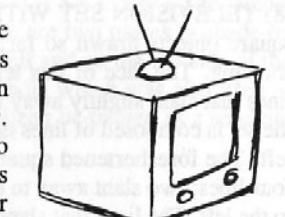


LESSON ONE

(1) THE BIRTHDAY CAKE One of the most useful things in drawing is the foreshortened circle. In drawing the birthday cake, draw the foreshortened circle first. This is sometimes referred to as a "cigar shape" or a "flattened circle." After drawing the foreshortened circle, draw straight down on the two ends and then curve the bottom.



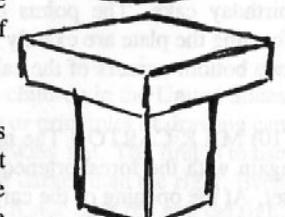
(2) TELEVISION SET Similar to the foreshortened circle is the foreshortened square. The foreshortened square is best drawn by making two dots rather far apart. Between those two dots, draw two middle dots very close together. Connect the dots to form the foreshortened square. To finish the drawing draw straight down on the two ends and then draw the near corner longer, so it comes closer to the bottom of the picture. Connect the ends and add the screen, the rabbit ears, and the knobs.



(3) SIMPLE CANDLE The first few exercises alternate from use of the foreshortened circle to use of the foreshortened square. The simple candle starts with a very small foreshortened circle or "cigar shape" at the top. In drawing the base of the candle, be sure that the line of the big foreshortened circle starts up a little bit on the side of the candle.



(4) THE SIMPLE TABLE The foreshortened square is used again on the top of the simple table. Very short thickness lines are drawn straight down on the three corners. In drawing the base, be sure to draw the middle line or near corner longer or farther down than the other two.



(5) THE POINTED HAT The brim of this hat forms another foreshortened circle. Notice that both ends of the line forming the brim reach up a little bit on the straight lines of the hat.



(6) THE PACKAGE The foreshortened square forms the beginning of this drawing. A vertical line is one which is straight up and down, parallel with the edges of the paper. The vertical strings on the sides of the package are difficult for some students to keep vertical. Each of these exercises is designed to either introduce a new idea or add to that which has gone before.

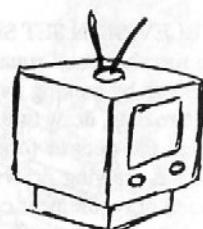


LESSON TWO



(7) THE CAT TAIL More foreshortened circles are used in this exercise. The drawing of the cattail itself is of little importance at this time. Emphasis should be placed upon the drawing of the foreshortened ripples around the base of the cattail. Notice how each successive ripple reaches out lengthwise keeping the entire set of ripples well foreshortened.

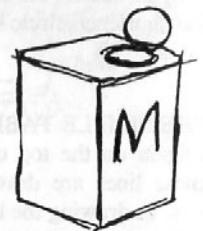
(8) TELEVISION SET WITH BASE Notice that on the square objects drawn so far, two sides and the top are showing. The face of this television set is composed of lines that slant slightly away to the right. The left-side of the set is composed of lines that slant slightly away to the left. The foreshortened square at the top is composed of four lines; two slant away to the right and two slant away to the left. The lines that slant to the right point northeast. Those that slant to the left point northwest. The viewer, looking directly over the object is looking north.



(9) BIRTHDAY CAKE ON A PLATE Notice how, in each new exercise, something is added or a new idea introduced. On the previous exercise, we added the base to the television set and here we added the plate to the birthday cake. The points of the foreshortened circle forming the plate are exactly in line horizontally with the two bottom corners of the cake.



(10) MILK CARTON The milk carton is drawn starting again with the foreshortened square as on the television set. At the opening of the carton, we have a good chance to show the contrast between the circle that is foreshortened and the one that is not.



(11) THE FISH BOWL This exercise was selected because of its three foreshortened circles. All three of these foreshortened circles are similar — that is, they are foreshortened the same amount although one is larger than the others. The fish is not important in this exercise.

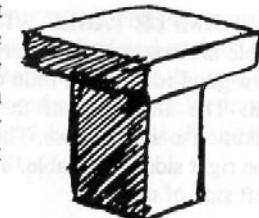


(12) JACK-IN-THE-BOX This exercise is started with the foreshortened square. After the box and lid are drawn, Jack is placed in the box by drawing first his head. Then with two lines from his head, draw his body going into the box. Notice how the exercises have alternated from the use of foreshortened circles to the use of foreshortened squares.

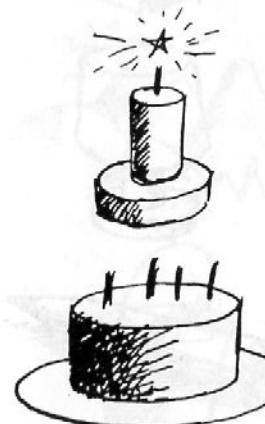


LESSON THREE

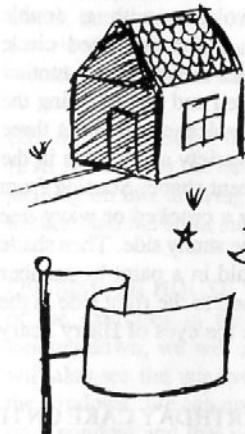
(13) SIMPLE TABLE WITH SHADING This is the first exercise that makes use of shading. Notice that the shading is all on one side but not on the top. It really matters not which side is chosen for the shading, but in this book, all of the shading will be on the left wherever possible. Students will be instructed to shade on the left unless there is a special reason to do otherwise.



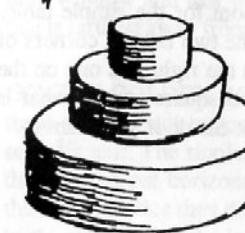
(14) SIMPLE CANDLE WITH SHADING The simple candle has two parts so there are two places to shade — on the left side of the candle itself and on the left side of the base. The star above the candle which was also used to decorate the Jack-in-the-box can be treated as a separate lesson, if desired.



(15) BIRTHDAY CAKE WITH SHADING There are several things to learn about shading. The first is location, or where the shading should be placed. The second thing to learn is how and when to blend the shading. The blended shading is drawn on curved surfaces such as on the round cake. The blending — that is, making the shading from very dark to gradually lighter and lighter — helps the surface to appear curved. Blend the shading on this birthday cake.



(16) HOUSE Thirty million children in the United States draw flat houses. Two tricks or principles of drawing can keep these drawings from looking flat. The first is to use shading — shade the left side darker than the right. Even a red barn should show the left side dark red and the right side light red. The second way to keep the house from looking flat is to bend the bottom line so the near corner will be closer to the bottom of the picture. The far end of the roof is not a flagpole so it should not be drawn straight up. It should slant like the rest of the roof.



(17) SIMPLE FLAG The top of the flag is drawn first — a sort of backward "S curve." Then draw three vertical lines down and draw the bottom of the flag to correspond with the top of the flag. Notice how the little short line at the bottom of the flag near the pole is moved up.

(18) WEDDING CAKE This is the same problem as the shaded candle, but with three parts.

LESSON FOUR

(19) SIMPLE TABLE WITH PEGS IN IT The simple table is drawn just as before. The glass is optional but it is a good idea to put little things on the table from now on. The alignment of the two pegs is the important addition to this exercise. The left peg lines up exactly with the right side of the table. The right peg lines up with the left side of the table.



(20) TABLE LAMP A very simple foreshortening exercise. The lamp can be decorated.

(21) PENCIL IN DIRECTION ONE This pencil points northeast or direction one. There are five principles of drawing used here: *surface*, the near end is closer to the bottom of the picture; *size*, the near end is drawn larger than the far end; *surface lines*, the black band around the pencil helps to show which end is closer to you; *shading*, the underneath side of the pencil is shaded to help it turn under, away from the light; and *foreshortening*, notice the foreshortened circle at the near end of the pencil.

(22) SIMPLE FLAG BLOWING LEFT



(23) VOLCANO Begin the volcano with a double foreshortened circle — that is, a foreshortened circle inside another one. Slant the sides down. Make another double foreshortened circle slanted and just touching the first one. Draw the point of the volcano and about three other hills. Try to get as much variety as possible in the hills so that each will be a different shape. Starting from the very peak of each hill, draw a crooked or wavy line to separate the shady side from the sunny side. Then shade the left side of each as you would in a paint-by-number set. Notice the shading has jumped to the right side in the cap of the volcano. You can see the eyes of Harry Scary peeking out from the volcano.

(24) SIMPLE TABLE WITH BIRTHDAY CAKE ON IT Draw the cake first, leaving room for the simple table. Straight out horizontally from the two bottom corners of the cake, draw two dots—one on the right and one on the left. Complete the foreshortened square except what is behind the cake and finish table. Shade if you want to.

LESSON FIVE

(25) TELESCOPE IN DIRECTION ONE The small section near the eyepiece is drawn first and each of the following sections is drawn to wrap around the smaller ones. The eyepiece is a foreshortened circle drawn perpendicular to the direction of the telescope. Blend the shading on the underneath part.



(26) MOUNTAINS The most important thing to remember in drawing hills or mountains is variety. Draw some large, some small; some jagged, some smooth; some tall, and some flat. Starting at the peak of each, shade the left side of every hill or mountain.



circle, but are moved in to give the pail a better position for viewing. If a straw were run through both ears, it would point away to the right or northeast.

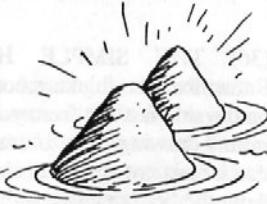
(28) SCROLL Begin the scroll by drawing the top edge first. Notice how the curls are foreshortened. There is no shading on this drawing but the back side of the scroll is darker than the front side.



(29) SIMPLE HOUSE WITH WINDOW Because most of the exercises in this book are drawn from above, looking down, we will see the tops of most of them. We will also see the window sills, or bottom thicknesses of the windows. We can usually see only one other thickness on a window and that will be on the side of the window that is farthest away from you — in this exercise, the right.



(30) THE GOLDEN ROCKS IN WATER The shape of these rocks is not important, just a mound for each will be sufficient. The ripples are the main thing. Notice how they stretch out horizontally from the bottom corners of the rocks. Notice they do not come toward you but extend to the right and to the left.



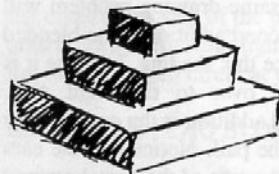
LESSON SIX



(31) FLYING SAUCER This drawing is started by drawing first the glass or plastic dome. Around the base of the dome, using the same foreshortened circles as on the round wedding cake, draw the platform. The body of the saucer is shallow. Notice that the far leg does not come down as far as the two near legs. Add the radar dish.



(32) SIMPLE CHAIR This exercise is started with a foreshortened square with a thickness on it. The two outside legs are drawn first and are the same length. The near leg is drawn longer than the first two and the peek-a-boo leg is drawn shorter. The back rest is drawn up vertically from the right side and is about the same thickness as the legs. Shade.



(33) SQUARE WEDDING CAKE This is started by drawing a small cube. Straight out from the two outside lower corners, draw two more dots. Make another dot just this side of the near corner. Complete as much of the foreshortened square as would show. Complete this layer of the cake and draw the bottom part.

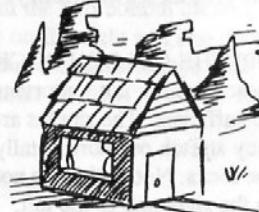
(34) WOODEN BUCKET A double foreshortened circle is used here. A dot in the center of the foreshortened circles is used to point the cracks along the top edge of the bucket. Notice the shading from dark to light and how the shading jumps to the right on the inside of the bucket.



(35) THE THICK LETTER "L" IN DIRECTION ONE The face of the "L" should be drawn first. All of the lines on the face go in only two different directions — vertical or direction one. After the face of the "L" is completed, draw the little short thickness lines in direction seven. It is important that they are all in direction seven and that they are the same length. Then connect the thickness lines and shade the left edge only.



(36) THE SIMPLE HOUSE FACING RIGHT Remember the thickness on windows should always be on the side farthest from you. The thickness is on the left in this drawing. Try to draw the walk from the door so that it does not appear to slant down hill. A line extended from the bottom edge of the shady side of the house can be used to check whether or not the walk goes down hill.

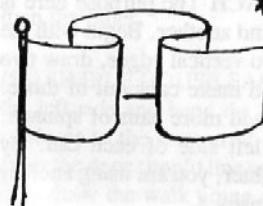
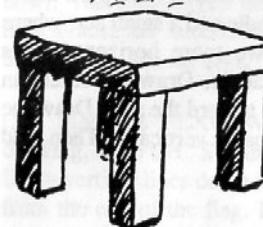


LESSON SEVEN

(37) THE PLANET SATURN On this drawing, there is a tendency to draw the second ring the same distance from the first all the way around. The second ring should extend outward considerably from the first. If drawn incorrectly, the ring will look like a rope.



(38) SILO Use blended shading in this exercise.



(39) THE RAISED LETTER "T" This drawing is made by first drawing a single-line letter. Then outline the letter completely, connect all corners, and shade all areas on the left and on the underneath parts. This is a shading exercise. Notice the texture on the background. The texture is used to separate the white part of the letter from the white background.

(40) THE BARBER POLE This exercise combines three different shapes very nicely — the ball, the square board, and the cylinder. Notice the shading is on the left side of each part. Draw cobblestones on the ground.

(41) FOUR-LEGGED TABLE This table is started just as a simple table including the thickness. Then, draw a straight line down from three corners making the near one longer than the other two. At the bottom of the table, connect the ends of the legs with very light "alignment" lines. Finish the near leg by drawing a line down on each side of the original line for the middle leg until you touch the alignment lines. Then, starting at the end of each of the other two legs, follow the alignment lines inward toward the middle leg for just a short distance. When you have drawn the thickness of the legs, draw up to the top of the table again. From the end of the left leg, start northeast and turn up. From the end of the right leg, start northwest and turn up. Indicate the peek-a-boo leg even though it would not actually show in the drawing. The ends of all four legs would form a foreshortened square if connected.

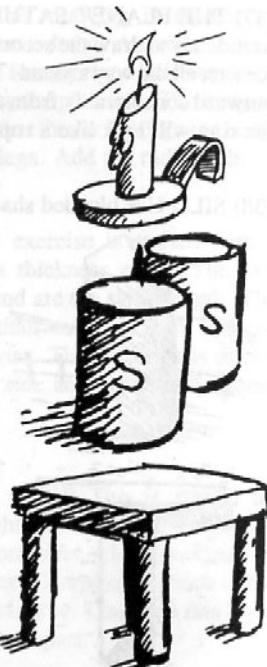
(42) DOUBLE FLAG This drawing is started with a double "S" curve well foreshortened. Then draw vertical lines downward from the end of each curve and the end of the flag. Curve the bottom lines to correspond with the curve of the top. Notice the jump at the middle of the flag.

LESSON EIGHT

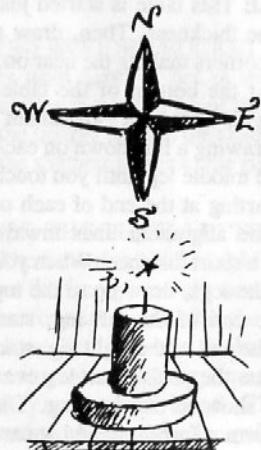
(43) CANDLE WITH A HANDLE The little foreshortened circle at the top is slanted this time. The drips are optional. They can be long, short, or not at all. The handle is most easily drawn by drawing the thickness first — like a monkey's tail. Then two short slanted lines going direction seven (northwest) from the end of the tail and from the bend. Then complete the other side for the width of the handle.

(44) TWO CANS OF SPINACH Draw one can first. Then, straight above the right hand corner, draw another foreshortened circle the same size as the first. Make another can from the second foreshortened circle. Notice the farther one is farther from the bottom of the picture. Blend the shading on the left side of each can and draw the cast shadow on the ground at the left.

(45) THE SIMPLE FOUR-LEGGED TABLE This exercise is started with a foreshortened square with a thickness. The two outside legs are drawn first and the near leg drawn longer. The fourth leg is drawn shorter than the others. Shade the left side of each part.



(46) COMPASS STAR This drawing is made by first drawing a cross. Through the center of the cross, draw a tiny "x" and then connect the points of each. Instead of shading in the usual way, darken every other area.

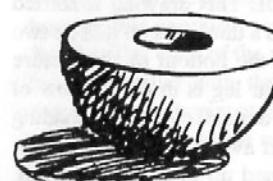


(47) SIMPLE CANDLE ON FLOOR Draw the simple candle as before, shading the left side of each part. Draw a horizontal line behind the candle and a small star where the flame would be. Draw two more horizontal lines below or on this side of the candle. Draw the cracks in the floorboards aiming exactly toward the star. Draw the thickness lines or ends of the boards vertically. Then, add some vertical lines to the wall.

(48) EIGHT CANS OF SPINACH The purpose here is to learn to draw one thing behind another. Begin with the near can and just above the two vertical edges, draw two more foreshortened circles and make cans out of those. Continue in the same way to add more cans of spinach. Use blended shading on the left side of each can. By drawing the cans in the rear lighter, you are using another principle of drawing called *density*.

LESSON NINE

(49) HALF CANTALOUPE Draw first a double foreshortened circle and from the tip ends draw the lower half of a ball. Blend the shading making it extra dark underneath. Notice the placement of the shading on the inside of the cantaloupe. The cast shadow is a foreshortened circle and is shifted to the left.



(50) TELEVISION IN THE CORNER OF A ROOM Draw the television as before. Straight out from the right and left bottom corners, draw two dots. Draw straight up from the dots. Then draw the back corner of the room directly behind the TV set. Draw the left floor line in direction one going behind the TV set. Draw the right floor line in direction seven going behind the TV set. Then draw the right and left thicknesses on the walls. On the left side of the picture, draw a little short line in direction one and on the right, a line in direction seven. These lines represent the far side of the hallway. Shade all left surfaces.



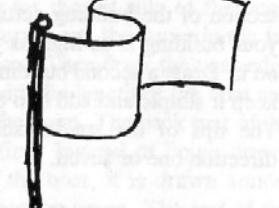
(51) BALL This is a shading exercise. Try to blend the shading as much as possible to make the ball round. Shading is placed underneath objects whenever possible and also on the left side of objects. Notice the foreshortened cast shadow underneath the ball. It is slightly to the left.



(52) FISH BOWL ON FOUR-LEGGED TABLE BRACED The fish bowl can be drawn first and the foreshortened square drawn around the bottom of the bowl. The four-legged table is drawn as before but the little braces are added. Notice how the braces attach to the inside of the far legs.



(53) SIMPLE FLAG WAVING UPWARD On this drawing, keep the "S" curve squashed or foreshortened. Draw vertical lines down from the ends of the curves and from the end of the flag. Notice that there are two lines at the bottom of the flag and that one of them is higher than the other.



(54) SIMPLE HOUSE FACING RIGHT Be sure to shade the left side and bend the bottom line so the near corner is closer to the bottom of the picture. The walk coming from the door should line up with the house. The tendency is to draw the walk going down hill too much.



LESSON FOURTEEN

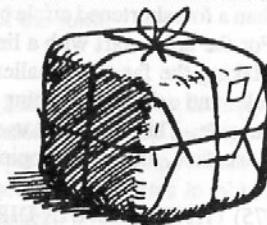


(79) EXPLOSION The overlapping of dust should be done carefully so it is clear to the viewer which parts are closer to him than others. The blast marks extend from a central point; some from behind, some through this side.

(80) SOFT PACKAGE This drawing is based on a lightly-drawn cube. The corners are rounded even where

the string goes over the edges. The curved edges of the package are softened with little hints of surface lines.

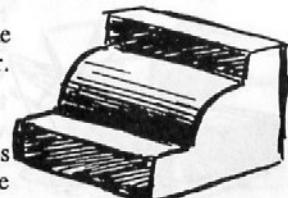
(81) STEPLADDER The stepladder would fit into a cube-shape with one side sliced off at an angle. If you draw this shape first and fill it in with detail you will find it easier to keep in correct proportion. The top forms a foreshortened rectangle with thickness. Be sure the ends are not slanted up too much. Draw a vertical line down from the back and two lines slanting down at the front of the ladder. The near corner should be longer. Connect the bottom ends with very light alignment lines. Draw the thickness on the two front legs. Place a dot, representing the hinge just under the end of the seat toward the back. From the dot, draw lines downward parallel with each side leg. The ends of the legs are cut off exactly at the light alignment lines. The steps are drawn now making the thickness of each step first with two lines close together extending across the front of the ladder. Finish the steps by drawing short lines from the far end of the thickness in direction seven. Draw another short line in direction seven at the end of the right leg. Then finish the steps. The right leg is finished with one more line that extends at a slant behind the two steps and parallel with the right leg. The fourth leg is vertical, drawn with three lines directly below the far corner of the ladder seat. Shade the left side of each part.



(82) 3D LETTER "E" IN DIRECTION ONE Draw the face of the "E" first. The short thickness lines are drawn in direction seven.

(83) RIBBON This ribbon is drawn like the flags. The border and the split ends were added to make it fancier.

(84) CASH REGISTER This is drawn like the three steps except that the middle step is curved. Extra detail can be added if you wish.

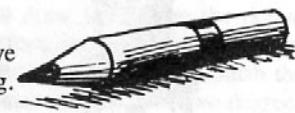


LESSON ELEVEN

(61) ROCKET BLASTING OFF This drawing is best started by drawing two parallel vertical lines for the sides of the rocket. Then, add the point and curve the bottom. The two near fins should be drawn first. Notice that they cut slightly into the sides of the rocket. The trailing edges of the fins line up in directions one and seven. Blend the shading on the left side of the rocket and shade the two fins that are lined up in direction seven. The checker pattern is optional but there should be at least a couple of lines curving around the rocket.



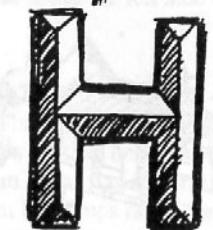
(62) THE PENCIL IN DIRECTION FIVE There are five principles of drawing used here, counting foreshortening.



(63) SQUARE POST This is drawn like a tall cube. Begin with a very small foreshortened square at the top. Shade the left side but do not blend the shading on square objects.



(64) THE BIRD HOUSE The roof should be drawn first making the near corner lower than the other two. The best way is to use two dots rather far apart and one in the middle slightly lower. Connect two of the dots on the left and draw a shape like the letter "A" between the two right-hand dots. Make a thickness on the roof and complete it. The little line under the far edge of the roof goes in direction seven, lined up with the rest of the roof. Draw a dot up under the right-hand corner of the roof and a vertical line down from the dot. Add a parallel line slanting up under the roof and then draw the left corner of the bird house in a bit to correspond with the right side. Draw the platform around the bottom using what you learned from the square wedding cake and the pile of packages. Be sure the perch is lined up with the birdhouse.

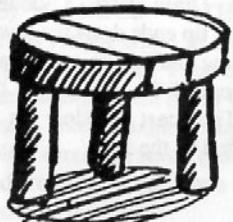


(65) THE RAISED LETTER "H" Start with a single-line "H" and then outline it completely with a continuous second line. Connect all the corners and shade the left and underneath areas.



(66) TELESCOPE IN DIRECTION THREE The big end of the telescope should be drawn first here to make it easier. The ring at the near end is foreshortened perpendicularly to the direction of the telescope.

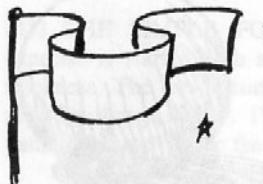
LESSON TEN



(55) THREE-LEGGED STOOL This drawing is started with a foreshortened circle with a thickness on it. The two near legs are drawn closer to the bottom of the picture than the far leg. Because the far leg is in the shadow of the stool itself, it can be shaded dark all over. This shading helps to make the far leg farther away than the near ones. The cracks in the stool are lined up in direction seven. The shadow on the floor is also a foreshortened circle to correspond with the shape of the stool.

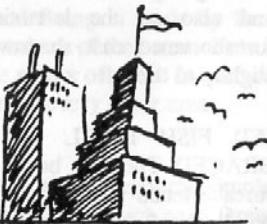


(56) PILE OF PACKAGES This is drawn like the square wedding cake. Strings are added to the top package. A ribbon is used on the middle package and two ribbons are added to the bottom package. The variations in ribbons are to help separate the packages.

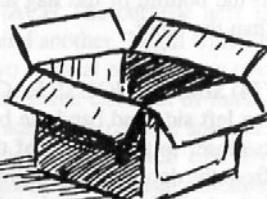


(57) DOUBLE FLAG WITH LOOP TOWARD YOU Keep the top of this flag foreshortened. Draw vertical lines down each time the flag turns and at the end of the flag. Then draw the bottom of the flag to correspond with the top. Notice the middle section is drawn lower.

(58) BUILDINGS, LOOKING UP Nearly everything we have drawn so far has been from a view slightly above the object drawn. Here we change the view so we are looking up. Draw a straight line across the bottom of the picture. Then, draw two vertical lines rather far apart. Draw a center vertical line a little taller than the others and connect the very ends. Repeat this on top of the first section of the building getting smaller and smaller until your building is as high as you want it. Then put a flag on it. Draw a second building slightly behind the first but keep it simple and add two or three smoke stakes on top. The tips of the smokestacks should line up in either direction one or seven.



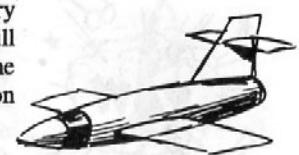
(59) PIANO STOOL This simple foreshortening exercise should be started at the top with the foreshortened circle. Shade the left side of each part.



(60) CARDBOARD CARTON WITH FLAPS This is a simple alignment exercise. Draw the foreshortened square and the flaps first. Shade the left surfaces. Notice that the shady surfaces line up in direction seven.

LESSON THIRTEEN

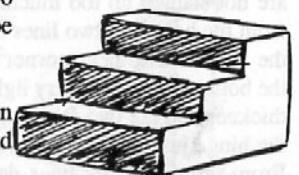
(73) GUIDED MISSILE IN DIRECTION FIVE In drawing this exercise, slant the body of the missile very slightly. The ends of the wings and the top of the tail will line up parallel with the direction of the missile. The wings and the horizontal tail pieces line up in direction seven. Do not slant the wings very much.



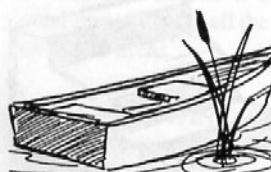
(74) DOUGHNUT The outline of this doughnut is fatter than a foreshortened circle but is still foreshortened some. For the hole, start with a line parallel with the near side. Making the far side smaller, or not as thick as the near side, and using overlapping, draw a line parallel with the far side. This doughnut uses four principles of drawing — surface, size, overlapping, and foreshortening.



(75) THREE STEPS IN DIRECTION ONE This is drawn the same as two steps. If the eye measurements of the two sides do not correspond, the top step is likely to be narrower than the bottom step.



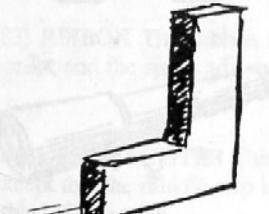
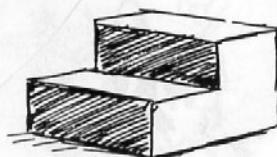
(76) FLOWERPOT The edge of the flowerpot is drawn with a double foreshortened circle. Blend the shading and shade the inside too.



(77) BARREL OF APPLES Notice the staves on the barrel become closer together as they recede around the sides. The near apples should be drawn first, overlapping the apples behind. Shading can be used on the left side of the apples as well as on the barrel.

(78) ROWBOAT IN DIRECTION ONE Start with a single line in direction one for the far side of the boat. Since the bow of the boat curves up, the curve in the far side of the boat need not show. Then draw the near edge of the boat partly parallel with the length of the boat and curve gradually up toward the point. The back part of the boat fools most people at first. Instead of being drawn upward across the back of the boat, it is drawn almost horizontally — that is in direction seven. The rest of the boat is added including the thickness around the rim of the boat. It is sometimes very difficult to line the seat up with the back of the boat. The cattail is extra but if drawn the ripples should be foreshortened enough to correspond with the foreshortening of the boat.

LESSON TWELVE



(67) TWO STEPS IN DIRECTION ONE Most of the exercises so far have been symmetrical — that is, the right side has been almost like the left side like on a foreshortened circle or square. Beginning with this exercise, the drawing becomes more advanced because fewer things will be symmetrical. In drawing steps, we start with a dot at the bottom in the middle. From the dot, draw a line in direction one and another in direction seven. Be careful that neither of these lines slants too much. Then draw a vertical line from the dot. From the top of the vertical line draw in direction one for the tread of the first step, then vertical, then direction one, then straight down vertically. Start now at the left end of the steps and draw vertically, direction one, vertically, and direction one again. It is best to connect the steps as you go up the far side. The most common error is to slant the vertical lines — try to keep them exactly vertical.

(68) PAIL ON THREE-LEGGED STOOL This combines two previous exercises.

(69) ROLLING PIN ON GINGERBREAD MAN This exercise is similar to that of the telescope in direction one but the gingerbread man's feet require a lot of alignment. The legs are lined up in direction seven and the feet are lined up with the rolling pin in direction one. Thicknesses are drawn on the near sides.

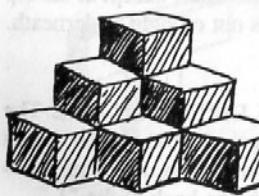
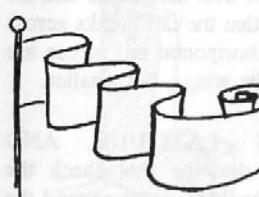
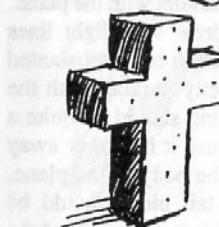
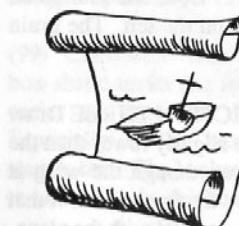
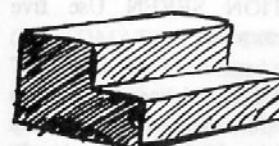
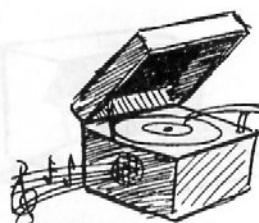
(70) A BONE IN A DISH The dish is easy, using the double foreshortened circle for the rim. Notice the overlapping on the bone. Overlapping is one of the seven principles of drawing. Blend the shading.

(71) THE SPANISH CHURCH This is drawn by drawing two vertical lines for the outside corners and then another lower one for the near corner. Connect the bottoms, leaving room for the door. Add the roof and the windows. Notice where the thicknesses are in the windows and the door — they are on the far sides, away from the near corner of the building.

(72) LETTER "L" IN DIRECTION FIVE In all of the "L" drawings, it is best to draw the face or the flat shape of the "L" first. Add the thickness last and then shade. Do not let any of the lines in directions one or seven slant too much.

LESSON FIFTEEN

(85) RECORD PLAYER Begin this drawing with a foreshortened circle. Draw a foreshortened square around the record, using the four dots. From the far left side of the record player, slant two lines up and connect them to form part of the lid. Draw the thickness on the lid and the inside lines. Add a brace and the arm and then hude. Even the lines on the speaker are lined up with the side of the record player.



(86) TWO STEPS IN DIRECTION SEVEN Start with the dot at the bottom and draw lines from the dot in directions one and seven. Then draw a vertical line from the dot and continue up the steps to the left. Finish the steps keeping all vertical lines vertical. Use two degrees of shading — the left side dark and the right side light.

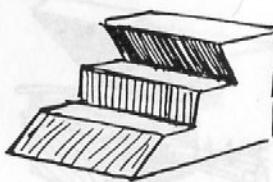
(87) MAP SCROLL Starting from a dot in the upper right hand corner, make a foreshortened curl and drop down to the lower right. At the lower right make another foreshortened curl. These two curls are foreshortened vertically. From the top and bottom of each curl draw lines in direction seven. Complete the left end of the scroll extending the rolled parts, top and bottom, beyond the left edge of the paper. The picture or whatever is drawn on the scroll is optional.

(88) 3D CROSS Draw the face of the cross first making sure that the top and bottom and the cross-piece are lined up in direction one. Then from the corners draw thickness lines in direction seven. Do not slant them too much. Connect the thickness lines and shade the left side of the cross.

(89) FANCY FLAG WITH THREE WAVES AND SCROLL Three foreshortened backward "S" curves lead into a foreshortened scroll. Draw vertical lines down from each curve and draw the bottom of the flag to correspond with the top. Notice the bottom line drops down for each "S" curve.

(90) PILE OF CUBES Start with the top cube. Shade the left side dark and the right side light on each cube. By crossing the two bottom lines on the first cube we begin the second two cubes. Finish the cubes. Do not let any of the lines slant too much. Counting the unseen blocks, how many are in the pile?

LESSON SIXTEEN



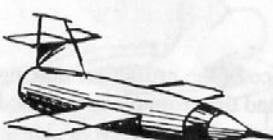
(91) CROOKED STEPS IN DIRECTION ONE These steps are similar to ordinary steps except that the first step is slanted purposely forward and the top step slanted purposely backward. This forces the student when drawing the far end of the steps to double check the relationship with the near end of the steps. Notice there is a correlation between the shading and the slant of the steps.



(92) PENCIL IN DIRECTION SEVEN Use five principles of drawing in this exercise.



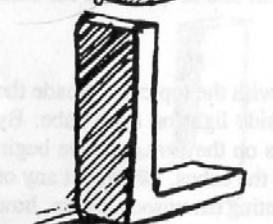
(93) THE TWISTED CANDLE This candle is only slightly more elaborate than before. The twist is made by making scallops down the sides of the candle exactly opposite. Draw graceful "S" curves from one scallop on the right to the next lower scallop on the left. The grain in the wood is an extra.



(94) GUIDED MISSILE IN DIRECTION THREE Draw first the bullet-shape with the nose slightly lower than the tail — the angle is important. Even though the wing is actually at right angles to the body, we do not draw it that way. Draw first a mark on the side parallel with the plane. Through each end of this mark, draw very light lines extending through the plane in direction one, not slanted very much. Cut the wings off exactly parallel with the direction of the missile. The far wing should be quite a bit smaller than the near wing because it is farther away and because it is partly hidden by the body of the plane. The trailing edge of the vertical tail piece should be vertical. The top edge is parallel with the missile and the leading edge can slant. Notice that the tail breaks across the top line of the body. The horizontal tail pieces are drawn in the same manner as the wings, but smaller.



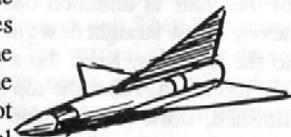
(95) GLOBE SHOWING LATITUDE AND LONGITUDE LINES When drawing this check the latitude lines to see that they hook or curve around the sphere. The longitude lines do not meet except at the top of the globe. The south pole is out of sight underneath.



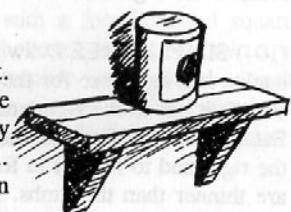
(96) WIDE LETTER "L" IN DIRECTION ONE The thickness or double line forming the "L" should be drawn first. Then the thickness lines drawn in direction seven are drawn and connected. Shade the back of the "L".

LESSON SEVENTEEN

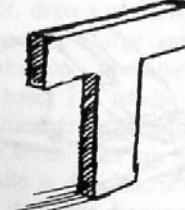
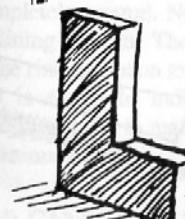
(97) DELTA WING IN DIRECTION FIVE Draw a bullet-shape in direction five. The trailing edge of the wing slants very slightly in direction seven and passes through the very tail end of the bullet shape. Draw a line along the fuselage for connecting the wing. Complete the wings. The trailing edge of the tail piece is vertical — not perpendicular to the slant of the plane. Shade the vertical piece and the underneath part of the fuselage. Draw at least one band around the plane.



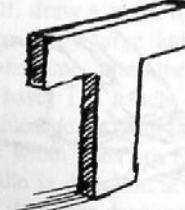
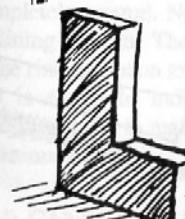
(98) TOMATO CAN ON SHELF Draw the can first. Then draw the shelf lined up in direction one. Draw the ends of the shelf in direction seven but do not slant very much. The slanting braces are vertical against the wall. The shadow behind the can goes in direction seven, then straight up the wall.



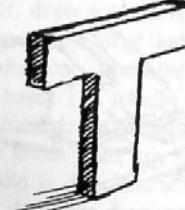
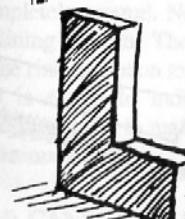
(99) CHROME CHAIR By drawing very lightly a box-shape under the foreshortened seat, you will find it easier to draw the bars in the correct directions. Especially if the box is drawn as though it were transparent. The backrest on the seat sets slightly forward to allow for the thickness.



(100) CALLA LILY Draw a slight "S" curve leaning to the right. Curve a second line in behind as on a vest. Draw the rims on both sides meeting at the top in a curved point. Draw the funnel with almost straight lines, then the stem. The leaf is wavy.



(101) THE LETTER "L" IN POSITION THREE A single-line "L" should be drawn first with the foot drawn in direction three (or seven) but not slanted very much. Then with lines only parallel with those already drawn, finish the face of the "L" — the shady part in this drawing. With very short lines, draw the thickness in direction one. Be sure that all of these thickness lines point exactly in the same direction and that they do not slant up hill very much. Connect the thickness lines and shade the left side or face of the letter.



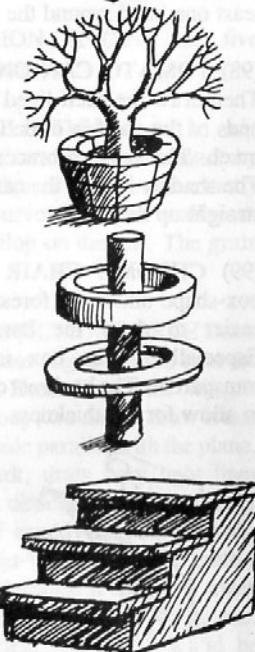
(102) FLAT LETTER "T" WITH THICKNESS Be sure to draw the face of the "T" first. Do not let the head slant very much. The tiny short thickness lines all point in exactly the same direction — direction seven. Shade the left side only.

LESSON EIGHTEEN

(103) FOAM-RUBBER CHAIR Start with the top edge of the chair in direction one, the thickness in direction seven. Draw straight down at the back and half way down to the armrests. Keep the armrests from slanting down hill too much. After the top surfaces of the armrests are finished, draw a box-shape for the bottom part of the chair. Cut a place for the sitter at the front and add the cushion and legs. Shade left surfaces.



(104) SIMPLE TREE Draw the tub same as the wooden bucket leaving space for the trunk. Draw the trunk and branch it out to the right and to the left into two limbs. Each limb is smaller than the trunk. Branch each limb to the right and to the left to form branches. The branches are thinner than the limbs. Branch the branches to the right and to the left to form twigs. Draw a very light line to indicate the shape of the tree. Curve many twigs crossing first to the right then to the left and so on, each time just touching the light line. Shade where needed.



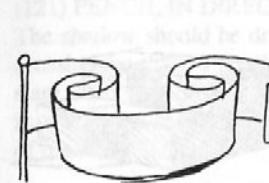
(105) VERTICAL BAR WITH COLLAR AND WASHER This can be drawn without erasing. Draw the top end of the bar, then with a double foreshortened circle draw the collar. Extend the bar down farther and make a second double foreshortened circle — this time make the second ring much wider than the first; draw the thickness very close. Finish the bar and shade.

(106) STEPS WITH BOARDS ON THEM Start the steps as usual until the right end is finished. Then draw the ends of the boards extending slightly over the risers. In completing the left ends, be sure the boards, or treads, extend out.

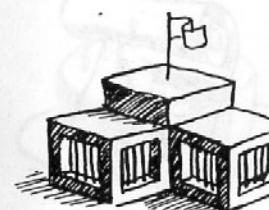
(107) SCROLL Starting at the left with a dot, curl a line clockwise and foreshortened vertically. Stop about the middle of the curl on the right. Extend the scroll to the right in direction one and finish the far end. Notice the corner extends out.

(108) RABBIT Draw an egg-shape for the head, then the two ears showing the inside of the near one. Curve the back with a hump almost to the rear. There is a wrinkle under his chin. The paws are lined up in direction one. The knee of his jumping leg is large. Notice the rabbit faces direction five and the carrot points in direction three.

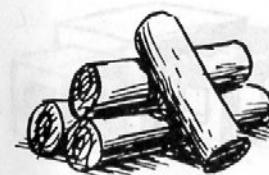
LESSON NINETEEN



(109) FANCY FLAG The top edge of the flag is drawn first. The foreshortened scroll curls completely in and then reverses and curls all the way out. Then the second scroll curls just the opposite. The vertical lines are drawn down from the very end of the curve. The bottom of the flag is not one continuous line, but is drawn in sections to correspond with the top.



(110) JAILHOUSE Start with a foreshortened square with a thickness. Cross the bottom lines to begin two new foreshortened squares. Complete these foreshortened squares and make each into a cube. Add the windows placing the thicknesses correctly. Shade the parts facing left. The flag is optional.



(111) PILE OF LOGS Draw the slanted log first with the foreshortened circle at the bottom. At the left on the ground, draw two vertically foreshortened circles side by side, the left one slightly higher. These are lined up in direction seven. Draw the third foreshortened circle and complete the logs. Shade, making a cast shadow from the slanted log curve around the others and across the ground in direction seven.

(112) CUBE WITH INCLINED PLANES Start with the foreshortened square and slant the inclined planes down. Notice in the little corner between the inclined planes, the lines in directions one, seven and vertical meet.



(113) FLAMINGO'S NEST Notice that the foreshortened circle inside the rim of the nest does not go completely around. Neither does the foreshortened circle outlining the rim. The shading goes right up to the edge of the rim but not on top of the rim. The shading is blended and is rough to indicate rough texture. This texture shading is used in many places such as bark on trees, fur on animals, etc.



(114) CANDLE IN A DISH After drawing the candle itself, draw a small foreshortened ring around the base. Then draw a large double foreshortened circle around the smaller one. Slant the sides of the dish under and draw the base. The handle curls like a monkey's tail and the double line forming the thickness should be drawn first. The width lines are drawn tangent to the curves of the handle in direction seven. Then connect the width lines and shade the drawing.

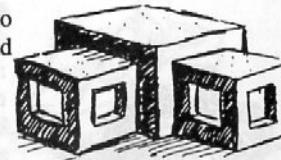
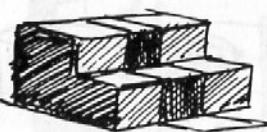


LESSON TWENTY

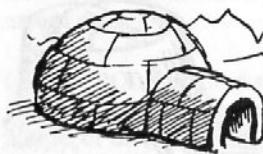
(115) STEPS WITH CARPET IN DIRECTION SEVEN
Many students find it difficult to keep the vertical parts of the carpet vertical.

(116) "S" CURVE SCROLL The curls on the scroll are foreshortened vertically. The scroll itself is lined up in direction one. Draw any picture on the scroll.

(117) DESERTED BUILDING Start with a foreshortened square as though you were drawing a cube. Start briefly down from the two ends and draw all the way down at the near corner. From the bottom of the near corner, start a line in direction one and another in direction seven. Draw a smaller foreshortened square sticking out from each side of the building. Each is drawn by starting with a line parallel and just below each side of the first foreshortened square. Complete each of the two new cubes starting both times with the side next to the building. Draw four windows with thicknesses and shade all left surfaces.



(118) FUCHSIA Draw the top of the bell shape first. From the center of the bell draw a line straight down, separating it at the bottom with a curve to the right and to the left. From the bottom of the right curve is a straight line in direction one. From the bottom of the left curve is a straight line in direction seven. The petals flare out like a little skirt and the detail is added.



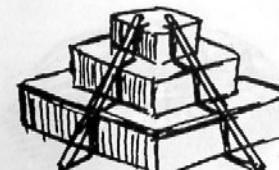
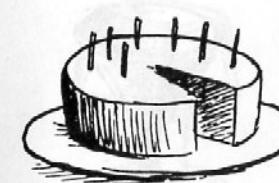
(119) ESKIMO IGLOO The main part of the igloo is merely a dome and rather easy to draw. The doorway is more difficult because of the alignment involved. The entrance way is lined up in direction seven and fits against the right-hand corner of the dome. For accurate alignment, a line drawn on the ground going right up the middle of the entrance would meet the very center of the foreshortened circle upon which the dome is resting.



(120) HOLE IN THE GROUND Notice the foreshortened "S" curves in the outline of the hole. Vertical lines are drawn down from the tips of the curves that point in toward the middle of the hole. Because it is a hole most of the shading is on the right.

LESSON TWENTY-ONE

(121) PENCIL IN DIRECTION ONE WITH POINT UP The shadow should be drawn first here. The short lines crossing the shadow are drawn in direction seven. Do not slant them very much. The pencil itself is drawn exactly as it is in the regular position one, using five principles of drawing.



(122) CAKE WITH A SLICE CUT OUT The point of the slice is at the center of the cake. Both sides of the slice are to the right. The bottom of the slice is parallel with the top. Shade the cake.

(123) PENCIL IN DIRECTION THREE WITH POINT RAISED UP The position here might seem confusing at first but direction three means southwest. This pencil is still pointing southwest but the point is raised up. Begin with the shadow in direction three. The cross lines on the shadow are drawn in direction one — not slanted very much. Many students make the mistake of slanting these lines too much. The pencil itself is drawn just as though it were on the ground. Keep the near end larger than the far end.

(124) SMALL BUILDING WITH LEAN-TO ON EACH SIDE Start with the foreshortened square. Draw a short line down from each end and draw the near corner all the way to the ground. At the bottom corner, start a line in direction one and another in direction seven. Draw a line on each side just below the top of the building but do not draw them all the way across. Slant the roofs down. Complete the bottoms of the lean-tos as though the roofs did not slant. All lines along the ground will be drawn in directions one or seven. Add the windows and shade.

(125) SERPENT The curves of the serpent are foreshortened. Notice the use of overlapping on the inside of each curve, cutting the near part in front of the far part. The lines along the serpent's back serve as surface lines and help to explain the shape and the direction of the parts.

(126) PYRAMID WITH POLES LEANING ON IT Draw first the square wedding cake. Lean the poles on it and draw the shadow-like lines down the steps underneath each pole.

LESSON TWENTY-TWO

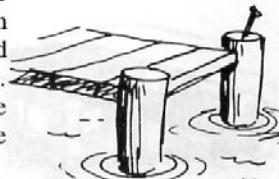
(127) LOG LEANING ON LOG Draw the slanting log first. Then draw the bottom log lined up in direction seven. The shadow from the first log goes along the ground in direction one and then curves up and around the bottom log. Shade both logs.



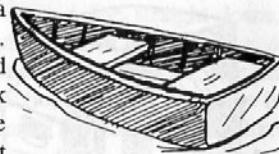
(128) FUNNEL The funnel has a little groove in the side to let air pass when the funnel is in use. Shade the left side.



(129) PIER Begin by drawing a post in the water. Over to the right and slightly higher draw another foreshortened circle for the top of the second post. Starting just below this foreshortened circle, draw the end of the pier connecting the two posts. From just below the second foreshortened circle again, draw a line in direction seven. Draw the near edge or thickness of the pier and complete the second post slightly smaller than the first. Draw the planks in the pier parallel with the end of the pier. Put foreshortened ripples around the bottom of the poles.



(130) ROWBOAT IN DIRECTION SEVEN Start with a straight line in direction seven for the far side of the boat. Begin drawing the near side parallel with the far side and curve gradually toward the point of the boat. The back does not slant much but is drawn in direction one. Place a thickness all the way around. Complete the boat drawing, make the seats parallel with the back of the boat.



(131) FRIGHTENED CACTUS This cactus is still afraid of the western badman and has its hands up. Notice the slight overlapping where the arms join the trunk. The shading is on the left of each part and is slightly irregular to correspond with the texture of the cactus. Notice the shadow-grass on the ground at the left.

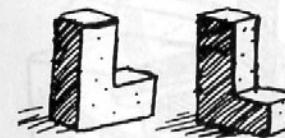
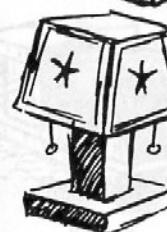


(132) DELTA WING IN DIRECTION THREE Draw a bullet-shape in direction three with surface lines or bands around it. Mark a line along the edge where the wing fits. The trailing edge is drawn in direction one. The far wing is considerably smaller. Complete the wings. The two vertical tail pieces have vertical trailing edges.

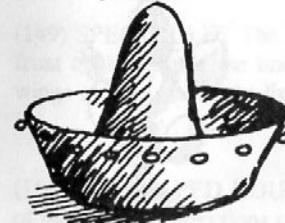
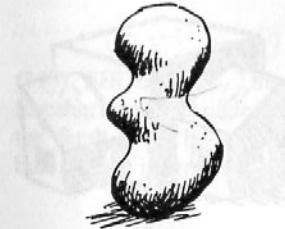


LESSON TWENTY-THREE

(133) DOORKNOB IN DIRECTION ONE Start with the knob slightly foreshortened vertically and with a shiny shadow in the lower left corner. The center line for the stem passes right through the center of the knob. Draw the stem in direction one. Draw a flange around the base of the stem. The knob itself in direction one is finished. The plate is lined up in the other direction which is seven. The sides of the plate are vertical. Draw the keyhole with the thickness on the left side and the bottom.



(134) SQUARE TABLE LAMP This is very similar to the round table lamp. It is drawn with all straight lines and starts with a foreshortened square at the top.



(135) THE LETTER "L" IN DIRECTIONS ONE AND THREE WITH SQUARE THICKNESS The face of each letter should be drawn first. On the left drawing, the face is white; on the right drawing, the face is shaded. Do not slant the thickness lines very much. All lines in both drawings are drawn in direction one, seven, or vertically.

(136) CROOKED ROCK Outline the rock first with three waves on the left and two on the right. Blend the shading on the underneath parts. The underneath part is any part where snow or light would not fall. The underneath part starts at the crest of the bulge and ends in the valley between bulges.

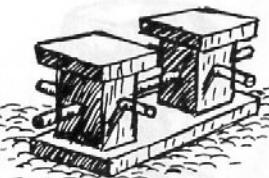
(137) MEXICAN SOMBRERO Start with a tall mound with a foreshortened circle around the bottom. The mound is extended downward to meet the lower edge of the foreshortened circle. Slanting in from the ends of the foreshortened circle, draw the bottom part of the hat. Notice that the shading blends on the left side of the mound and the brim and then jumps to the right for the inside of the brim.

(138) DOUGHNUT SHAPE This doughnut is drawn the same as before with added surface-lines, shading, and density. Try to curve the surface lines completely around the surface of the doughnut. The shading is on the underneath parts. The near part is drawn heavier and with slightly more shading, making use of density.

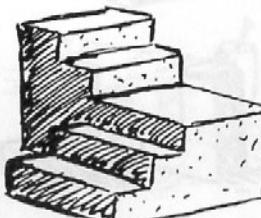
LESSON TWENTY-FOUR

(139) SCROLL LINED UP IN DIRECTION SEVEN
Begin at the right from a dot. Curl counter clockwise and stop to the left of the dot. The curl should be foreshortened vertically. From the top and bottom curves of the scroll, draw left in direction seven. Complete the end at the left allowing the corner of the paper to extend out to the left of the rest of the scroll.

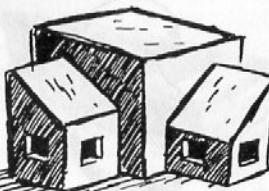
(140) TWO SIMPLE TABLES LINED UP IN DIRECTION ONE Draw the left simple table first. Extending lightly the lines in direction one indicates where the corresponding lines of the second table will fall. Then build the second table with lines in direction seven and vertical lines. Add the base and the rods maintaining correct alignment.



(141) STEPS CHANGING DIRECTION Draw three steps in direction one, making the top step a foreshortened square. Add more steps in direction seven to the foreshortened square.



(142) BUILDING WITH A LEAN-TO ON EACH SIDE POINTING OUTWARD Start with the foreshortened square. Begin the corners down from the two ends and draw the near corner all the way down. At the bottom, start a line in direction one and another in direction seven. From just inside of the upper far corners, draw the top ridge of the lean-tos straight out from the building. Slant the lean-to roofs toward the near corner of the building and complete the bottom of the drawing. All lines along the bottom are drawn in either direction one or seven.



(143) PRICKLY PEAR CACTUS Draw a series of connected discs casually arranged. Notice the thicknesses are not all on the same side. Shade the left part of each piece and add stickers.

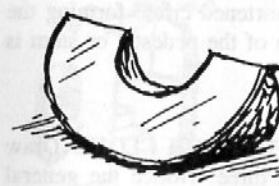
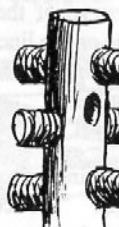


(144) SKIS CROSSING IN DIRECTIONS THREE AND FIVE Under the toe of each ski is a short straight line. For the ski lined up in direction three, the little straight line will be in direction one. For the ski lined up in direction five, the little straight line will be drawn in direction seven.



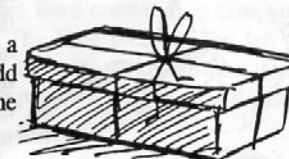
LESSON TWENTY-FIVE

(145) THE STONE STEPS The stone steps are drawn with wiggly lines to give them texture. The alignment is still in directions one, seven and vertical.



(146) TREE TRUNK Draw first the outline of the trunk with three stumps sticking out on each side. On every other stump, draw a vertical foreshortened circle. Draw another foreshortened circle on top of the trunk. Using overlapping, extend every other stump (the same three) just slightly past the line of the trunk. Draw the edge of the trunk vertically past the remaining three stumps, cutting them off. Starting at the foreshortened circles, draw surface lines around each stump. Continue the surface lines to the stumps on the opposite side of the trunk. Blend the shading on the left side of the trunk and on the underneath part of all six branches.

(147) SLICE OF CANTALOUPE This drawing is lined up in direction seven. Draw the ridge first. Then draw the side of the melon with two half-circles slightly slanted. Draw the other side of the melon by slanting the curves the other way. The lower right corner is almost a straight line and is drawn in direction one.



(148) SHOE BOX This drawing is started with a foreshortened rectangle lined up in direction seven. Add the depth of the lid and draw the vertical corners of the box slightly in from the ends.



(149) SPECTACLES The lenses and other parts on the front of the glasses are lined up in direction seven. The wings or side pieces are lined up in direction one.



(150) "L"-SHAPED HOUSE Draw first the bent ridge of the house in directions one and seven. Draw the "A" shaped ends of the house and connect the bottoms of each. The "A" shape on the right lines up in direction one and the other one lines up in direction seven. Draw the bottom edges of the roof parallel with the ridges until they meet at the center of the house. From each of the five lower corners of the roof, draw vertical lines downward all the same length. Connect. Draw windows in the house and shade the drawing.

LESSON TWENTY-SIX

(151) SAWHORSE IN DIRECTION ONE Start with the long foreshortened rectangle. Slant the two legs down to the right, cutting them off in direction one. Draw the thicknesses on the left of each leg and cut the thicknesses off in direction seven. Slant the far legs down to the left and line the ends up with those on the near legs. Add the braces and shade on the left and underneath or hidden places.



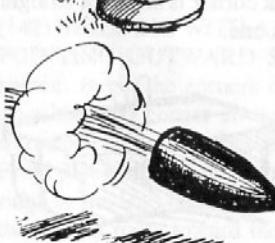
(152) MOON CRATER Draw the curve of the moon slightly and draw a foreshortened circle on the line. Draw the crater using most of seven principles of drawing. Add a few hills, shading the left side of each.



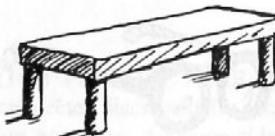
(153) BIRD BATH This has many things in common with previous foreshortening exercises. Notice the foreshortened circle forming the water has been drawn lower than the double foreshortened circle forming the rim of the bowl. The bottom of the pedestal or stem is raised up on the base.



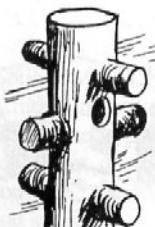
(154) MISSILE PASSING THROUGH CLOUD Draw the missile first in direction three. Notice the general doughnut shape of the cloud of dust. The part on the near side of the missile trail is drawn larger than the part on the far side. Overlapping is used a great deal on the cloud and the whole cloud is foreshortened vertically. Notice the shadow on the ground in direction three. The crosslines are drawn in direction one, not slanted very much.



(155) SIMPLE BENCH Here we have the foreshortened rectangle with thickness — a long board. This is best drawn by drawing the first line in direction one to indicate the length of the bench. From the near ends draw a line in direction seven to indicate the width of the bench. Then complete the foreshortened rectangle, add the thickness and draw the legs, one below each of the four corners. The ends of the round legs should line up with one another in directions one and seven.



(156) TREE TRUNK WITH SIX STUMPS IN OPPOSING DIRECTIONS This tree trunk is drawn almost the same as before. The stumps or limbs have been given direction one or seven. In addition to the use of direction, size is also used.

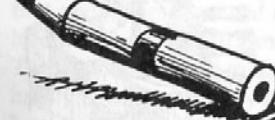
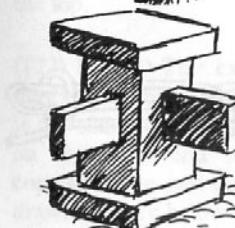
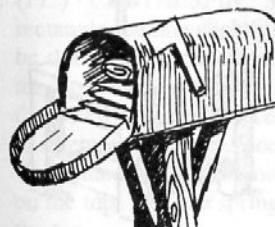
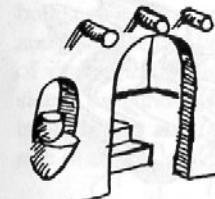


LESSON TWENTY-SEVEN

(157) APPLE This differs from a sphere or ball shape in that the sides are almost straight and taper in a little bit. The top is recessed. Careful shading and the use of surface lines will help to control this shape.



(158) STEPS IN DIRECTION SEVEN WITH BOARDS ON THEM Start with the dot at the bottom, drawing in directions one, seven and vertical. Draw up the steps to the left. Before starting on the right end of the steps, be sure to draw the ends of the boards. Remember to extend the boards over on the right end of the steps. In drawing the carpet, move it over slightly to the right as it comes up over the tread. A little extra shading under the overhang will help the drawing.



(159) FANCY ARCHWAY Draw first the hall line in direction one allowing room for the doorway. Draw two sides of the doorway vertically making the right side slightly higher. Draw the arch at the top and add the thickness on the right. Notice that the short line at the bottom of the thickness is drawn in direction seven. The little Indian-type logs sticking out over the door are lined up also in direction seven. And the corner of two or more steps in direction seven and the far corner of a room inside the arch. In this corner three lines converge in direction one, seven, and vertical. The little niche at the left is similar to the drawing of the arch. The surface upon which the vessel is placed is part of a foreshortened circle drawn horizontally.

(160) MAILBOX LINED UP IN DIRECTION ONE Begin with the arch at the opening and draw the mailbox in direction one. The rim of the door slants down and the depth or thickness of the rim is added. The hinge of the door and the ends of the letters are lined up in direction seven. Draw the post and the braces shading the left side.

(161) SIMPLE TABLE ON BASE WITH BOARDS OUT This is an alignment exercise and all lines are drawn in directions one, seven, or vertical. Shade the left side.

(162) PENCIL IN DIRECTION SEVEN WITH POINT UP Draw the shadow first and then the pencil at more of an angle using five principles of drawing.

LESSON TWENTY-EIGHT

(163) TEA KETTLE This drawing is based upon a dome. The spout is an "S" curve and comes out from the very bottom and in from the edge. The wooden grip on the handle is lined up in direction one.

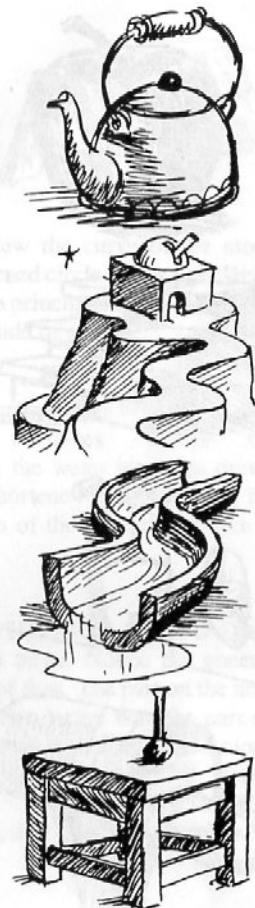
(164) OBSERVATORY ON A HILLTOP WITH WINDING PATH Draw the building first, resting on a foreshortened piece of land. Add one side of the path coming toward you. Be sure the path is foreshortened and the inside curves are sharper than the outside curves. Draw the opposite side of the path making the path wider as it comes toward you. From the points of the path, draw down the sides of the hill.

(165) "S" CURVED SEMI-TUBE There are two curves in this drawing — the far curve and the near curve. Both curves are foreshortened and together they form a foreshortened "S" curve. Each curve of the tube has two rims. On the top curve, the right-hand rim is on the inside of the curve and the left-hand rim is on the outside of the curve. The inside curve is always sharper than the outside curve. The points of these two curves are horizontally opposite. This drawing is best started by drawing the two rims first, making the near end of the object larger than the far end. Draw the near end of the tube and then drawing down from the outside of each curve make the outside surface of the tube. Curve down and inward from the inside curves. Make the little stream at the bottom and the pool at the near end. Foreshorten the pool. Shade left surfaces and underneath parts and draw ground lines under the edges that show.

(166) FOUR-LEGGED TABLE WITH BRACES This is the same as other tables but with more detail.

(167) SHEEP SHANK Follow the course of this rope with a single line. Then draw the double line forming the rope, overlapping in the appropriate places. Use cast shadows where the top rope overlaps the one underneath.

(168) SALT AND PEPPER SHAKERS Draw the near shaker first. Notice the shiny shadows under the left-hand corners of the heads. The bottoms of the shakers line up in directions one and seven. Add the corner of the table, directions one and seven. The tablecloth is slightly shaded where it hangs down.



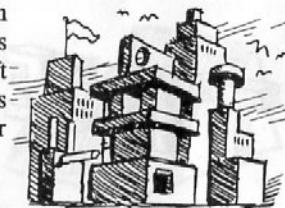
LESSON TWENTY-NINE

(169) OVERHAND KNOT Draw the rope coming in from the left, skip a space and loop the rope down and up behind the original rope. Bring the rope up from behind and down through the open space and under the loop out to the right. Shade underneath and on the left wherever possible. Draw curved cast shadows around the underneath ropes.

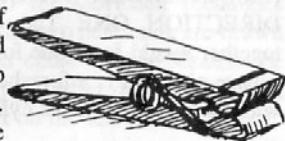
(170) PILE OF BOXES, ROUND AND SQUARE Start with one or two boxes in the foreground. Behind these, draw round and square boxes leaning toward you and away from you at various angles. Draw different sizes too. Shade on the left and underneath. Blend the shading on the round boxes.



(171) FANCY BUILDINGS LOOKING UP These buildings are started by making a line across the bottom and three vertical lines — the middle one longer. Use lots of variety in the shapes of the buildings. Shade the left side of the buildings. Notice the thickness on the windows is on the top and far side. The flag lines up with either side of the building.



(172) CLOTHESPIN Start with the foreshortened rectangle slanting slightly up hill to the left. The ends will be drawn in exactly direction one. Draw the contour of the top piece allowing for clothesline and the spring. Add the width of the top piece. The bottom piece is lined up in direction seven and does not slant as much as the top. The contours on the bottom piece are directly below those on the top. Add the spring showing where it comes over the top.



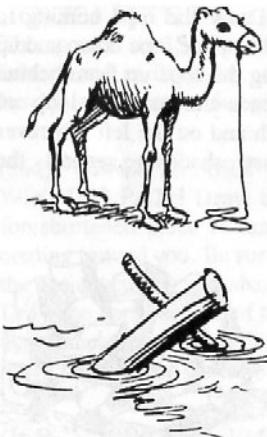
(173) PIANO This exercise has much in common with the Foam-Rubber Chair exercise. The alignment problem is the same, only the detail is different. Keep each part on the right end of the piano lined up with its corresponding part on the left end. The foot pedals are drawn directly below the music sheets.



(174) STUMP WITH HATCHET IN IT Draw the hatchet first and a foreshortened circle around the blade of the hatchet. The roots fall almost in the foreshortened circle. The roots extend out to the right and to the left but form hardly more than a wavy line coming toward you. Notice how the shading fits the left side of each root. Any detail on the ground will be foreshortened.



LESSON THIRTY



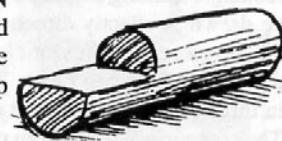
(175) CAMEL IN DIRECTION THREE Start with the camel's ears drawing his face down to the end of his lips. If his face is drawn too short, he will look like a monkey. Hook the neck down from under the jaw. Draw an egg-shape for the body, keeping the body high. Add the hump and stick the tail end out a little bit. It might help you to know that bones extend from his hip to his knee and from his knee to his heel and from his heel down to his feet. Notice the near feet are closer to the bottom of the paper. The two far legs are shaded because they are in the shadow of the camel. The rope from the camel's nose falls in foreshortened loops when it hits the ground.

(176) TWO POLES SLANTED IN THE WATER Draw the poles overlapping and slanting in the water. The ripples are still drawn horizontally even though the poles are slanted.

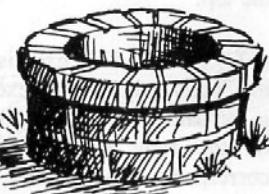
TIME

(177) THE WORD "TIME" IN 3D Line the word up first in direction one so the near end is larger than the far end. Draw the face of each letter first watching the vertical lines. Add thicknesses in direction seven and shade.

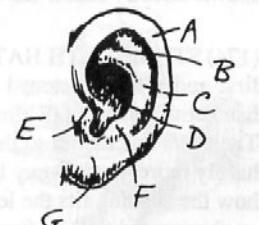
(178) CYLINDER WITH PIECE OUT LINED UP IN DIRECTION ONE The two semicircles, if placed together would form one foreshortened circle. The little square platform is a foreshortened square. It is lined up with the direction of the cylinder.



(179) WISHING WELL Notice that the mortar lines on the rim of the well point to the center of the foreshortened circle. Leave spaces between the bricks.

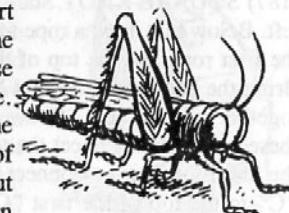


(180) HUMAN EAR Draw first the outside shape of the ear including the lobe. Starting at the very center of the ear, curve a line up and around the outer rim, the helix. The little part you press when you want to close your ears is drawn next. Jog the line around drawing a sort of question mark shape dividing the inner space of the ear almost evenly. Put lots of shading up under the hook on the question mark or the concha. Knowing where the parts are helps you to draw the ear and other things from memory. Many artists "fake" the ear because they do not know where to look for the different parts.



LESSON THIRTY-ONE

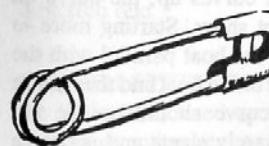
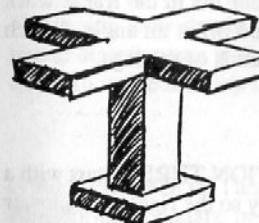
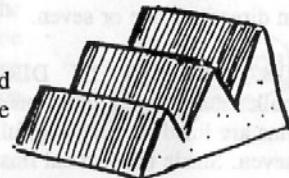
(181) GRASSHOPPER IN DIRECTION THREE Start with an oval-shaped head with an oval-shaped eye on the side. Line the right eye up in direction one. Draw the nose guard between the eyes. Behind his head is a saddle shape. His front legs come out from between the saddle and the head and bend like yours except that the feet are series of segments. The middle legs bend opposite, coming out from the back of the saddle. Line the legs and feet up in directions one and seven. His jumping legs line up behind the saddle and his wings are drawn along his back. There are about nine segments showing on his body and the ovipositor on the tail end makes it a female.



(182) CABIN CRUISER IN DIRECTION THREE The top of the cabin is a foreshortened square. The back of the boat is lined up in direction one.



(183) THREE RIDGES Start with a dot at the bottom and lines from the dot in directions one and seven. Add the ends of the ridges and line them up in direction seven.



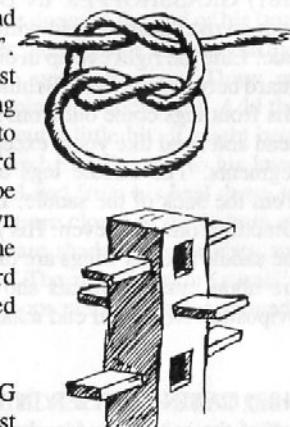
(184) TURNSTILE This rather difficult alignment exercise is drawn with two foreshortened rectangles crossing each other. Notice the two near ends are drawn farther apart than the two far ends. This is because the two near ends are closer to you. After drawing the post and the base, shade each part on the left side.

(185) SAFETY PIN IN DIRECTION ONE Start by drawing the two wires in direction one. From the top wire on the left, curve down and around like the number "6" showing a double wire around the left end of the safety pin. Tie into the bottom wire. The head of the pin fits over the top wire like a little tiny saddle. Directly below, the head curves under the bottom wire. The little piece in the center of the head is pinched together and drawn vertically.

(186) IRREGULAR VOLCANO The rim of the volcano is foreshortened and drawn somewhat like the rim of the moneybag. The foreshortened rim of the cap is drawn to correspond with the rim of the volcano. There is a lake in the volcano. Dress the picture up with a variety of hills and mountains. Shade the left surfaces.

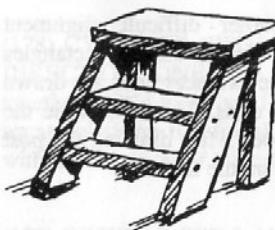
LESSON THIRTY-TWO

(187) SQUARE KNOT Start a rope coming in from the left. Below that draw a rope forming a letter "C". Behind the first rope and the top of the "C" draw another "C". Bring the ends of the second "C" to the right and almost together and parallel. Draw a backward "C" crossing these two ends. Connect the top of the backward "C" to the first rope drawn. Connect the bottom of the backward "C" to the top of the first "C" drawn. Extend the rope behind the bottom of the backward "C" and loop it down to connect to the bottom of the first "C". Draw the remaining rope to the right behind the top of the backward "C". The bottom loop goes around the thing to be tied and is not really a part of the square knot.

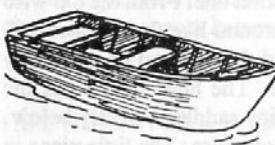


(188) SQUARE POLE WITH BOARDS STICKING OUT This is an alignment exercise. Draw the pole first and extend the flat boards out. Keep everything lined up in directions one or seven.

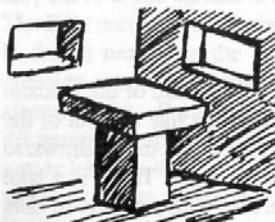
(189) ROCKET IN DIRECTION ONE Draw a bullet-shape in direction one. The trailing edges of the fins are lined up very carefully vertically or in direction seven. Shade the vertical fins.



(190) STEPLADDER This ladder fits in the frame work of a cube with the left side sliced off at an angle. Watch especially the alignment at the ends of the legs.



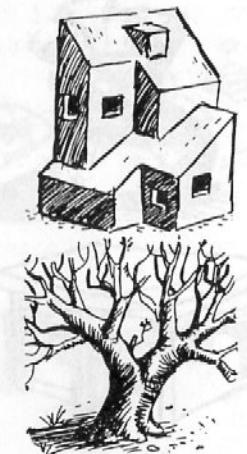
(191) ROWBOAT IN DIRECTION THREE Start with a straight line slanted only slightly so the right end is lower than the left. This line represents the far side of the boat. Since the front end of the boat curves up, the curve on the far side of the boat will not show. Starting more to the left, draw the near edge of the boat parallel with the far side for about half the length of the boat and then curve gradually to the point. This curve should not be too abrupt. The back of the boat barely slants and is drawn in direction one. Draw the thickness completely around the boat. In completing the boat, draw the water line so the bow is slightly higher out of the water. Line the seats up with the back of the boat.



(192) SIMPLE TABLE IN CORNER OF ROOM Notice the bottom of the table cannot fit against the walls.

LESSON THIRTY-THREE

(193) BIG HOUSE WITH DOUBLE SLANTED ROOF Draw the ridge of the top roof in direction one. Slant the roof down cutting a square piece out of the lower left hand corner. Draw light lines down from each of the five corners. Start the second roof at the right in direction seven just below the edge of the first roof. Slant this roof down to the left maintaining a constant slant and turning the corners in direction seven. Cut a square piece out of the near corner. Draw straight down from the five corners and draw the bottom lines in directions one and seven. Add windows lined up in directions one and seven and shade the drawing.



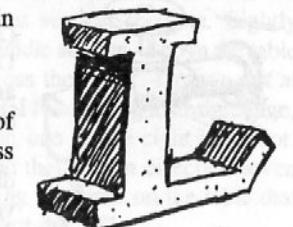
(194) BIG TREE Start the heavy trunk at an angle. Divide the trunk into limbs, the limbs into branches, the branches into twigs, then draw leaves on some of the twigs. Think constantly about variety, drawing some branches on the near side of a limb and some on the far side; some branches bent, others straight, etc. As the roots reach the ground they tend to fall in a foreshortened circle. Shade the left side of any parts big enough to shade.



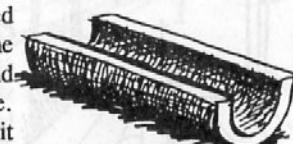
(195) COTTER PIN LINED UP IN DIRECTION ONE The inside loop should be drawn first. Draw a straight line in direction one with a loop on the end. The thickness or width inside the loop is in the lower right hand corner.



(196) OPEN BOOK This is drawn in the framework of a foreshortened square or rectangle. Draw the wing-like contours of the opened pages and line each part up in direction one.



(197) 3D LETTER "L" WITH SERIFS Draw the face of the letter first, lined up in direction one. Add thickness lines in direction seven. Connect and shade.

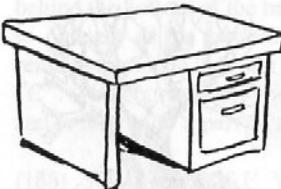


(198) SEMI-TUBE LINED UP IN DIRECTION SEVEN This is best drawn by drawing lightly a foreshortened rectangle lined up in direction seven. Then, within the rectangle, draw the edges of the tube. Draw the near end with both edges starting down vertically into the curve. Shade the underneath part blending the shading as it comes up the side. On the inside, shade the steepest part.

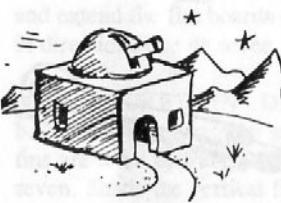
LESSON THIRTY-FOUR



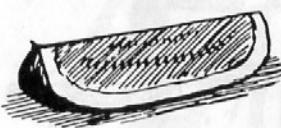
(199) MONEY BAG Draw first the foreshortened irregular edge of the bag. Then draw, just below, the foreshortened curves of the cord that holds the bag closed. From the ends of the foreshortened curves on the rim of the bag, curve lines downward toward the cord. Then draw the bulk of the bag. This can be squashed out against the table, if you wish. The little curves indicating coins in the bag are close to and curve toward the edge, mostly in the shady corner.



(200) DESK A foreshortened rectangle is more difficult to draw than a foreshortened square. Usually, it is better to draw the length of the rectangle first, then the width — one in direction one and the other in direction seven. All of the lines in this drawing are drawn in one of three directions — one, seven and vertical.



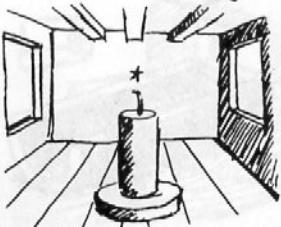
(201) THE OBSERVATORY Start with the dome and add the cube-shaped building underneath. Notice how the curved path starts straight out from the door and gets larger as it comes toward you. The mountains are shaded on the left side.



(202) SLICE OF WATERMELON IN DIRECTION ONE The short line across the melon is lined up in direction seven and is almost straight. The near end slants down on both sides like the roof of a house.



(203) FAUCET LINED UP IN DIRECTION SEVEN Draw the foreshortened handle first with thickness, stem, and little flange at the base of the stem. With surface lines curved like the letter "C", draw the housing around the valve. Draw the pipes fitting into the housing lined up in direction seven. The right end of the pipe bends down vertically. The little horn is to hang a pail on.



(204) THE END OF A ROOM Draw first the simple candle including the little star for the flame. Around the star draw a large rectangle. All lines parallel with the length of the room will point exactly toward the star. These lines include the floorboards, the beams on the ceiling, and the tops and bottoms of the windows.

LESSON THIRTY-FIVE

(205) INVASION OF FLYING SAUCERS The near saucer is so close we can only see part of it. Notice the slant of the flying saucers. Notice too, how lightly the one in the distance is drawn and how dark the near one is.



(206) BENCH WITH ARCHED LEGS Line the foreshortened rectangle up in direction one. Draw square supports at the ends of the bench and cut the arches in.



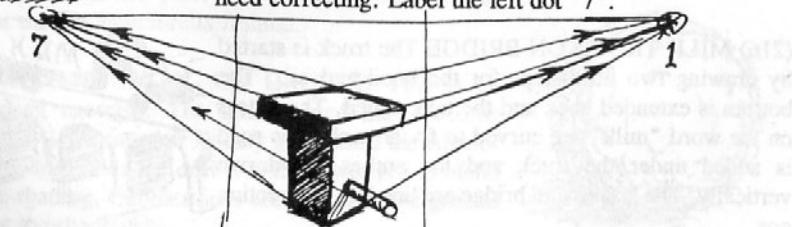
(207) BALL WITH HOLES IN IT The center hole is the largest and roundest. Thickness can barely show all the way around. Holes next to the middle are almost round and the thicknesses are toward the perimeter of the ball. The outside holes are smaller and quite foreshortened.



(208) THE CHAIN The chain is easily drawn by making small single-line curves hooking each other in a chain-like manner. Then make each curve a double line and complete the individual links.

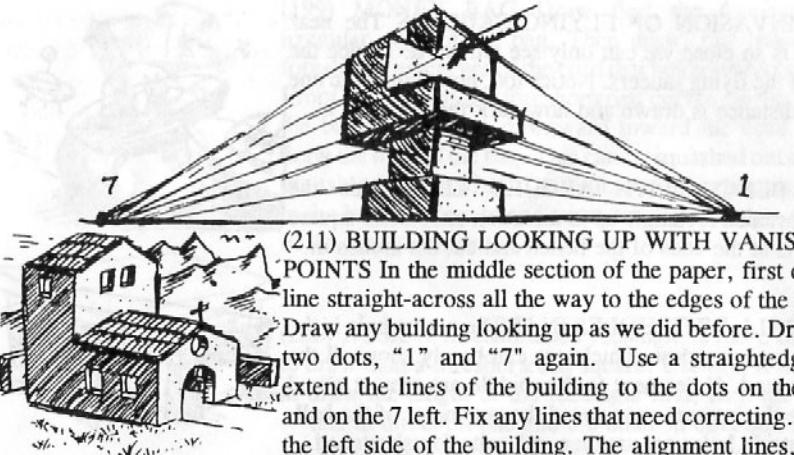


(209) SQUARE POST WITH DISCS AROUND IT Start with a cube at the top, place a foreshortened circle around the base of it, add thickness, and continue to the bottom of the drawing. Notice two kinds of shading — blended and not blended.



(210) SIMPLE TABLE WITH VANISHING POINTS Divide your paper into three vertical sections. Lightly draw a simple table in the middle section. Above the table draw a line all the way across the paper. Draw a dot at the two ends of this horizontal line. Using a straightedge, extend the lines in direction one to the right-hand dot. Number the dot "1". Extend the lines in direction seven to the left-hand dot correcting any lines on the table that need correcting. Label the left dot "7".

LESSON THIRTY-SIX

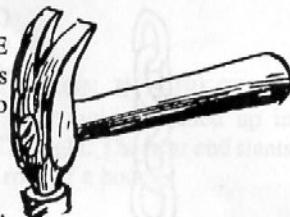


(211) BUILDING LOOKING UP WITH VANISHING POINTS In the middle section of the paper, first draw a line straight-across all the way to the edges of the paper. Draw any building looking up as we did before. Draw the two dots, "1" and "7" again. Use a straightedge and extend the lines of the building to the dots on the right and on the 7 left. Fix any lines that need correcting. Shade the left side of the building. The alignment lines, made with the use of the straightedge can be erased after the building is correctly lined up.



(212) BIG SPANISH CHURCH Draw the small part first and add the vertical addition onto the back. The lines of the walls are all lined up in directions one and seven.

(213) THE WORD "TIME" IN DIRECTION THREE
Draw the face of the letters first. The end of the word is drawn larger than the beginning because it is closer to you. Draw the thicknesses in direction one.



(214) HAMMER The handle is drawn in direction one. The claws of the hammer are lined up in direction seven.

(215) HELICOPTER IN DIRECTION FIVE This drawing is lined up in direction one. The front wheels are lined up in direction seven. The big foreshortened circle at the top is drawn horizontally.



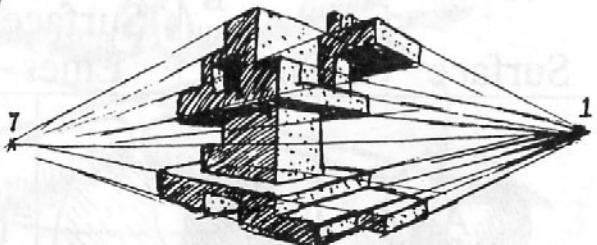
(216) MILK TRUCK ON BRIDGE The truck is started by drawing two little steps for the hood and cab. The bottom is extended back and the tank added. The letters on the word "milk" are curved to fit the tank. The road is added under the truck and the arches are drawn vertically. The arches and bridge are lined up in direction one.



LESSON THIRTY-SEVEN



(217) BIRDHOUSE WITH SLANTED SIDES In drawing this, begin with the roof making sure that the near corner is closer to the bottom of the picture. The perch is lined up with the birdhouse in direction one. Give some variety and interest to the contour and texture of the tree.



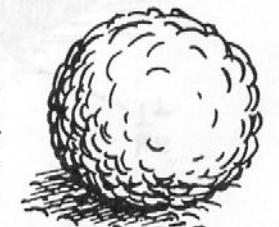
(218) BUILDING WITH EYE-LEVEL THROUGH IT
Draw a line straight across your paper about half way up. Above this line, draw part of an elaborate building, looking up. Below the line, extend the building downward, adding variety in structure as you go. Place the dots "1" and "7" at the ends of the horizontal line. All of the lines on the shady side of the building should line up toward the left dot, direction seven. All of the lines on the sunny side should line up to the right dot in direction one. Fix lines that need correcting. You will find that the farther you get from the horizontal line, the more the lines in directions one and seven are slanted.



(219) BANANA Notice that the thickness shows on the near side of each peel. Shade.



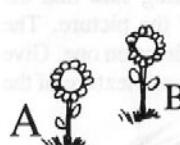
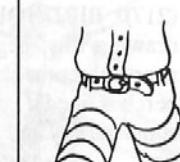
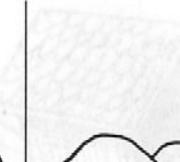
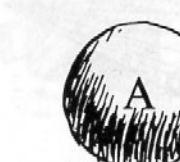
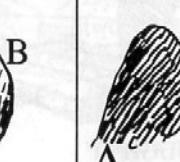
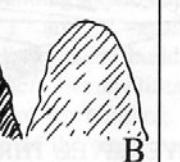
(220) MUSHROOMS These are slanted only for interest. The spots become foreshortened as they recede around the sides. Shading and ground shadows are on the left.



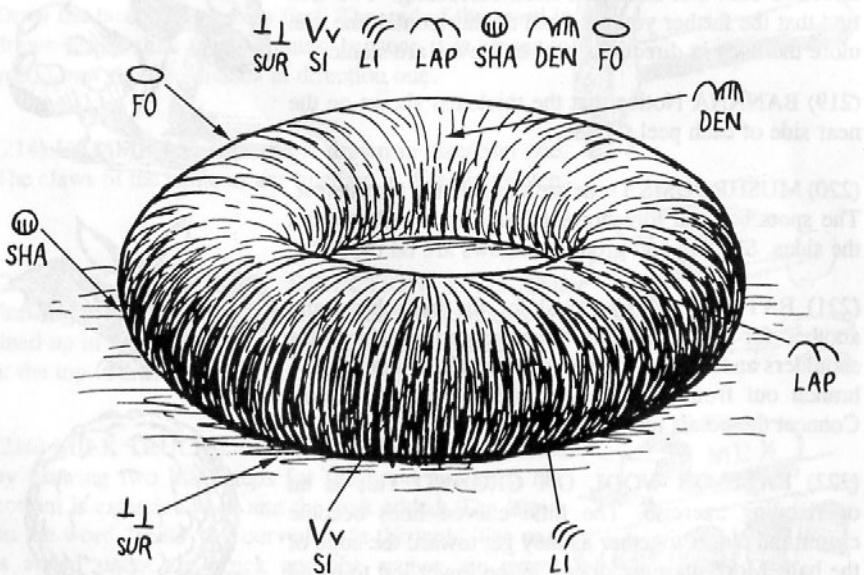
(221) BAT Start with an oval for the bat's head and another for his body. His wings sweep out from his shoulders and bend at the wrists. Two little "kite sticks" branch out from the joint and another from his tail. Connect the points umbrella fashion.

(222) BALL OF WOOL ON GROUND This is an overlapping exercise. The little curved lines become closer and closer together as they get toward the edge of the ball. More lines are drawn in the lower left to blend with the shading. Cobblestones are drawn on the ground favoring the shady side.

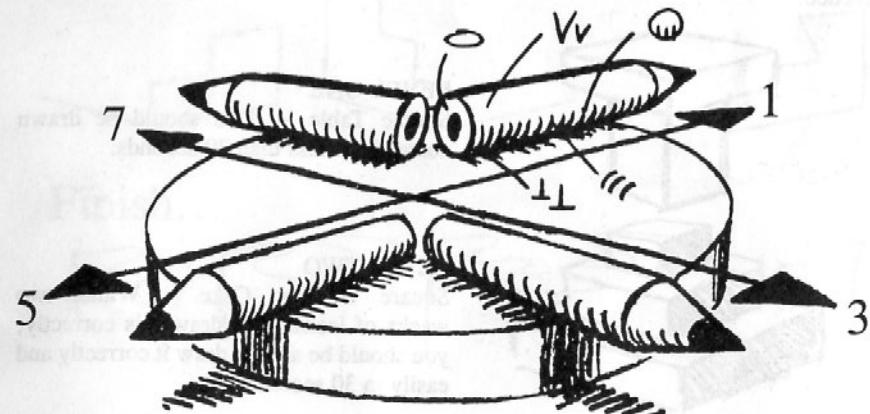
SEVEN PRINCIPLES OF DRAWING

			
Surface	Size	Surface Lines	Overlapping
			
Shading	Density	Foreshortening	

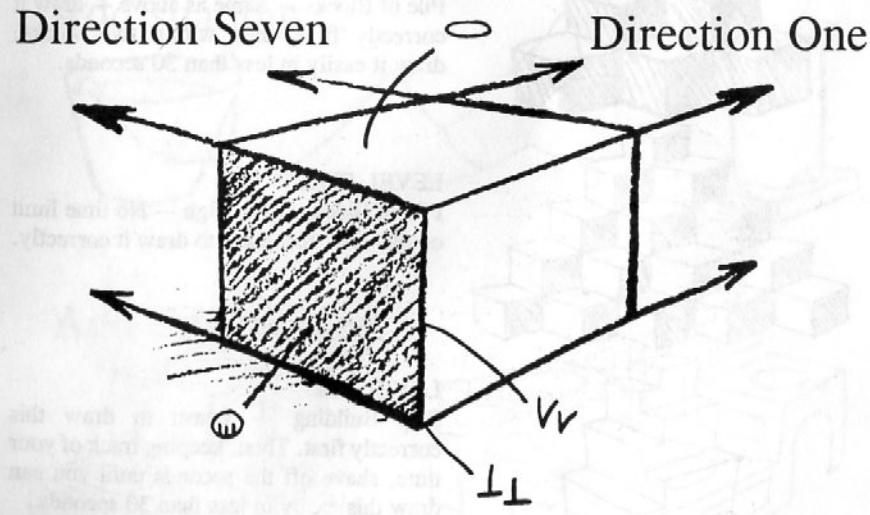
COMBINING THE PRINCIPLES



DIRECTIONS

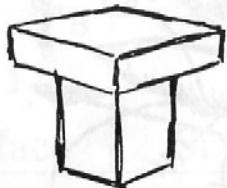


ALIGNMENT



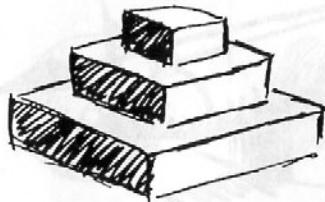
ACCOUNTABILITY

Measuring devices measure many things - height, weight, temperature, speed, time, etc., they also measure skills in spelling, reading, and math. Here is a scale for measuring ability to draw in three dimensions. Anybody can move up the scale through practice.



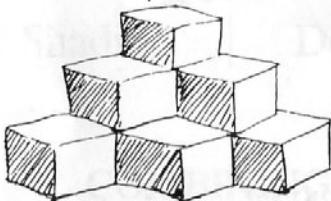
LEVEL ONE

Simple Table — This should be drawn correctly in less than 30 seconds.



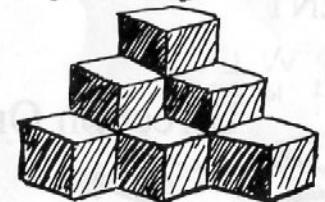
LEVEL TWO

Square Wedding Cake — Within two weeks of learning to draw this correctly, you should be able to draw it correctly and easily in 30 seconds.



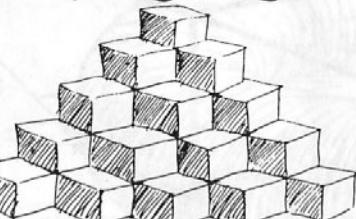
LEVEL THREE

Simple Blocks — Within two weeks after learning to draw this correctly, you should be able to draw it easily in less than 30 seconds.



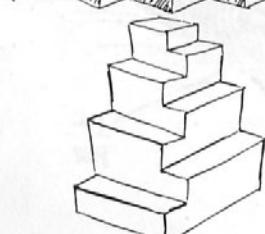
LEVEL FOUR

Pile of Blocks — Same as above — draw it correctly first, then within two weeks, draw it easily in less than 30 seconds.



LEVEL FIVE

Pile of Blocks, Five High — No time limit on this one. Just learn to draw it correctly.

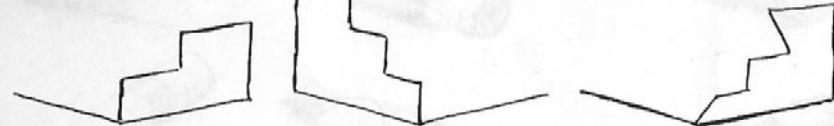


LEVEL SIX

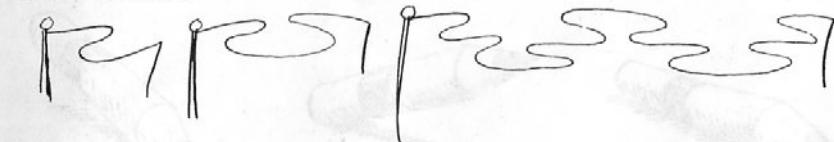
Step Building — Learn to draw this correctly first. Then, keeping track of your time, shave off the seconds until you can draw this easily in less than 30 seconds.

PRACTICE

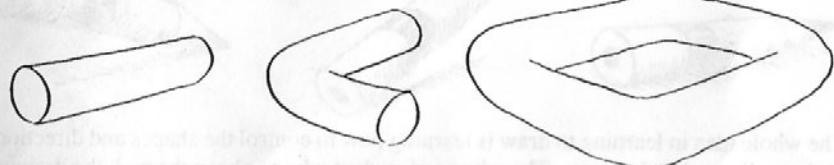
Finish...



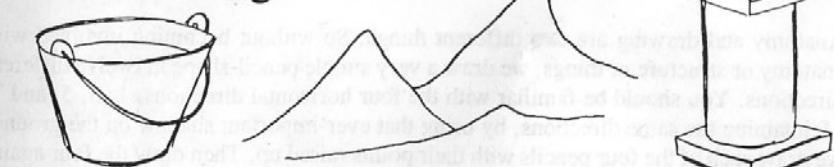
Finish...



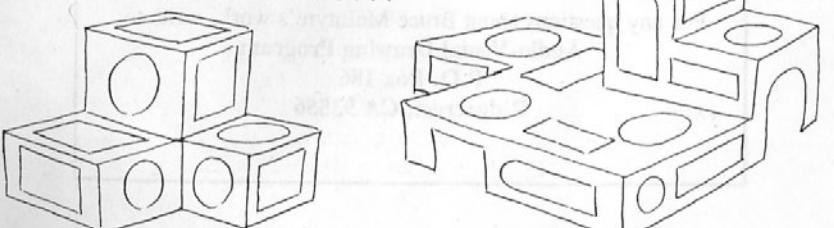
Add surface lines...



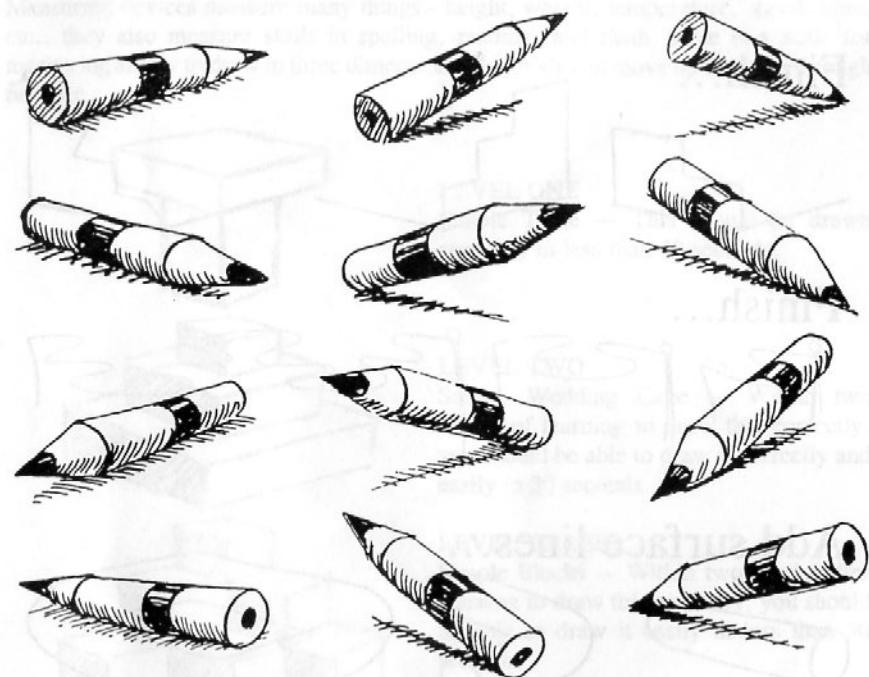
Add shading...



Add thicknesses...



PENCIL PRACTICE

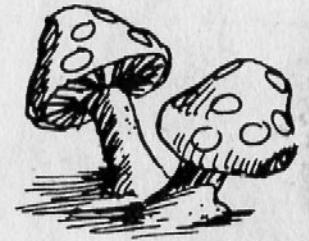
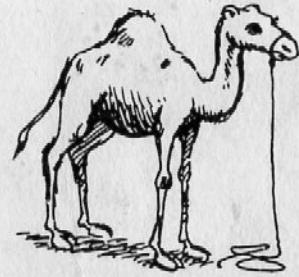


The whole idea in learning to draw is learning how to control the shapes and directions of three-dimensional objects. The advanced student who has been through the drawing exercises, knows how to use the seven elements of drawing, and understands alignment, should be ready to draw the pencils in all four directions lying down or with the tip up or down.

Anatomy and drawing are two different things. So without becoming involved with anatomy or structure or things, we draw a very simple pencil-shape in twelve different directions. You should be familiar with the four horizontal directions, 1, 3, 5, and 7. Maintaining the same directions, by using that ever-important shadow on the ground, we draw each of the four pencils with their points raised up. Then draw the four again, with the points down.

For any questions about Bruce McIntyre's work, write to:

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A blank page presents a
wealth of opportunity!

