

**Famous Artists Cartoon Course**  
Westport, Connecticut

# Perspective

Lesson

# 13

Rube Goldberg

Milton Caniff

Al Capp

Harry Haenigsen

Willard Mullin

Gurney Williams

Dick Cavalli

Whitney Darrow, Jr.

Virgil Partch

Barney Tobey



Everything appears smaller as it gets further away and parallel lines meet at a point on the horizon. This is called the vanishing point

## Perspective for a cartoonist

So far you have learned that an understanding of form and depth is very important to every cartoonist, whether he draws in a realistic way or stylizes his work to the wildest extreme.

Now we are going to show you how a knowledge of *perspective* will help you actually create and control the sense of depth in your cartoons. The few simple principles of perspective which you should know are easy to understand. There is nothing complicated about them. Just apply these principles to the things you see around you and you will soon learn all you need to know to draw cartoons that have a real sense of form and depth.

All the rules of perspective are based on one simple observation. *Objects appear to become smaller as they are farther from your eyes.* Everything conforms to this principle. The picture on the opposite page shows a succession of things getting smaller and smaller until they vanish. Since each object appears smaller as it is farther from the eye, *any part* of an object also seems smaller. The height, width and thickness of each form decreases proportionately. See this for yourself by looking down a street lined with houses, trees and telephone poles. Each part of the house seems smaller as the house is farther away, the thickness of the poles decreases along with their height, as does the size of the trunks and the branches of the trees.

As these objects and their parts seem to decrease, the *distance or interval between them also seems smaller.* Now, as you see this apparent decrease of size with distance, you become aware that the objects diminish in an obvious direction toward a definite level or height in the picture. This level is known as the *horizon* or eye level.

The level at which sky and earth meet is the most common form of natural horizon but it is not always the level of the *true* horizon. The true horizon is always the level of your own eyes and will change each time you move to a higher or lower position. The true horizon is straight out in front of your eyes and on a level with them if you look straight ahead without moving your head up or down. Wherever sky and water meet you see a true horizon. If you stand in a room and your eyes are  $5\frac{1}{2}$  feet

from the floor, that height is your level and horizon for the room. Even though your view of a natural horizon is partly or completely blocked by a hill or building you should still be aware of the horizon in front of you.

Look at the picture opposite — it demonstrates another point. *Level parallel lines all appear to converge at a definite point. This point is called the vanishing point.* It is always on the horizon or eye level, though it may be at any point on that horizon. You can see this effect by looking down a street, a hall, a rug, a coffee table or a bowling alley. This convergence is easier to see in long lines, but remember that it takes place with *all* level parallel lines regardless of their length.

Drawing is just an interpretation of three-dimensional objects on a flat surface (your drawing paper). To give an object the feeling of solidity and depth, you use perspective. This, like mathematics, can become quite complicated, but for the average cartoonist the one-point or two-point systems of perspective will fill the bill nicely.

The most important object in teaching perspective is the cube, which will be the basis for most of our examples and diagrams. From the cube we can draw in perspective circles, ellipses, and even people and animals.

Most cartoonists draw objects free hand. They erase, change and work over a drawing until it *looks* right to the eye. It is only when the drawing continues to look wrong that they call on their knowledge of perspective to correct the mistake. It's an indispensable tool in your drawing kit.

All forms have perspective, not just chairs, tables, rooms and buildings. When drawing persons, trees, clouds or *anything* in nature, you will find that perspective is needed to make them look *right*.

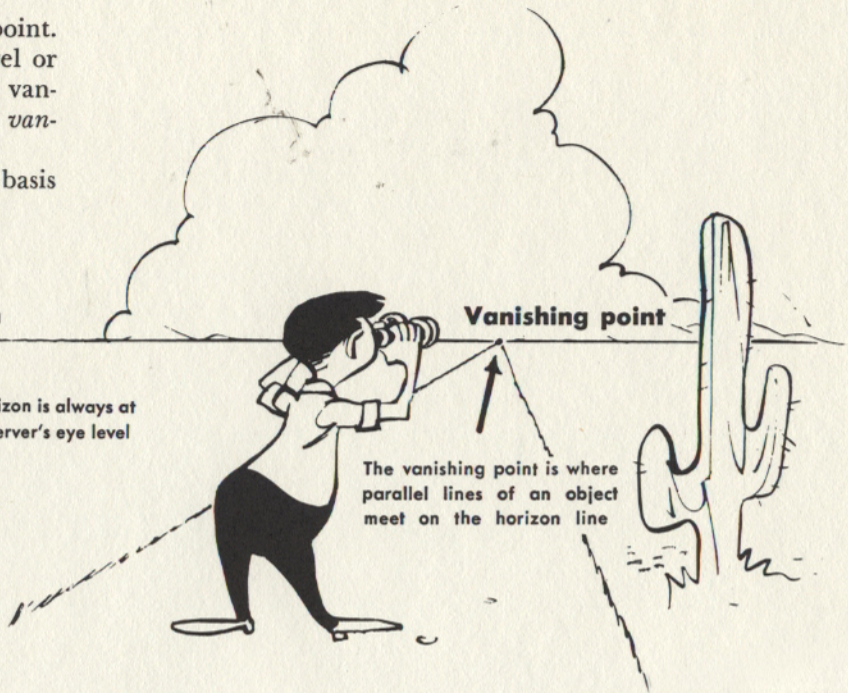
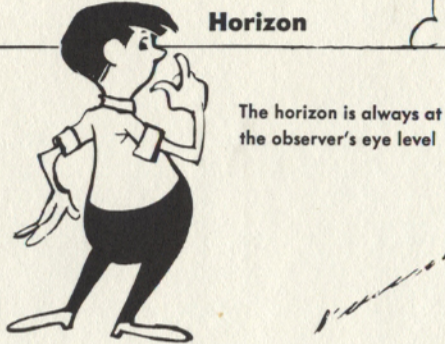
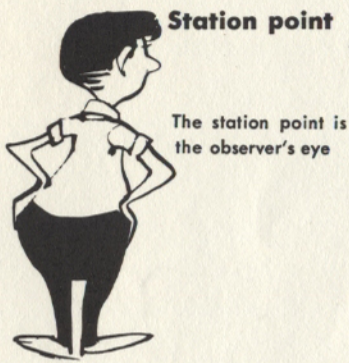
Once you understand the few simple rules of drawing a cube in perspective, their application to other objects is relatively easy. In this lesson we shall explain and diagram these rules for you, using familiar objects and problems with which you are most likely to be confronted in your cartooning.

### Three musts of perspective

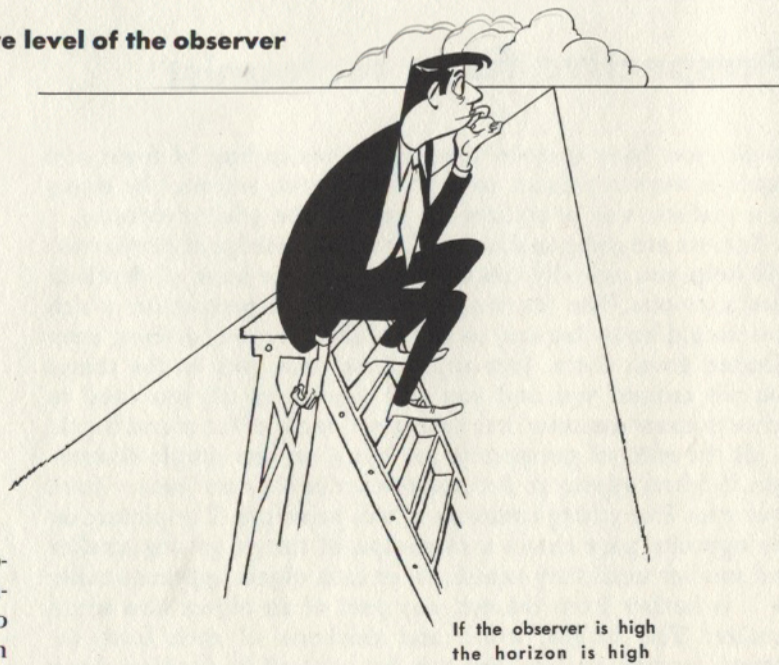
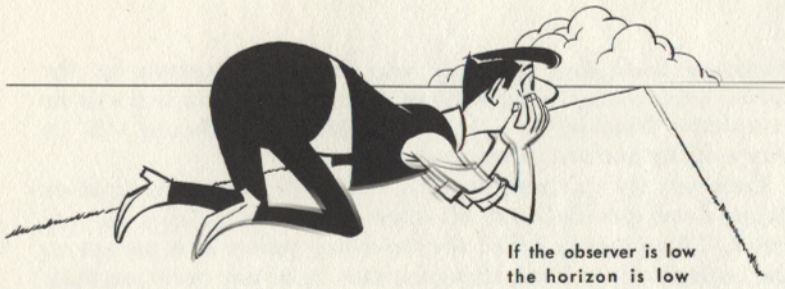
In perspective there are three basic things to remember: 1) the eye level or horizon; 2) the eye or station point; 3) the vanishing point.

The position of the eye of the observer is the station point. If the observer looks straight ahead, you have the eye level or horizon line. If a figure walks away from the observer and vanishes in the distance, you have the vanishing point. *The vanishing point is always on the eye level or horizon line.*

Fix these three things in your mind and you have the basis of all perspective.



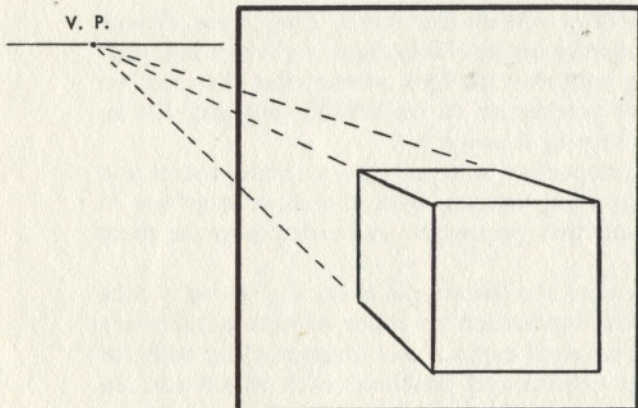
The horizon is always at the eye level of the observer



### Two types of perspective

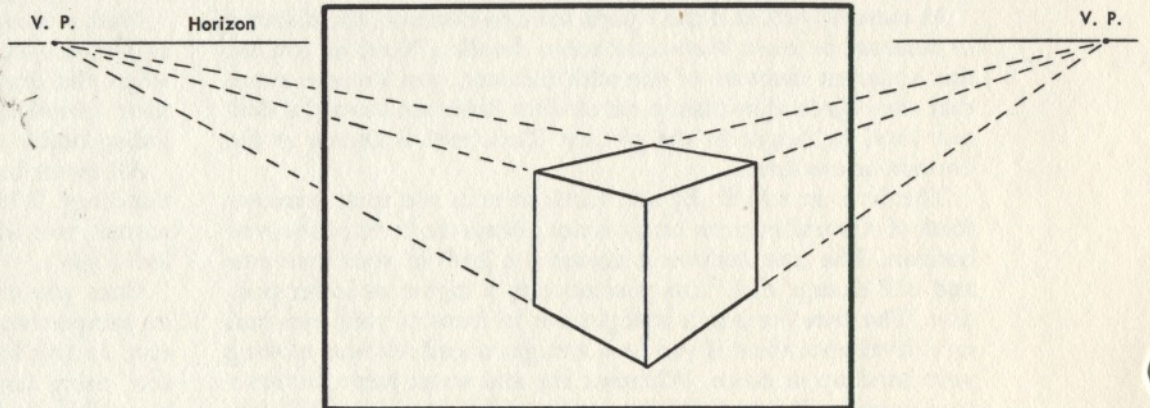
You don't have to be an Einstein to understand one- and two-point perspective. In one-point perspective, two of the dimensions of the cube, both the height and width, are parallel to the panel frame. In two-point perspective only *one* dimension is parallel to the frame of your drawing — in other words, the perpendicular lines of your drawing are parallel to the sides of the frame.

**Note** — all vanishing points must be on the horizon line



#### One-point perspective

In one-point perspective there is only one vanishing point for all objects in the picture



#### Two-point perspective

In two-point perspective each object in the picture has two vanishing points

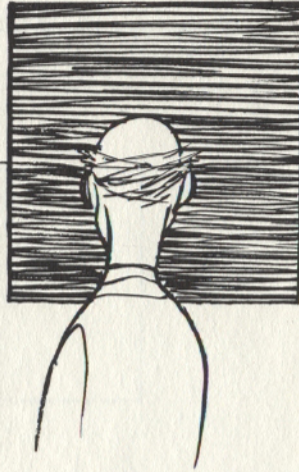
### Things to remember



An object close to you appears large



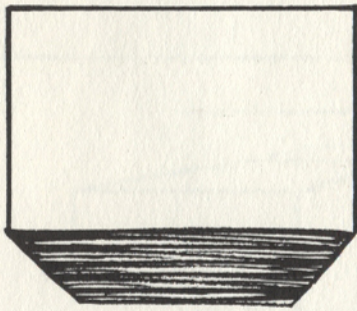
A similar object far away from you appears small



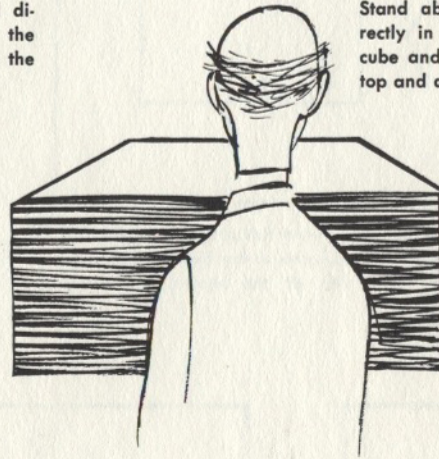
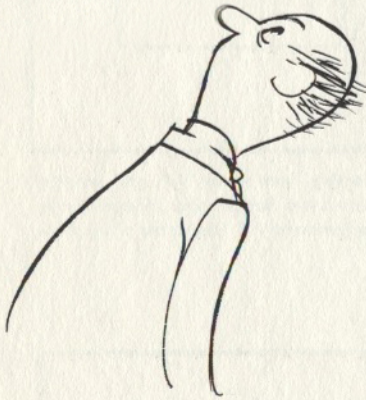
When you stand directly in front of a cube, eyes level with its center, all you see is one side of it



But when you stand to one side, eyes level with the center of the cube, you see two sides



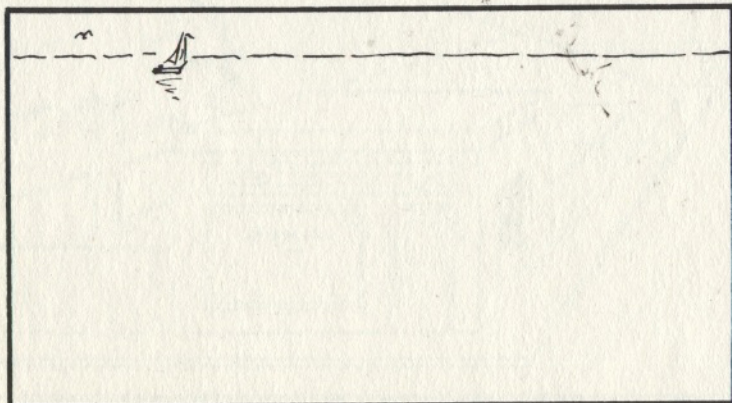
Stand below and directly in front of the cube and you see the bottom and a side



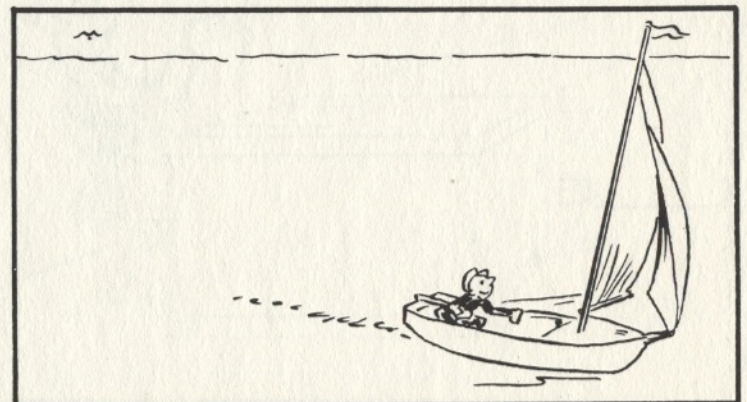
Stand above and directly in front of the cube and you see the top and a side



When you stand above and to one side of the cube, you see the top and two sides



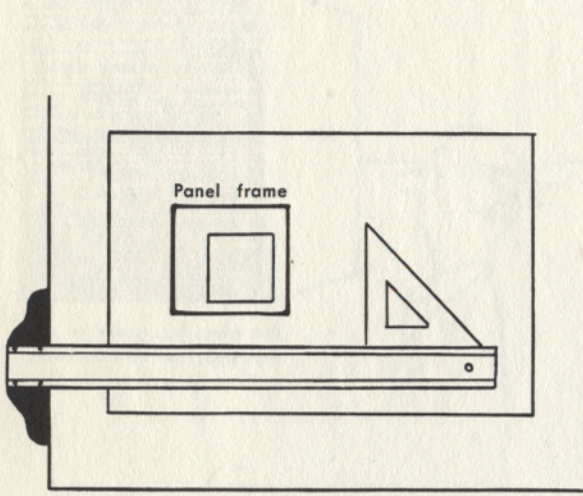
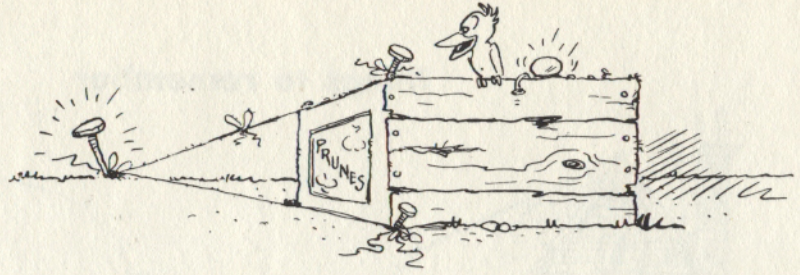
An object small and high in the panel appears to be in the distance



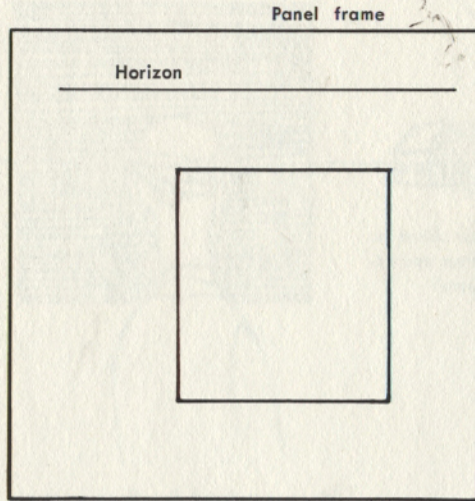
An object large and low in the panel appears to be near

### Drawing the cube in one-point perspective

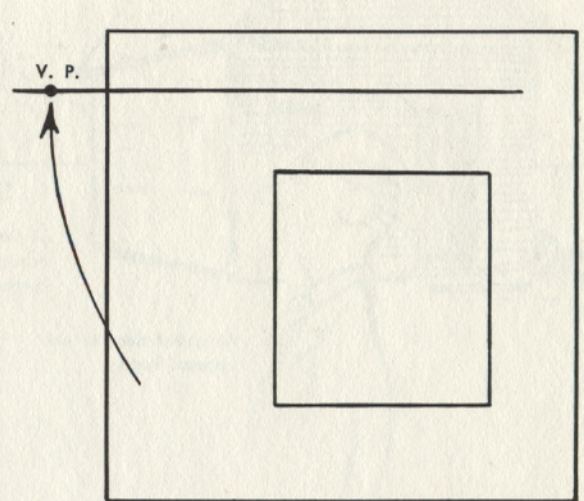
First we will take up one-point perspective. In the diagrams and pictures below you will see that two of the dimensions of the cube, the height and width, are parallel to the panel or picture frame. This, plus the fact that there is only one vanishing point, makes it one-point perspective. As two of the dimensions are taken care of by drawing the front of the cube parallel to our panel frame, we only have to worry about the depth of the cube to create perspective. This is done by having all lines except the horizontal and vertical lines converge at the one vanishing point.



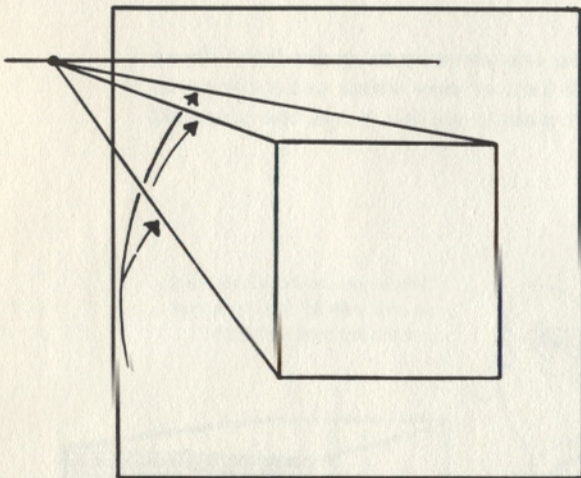
With your T-square and triangle draw a square on your paper. This will be the front of your cube



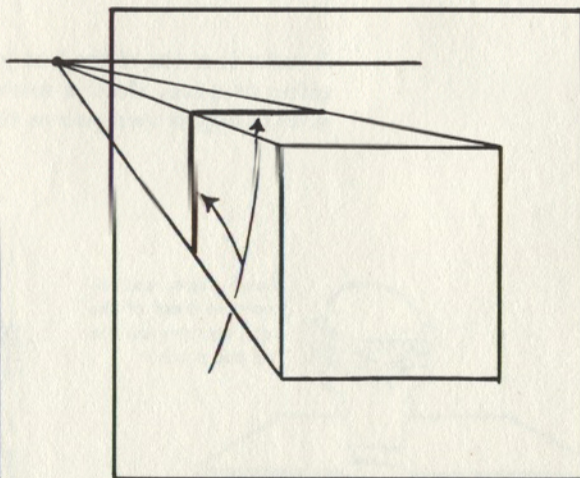
Now locate the horizon. If you want to look down on the cube, place the horizon high above the square



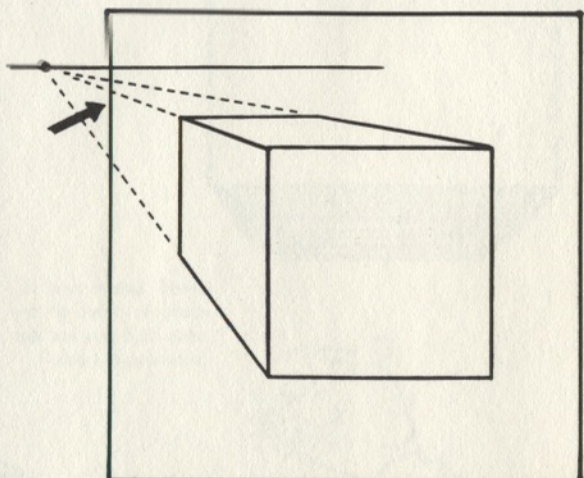
To look down upon a cube at an angle locate the vanishing point off to the side on the horizon



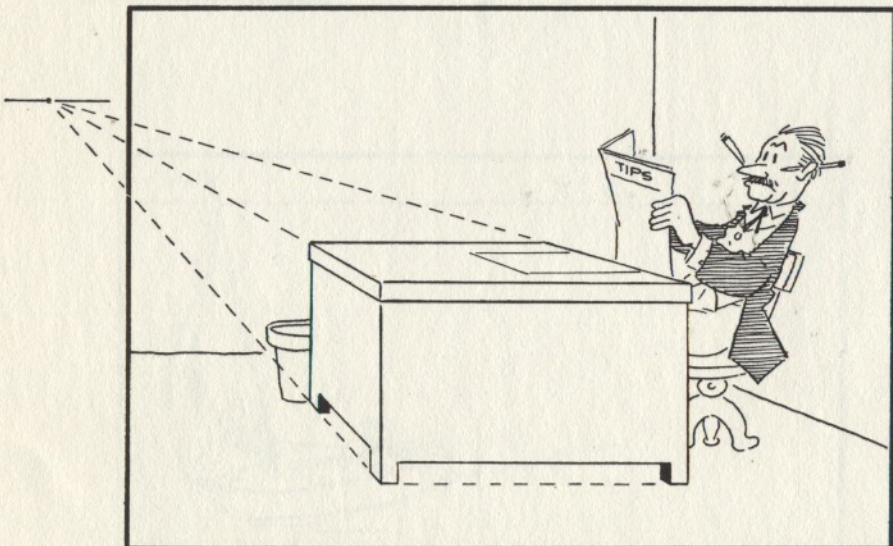
From the three corners of the square closest to the vanishing point draw three straight lines to connect them to the vanishing point



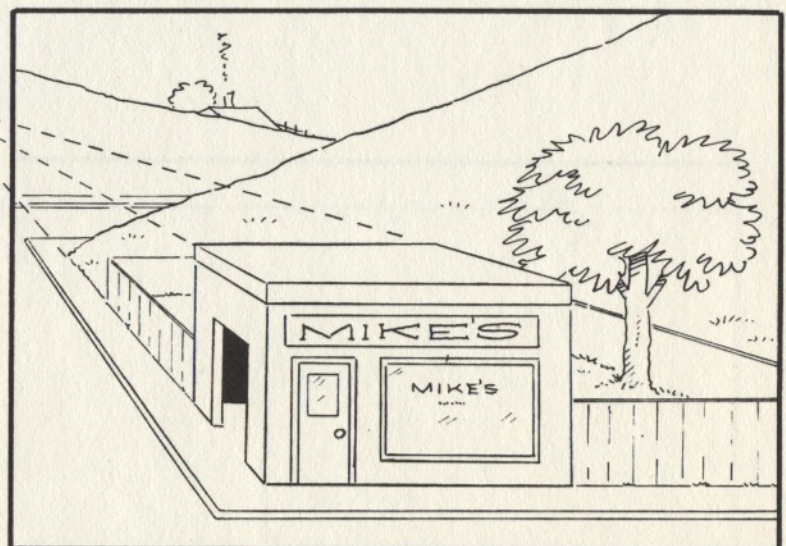
Decide how deep you want the cube, then, with the T-square and triangle, draw in the two lines parallel to the top and side of the square as shown



Erase the connecting lines to the V.P. and see that you have drawn a cube. For practice change the location of the horizon and V.P. and draw a few more



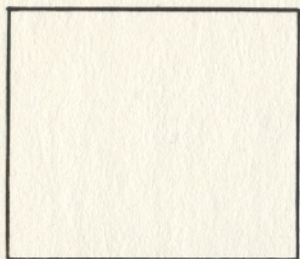
With the cube drawn in one-point perspective, we can use it to create a desk and an interior scene



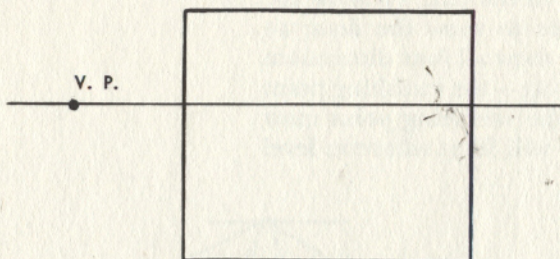
Or using the same cube we can draw an outside scene using the cube to draw a building

### Drawing the inside of the cube

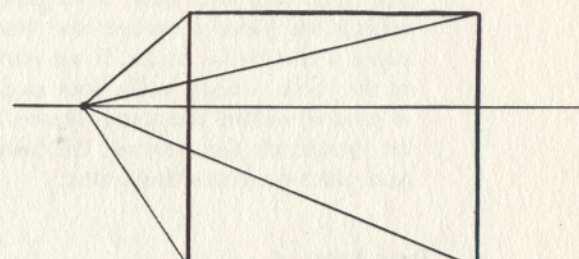
Rooms in a house or building are cubes, so you should know how to draw the inside of the cube as well as the outside.



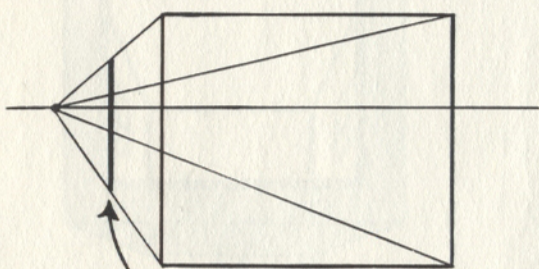
You first draw the front end of the cube to the size of the cube you want



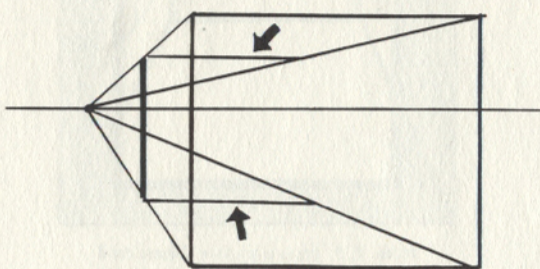
Locate the horizon and V.P. The closer the V.P. is to the cube, the more of the inside of the cube will show



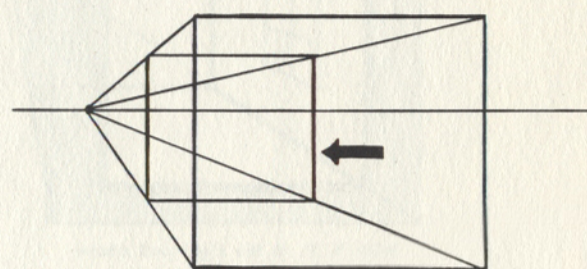
Now you may connect all four corners of the cube to the vanishing point



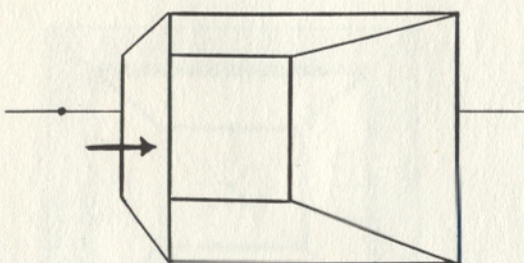
Decide how deep the cube is to be and with a vertical line as shown, draw the outside of the rear corner



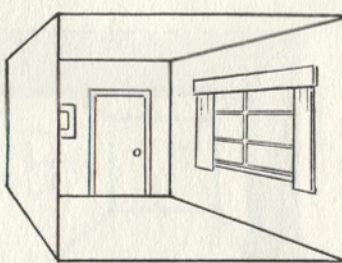
Where the vertical touches the perspective lines, draw two horizontals over to the other two perspective lines



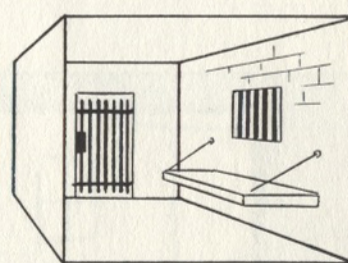
Now join the two horizontal lines with a vertical line. Now you have completed the rear end of the cube



Erase the perspective guide lines to the vanishing point beyond the cube and any lines hidden by the side of the cube



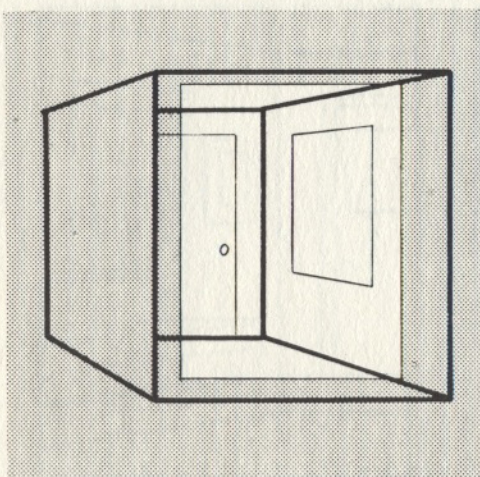
By the addition of windows, curtain and a door your cube is now a convincing room



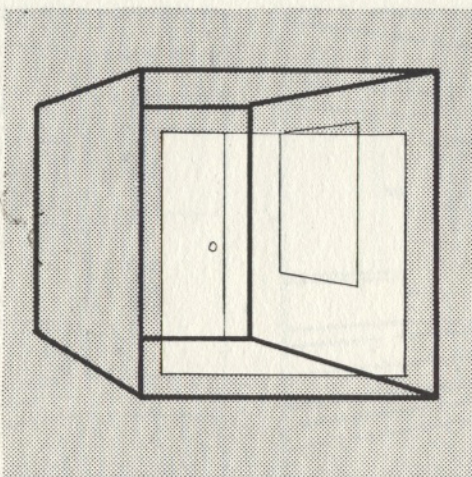
This basic cube can become any room by changing style or type of furniture. You can make it a bedroom, office or prison

### Using perspective in the panel

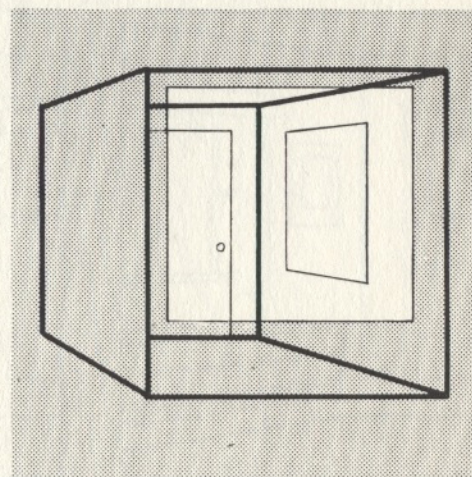
With one basic cube you can change the background scene or view by varying the placement and shape of the panel frame as shown below.



Here is the panel or picture frame placed over the cube to make the interior of a room for a cartoon. Note that we do not use the whole cube but only the part inside the panel frame



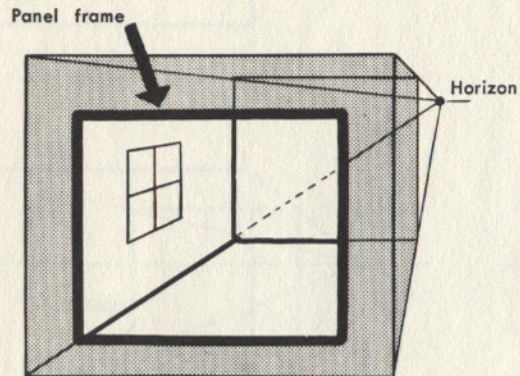
By changing the shape of the panel frame and placing it lower on the cube, we change the view — because we see no ceiling and the door and window are running out of the top of the frame, we get the effect of looking down into the room



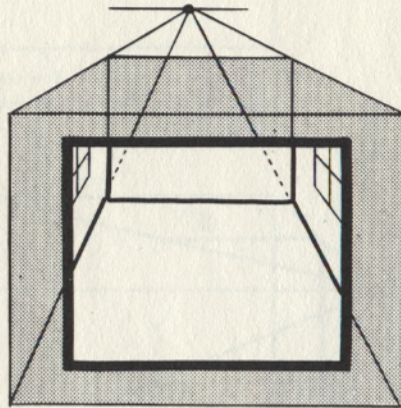
We can also change a background scene by moving the picture frame further up near the top of the cube until there is no floor showing. In this way we create the effect of looking up into the room

## The vanishing point

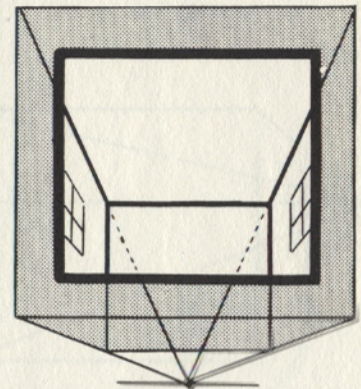
For creating different views of the room we can also place the vanishing point above, below, to the right, to the left or *anywhere* within the panel frame. To show the left wall of the room, the vanishing point is placed to the right of the panel frame; the right wall will show if we place it to the left. To show the ceiling we place it below the frame or to show the floor we place it above the frame. If we want to show all four dimensions of the room — both walls, floor and ceiling — the vanishing point is placed within the panel frame. As the vanishing point must be located on the horizon, the horizon will be at whatever level you place the vanishing point.



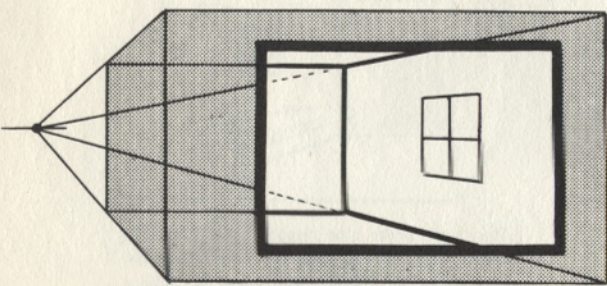
With V. P. to the right and above center of picture frame, you see the floor, left wall and back of room



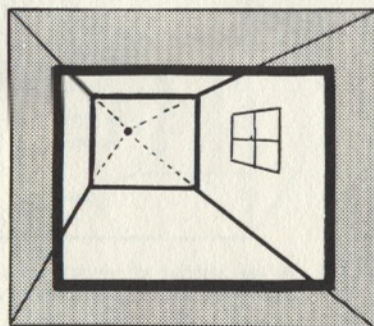
With V. P. above picture frame and centered, you see both side walls, floor and back wall



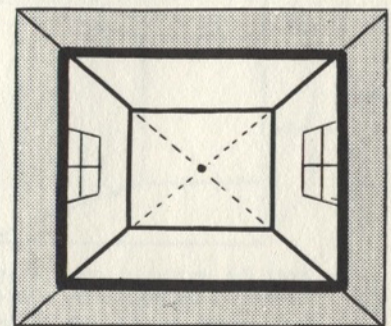
With V. P. centered below picture frame, you see the ceiling, side walls and back wall



By drawing a long flat cube you create a greater depth to the room than in the first illustration

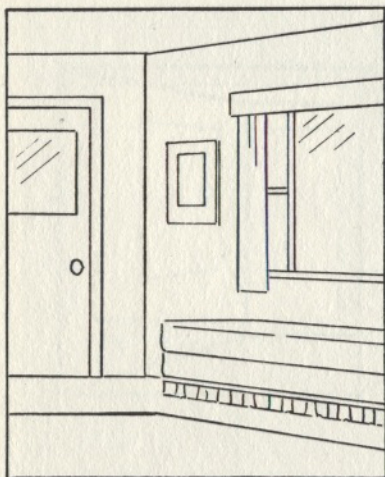


With the V. P. in the upper left corner of the picture frame, you create a long hall

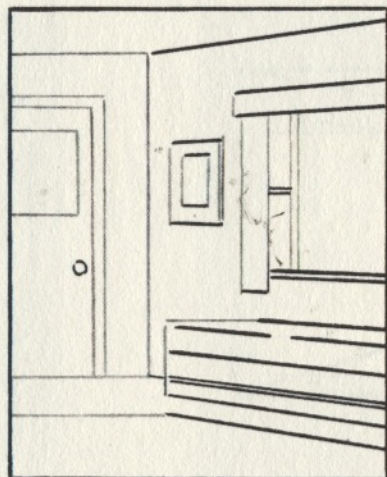


Here the V. P. is in the center of the picture frame. You see both side walls, rear ceiling and floor.

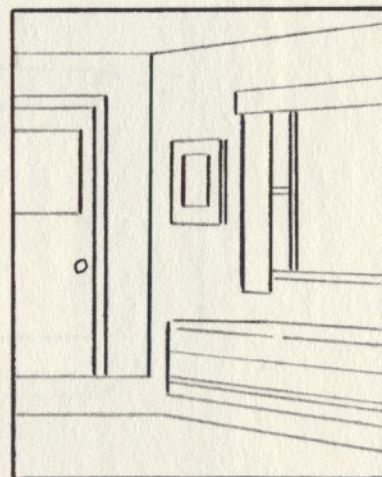
## The complete panel in one-point perspective



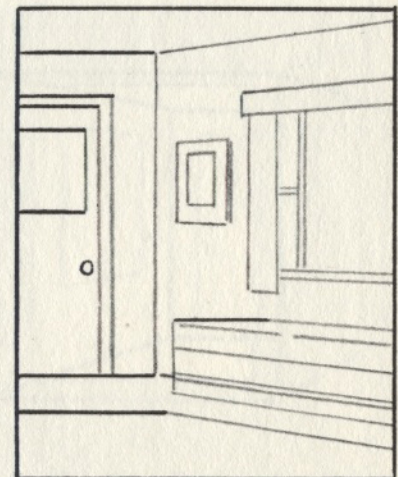
Here is a room plus furniture, door and window, combined to create a background for a situation in a cartoon panel



Here all horizontal lines parallel with the side wall are made heavy to show you that they must go to a vanishing point



Heavy lines show that all vertical lines are drawn parallel to the sides of the panel frame



Here, with heavy lines, we show that all lines parallel with the back wall are drawn parallel to top and bottom of frame

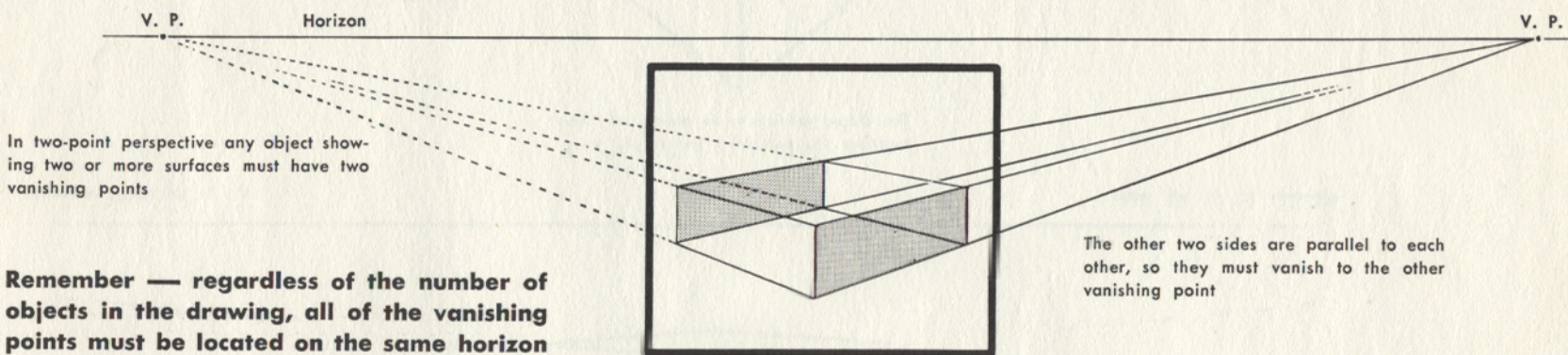
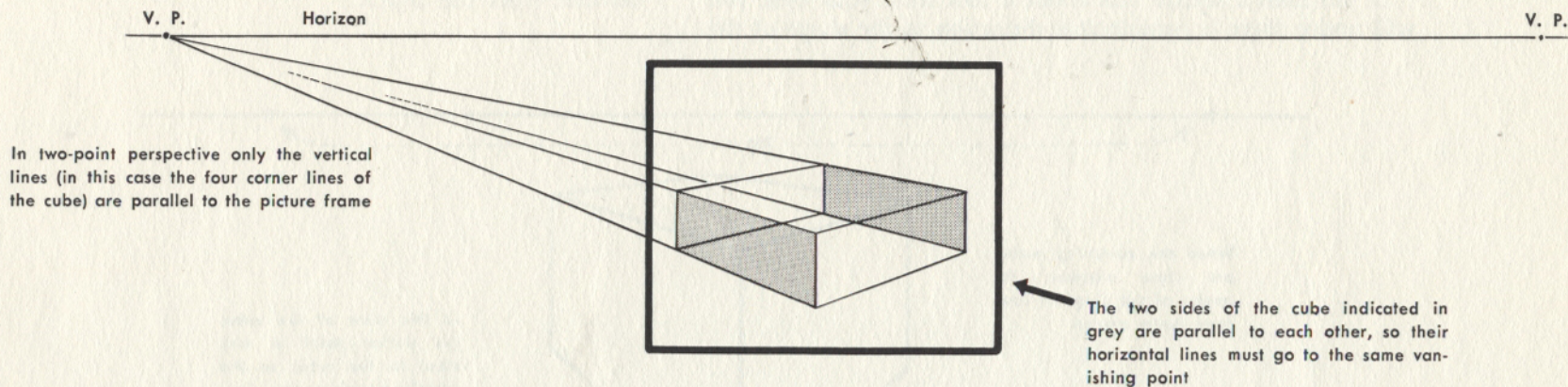


### Two-point perspective

In two-point perspective, there is only *one* dimension parallel to the panel frame. This is the perpendicular line of your drawing. Because there is only one dimension parallel to the frame, there are two other dimensions left to account for. We must, therefore,

establish *two* vanishing points on the horizon line.

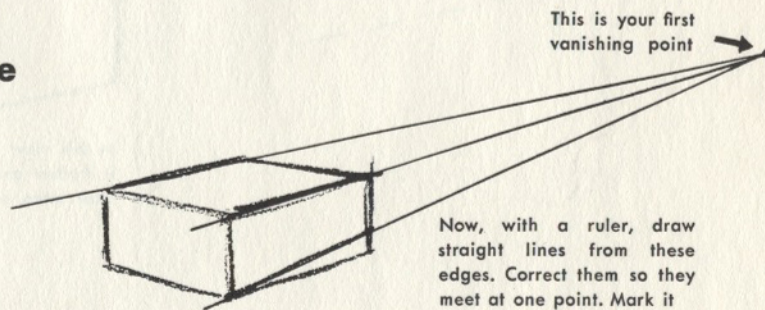
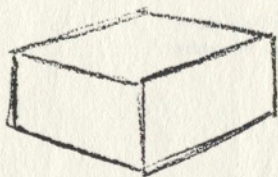
A cartoonist can do a lot with one-point perspective, but you'll find that you also need the two-point system every day. Study it until you understand it thoroughly.



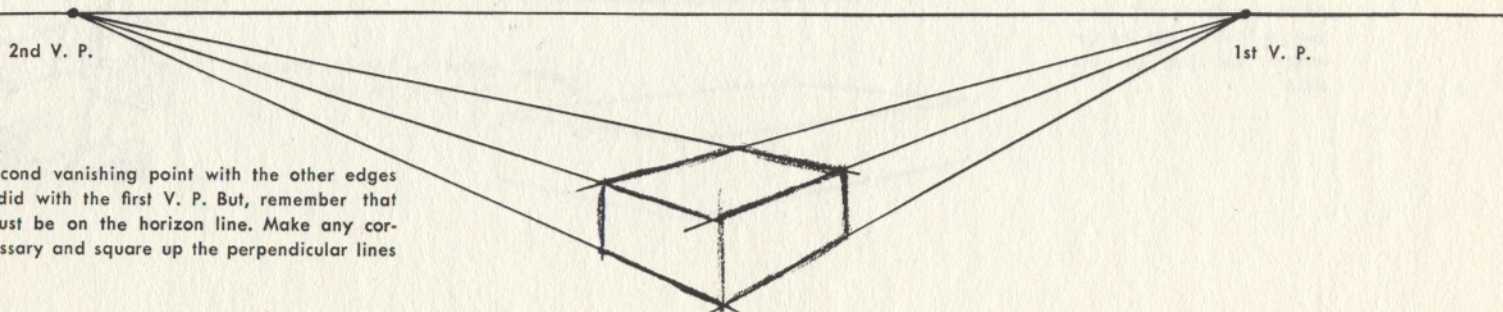
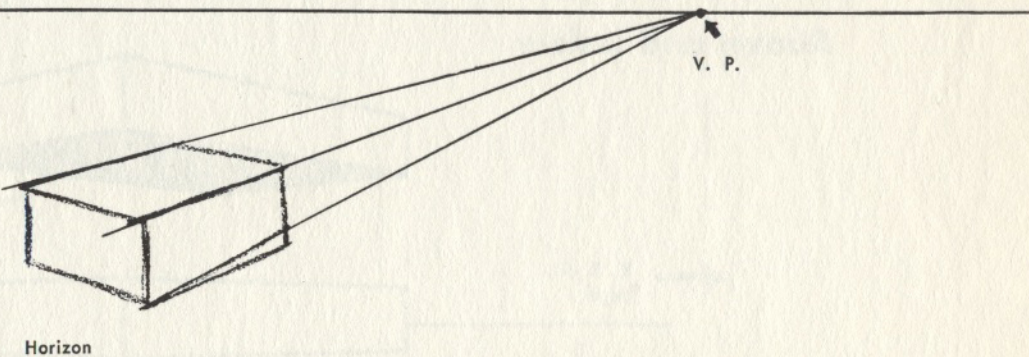
**Remember — regardless of the number of objects in the drawing, all of the vanishing points must be located on the same horizon**

### Checking the cube in two-point perspective

When you have drawn an object based on the cube, and it doesn't seem to look right, use this method of checking your perspective



Draw in the horizon — this line must be level and pass through the V. P. you have just located



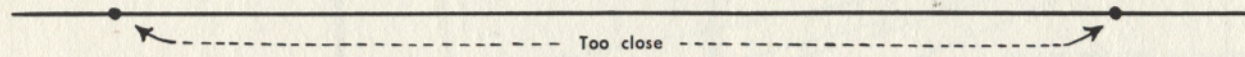
Find your second vanishing point with the other edges just as you did with the first V. P. But, remember that this V. P. must be on the horizon line. Make any corrections necessary and square up the perpendicular lines

### Station point

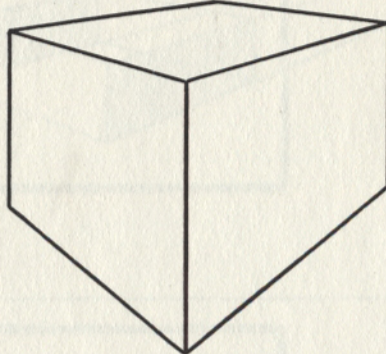
We have already stated that the *station point* is the point from which the picture is being seen. From it we get our "camera angle."

If you hold a square box about a foot from your eyes, you will notice there is considerable distortion to the shape of the

box. This is because the station point is too close to the object, which brings the vanishing points close together. Unless you really *want* distortion, keep your station point a reasonable distance from the object.

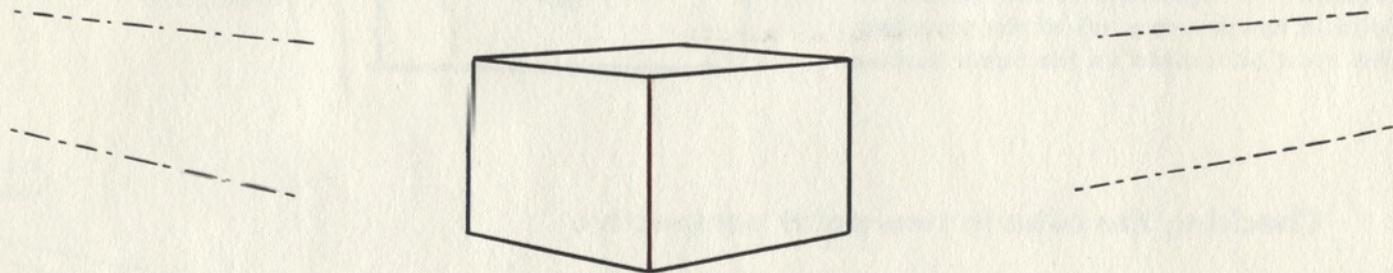
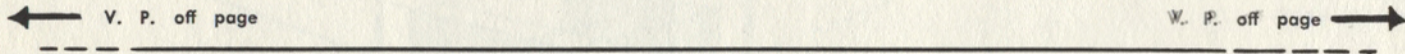


When the vanishing points are close together, the angles of the diagonal lines form acute angles



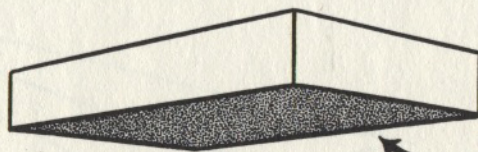
In this view of the cube, the station point is very close to the cube, so the vanishing points are close together

The closer you are to an object, the closer together the vanishing points will be

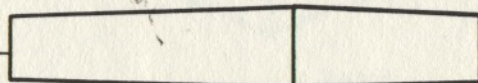
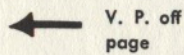


In this view of the cube, the station point is farther away. You are seeing the cube from more of a distance

### Above and below

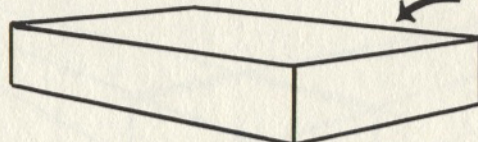


Above the horizon, you see the underside of the box

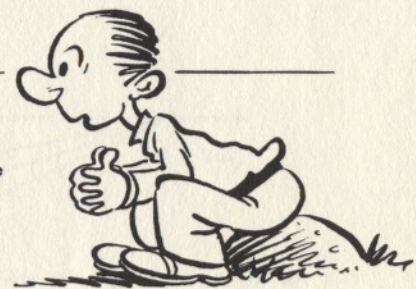


Eye level

At the eye level or horizon, you see neither the top nor bottom, but just the two sides

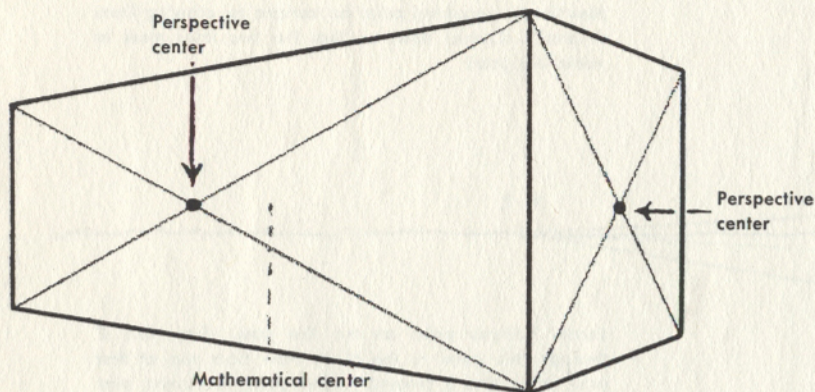


Below the horizon, you see the top of the box

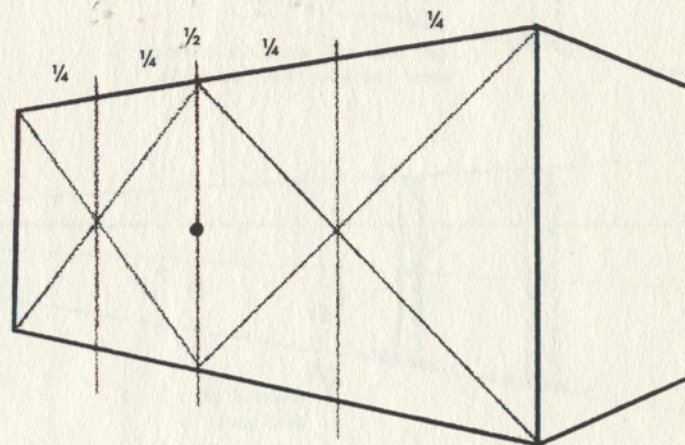


### Dividing the cube

When drawing buildings, it is sometimes necessary to divide the ends or sides into equal parts to locate doors and windows. Here is a simple way to do this.



To find the perspective center of the side of a cube or plane, first draw lines from corner to corner. Where the two lines cross is the visual, or perspective, center



To divide the plane into fourths, do the same with each half of the plane by first drawing a vertical line through the perspective center

### Locating the peak of a roof

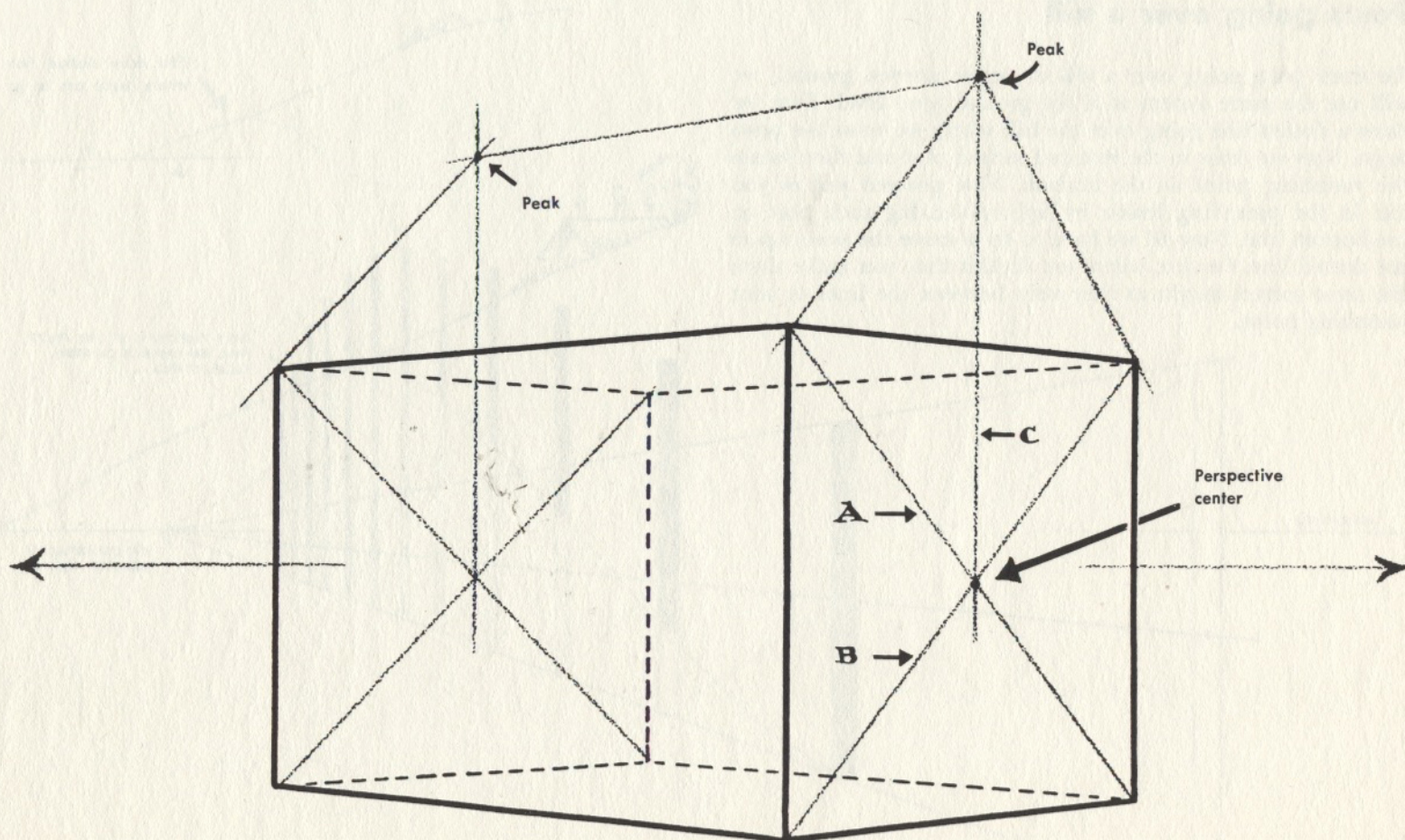
Many students and beginners have trouble locating the peak of a roof on a house that is drawn in perspective. The problem is simple, once you understand that the center of the end of a building is not the mathematical center when the building is in perspective. What you must find is the perspective center and the correct way to do this is:

1. Draw the cube of your building without a roof;

2. On the end of the cube, draw lines "A" and "B" from corner to corner;

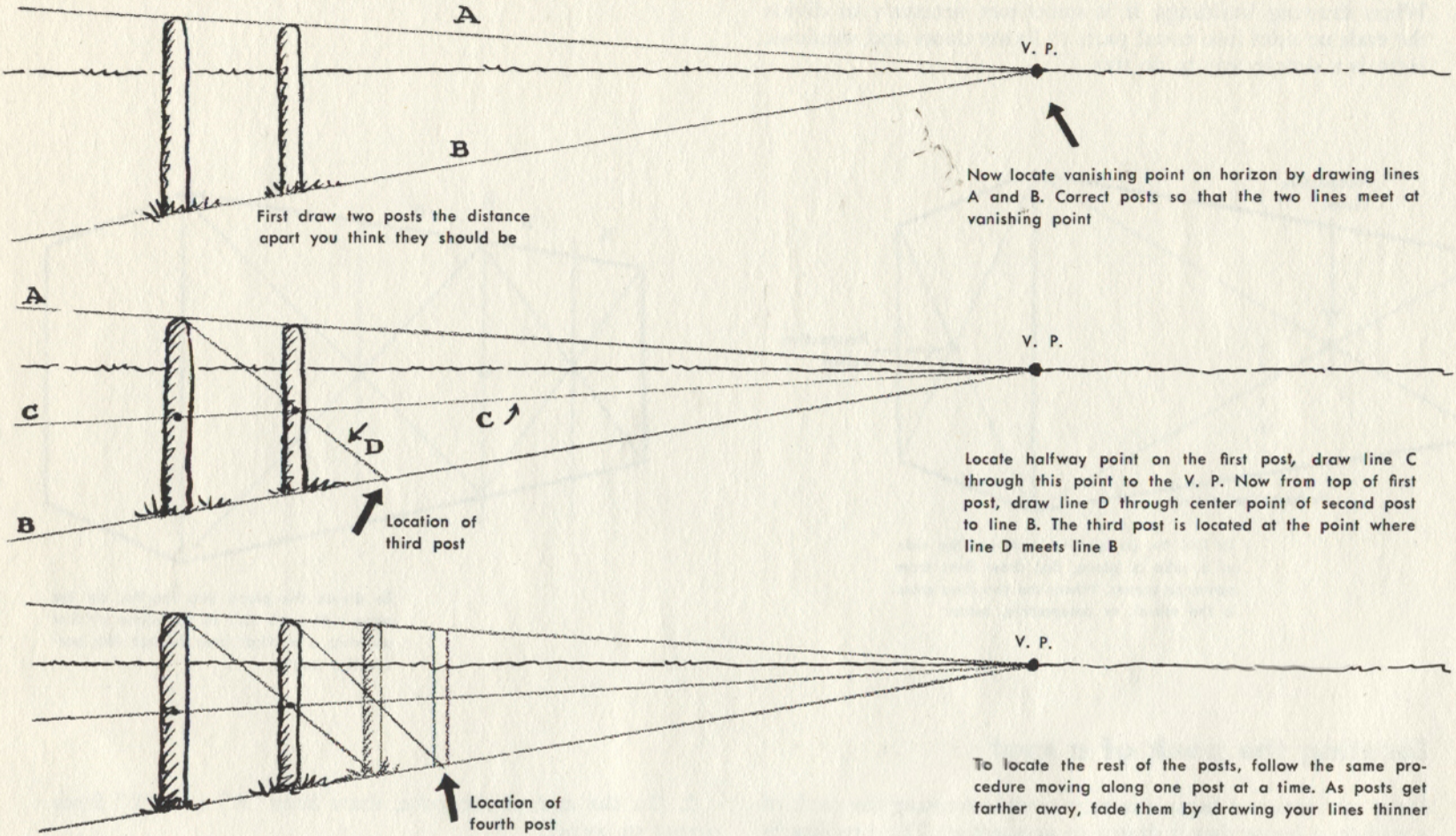
3. Where the two lines cross is located the perspective center of that end of the building you are drawing;

4. From this center point, draw a vertical line, "C" up. The peak of the roof can be located at any point on this vertical line depending on how steep a roof you want.



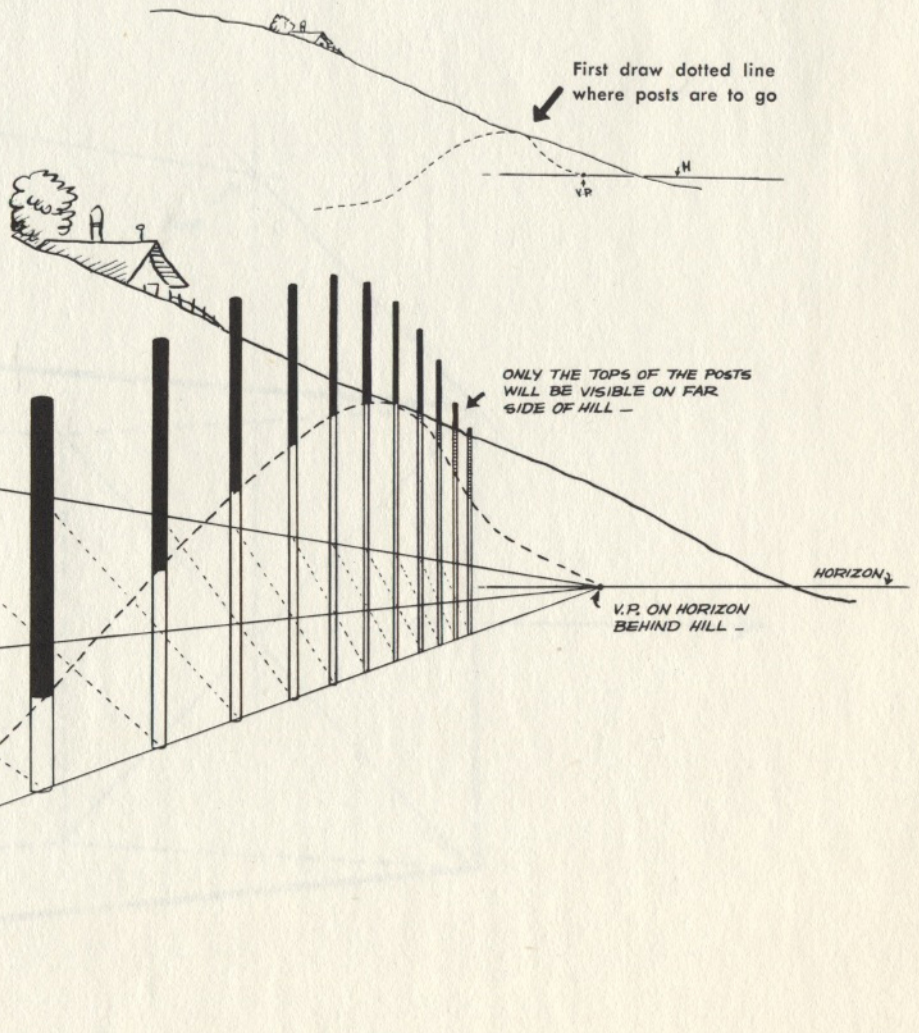
### Posts in perspective

When drawing equally spaced fence posts, trees, or telephone poles in a line fading away into the distance, it is necessary that they look right. As they get farther from you, they appear to be closer together so we again call upon perspective to help us determine the correct spacing between the posts.



### Posts going over a hill

To draw posts going over a hill or across uneven ground, we will use the same system as if the ground were level. First we draw a dotted line going over the hill where we want the posts to go. Now we draw in the first and second post and then locate the vanishing point on the horizon. Now proceed just as you did in the preceding lesson by lightly locating each post on the bottom line. Now all we have to do is move the posts up to the dotted line. Be sure when you do this that you make them the same correct height as they were between the lines to your vanishing point.



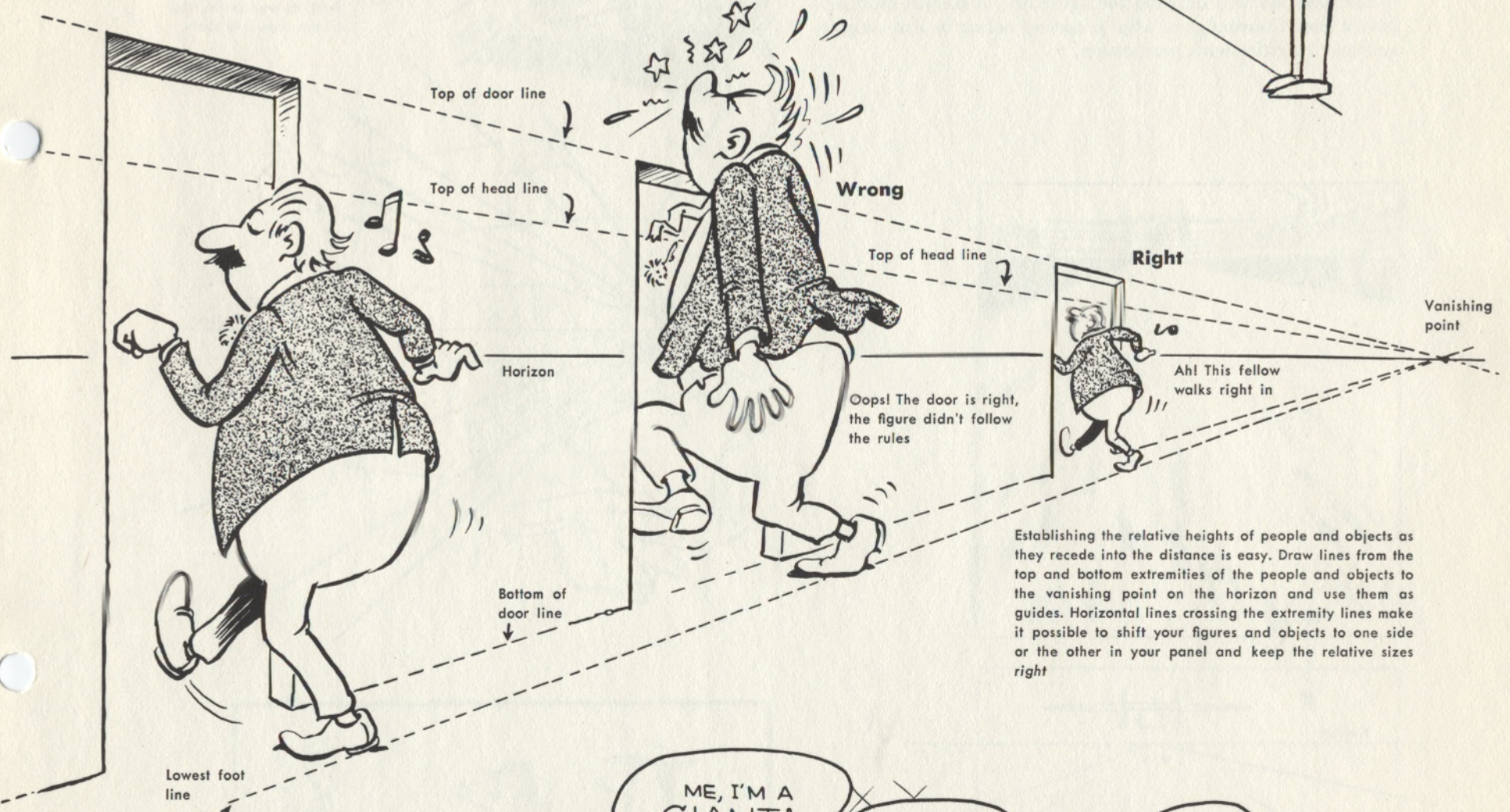
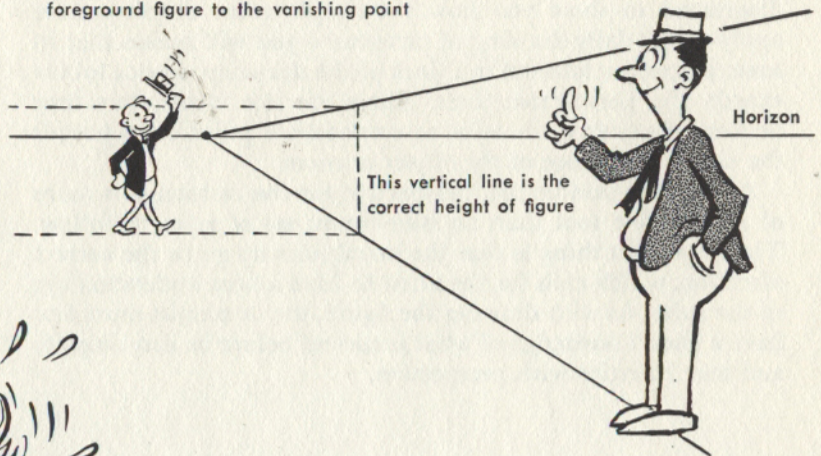
### Figures in perspective

Figures as well as objects in the drawing must be the correct size in relation to one another. With two or more figures in a drawing, it is a common mistake for a beginner to have one of the figures floating off the floor, or else, too tall for a doorway.

To place a figure in its correct position and keep it the right size is not difficult if you follow the simple system below.

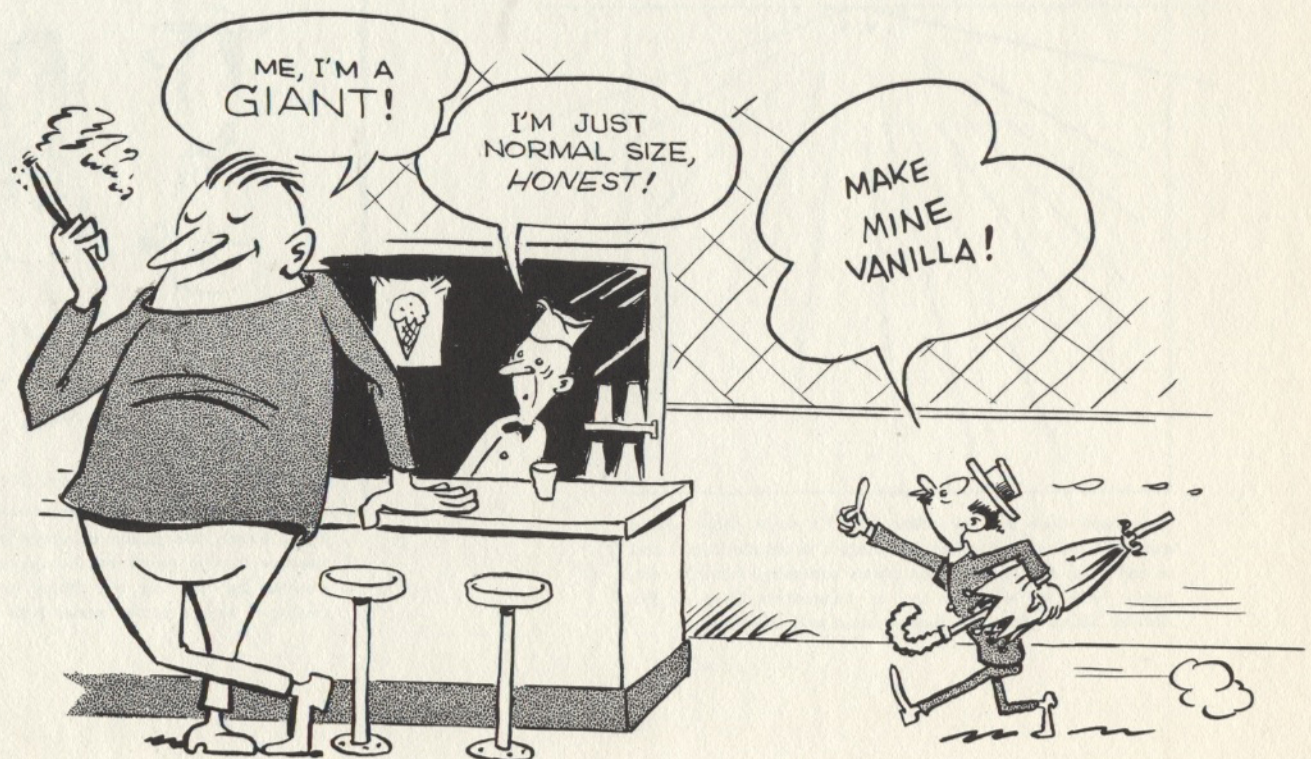
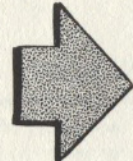
By establishing the correct height of one figure, the correct height of all other figures of the same height is established by the two horizontal lines crossing the lines that lead from the figure to the vanishing point.

Correct relative height of same-size figure is established by two horizontal lines crossing the two lines from top and bottom of foreground figure to the vanishing point



Establishing the relative heights of people and objects as they recede into the distance is easy. Draw lines from the top and bottom extremities of the people and objects to the vanishing point on the horizon and use them as guides. Horizontal lines crossing the extremity lines make it possible to shift your figures and objects to one side or the other in your panel and keep the relative sizes right

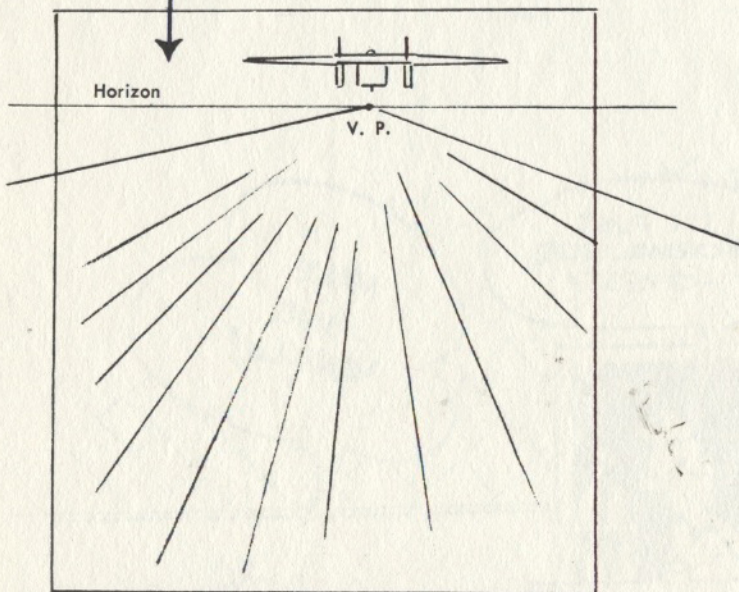
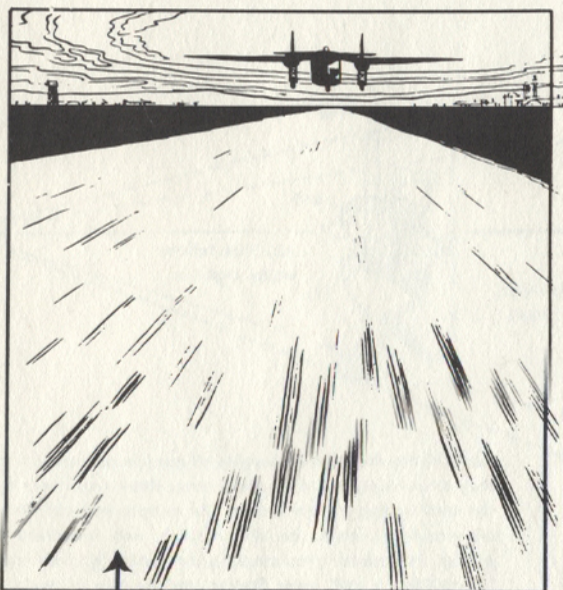
People who are too large or too small for the scenery automatically become giants or midgets. Unless your idea calls for giants or midgets check your relative sizes to make your characters fit their surroundings



### Perspective in use

On these two pages some of your faculty's drawings have been diagrammed to show you how the simple rules of perspective apply to the daily drawing of cartoons — you will notice that in some places the finished ink lines of the drawings do not follow exactly the perspective lines. These are not errors, but they deliberately stretch the rules to emphasize a point or to permit the showing of more of the object or room.

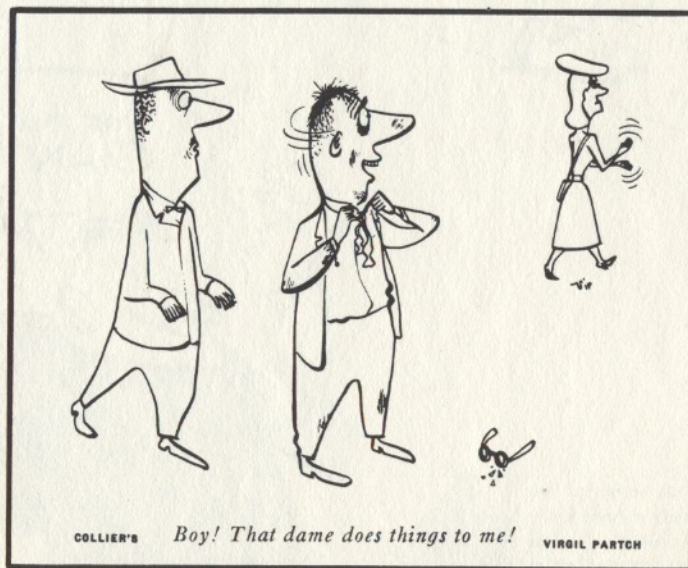
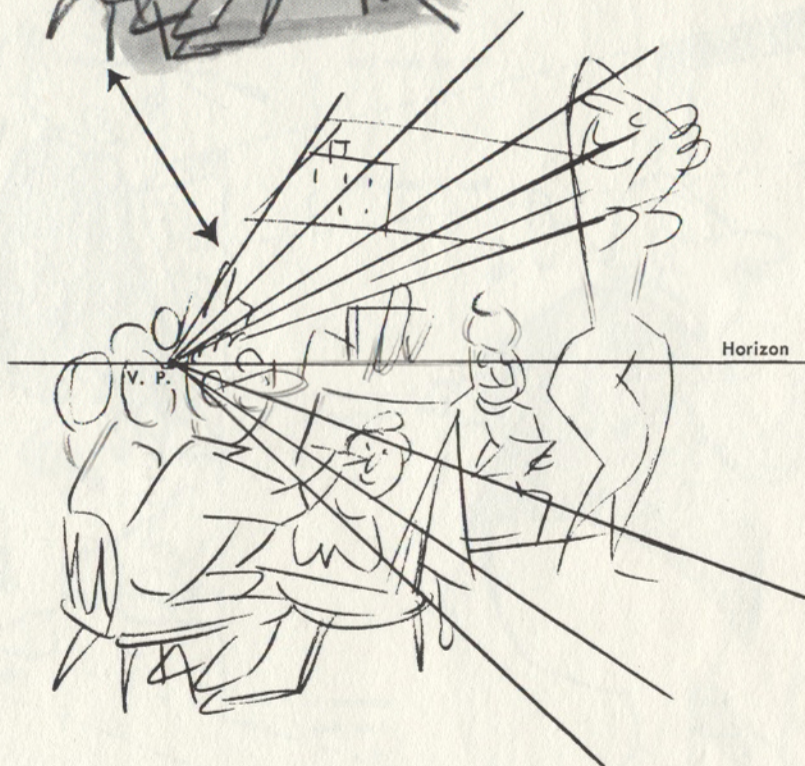
As we have said before, perspective for the cartoonist is more of a corrective tool than an iron-bound set of rules to follow. The important thing is that the inked lines *do* go in the correct direction, which calls for the artist to have a firm understanding of the rules. As with drawing the figure, the cartoonist must first have a good knowledge of what is correct before he can simplify and take liberties with perspective.



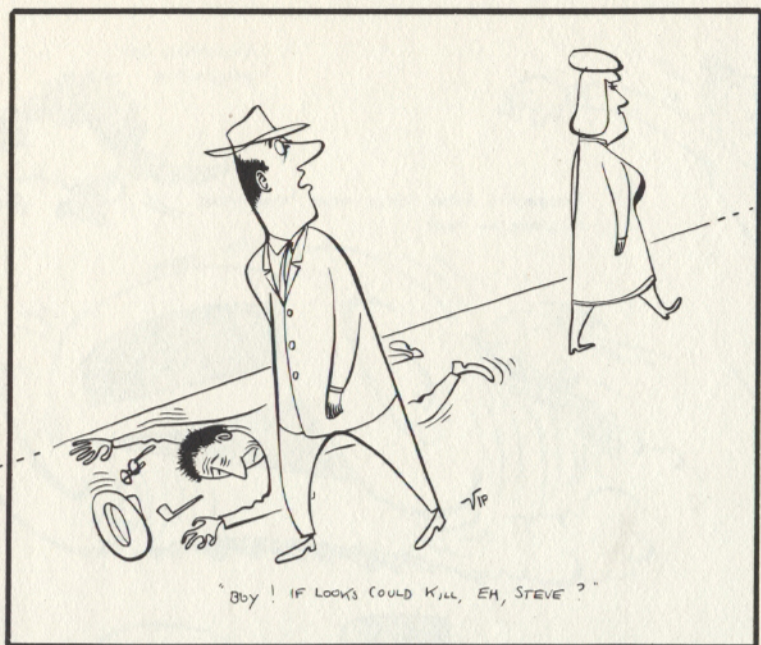
This panel from one of Milton Caniff's daily strips makes excellent use of one-point perspective to create depth and to put over the idea of the plane vanishing into the distance. Note the effective use of perspective lines on the runway which gives the plane speed and direction



In this sketch by Whitney Darrow Jr. the horizon line is placed in the center of the panel so that the ceiling, with its skylight, as well as the floor of the room will show

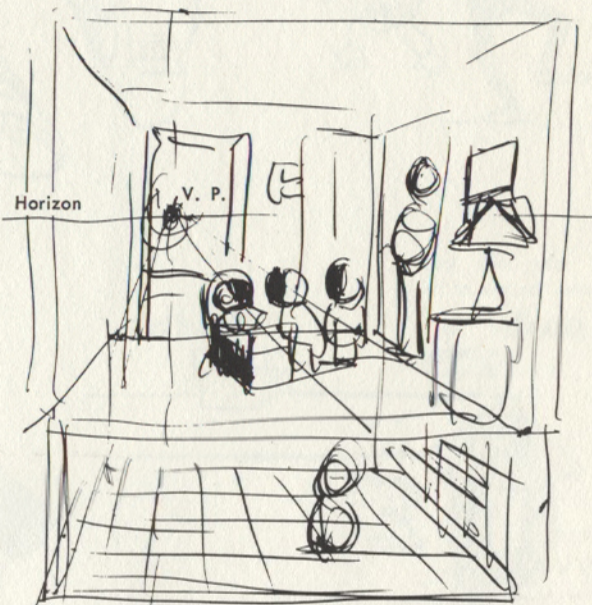


Virgil Partch, the master of simplicity, has created depth and perspective in this panel by the use of figures only. The illusion is created by drawing the figure in the background smaller and raising it higher in the panel than those in the foreground



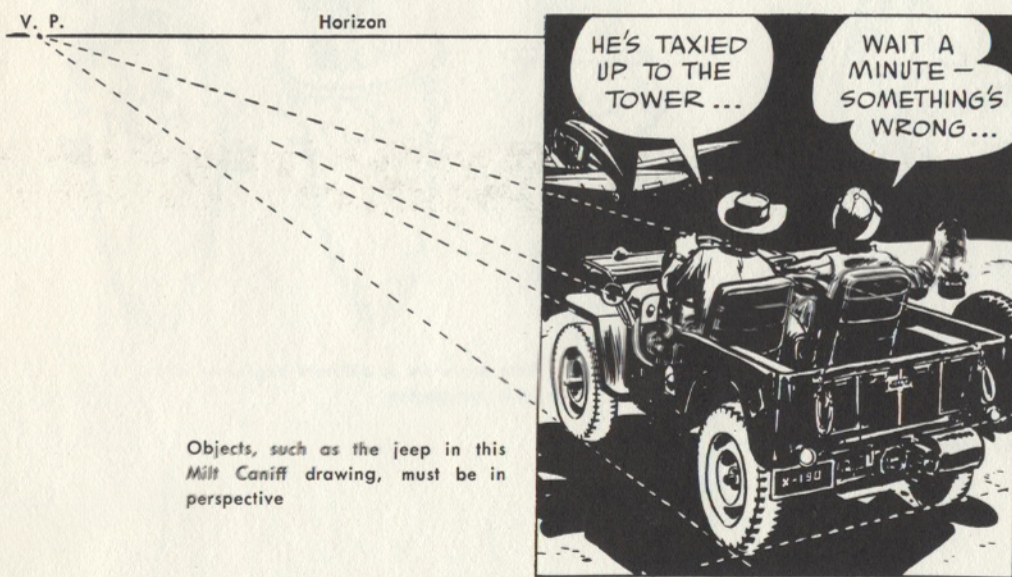
Horizon V. P.

Virgil Partch here has created atmosphere and depth with a single line of perspective. As with the drawing on the preceding page, he has increased the depth by moving the woman's figure up and drawing it smaller



Horizon V. P.

This rough sketch was the preparatory layout for the Whitney Darrow drawing below. With it he determined the type of perspective which would best fit the needs of his idea. In this case it was one-point perspective with the horizon passing through the center of the panel

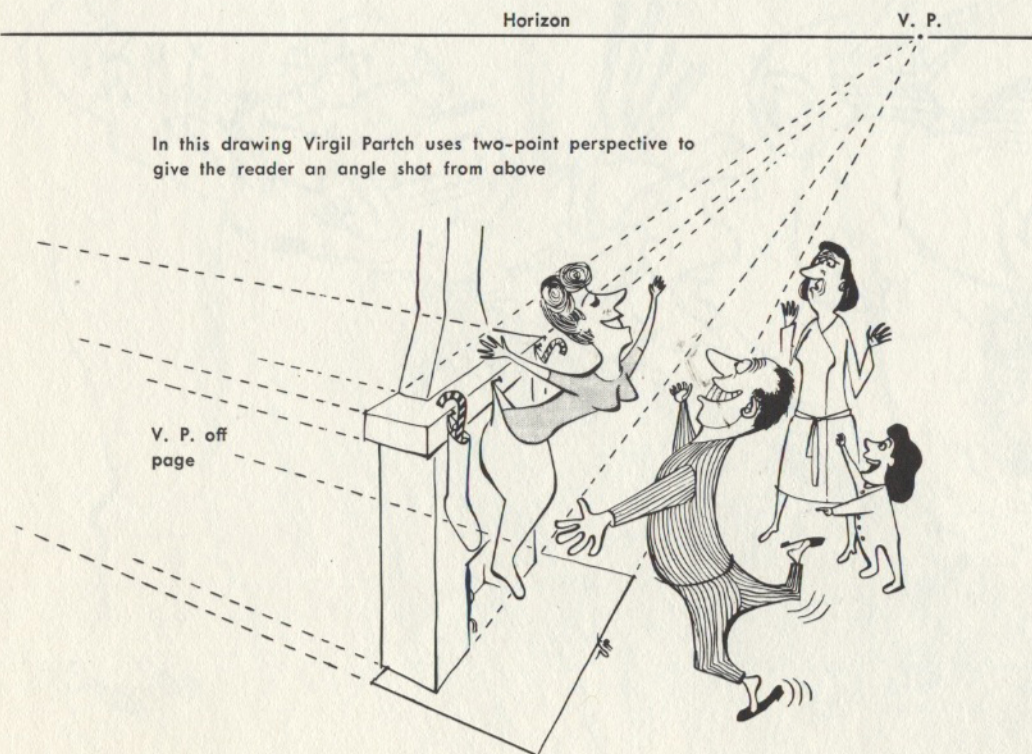


V. P. Horizon

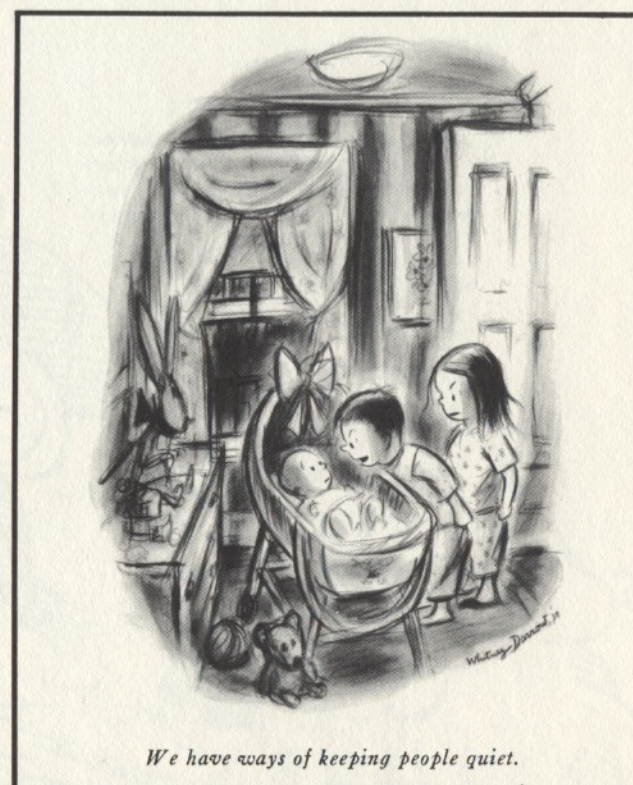
Objects, such as the jeep in this Mill Caniff drawing, must be in perspective

Horizon V. P.

In this drawing Virgil Partch uses two-point perspective to give the reader an angle shot from above



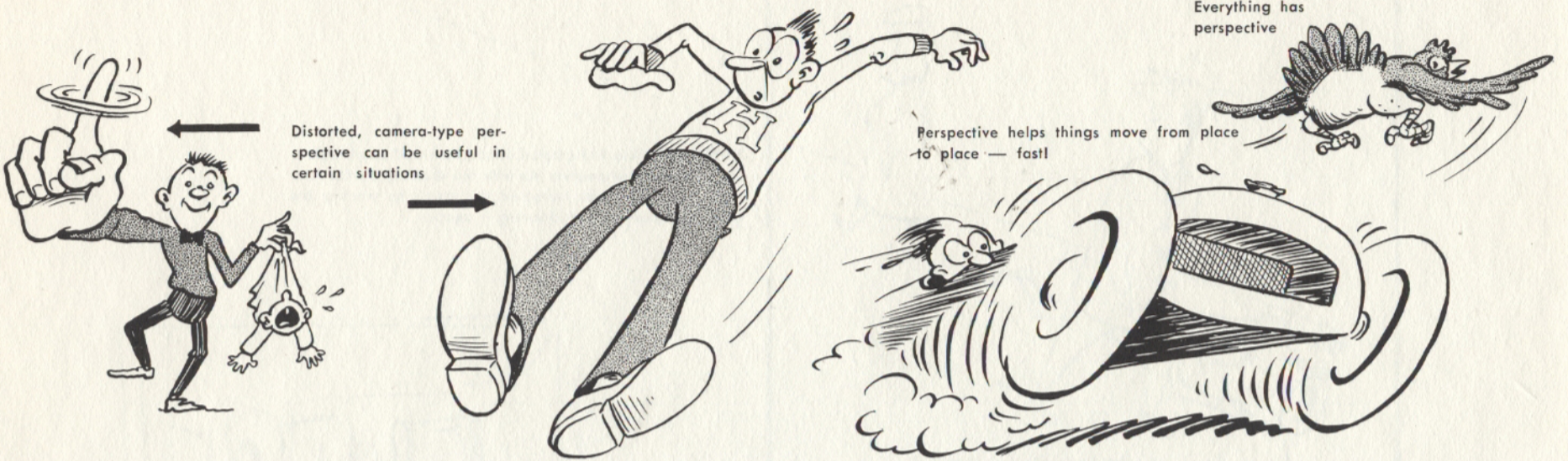
V. P. off page



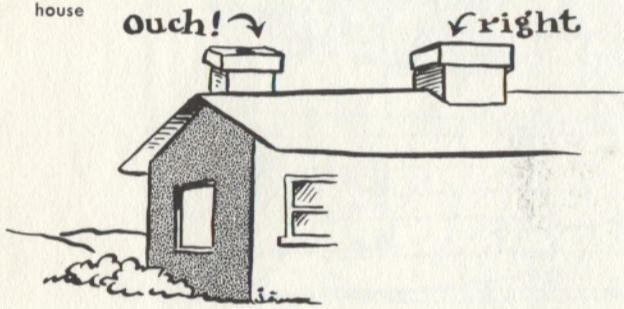
*We have ways of keeping people quiet.*

This is the finished art from the above sketch. Note how Mr. Darrow used only the center portion of the original layout but still kept the perspective

### A few examples



Chimneys take their perspective from the rest of the house

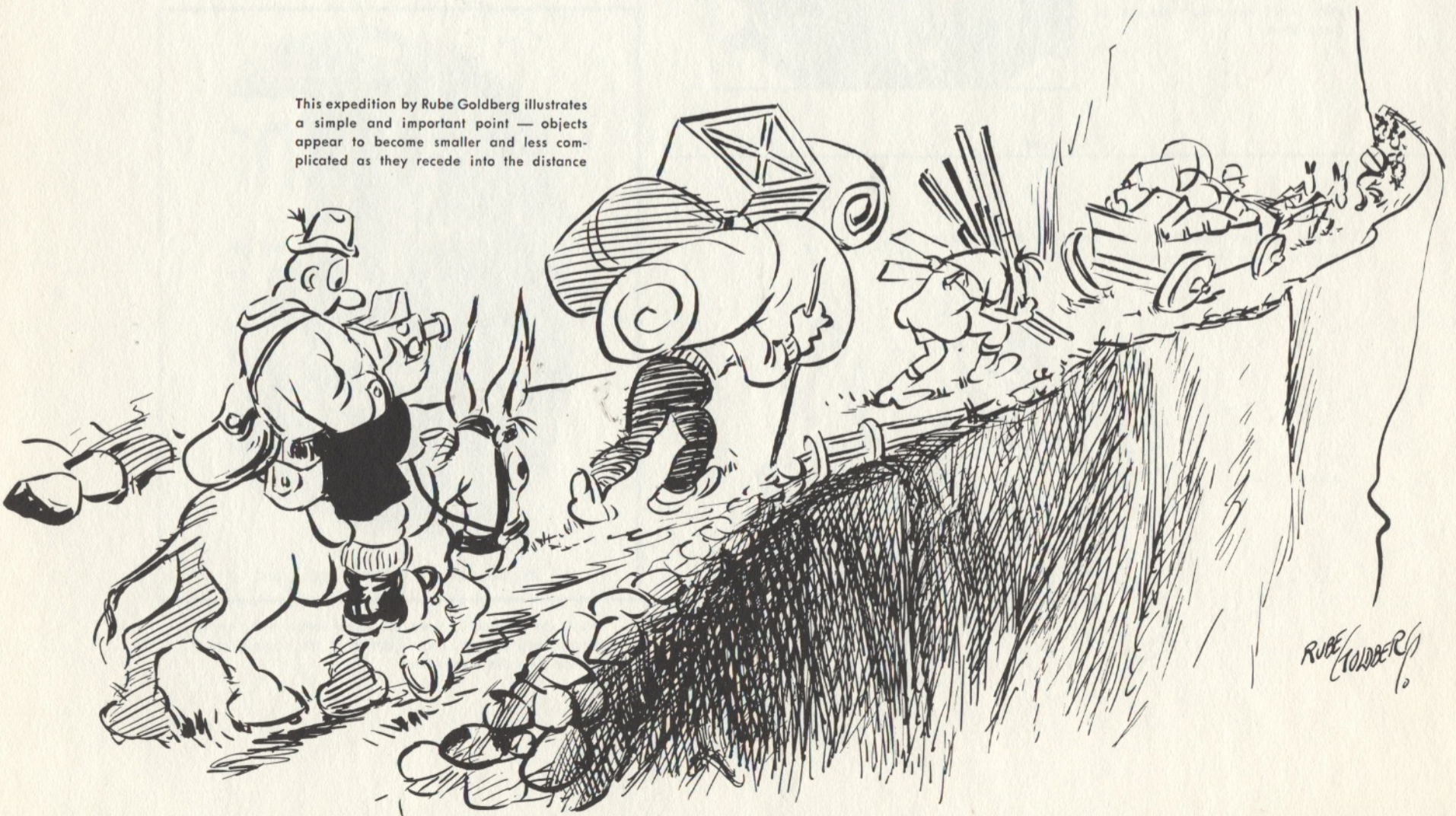


These fellows don't belong in the same panel



Hats are worn at different angles — and have perspective

This expedition by Rube Goldberg illustrates a simple and important point — objects appear to become smaller and less complicated as they recede into the distance



RUBE GOLDBERG



FAMOUS ARTISTS CARTOON COURSE  
Student Work  
Lesson 13

To study and practice

Perspective is a basic aid in making your cartoon scenes lifelike. Unconsciously you have been using it for better or worse ever since you crayoned your first doodle on the nursery wallpaper. In this lesson you have been given some simple rules for making your drawings look right.

One-point and two-point perspective is all you need as a cartoonist. Before tackling these assignments, you should practice the methods explained in this lesson. With triangle and T-square, copy and experiment with the examples in the text. Perspective is funny stuff -- just when you've decided that one line to the vanishing point looks awfully odd to the eye, you draw another line to it and... bingo! It looks right! Learn the rules and stick with them.

We will criticize and grade your assignments on the basis of how well you understand and use one-point and two-point perspective. Also, on all following assignments, you will be expected to know and use the rules of perspective in your drawings.

The assignments you are to mail to the School for criticism

ASSIGNMENT 1: One-point Perspective

On a piece of 11 x 14-inch Bristol board, rule and ink a panel 8 inches wide and 5 1/2 inches high. Using one-point perspective and the methods described on page 7 of this lesson, draw a room. For props, draw a sofa, wall mirror, window and door in your picture. On the sofa draw either a man or a woman. In the center of the room, talking to the character seated on the sofa, is a second person, either male or female. Finish this assignment in ink, but do not erase your pencil lines to the vanishing point. We need them to see if you understand the lesson.

IMPORTANT - Mark this sheet ASSIGNMENT 1.

ASSIGNMENT 2: Two-point Perspective

On a piece of 11 x 14-inch Bristol board, draw a panel 8 inches high and 10 inches wide. Locate ~~the~~ horizon line near the top of the panel.

Using two-point perspective, in this panel draw a simple house with a peaked roof. Draw the house as if you were viewing it from above. Show it in a three-quarter view, so one end and a side are seen.

Locate a door in the center of the end wall, and in the center of the side wall draw a large picture window. Show a woman hanging up wash on a clothesline in the yard, and add other details to make the house look livable.

Finish in ink, but leave your pencil guide lines to the vanishing points, so we can use them to check your drawing. (These vanishing points need not be on your paper. Note the diagram on page 4, bottom right.)

IMPORTANT - Mark this sheet ASSIGNMENT 2.

Present your assignments in the same clean, professional manner you would use if you were submitting them to the cartoon buyer of a publication. Letter your name, address and student number carefully in the lower left-hand corner of each page. In the lower right corner, place the Lesson Number and Assignment Number. Mail to:

FAMOUS ARTISTS CARTOON COURSE  
Westport, Connecticut

BE SURE to fill out the return shipping label and enclose it with your assignments. This helps a lot in getting your assignments back quickly.