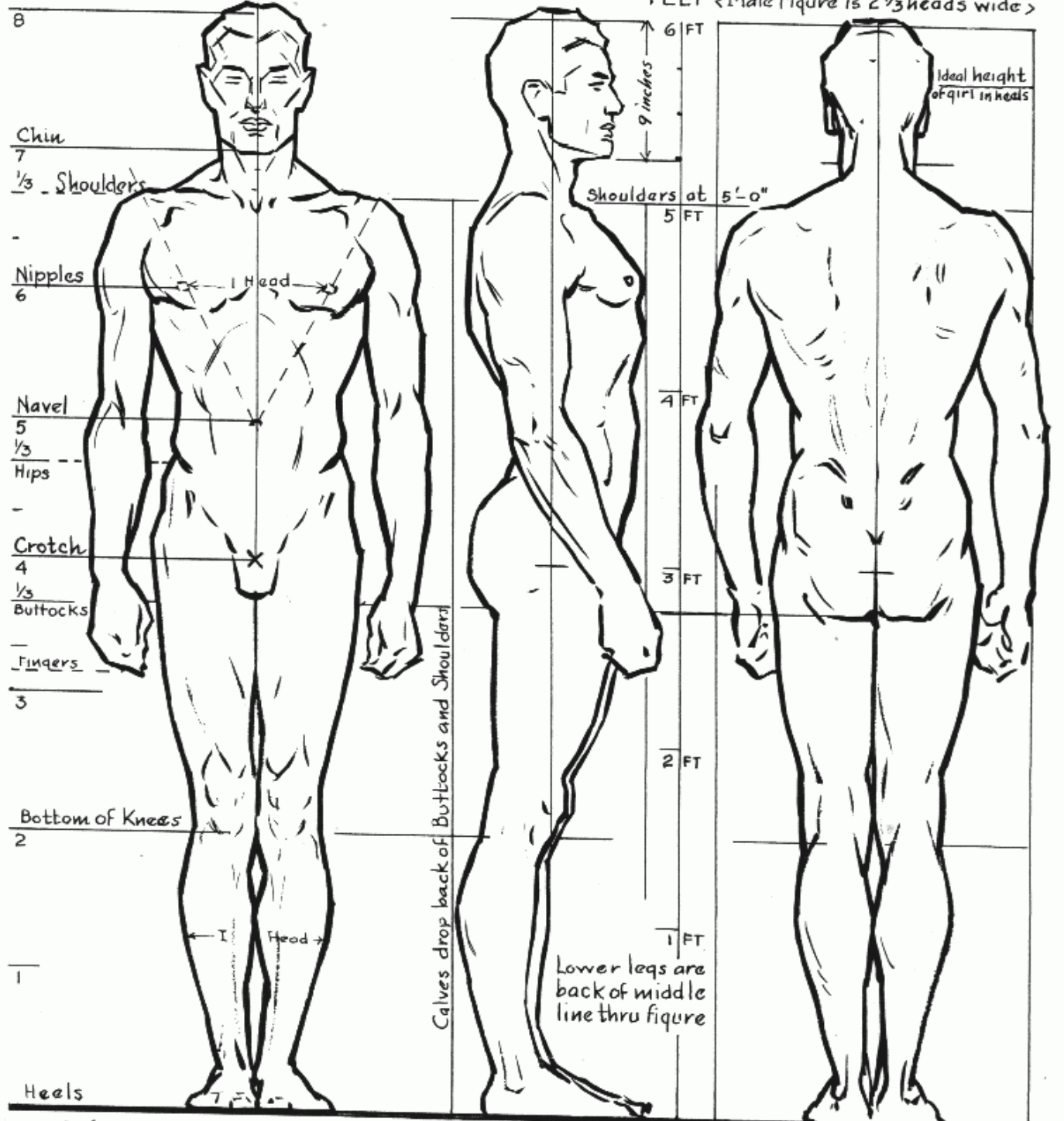


IDEAL PROPORTION, MALE

HEAD UNITS

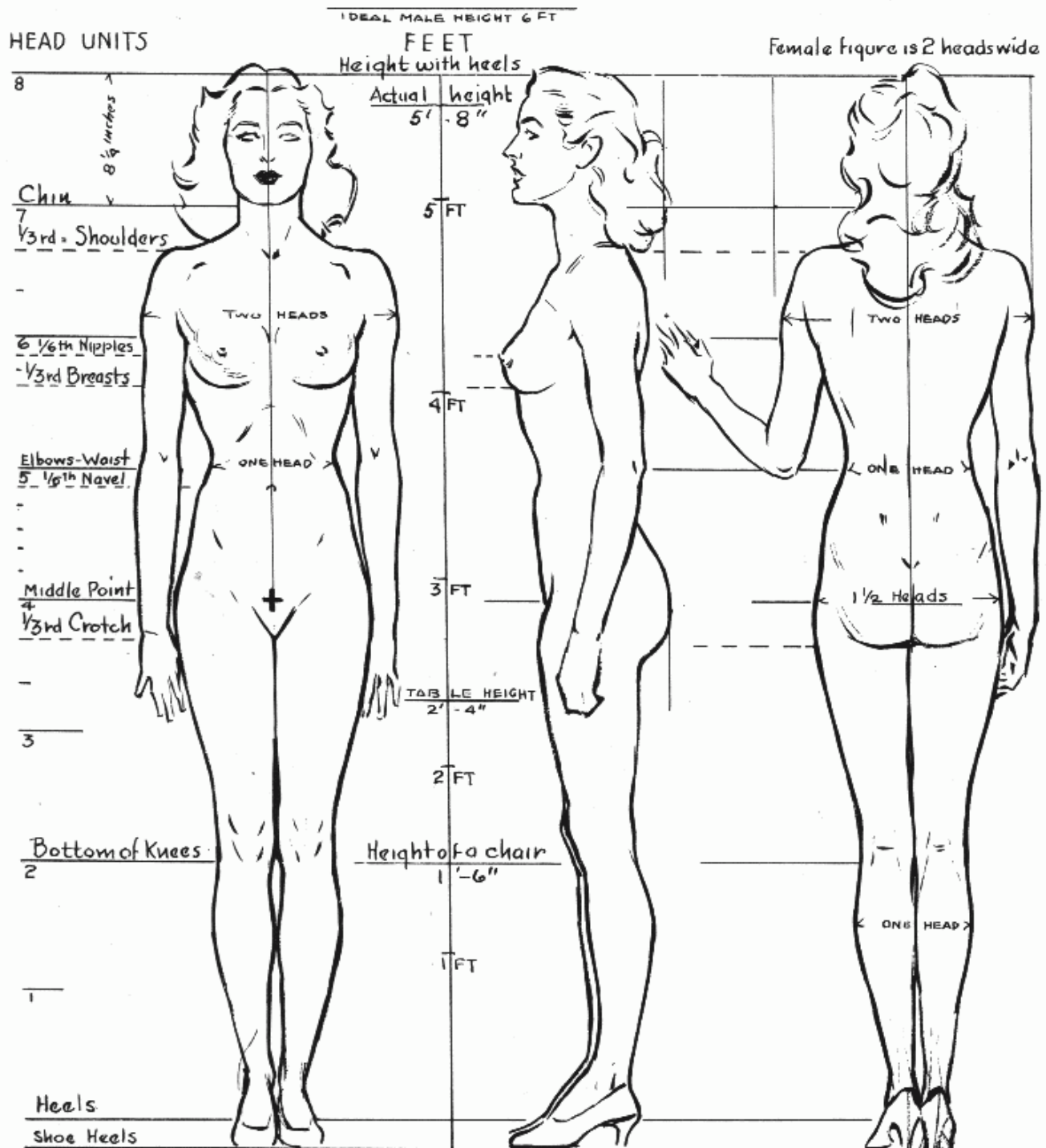
FEET < Male Figure is $2\frac{1}{3}$ heads wide >

Take any desired height, or place points for top of head and heels. Divide into eighths. Two and one third of these units will be the relative width for the male figure. It is not necessary at this stage to attempt to render the anatomy correctly. But fix in your mind the divisions.

Draw the figure in the three positions: front, side, and back. Note the comparative widths at shoulders, hips, and calves. Note that the space

between nipples is one head unit. The waist is a little wider than one head unit. The wrist drops just below the crotch. The elbows are about on a line with the navel. The knees are just above the lower quarter of the figure. The shoulders are one-sixth of the way down. The proportions are also given in feet so that you may accurately relate your figure to furniture and interiors.

IDEAL PROPORTION, FEMALE



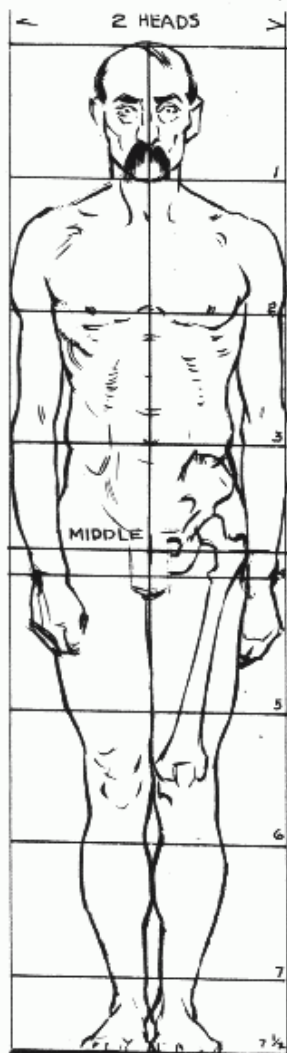
The female figure is relatively narrower—two heads at the widest point. The nipples are slightly lower than in the male. The waistline measures one head unit across. In front the thighs are slightly wider than the armpits, narrower in back. It is optional whether or not you draw the legs even a little longer from the knees down. Wrists are even with crotch. Five feet eight inches (in heels) is considered an ideal height

for a girl. Actually, of course, the average girl has shorter legs and somewhat heavier thighs. Note carefully that the female navel is below the waistline; the male, above or even with it. The nipples and navel are one head apart, but both are dropped below the head divisions. The elbow is above the navel. It is important that you learn the variations between the male and female figure.

VARIOUS STANDARDS OF PROPORTION

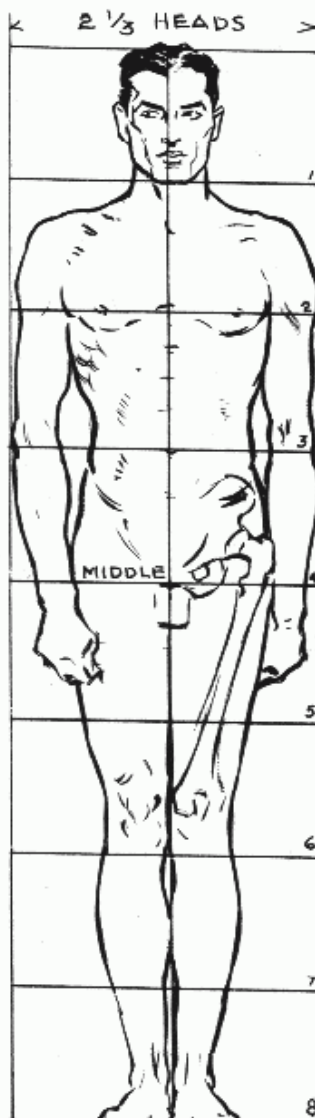
NORMAL, $7\frac{1}{2}$ HDS

THE ACADEMIC
PROPORTIONS
USED IN MOST SCHOOLS.
(RATHER DUMPY)



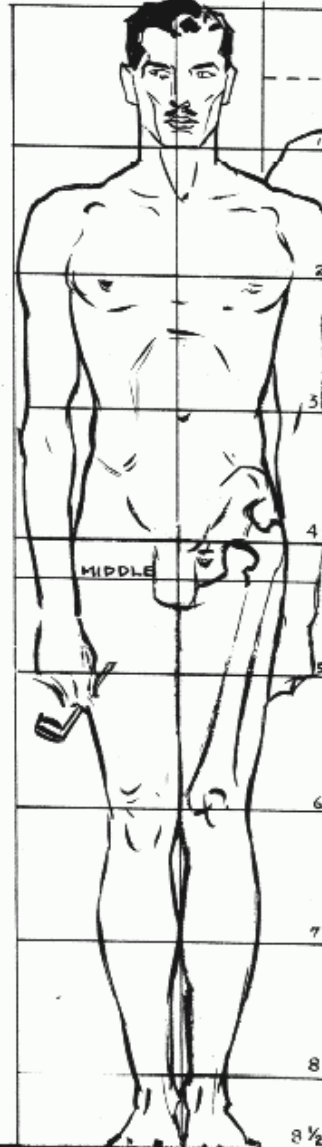
IDEALISTIC, 8 HDS

MOST ARTISTS ACCEPT
8 HEADS AS NORMAL

FASHION, $8\frac{1}{2}$ HDS

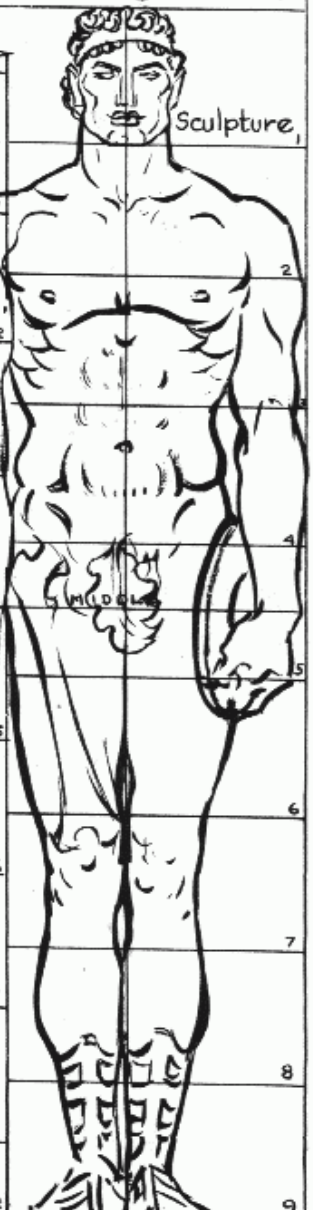
ACCEPTED

$2\frac{1}{3}$ or $\frac{1}{2}$ HEADS



HEROIC, 9 HDS

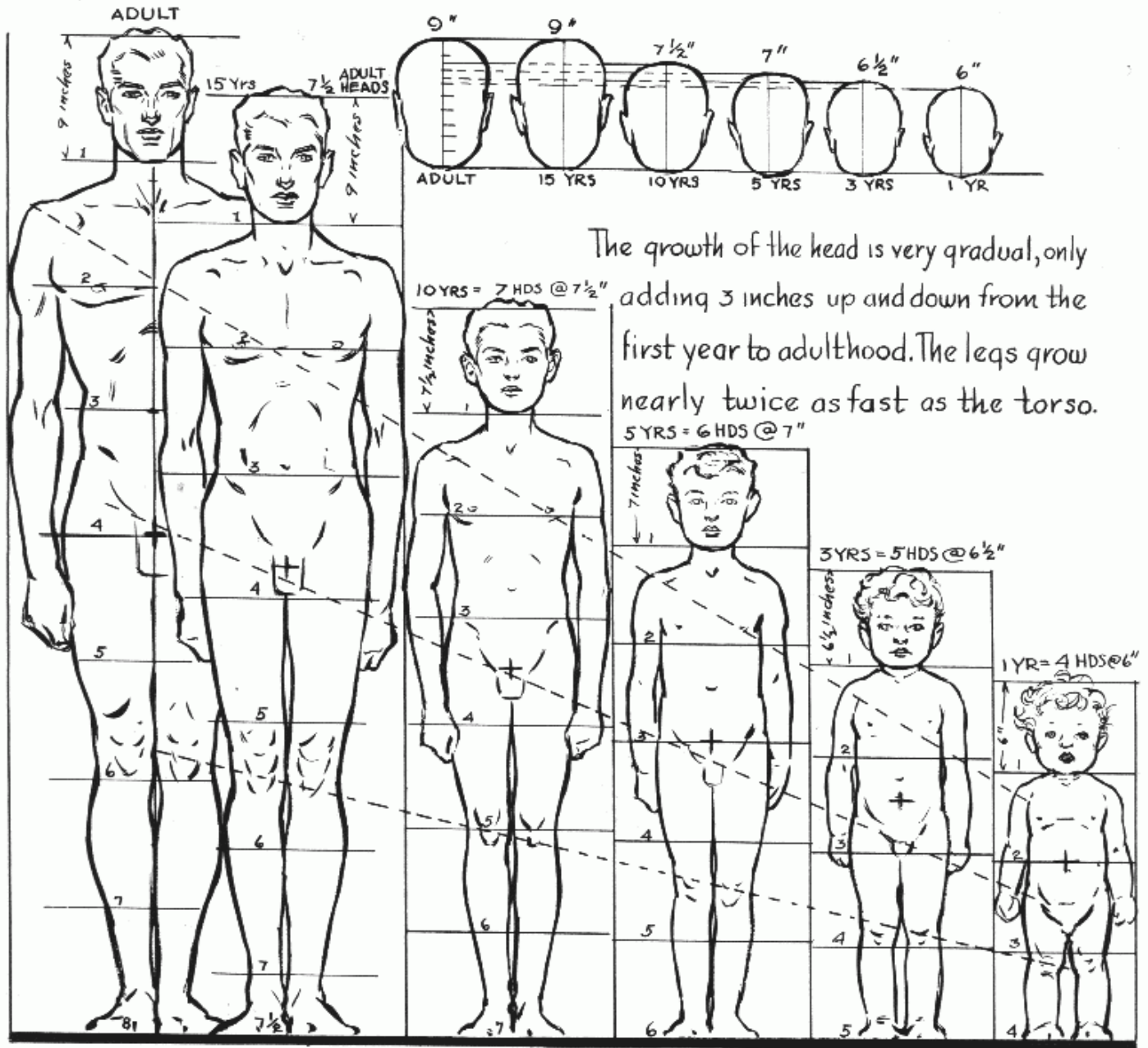
$2\frac{2}{3}$ HEADS



You can see at a glance why the actual or normal proportions are not very satisfactory. All academic drawings based on normal proportions have this dumpy, old-fashioned look. Most fashion artists stretch the figure even beyond eight heads, and in allegorical or heroic figures the "superhuman" type — nine heads — may be used effectively. Note at what point, or head

unit, the middle of the figure falls in each. It would be well to draw the side and back in these various proportions, using the previous page for a general guide but changing the proportion. You can control the appearance of height or shortness in any figure by the relative size of the head you use.

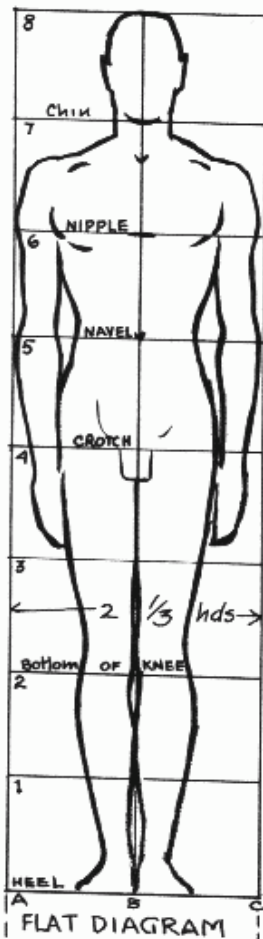
IDEAL PROPORTIONS AT VARIOUS AGES



These proportions have been worked out with a great deal of effort and, as far as I know, have never before been put down for the artist. The scale assumes that the child will grow to be an ideal adult of eight head units. If, for instance, you want to draw a man or a woman (about half a head shorter than you would draw the man)

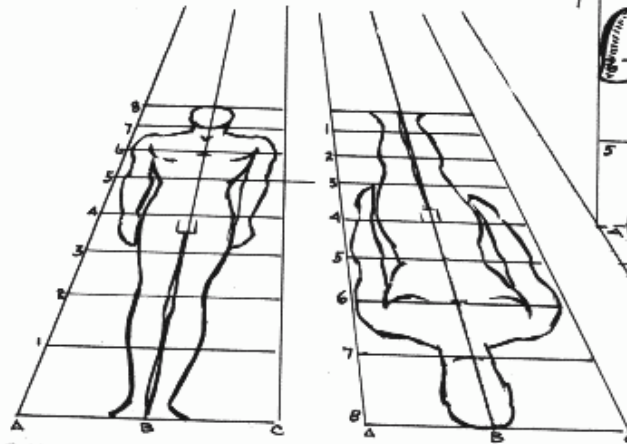
with a five-year-old boy, you have here his relative height. Children under ten are made a little shorter and chubbier than normal, since this effect is considered more desirable; those over ten, a little taller than normal — for the same reason.

THE FLAT DIAGRAM



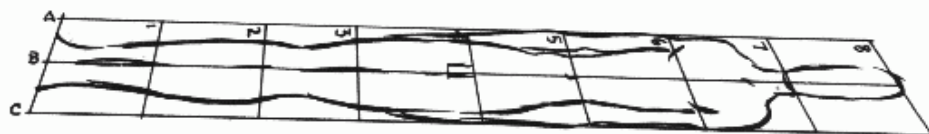
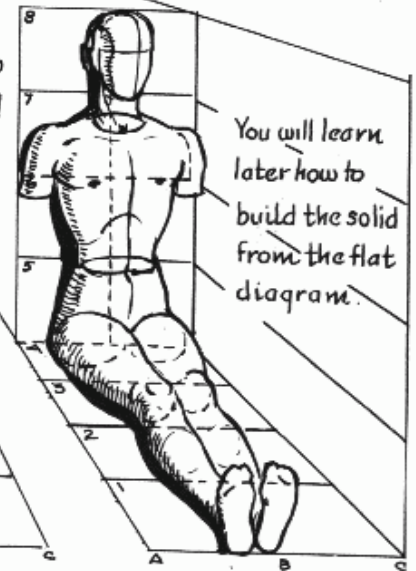
vanishing point.
HOW TO PROJECT THE "FLAT DIAGRAM" ONTO THE GROUND PLANE

This will prove most useful when you have to draw without a model and in foreshortening



Fill in the 16 units by following the Flat Diagram

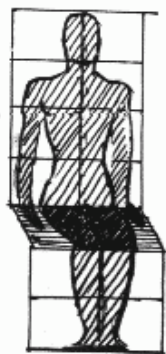
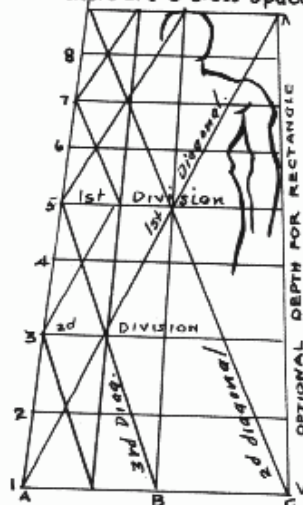
Using two planes



Shadows can be drawn by this plan. It is a guide for the solid in perspective.

THE FLAT DIAGRAM IS NO MORE THAN A TRACING OF A SHADOW-WITH ONLY TWO DIMENSIONS-BUT IT IS OUR "MAP." WE CAN'T DO WITHOUT IT-UNTIL WE KNOW THE WAY.

Divide by diagonals until there are 8 cross spaces.



Flat Diagram Sitting pose 3 Planes

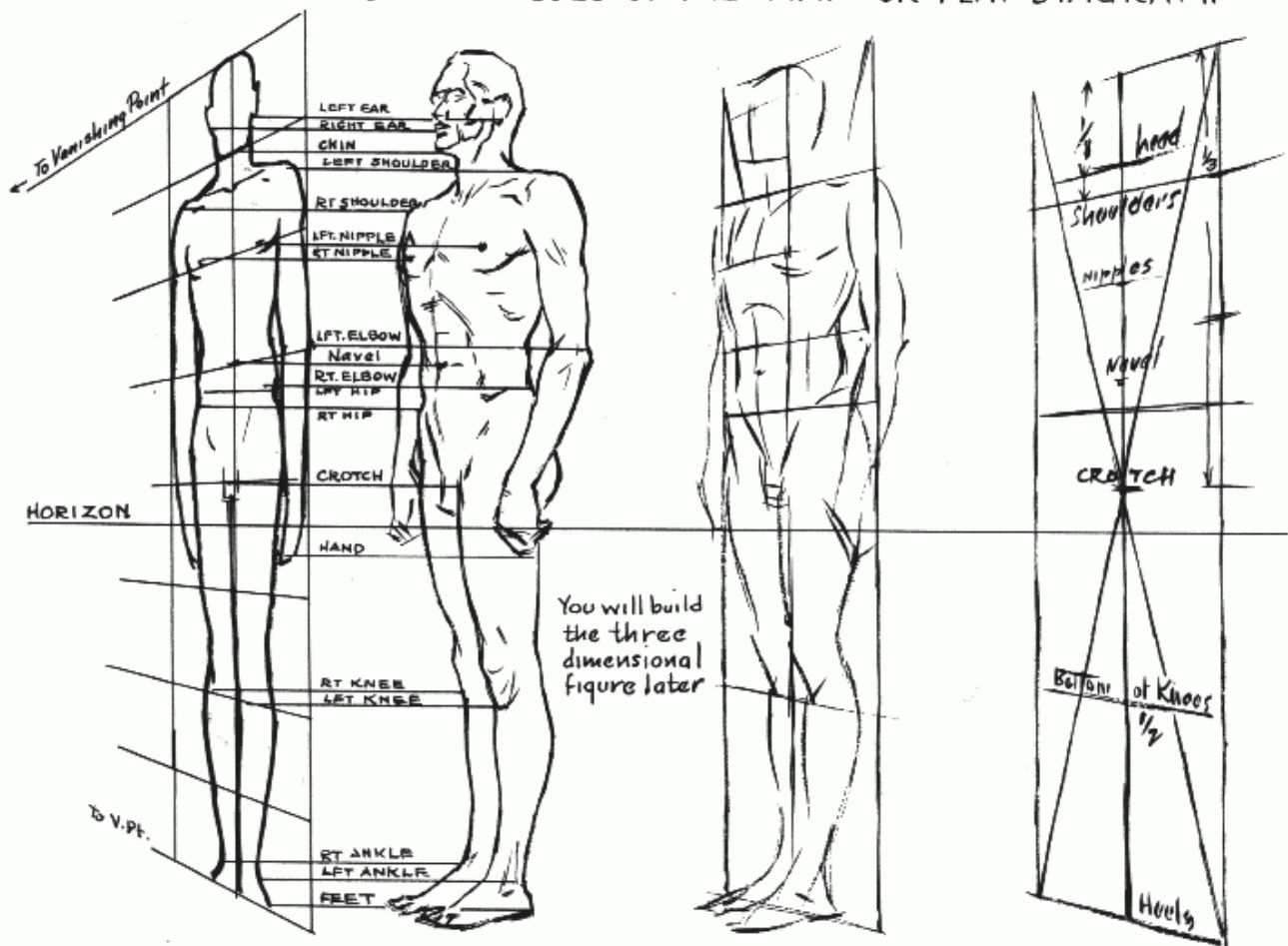


Showing how the principle applies to difficult foreshortening to be explained.

Two ways of rendering the "Box" of the Flat Diagram in perspective. You are urged to learn this now. It will help you out of many difficulties later on.

THE FLAT DIAGRAM

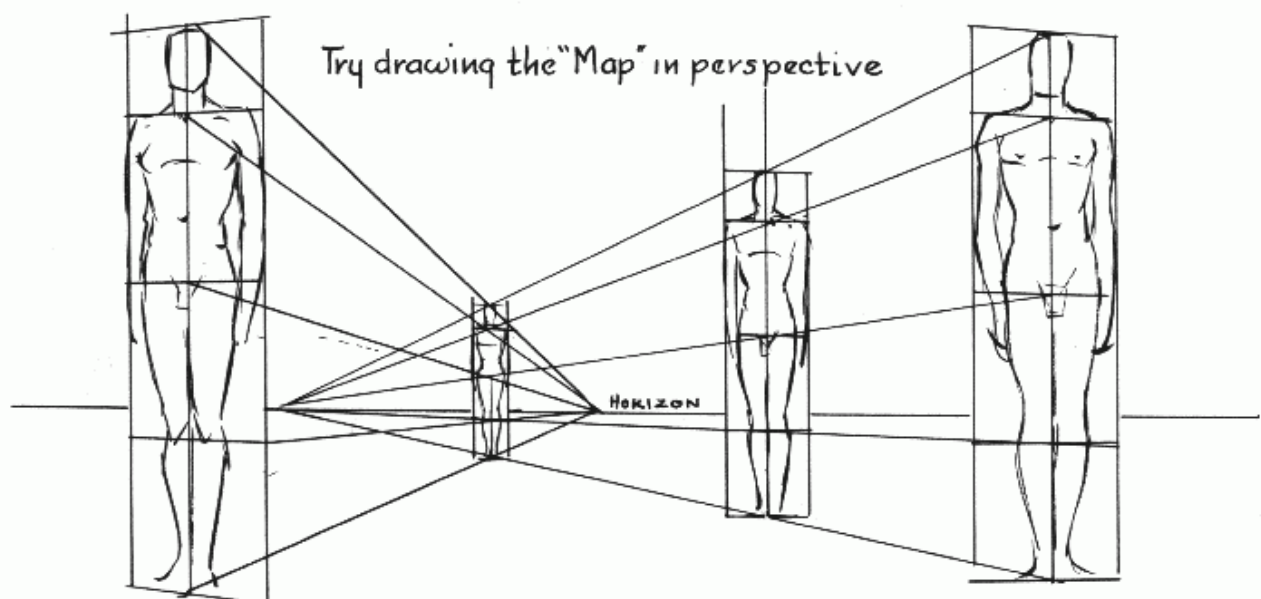
OTHER IMPORTANT USES OF THE "MAP" OR FLAT DIAGRAM.



All points of the figure can be put in perspective with the "Map" as guide

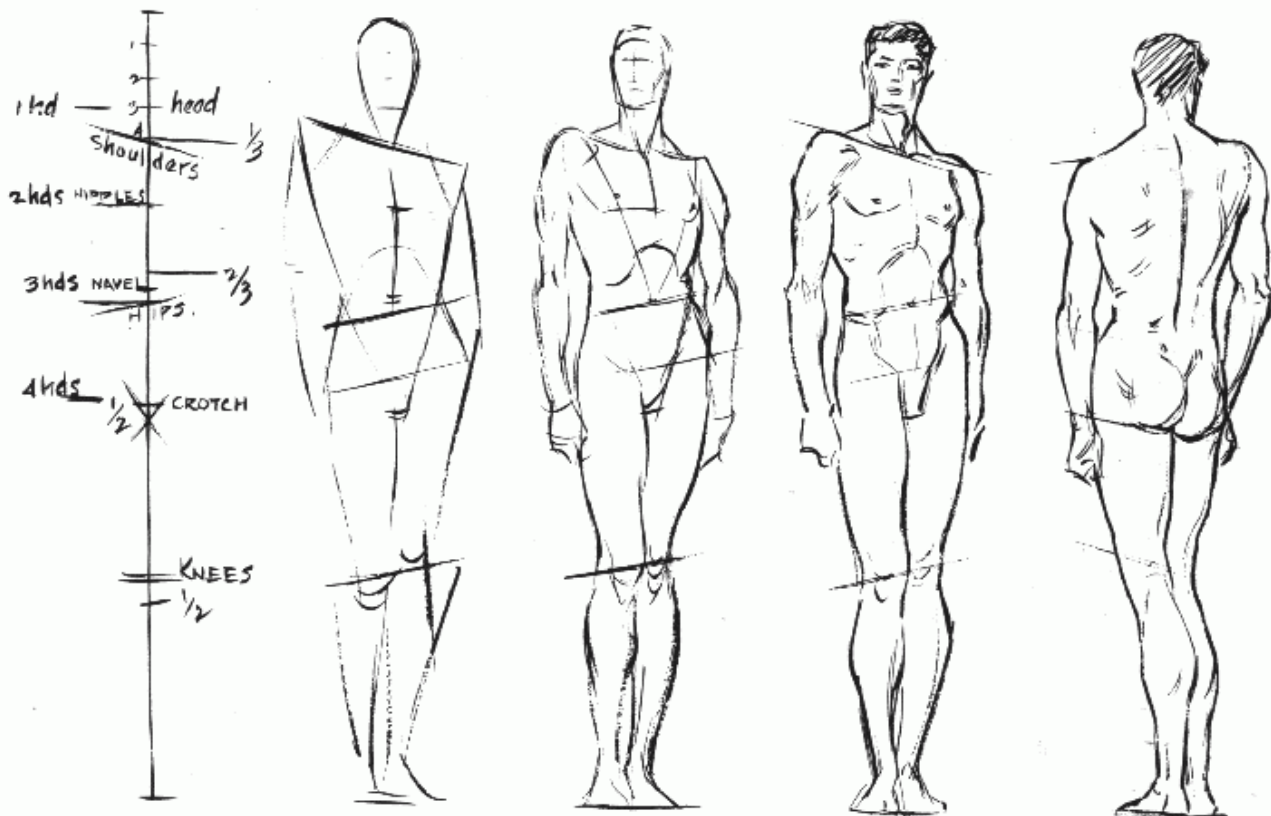
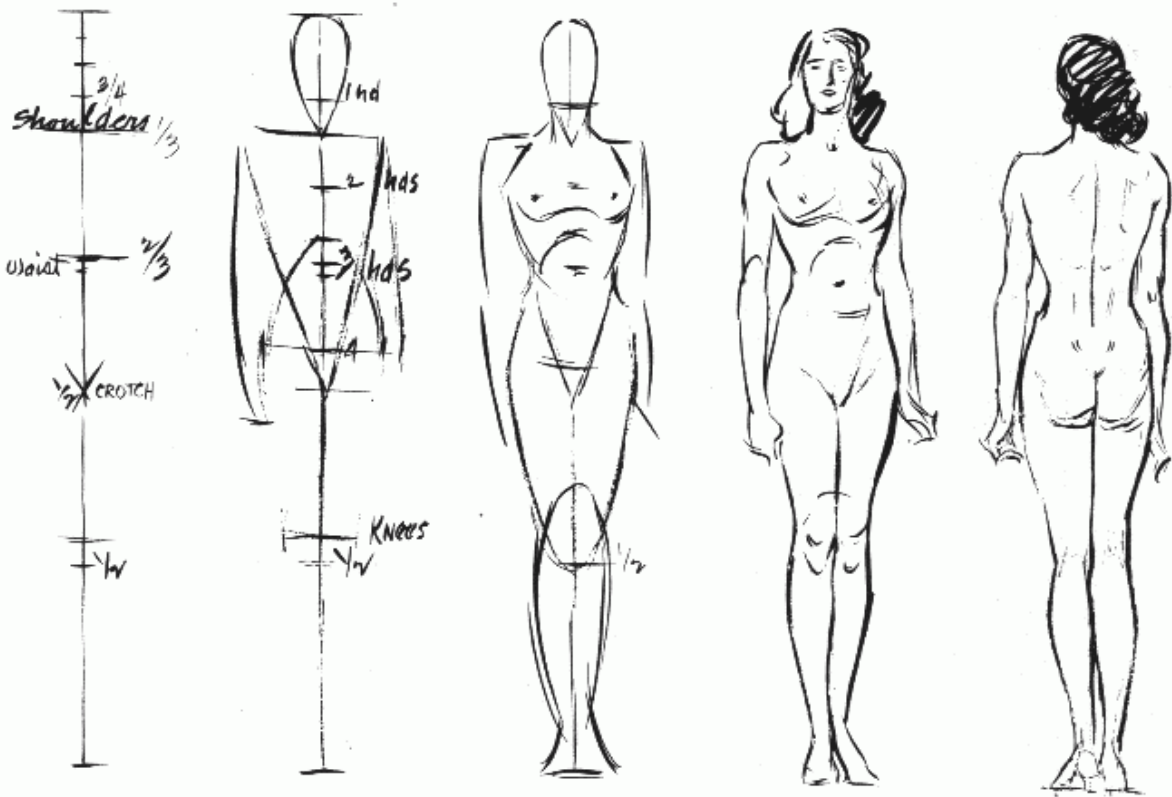
Quick "Set up" in perspective

Quick "Set up" of the "Map".

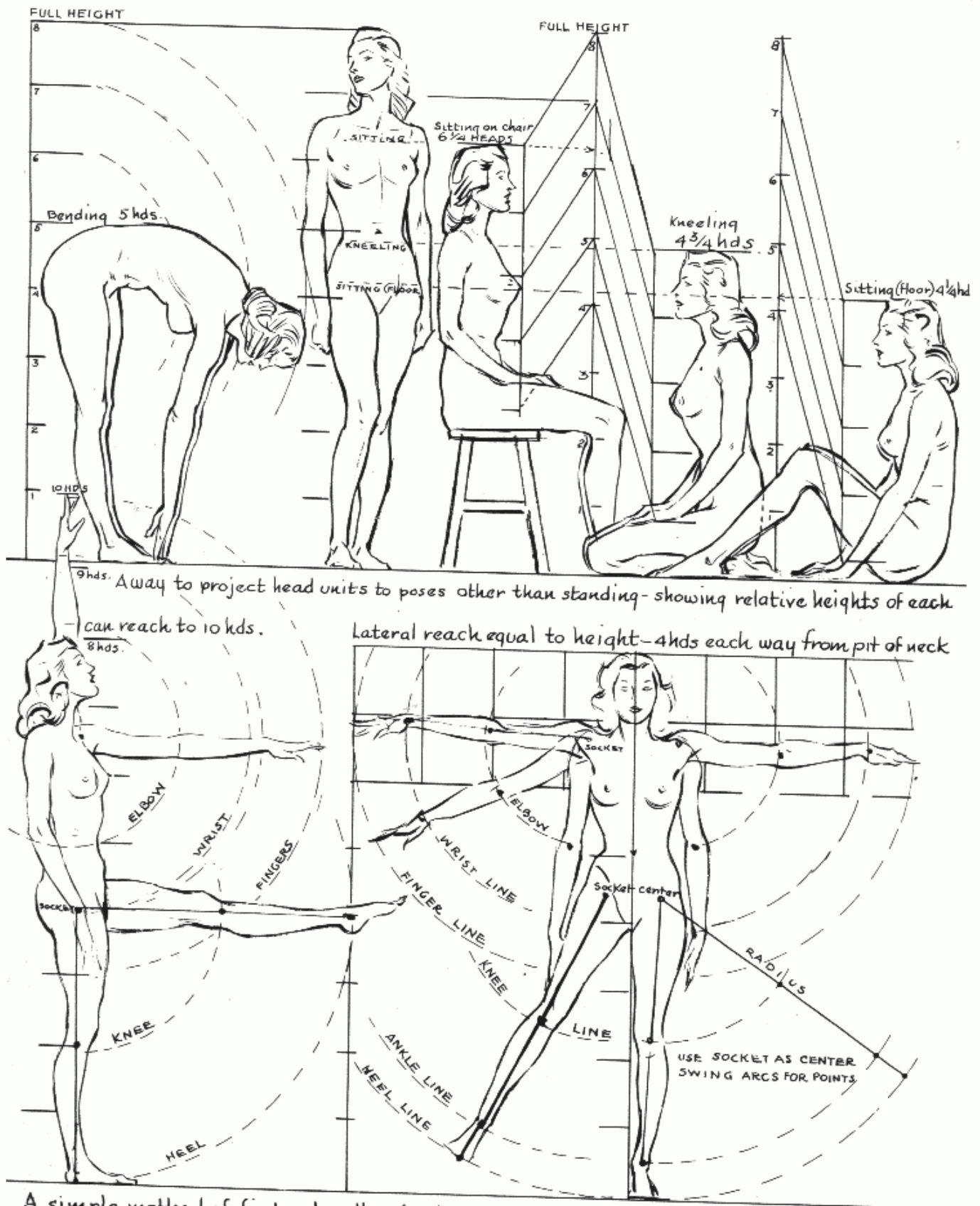


The proportions of one figure can easily be projected by perspective to others.

QUICK SET-UP OF PROPORTIONS



PROPORTIONS BY ARCS AND HEAD UNITS



A simple method of finding lengths of extended limbs. Later you will do this in perspective.

PROPORTION IN RELATION TO THE HORIZON

How to build your picture and figures from any eyelevel (or Horizon, which means the same)

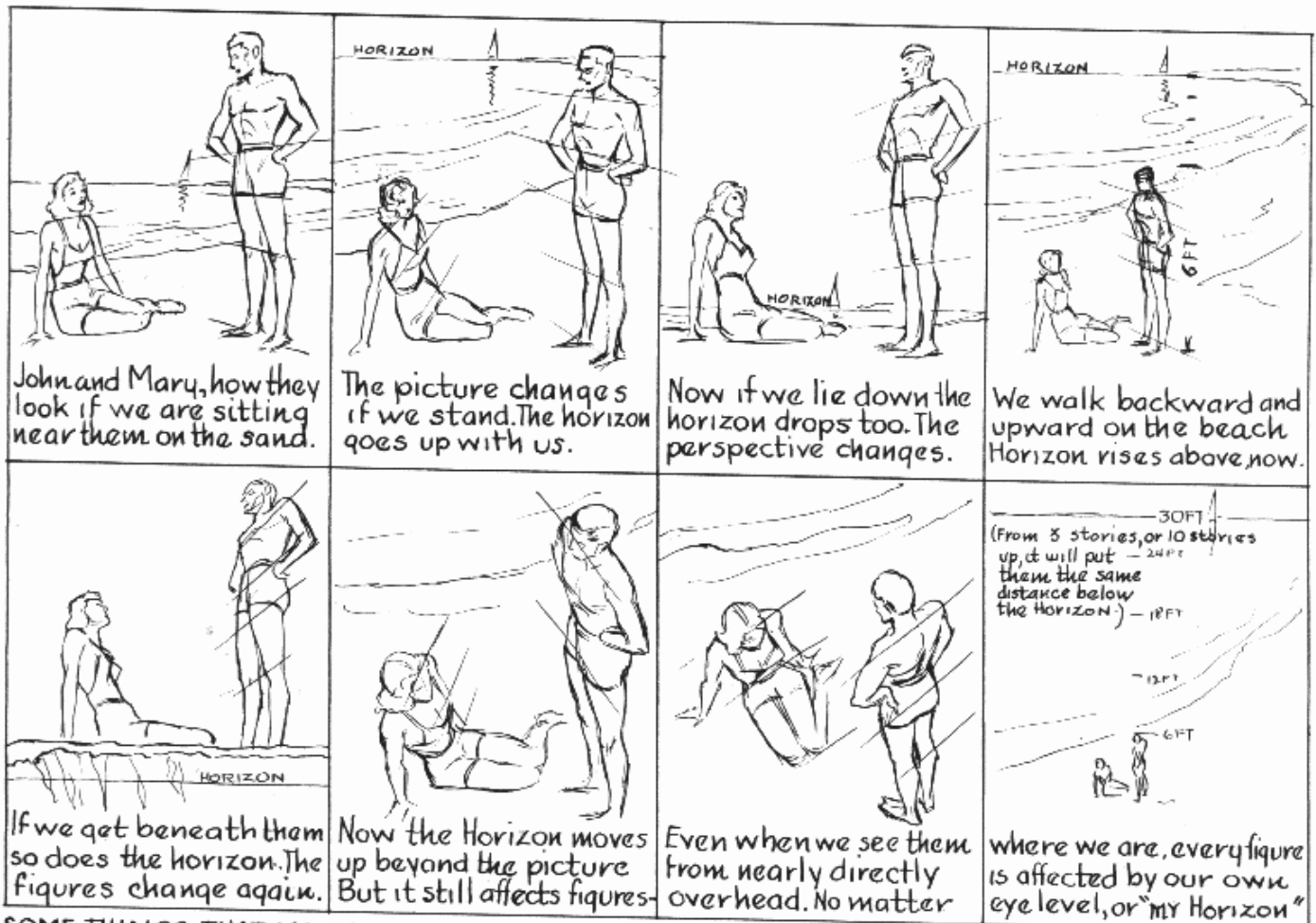
1	2	3	4	5	6
EYE LEVEL SELECTED	(HORIZON)		VP	VP	VP
Select a placement for the Horizon.	Establish height of first figure. (Any height)	Set point for feet of 2 ^d Figure. (Place anywhere)	Draw line through point to Horizon	Then back to "A" at top 1st Figure	Erect perpendicular at "C". CB is 2 ^d Figure
7	8	9	10	11	12
Divide into 4ths.	Build figures. If you want more -	Take another point "D" thru "C" to Horizon	Divide as you did before	Complete 3rd Fig.	Build your picture to same Horizon.

Rule: Horizon must cross all similar figures on a level plane at the same point. (above, at knees)

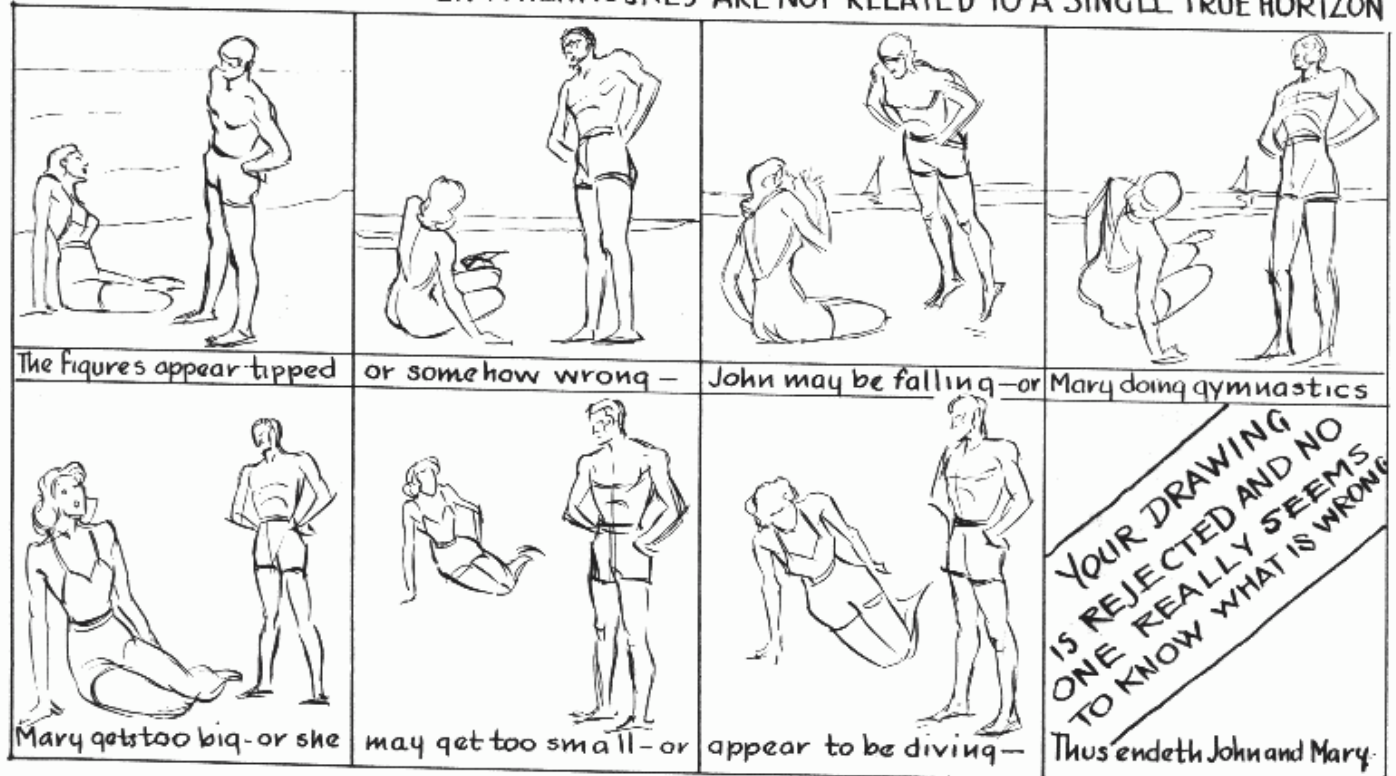
HOW TO LAY OUT THUMBNAIL SKETCHES FOR FIGURE PLACEMENTS AND SIZES

<p>From one figure you can get any number</p>	<p>HORIZON MAY BE PLACED ABOVE FIGURES</p> <p>Take a little off for a woman's figure</p>	<p>A figure may run out of picture</p>
<p>One figure is wrong! Explain why.</p>	<p>For close figure find half of it.</p>	<p>Here are two levels</p>

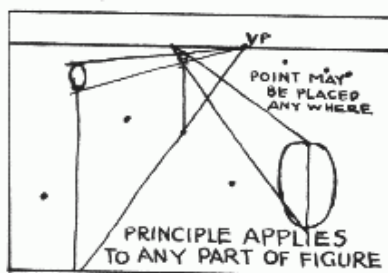
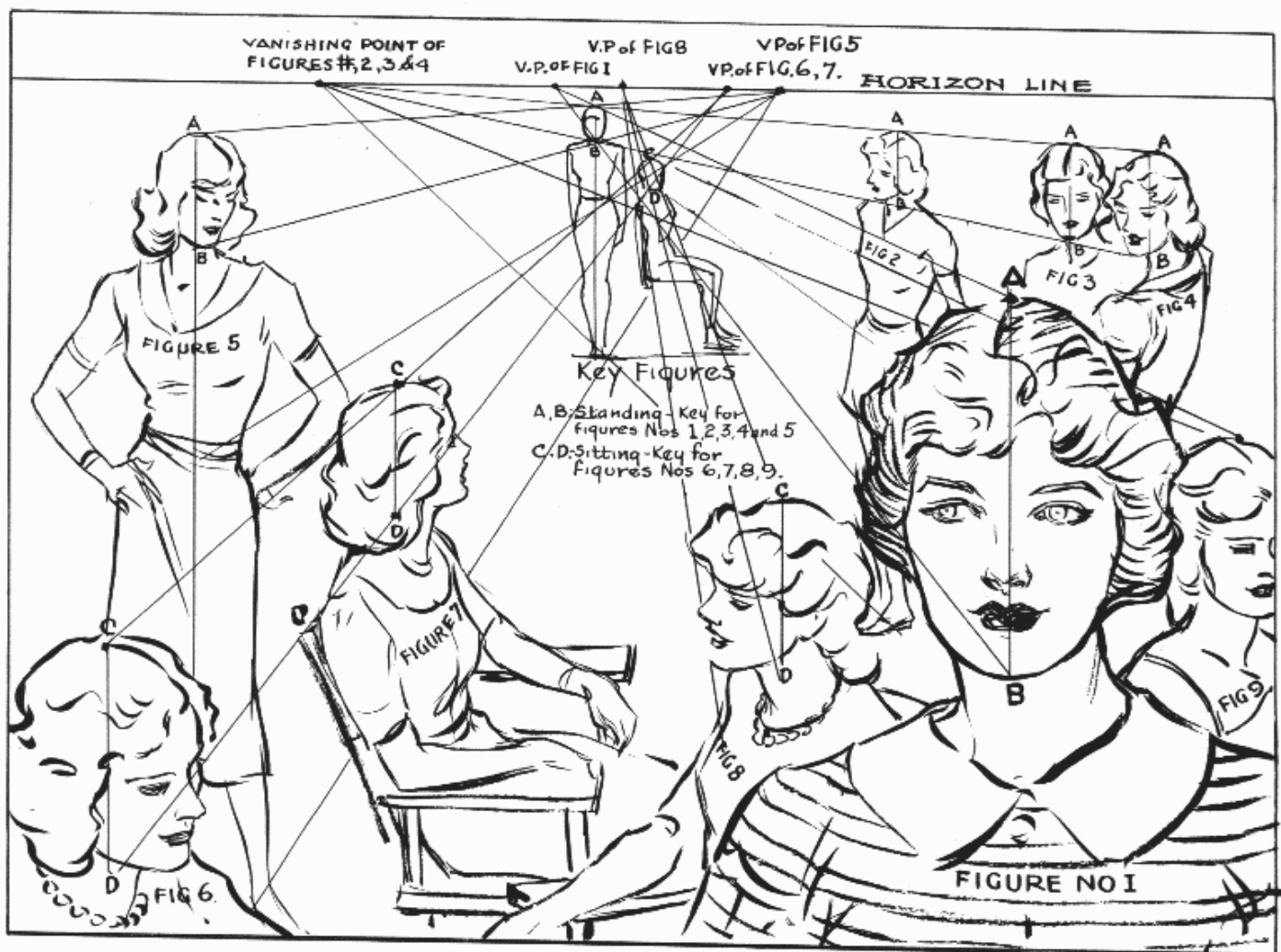
THE JOHN AND MARY PROBLEMS



SOME THINGS THAT MAY HAPPEN WHEN FIGURES ARE NOT RELATED TO A SINGLE TRUE HORIZON



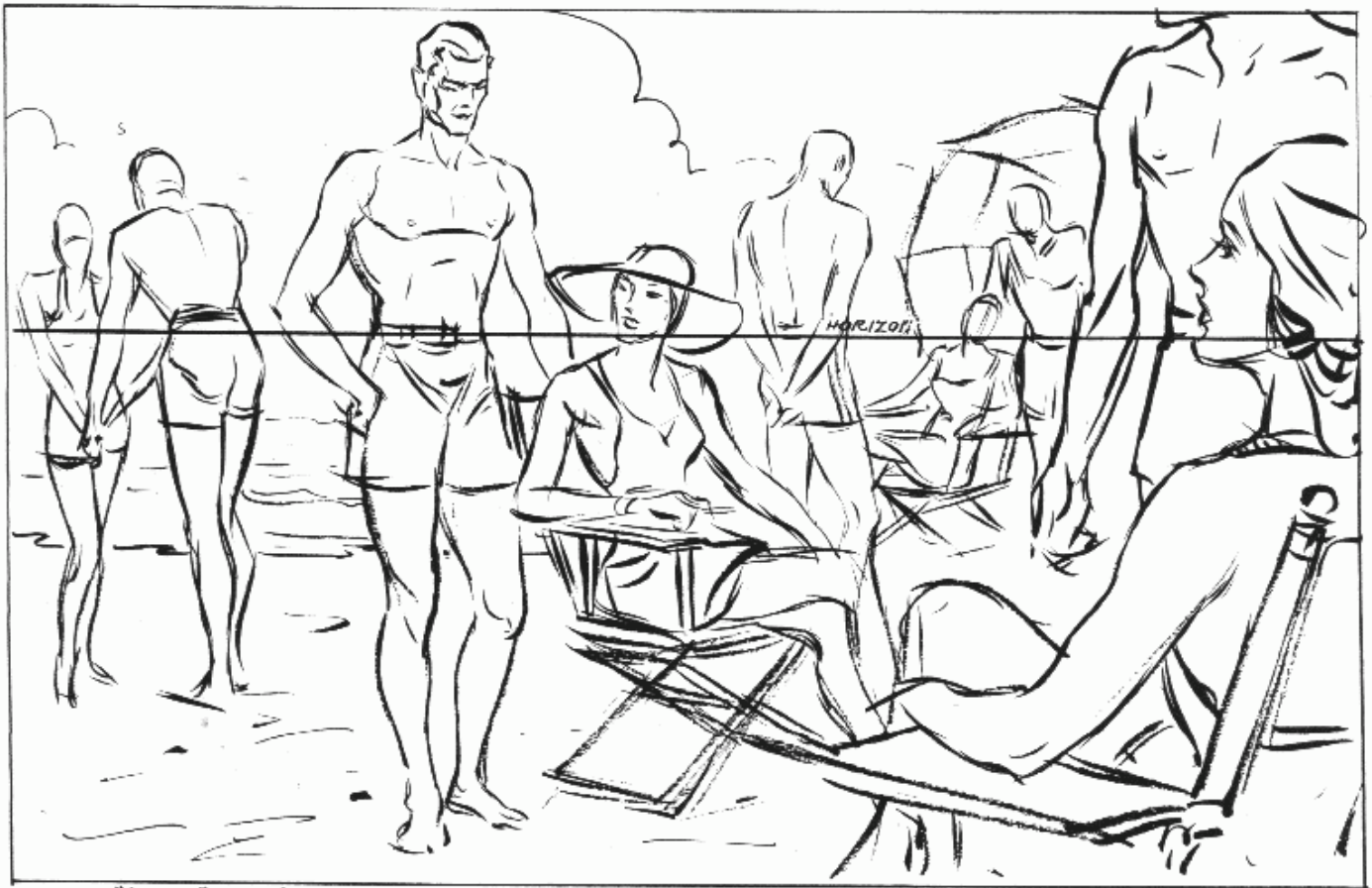
FINDING PROPORTION AT ANY SPOT IN YOUR PICTURE



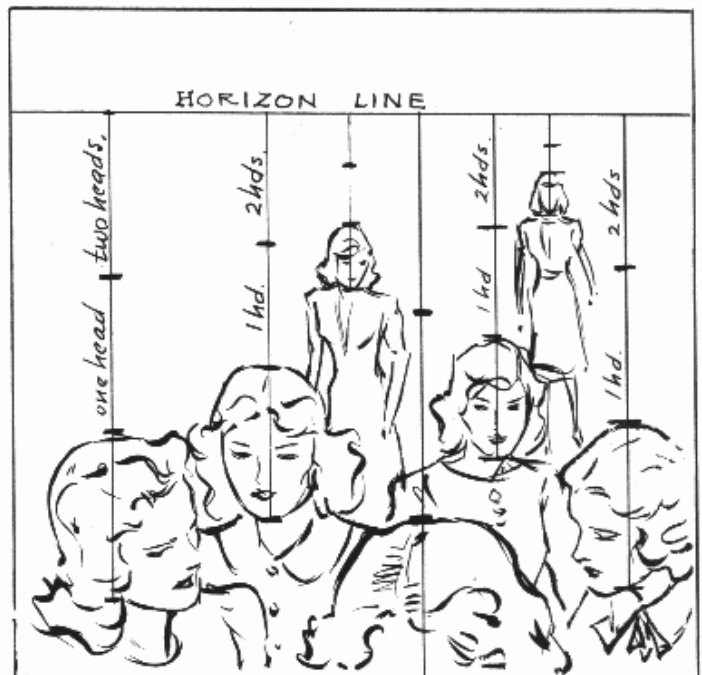
Many artists have difficulty in placing figures in their picture and properly relating them to each other, especially if the complete figure is not shown. The solution is to draw a key figure for standing or sitting poses. Either the whole figure or any part of it can then be scaled with the horizon. AB is taken as the head measurement and applied to all standing figures; CD to the sitting figures. This applies *when all figures are on the same ground plane*. (On page 37 there is an explanation of how to proceed when

the figures are at different levels.) You can place a point anywhere within your space and find the relative size of the figure or portion of the figure at precisely that spot. Obviously everything else should be drawn to the same horizon and scaled so that the figures are relative. For instance, draw a key horse or cow or chair or boat. The important thing is that all figures retain their size relationships, no matter how close or distant. A picture can have only one horizon, and only one station point. The horizon moves up or down with the observer. It is not possible to look over the horizon, for it is constituted by the eye level or lens level of the subject. The horizon on an open, flat plane of land or water is visible. Among hills or indoors it may not be actually visible, but your eye level determines it. If you do not understand perspective, there is a good book on the subject, *Perspective Made Easy*, available at most booksellers.

"HANGING" FIGURES ON THE HORIZON



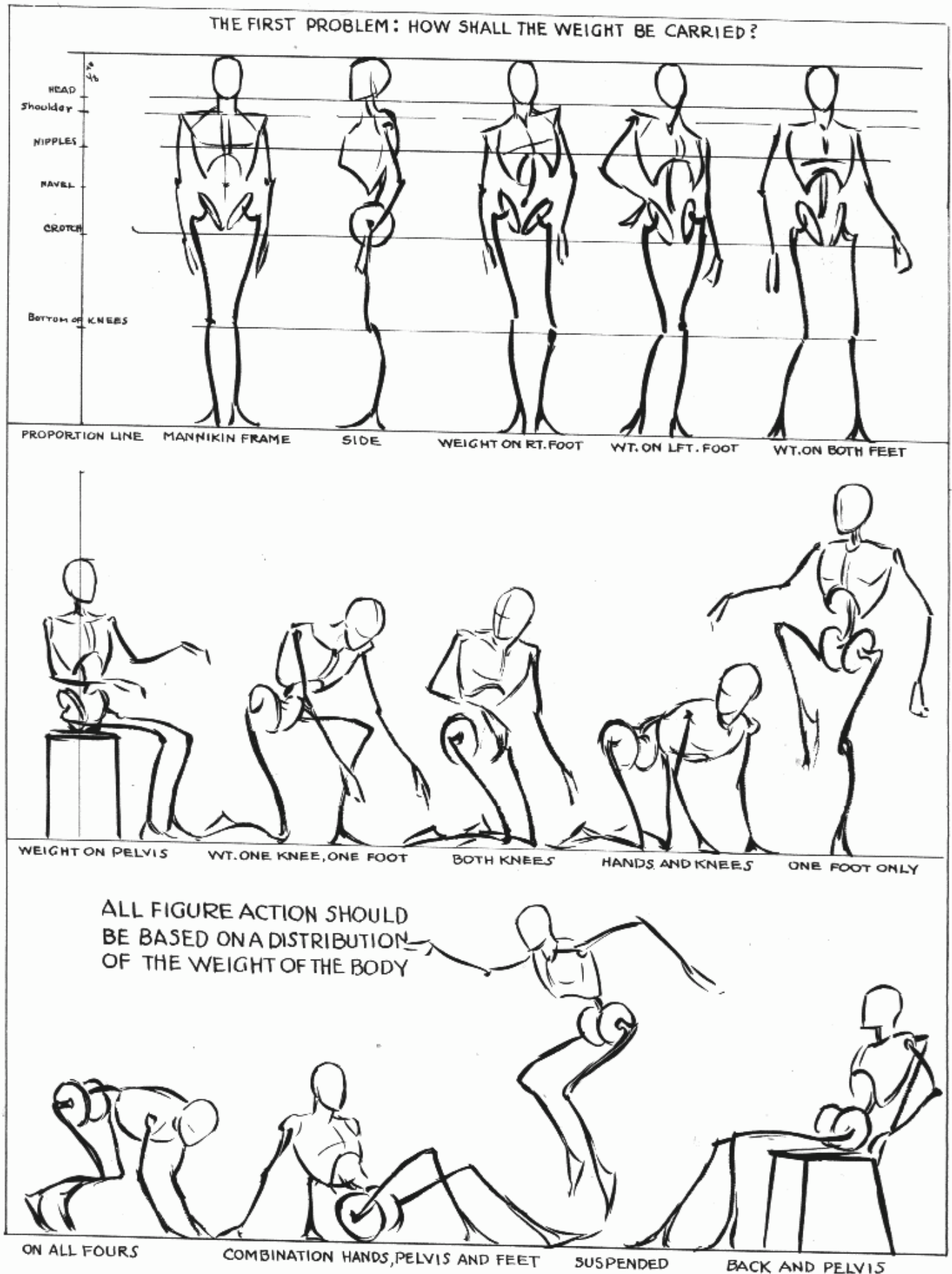
You can "hang" your figures on the Horizon line by making it cut through similar figures in the same place. This keeps them on the same ground plane. Note Horizon cuts men at waist and the seated women at chin. The one standing woman at left is drawn relative to the men. Simple?



You can also "hang" heads on the Horizon: Here we have measured a proportionate line. In this case it cuts men's heads at the mouth, the women at the eyes. : distance down from the Horizon. I have taken two heads as an optional space.

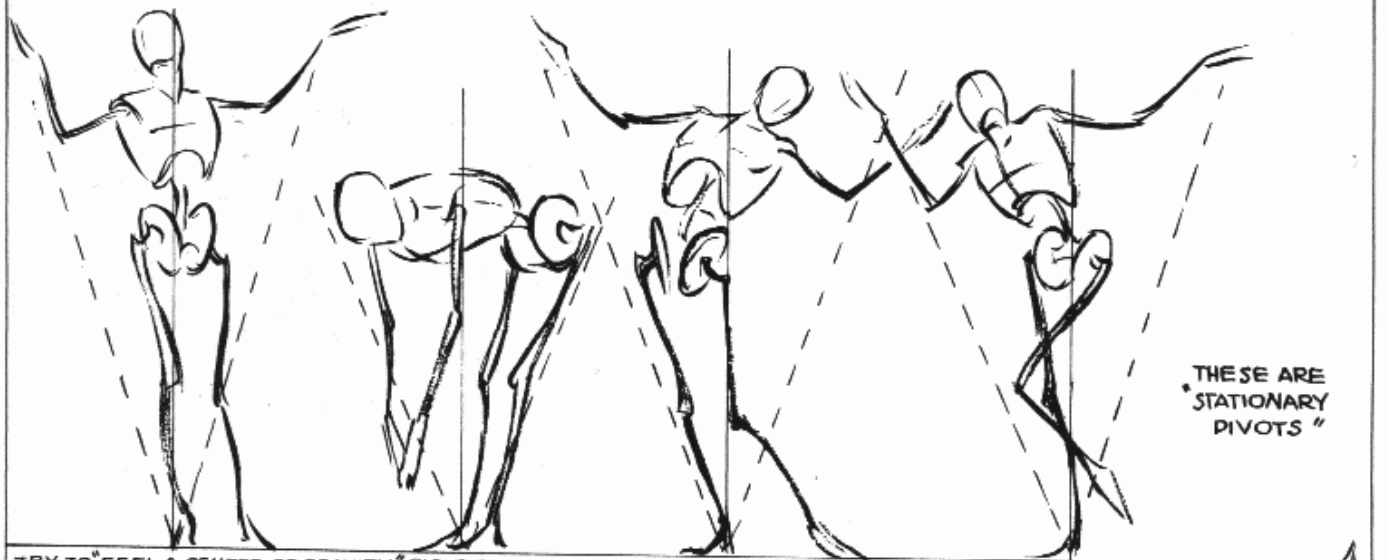
WE BEGIN TO DRAW: FIRST THE MANNIKIN FRAME

THE FIRST PROBLEM: HOW SHALL THE WEIGHT BE CARRIED?



MOVEMENT IN THE MANNIKIN FRAME

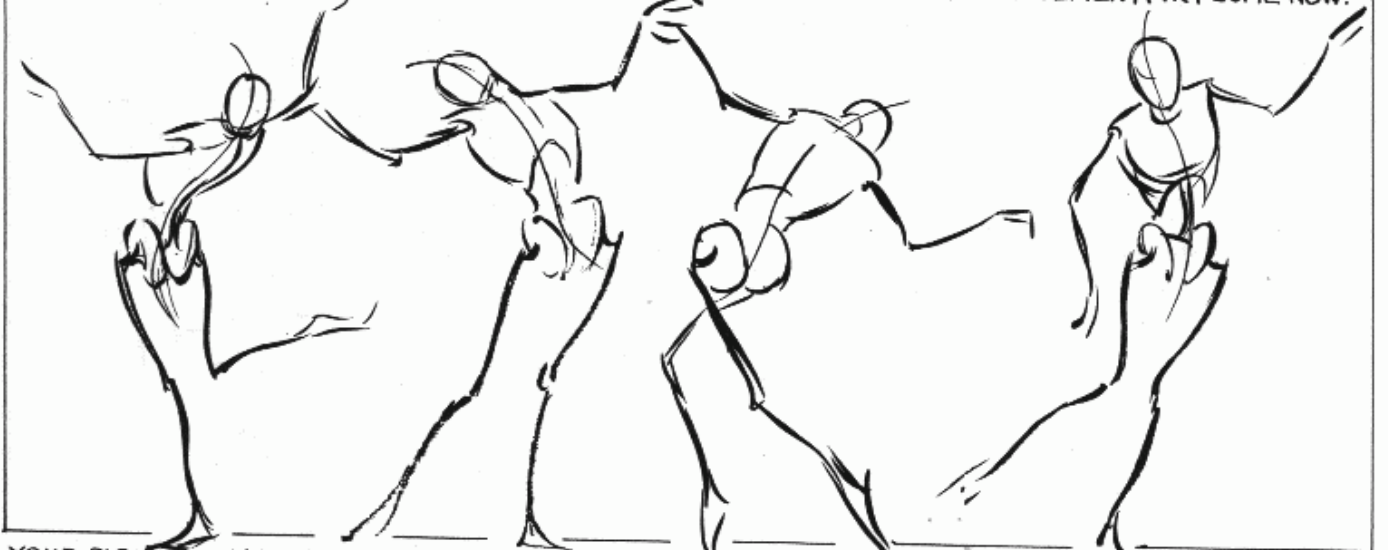
LET US STRIVE FOR LIFE AND ACTION FROM THE VERY BEGINNING. DRAW, DRAW.



TRY TO "FEEL A CENTER OF GRAVITY." DISTRIBUTE THE WEIGHT OVER A CENTRAL POINT. MAKE NUMEROUS STUDIES.

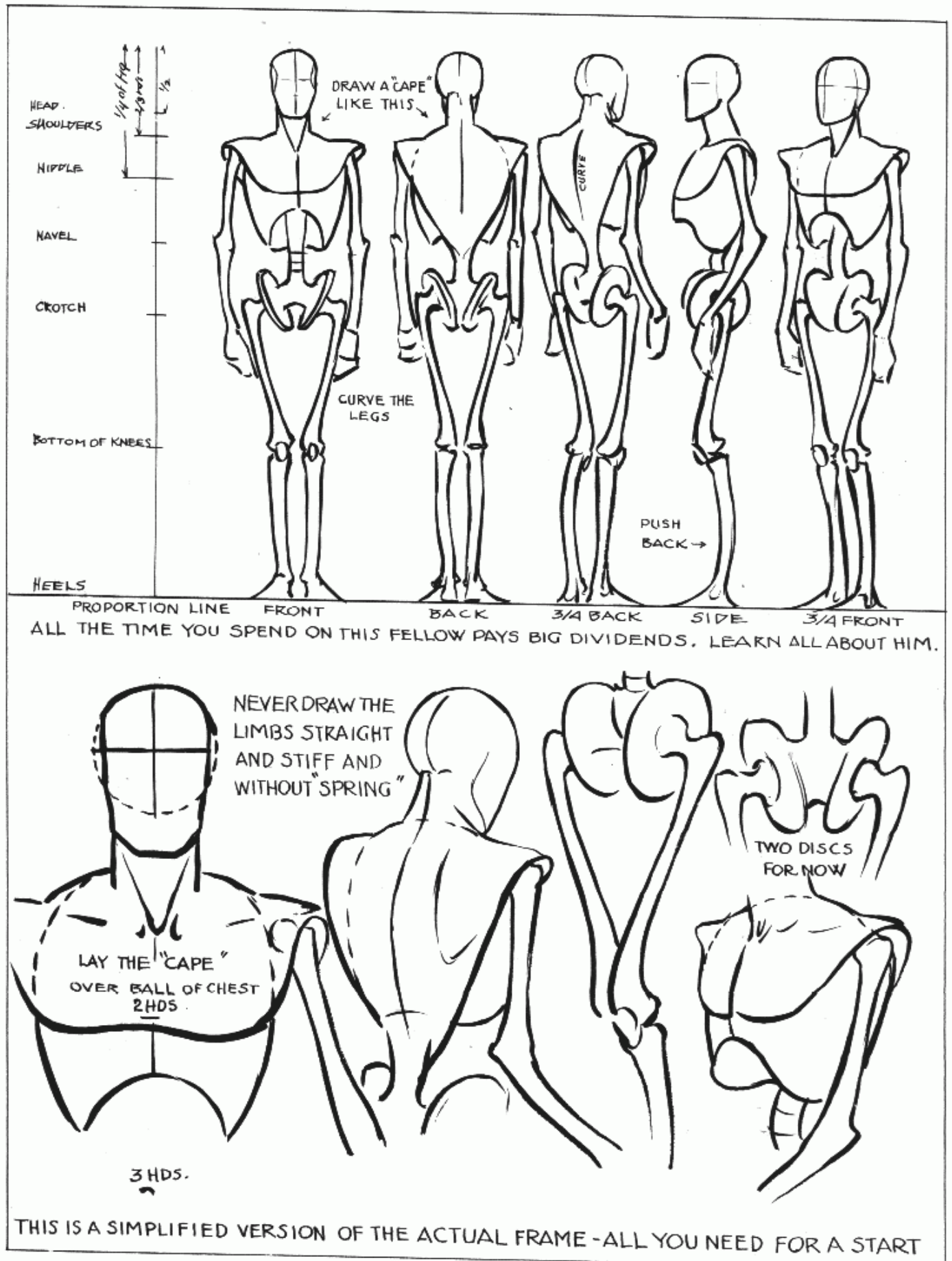


THE MAIN LINE OF BALANCE SHOULD LEAN IN THE DIRECTION OF THE MOVEMENT. TRY SOME NOW.



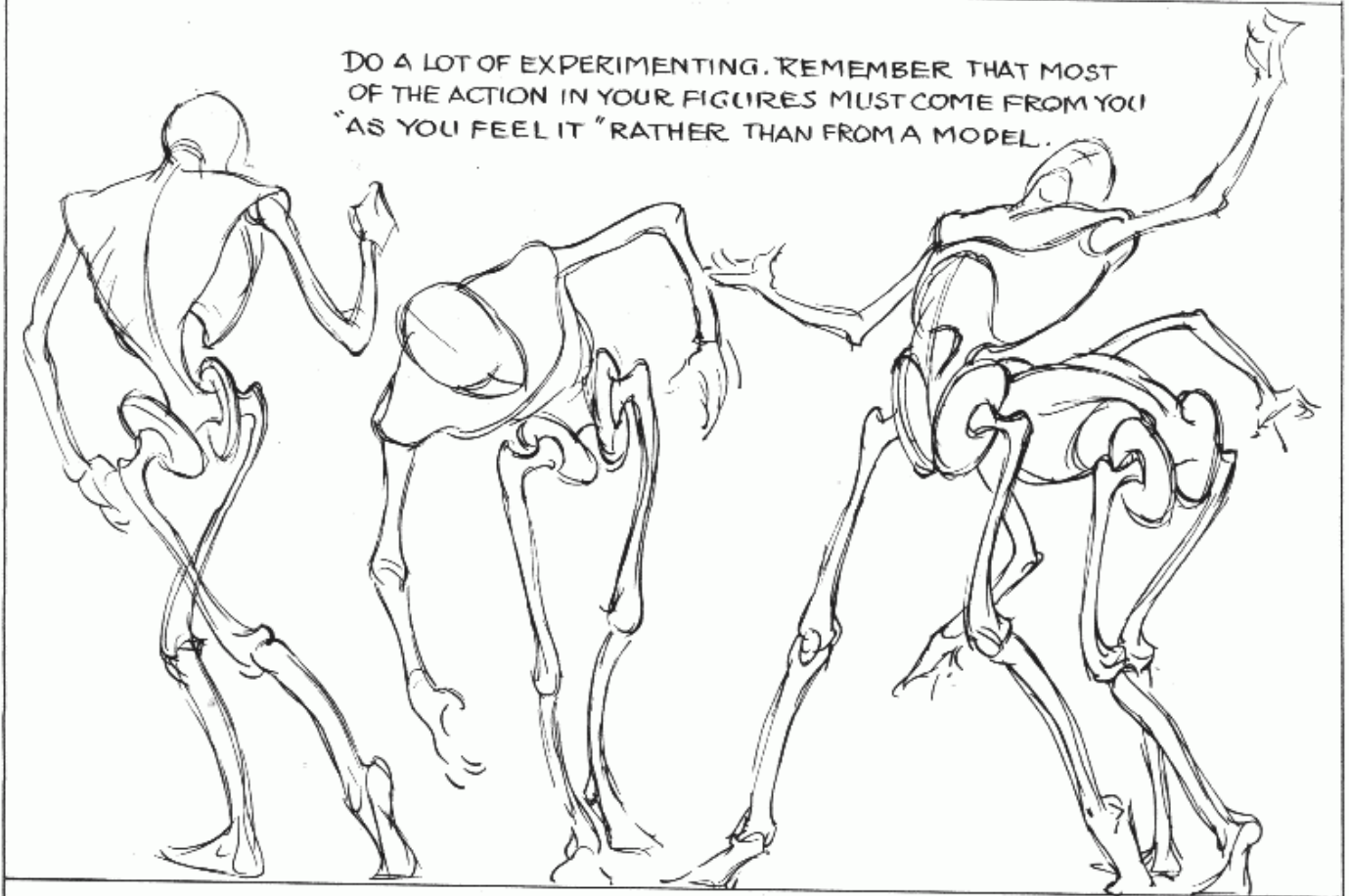
YOUR FIGURES MAY BE BUILT UPON CURVED LINES FOR MOVEMENT AND GRACE. AVOID RIGHT ANGLES

DETAILS OF THE MANNIKIN FRAME

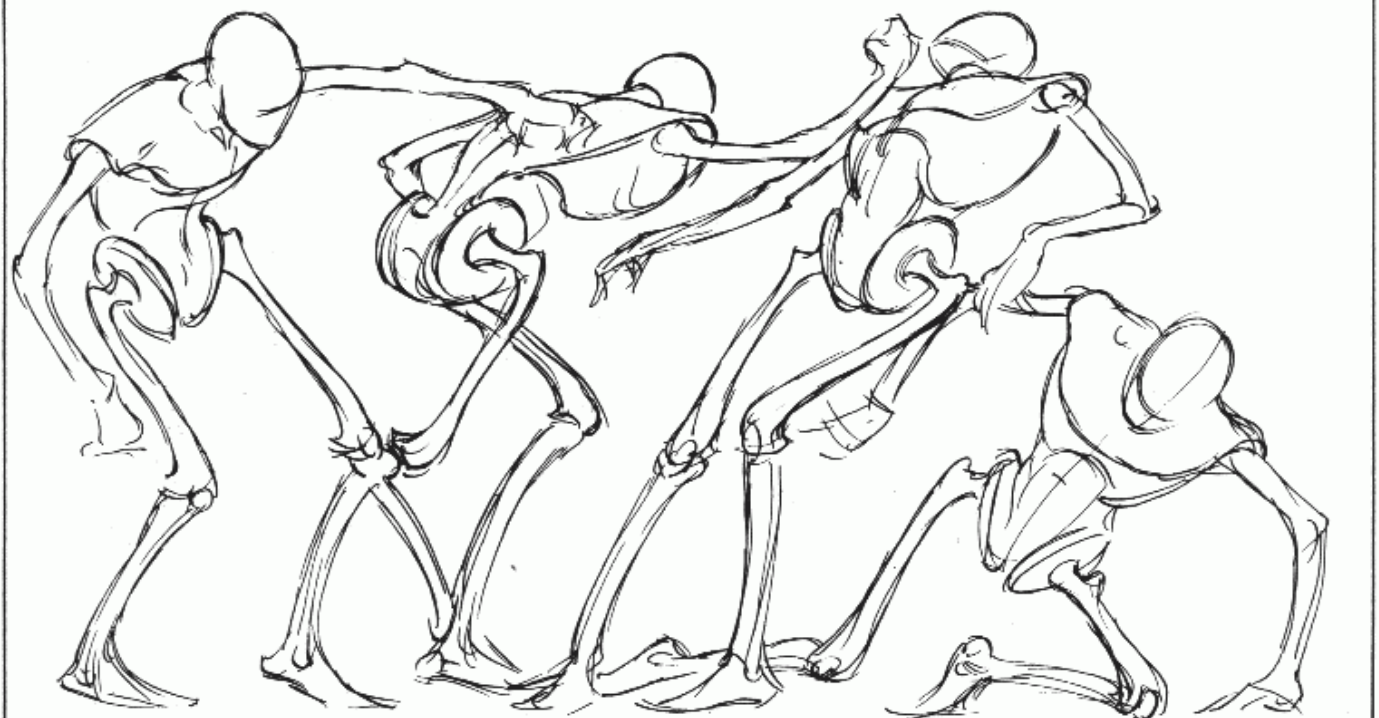


EXPERIMENTING WITH THE MANNIKIN FRAME

DO A LOT OF EXPERIMENTING. REMEMBER THAT MOST OF THE ACTION IN YOUR FIGURES MUST COME FROM YOU "AS YOU FEEL IT" RATHER THAN FROM A MODEL.



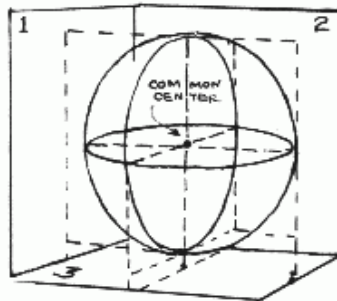
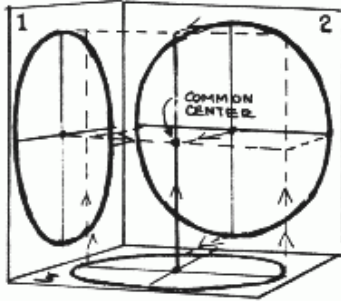
YOU WILL SOON LEARN TO EXPRESS YOURSELF. A VITAL EXPRESSION IS MORE IMPORTANT HERE THAN ACCURACY.



YOU CAN USE THIS TYPE OF SKELETON WHEN PLANNING ROUGHS, LAYOUTS, COMPOSITIONS.

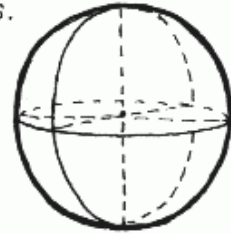
OUTLINES IN RELATION TO SOLID FORM

A. LET US ASSUME WE HAVE OUTLINES OF THREE CIRCLES SET ON 3 ADJACENT PLANES.

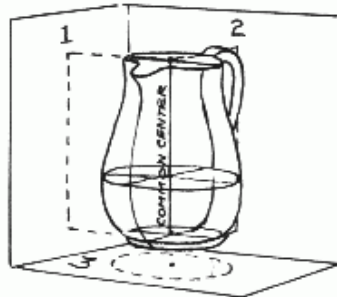
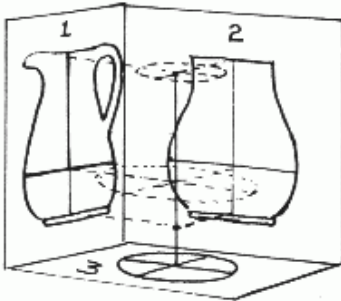


ALL SOLIDS MUST HAVE THESE THREE DIMENSIONS.

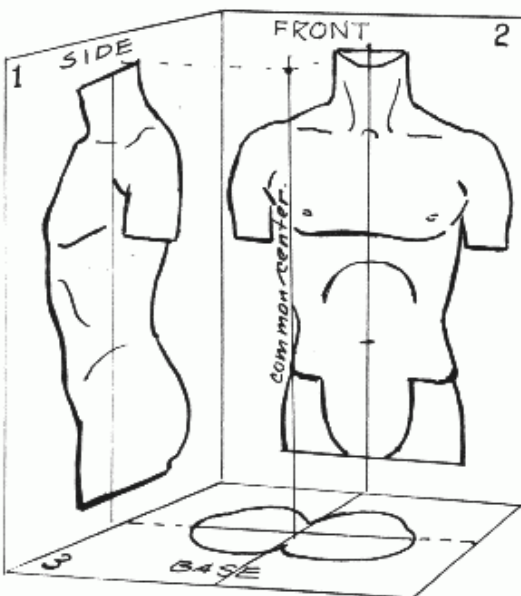
- 1 LENGTH
- 2 BREADTH
- 3 THICKNESS



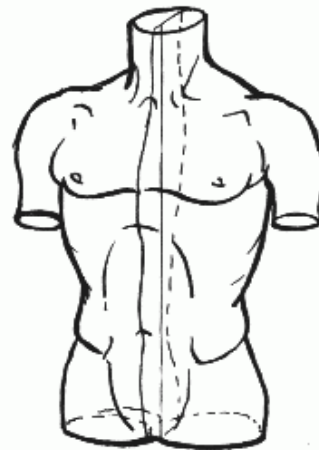
B. BY MOVING CIRCLES FORWARD TO A COMMON CENTER, WE PRODUCE A "SOLID" BALL.
NOW TAKE A COMMON OBJECT.



THE "OUTLINES"
OF EACH PLANE
MAY BE VERY
DIFFERENT,
BUT PUT TOGETHER, FORM THE SOLID.



FLAT



SOLID

SO, IN DRAWING WE
MUST ALWAYS TRY
TO "FEEL" THE MIDDLE
CONTOURS AS WELL AS
THE EDGES. THE OUT-
LINES ALONE CAN
SUGGEST SOLIDITY.
WATCH HOW EDGES
PASS ONE ANOTHER.

THIS WILL NOT BE EASY UNTIL YOU BECOME ABLE TO "THINK ALL AROUND"
THE THING YOU HAPPEN TO BE DRAWING, TRULY KNOWING ALL OF THE FORM.

THE MANNIKIN FIGURE

The foregoing has given us a general framework to which we can now add a simplification of the bulk or solid aspect of the figure. It would be both tedious and superfluous if, every time we drew a figure, we went through the whole procedure of figure drawing. The artist will want to make roughs and sketches that can serve as an understructure for pose or action—perhaps to cover with clothing, perhaps to work out a pose that he will finish with a model. We must have some direct and quick way of indicating or setting up an experimental figure—one with which we can tell a story. The figure set up as suggested in the following pages will usually suffice. Properly done, it can always be developed into the more finished drawing. When you are drawing a mannikin figure, you need not be greatly concerned with the actual muscles or how they affect the surface. The mannikin in drawing is used much as is a “lay” figure, to indicate joints and the general proportion of framework and masses.

The mannikin serves a double purpose here. I believe that the student will do much better to set up the figure this way and get the “feel” of its parts in action than to begin at once with the live model. It will not only serve for rough sketches but will also become an ideal approach to the actual drawing of the figure from life or copy. If you have the frame and masses to begin with, you can later break them down into actual bone and muscle. Then you can more easily grasp the placing and functions of the muscles and what they do to the surface. I am of the opinion that to teach anatomy before proportion—before bulk and mass and action—is to put the cart before the horse. You cannot draw a muscle correctly without a fair estimate of the area it occupies within the figure, without an understanding of why it is there and of how it works.

Think of the figure in a plastic sense, or as

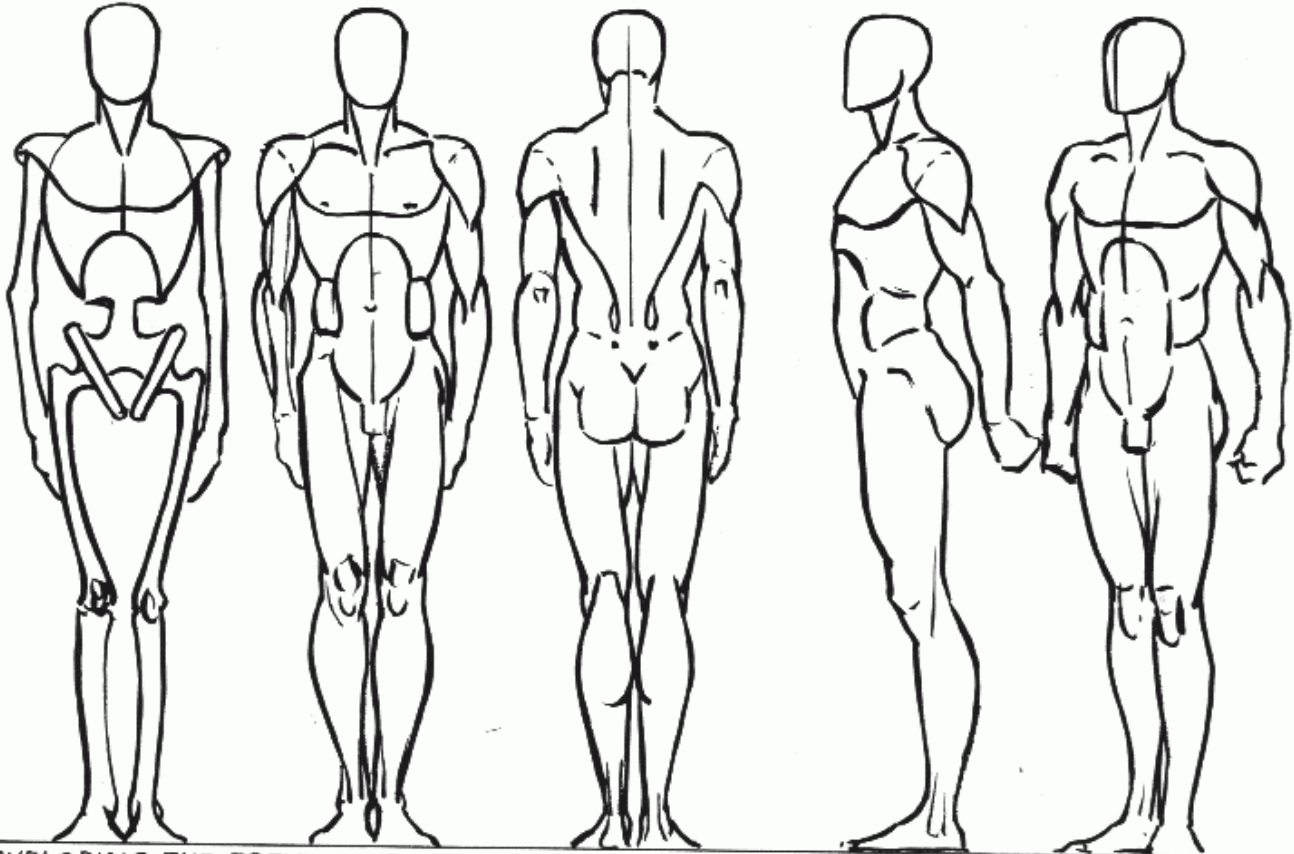
something with three dimensions. It has weight that must be held up by a framework which is extremely mobile. The fleshy masses or bulk follows the frame. Some of these masses are knit together quite closely and adhere to the bony structure, whereas other masses are full and thick and will be affected in appearance by action.

If you have never studied anatomy, you may not know that the muscles fall naturally into groups or chunks attached in certain ways to the frame. We will not treat their physiological detail here, but consider them merely as parts interlocked or wedged together. Hence the human figure looks very much like our mannikin. The thorax, or chest, is egg-shaped and, as far as we are concerned, hollow. Over it is draped a cape of muscle extending across the chest and down the back to the base of the spine. Over the cape, in front, lie the shoulder muscles. The buttocks start halfway around in back, from the hips, and slant downward, ending in rather square creases. A V is formed by the slant above the middle crease. There is actually a V-shaped bone here, wedged between the two pelvic bones that support the spine. The chest is joined to the hips by two masses on either side. In back the calf wedges into the thigh, and in front there is the bulge of the knee.

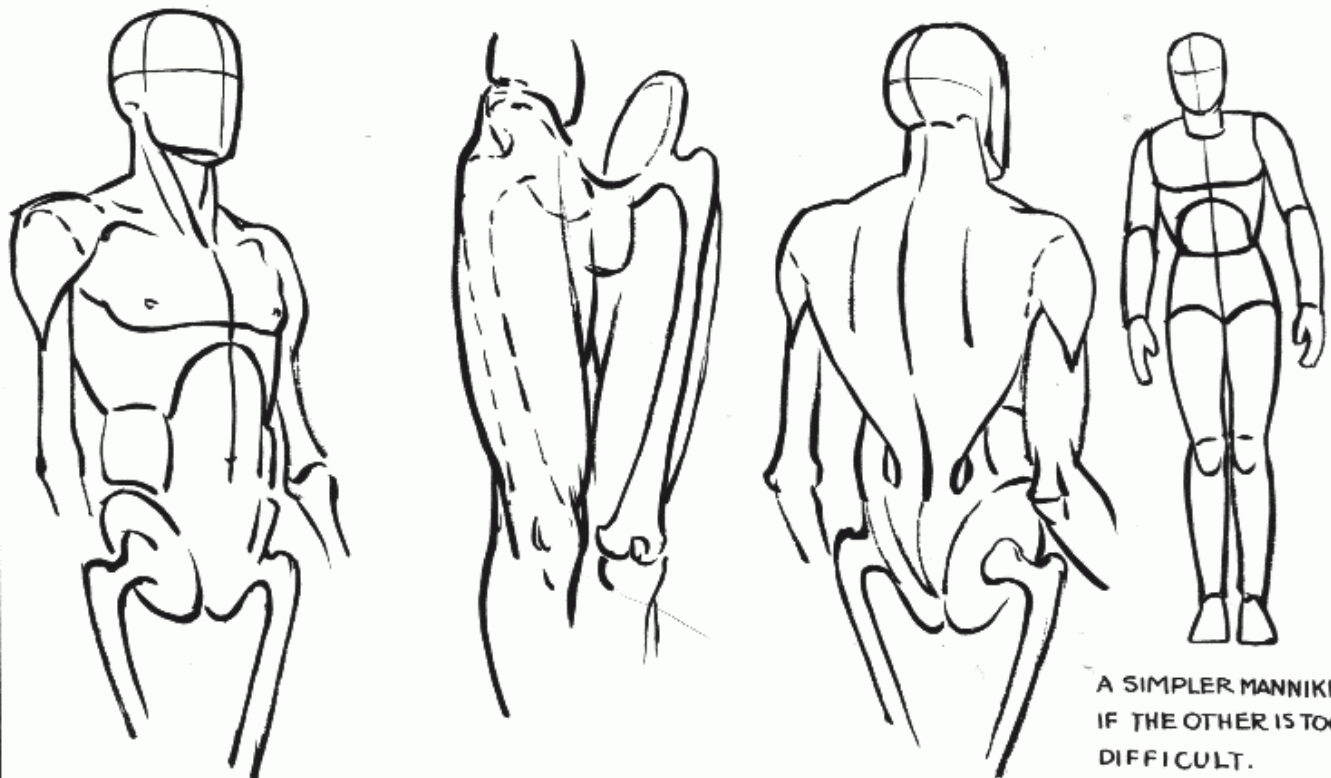
Learn to draw this mannikin as well as you can. You will use it much more often than a careful anatomical rendering. Since it is in proportion in bulk and frame, it may also be treated in perspective. No artist could possibly afford a model for all his rough preliminary work—for layouts and ideas. Yet he cannot intelligently approach his final work without a preliminary draft. If only art directors would base their layouts on such mannikin figures, the finished figures would all stand on the same floor, and heads would not run off the page when drawn correctly.

ADDING BULK TO THE FRAME

THE GROUPS OF MUSCLES SIMPLIFIED.



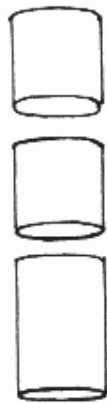
DEVELOPING THE PREVIOUS FRAME WITH SIMPLIFIED MUSCLE GROUPS LAID ON TOP.



A SIMPLER MANNIKIN
IF THE OTHER IS TOO
DIFFICULT.

WE WILL STUDY THE "ACTUAL" BONE AND MUSCLE CONSTRUCTION LATER. GET THIS.

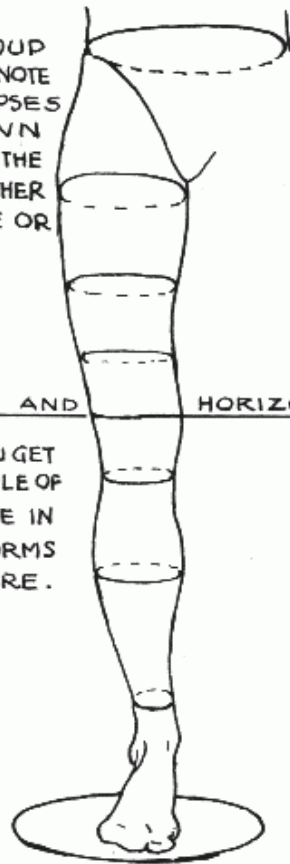
ADDING PERSPECTIVE TO THE SOLID MANNIKIN



HERE IS A GROUP OF CYLINDERS .NOTE HOW THE ELLIPSES NARROW DOWN AS THEY NEAR THE EYE LEVEL, EITHER FROM ABOVE OR BELOW.



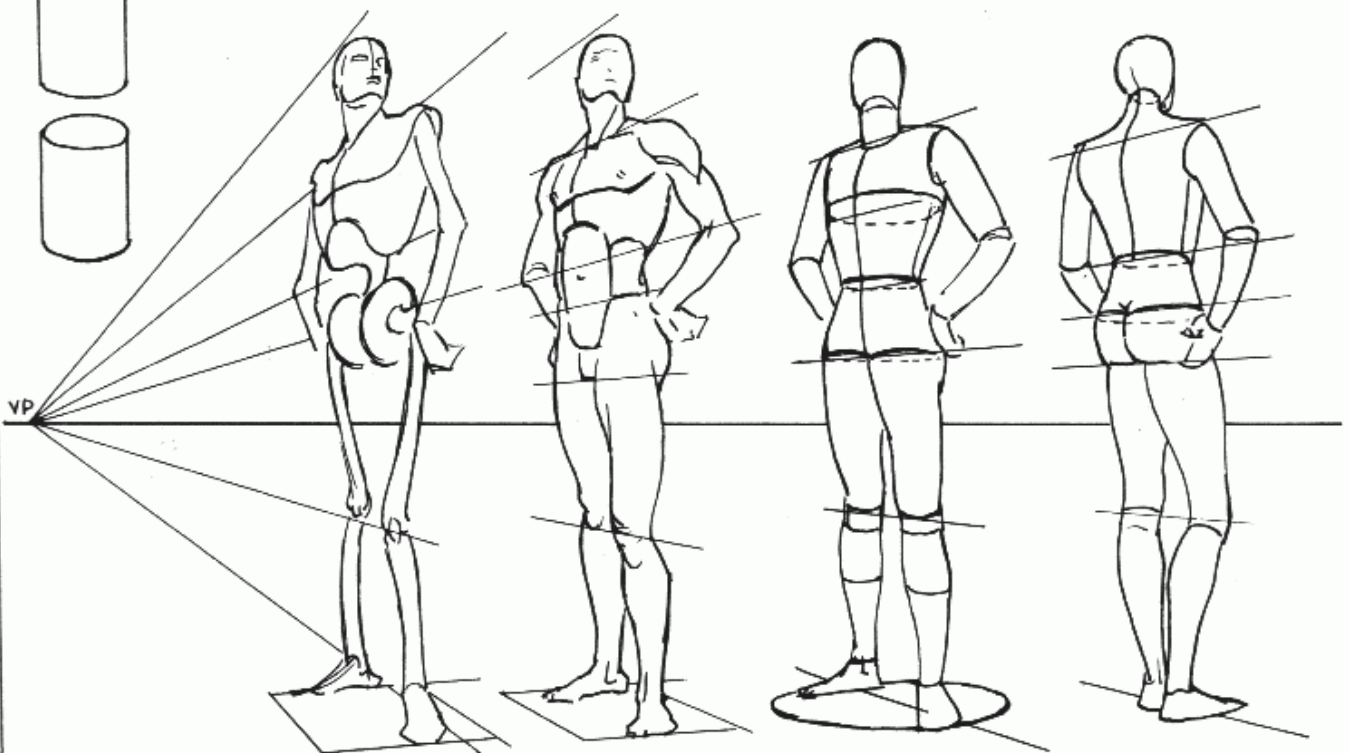
FROM THIS YOU GET THE PRINCIPLE OF PERSPECTIVE IN THE ROUND FORMS ON THE FIGURE.



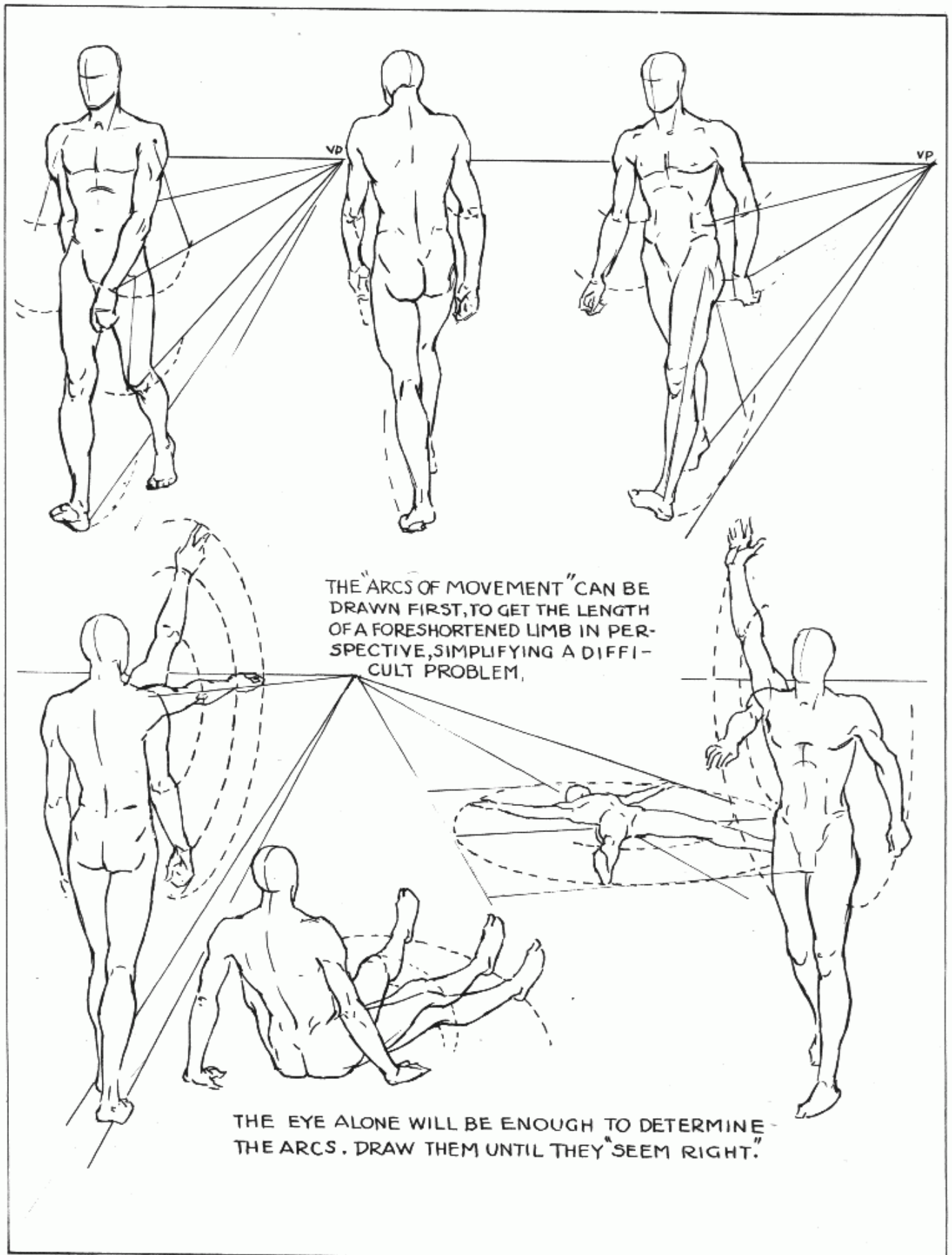
EYE LEVEL AND HORIZON



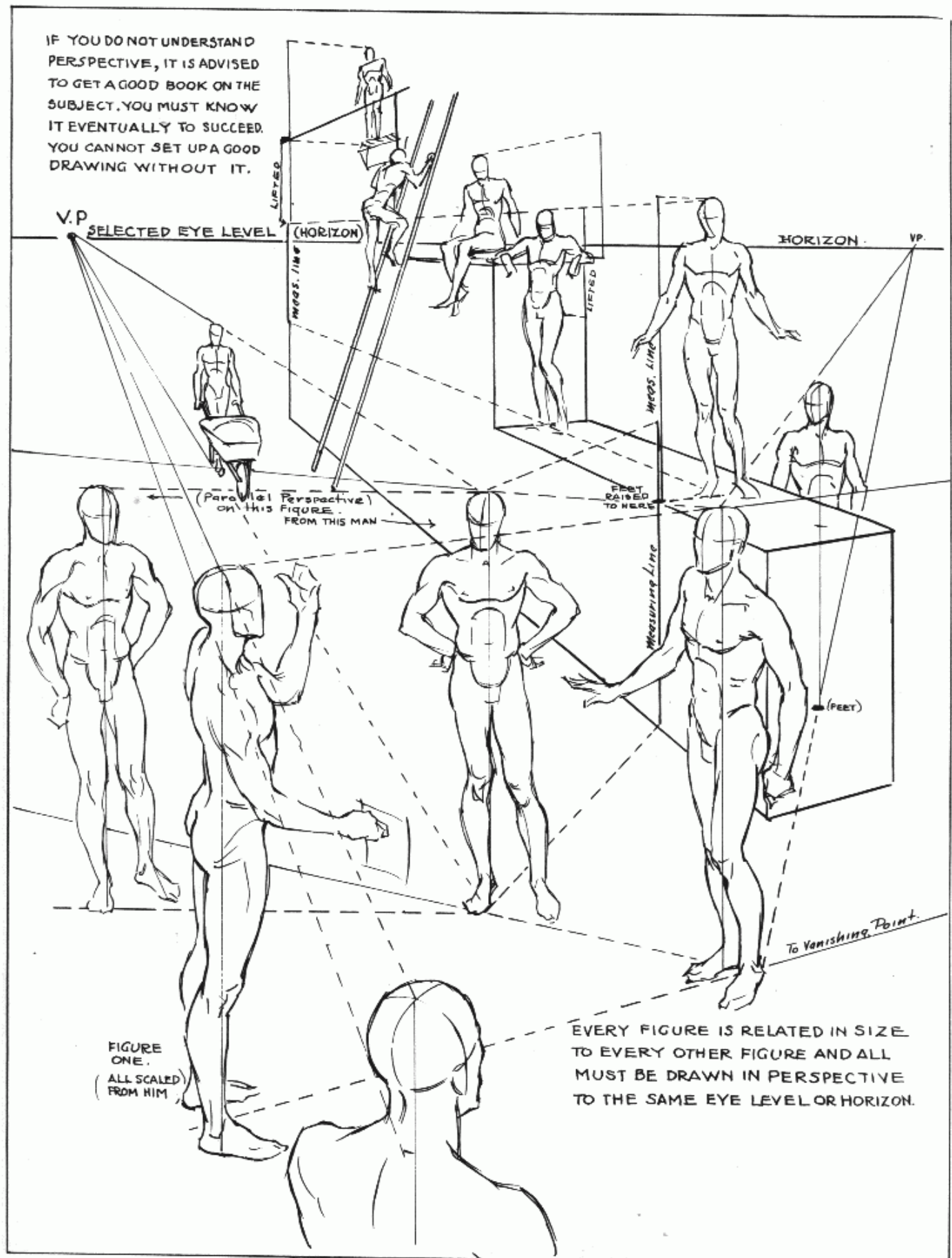
TRY DRAWING YOUR MANNIKIN FIGURE TO THE HORIZON



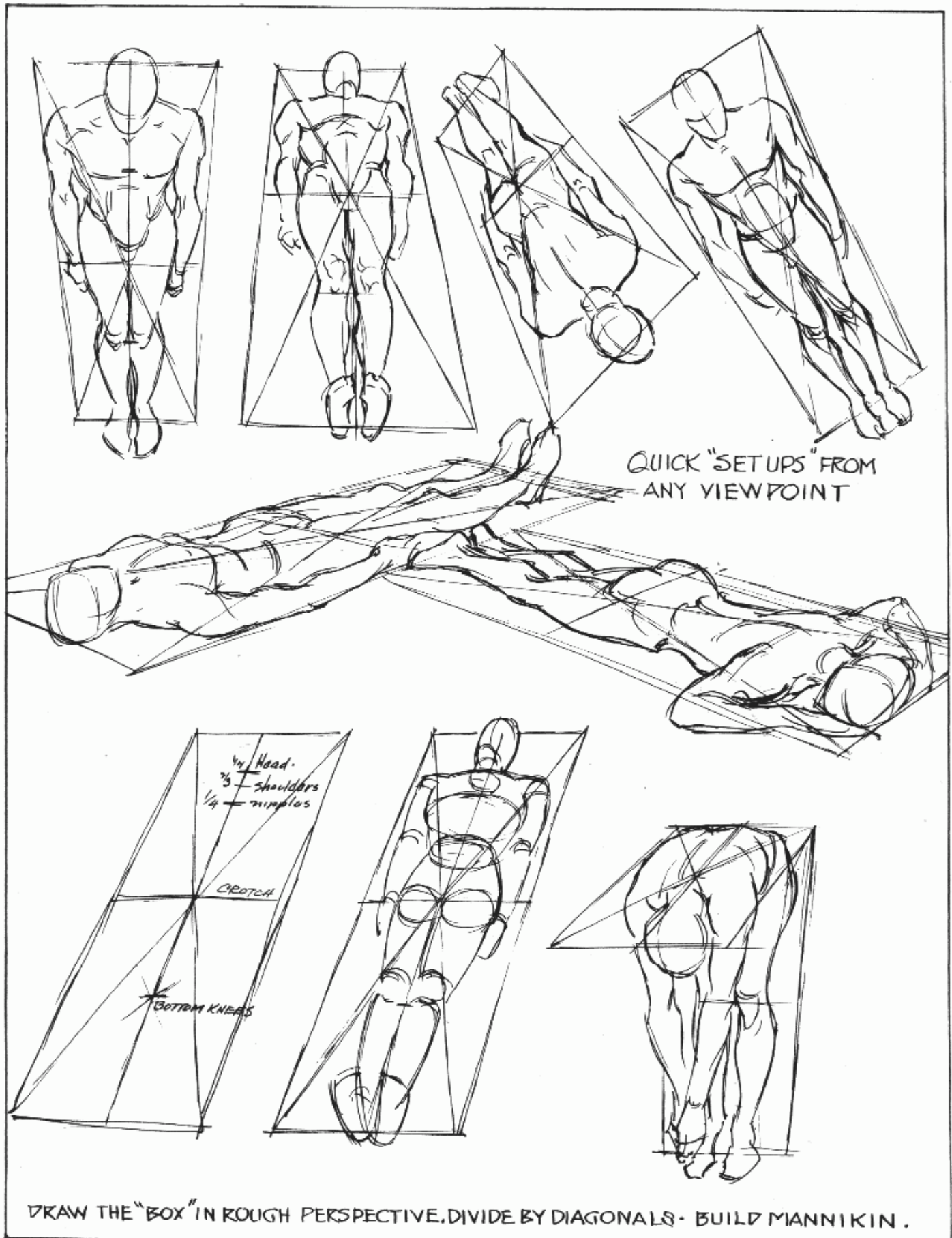
ARCS OF MOVEMENT IN PERSPECTIVE



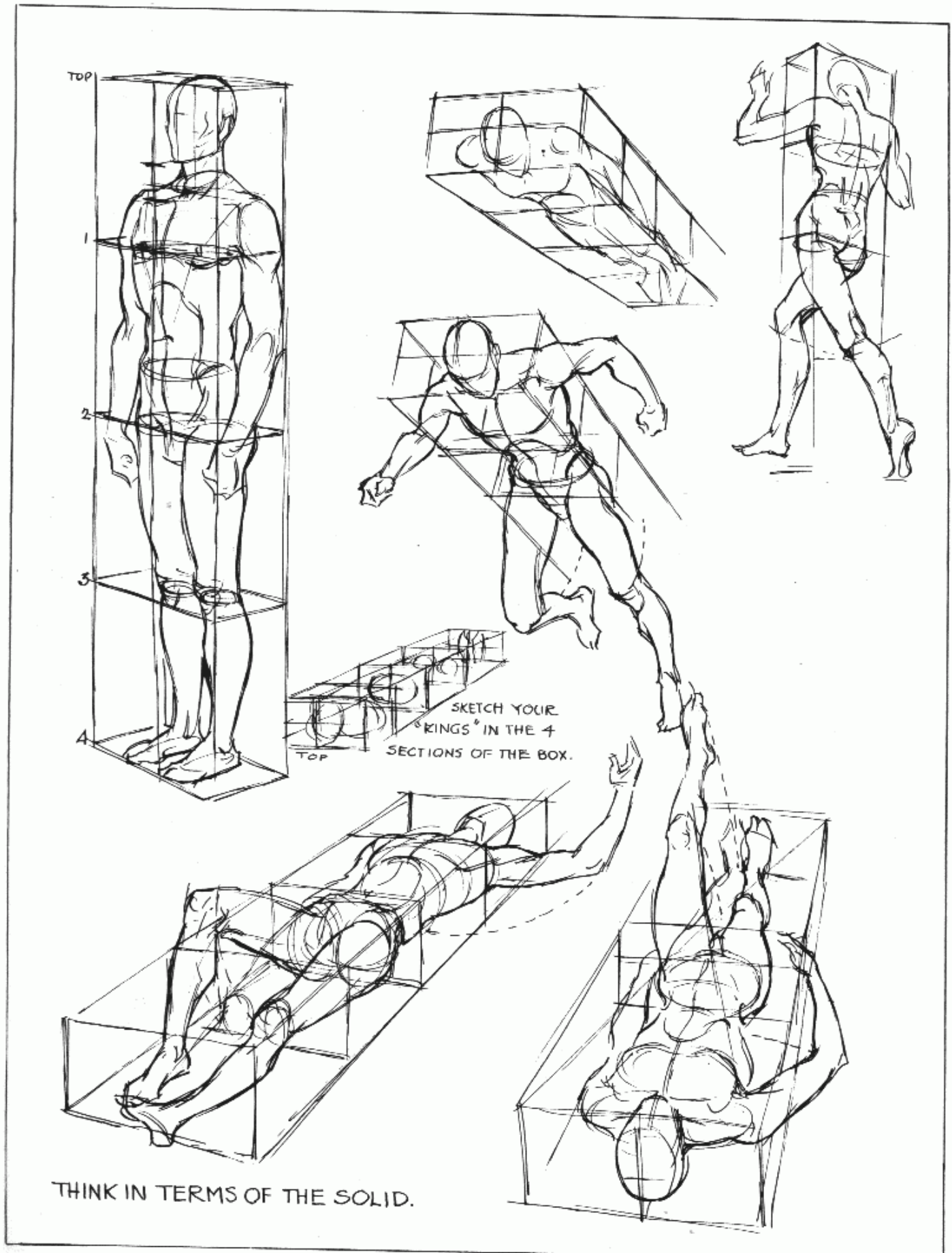
PLACING THE MANNIKIN AT ANY SPOT OR LEVEL



DRAWING THE MANNIKIN FROM ANY VIEWPOINT

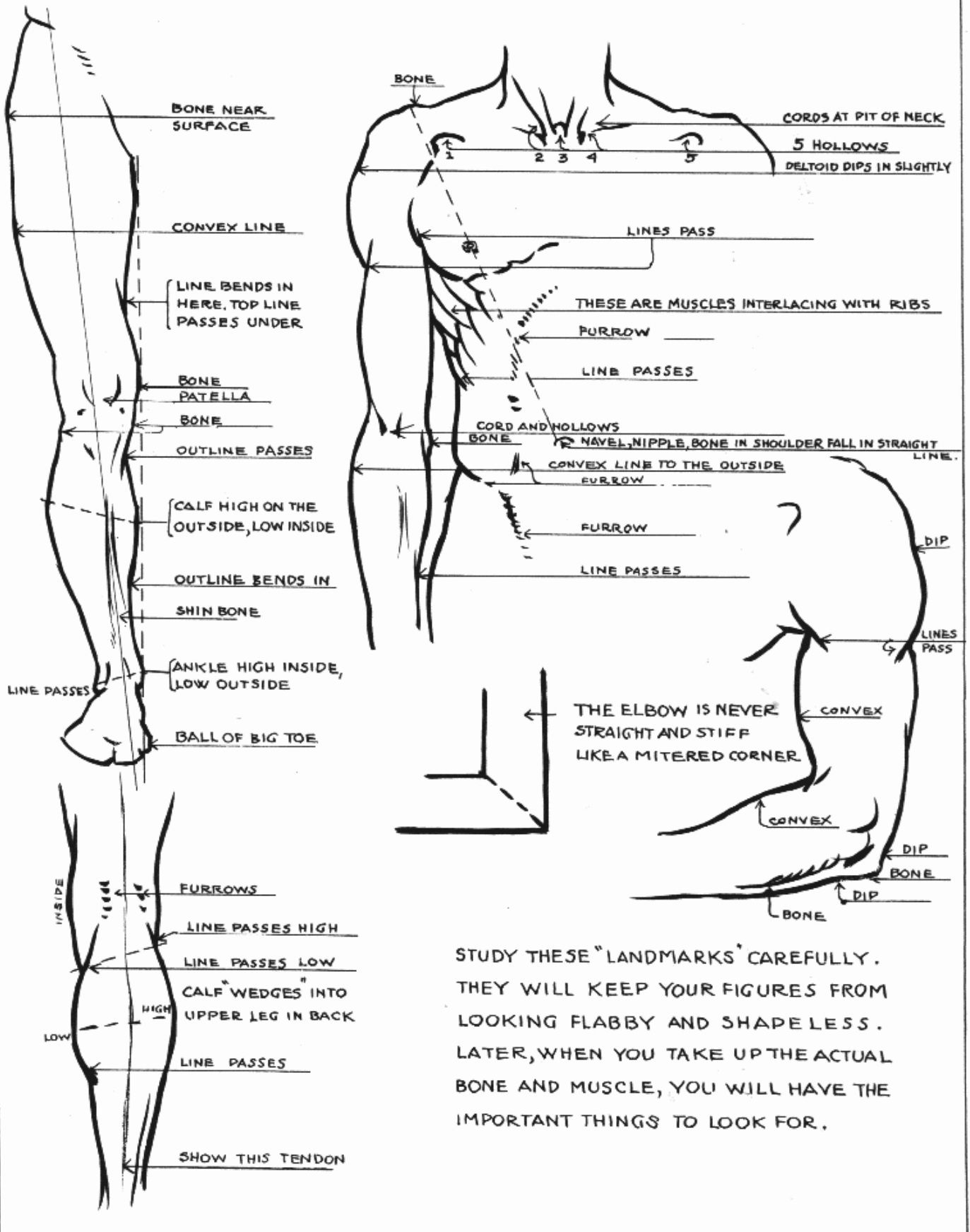


COMBINING ARCS OF MOVEMENT WITH THE BOX



LANDMARKS YOU SHOULD KNOW

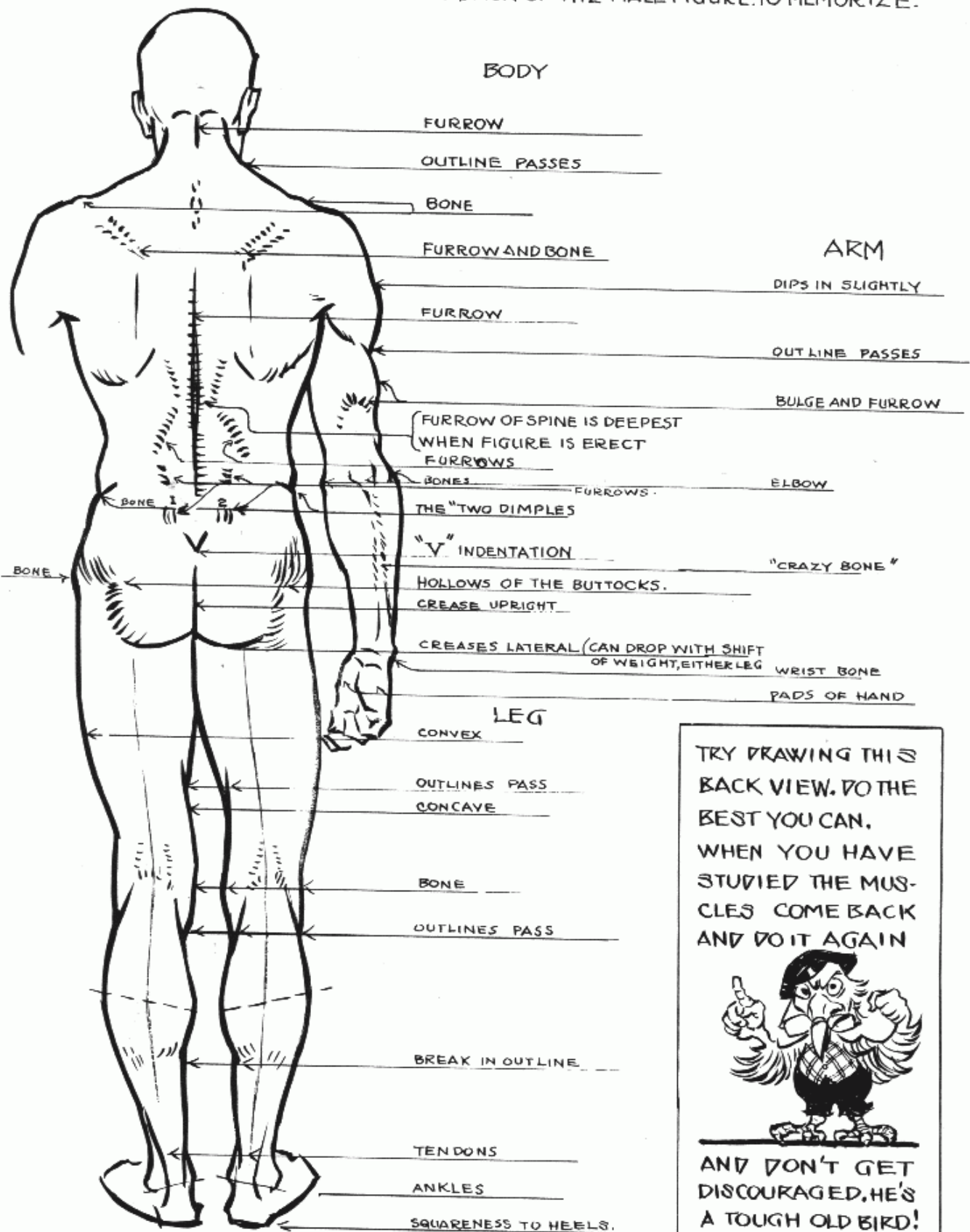
SURFACE CHARACTERISTICS THAT GIVE "PUNCH" TO THE FIGURE DRAWN WITHOUT A MODEL



STUDY THESE "LANDMARKS" CAREFULLY. THEY WILL KEEP YOUR FIGURES FROM LOOKING FLABBY AND SHAPELESS. LATER, WHEN YOU TAKE UP THE ACTUAL BONE AND MUSCLE, YOU WILL HAVE THE IMPORTANT THINGS TO LOOK FOR.

LANDMARKS YOU SHOULD KNOW

SURFACE CHARACTERISTICS ON THE BACK OF THE MALE FIGURE TO MEMORIZE.

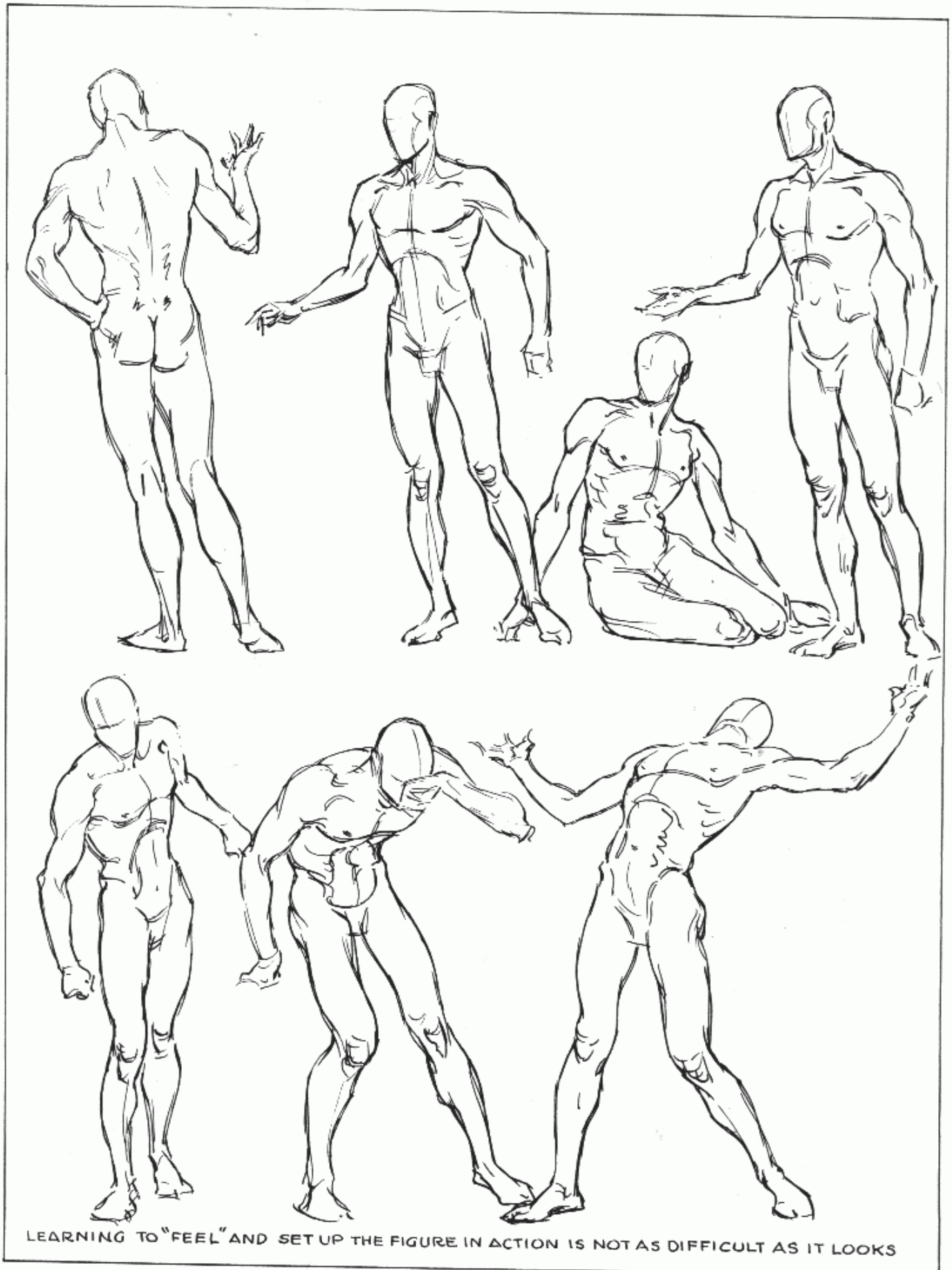


TRY DRAWING THIS
BACK VIEW, TO THE
BEST YOU CAN.
WHEN YOU HAVE
STUDIED THE MUS-
CLES COME BACK
AND DO IT AGAIN

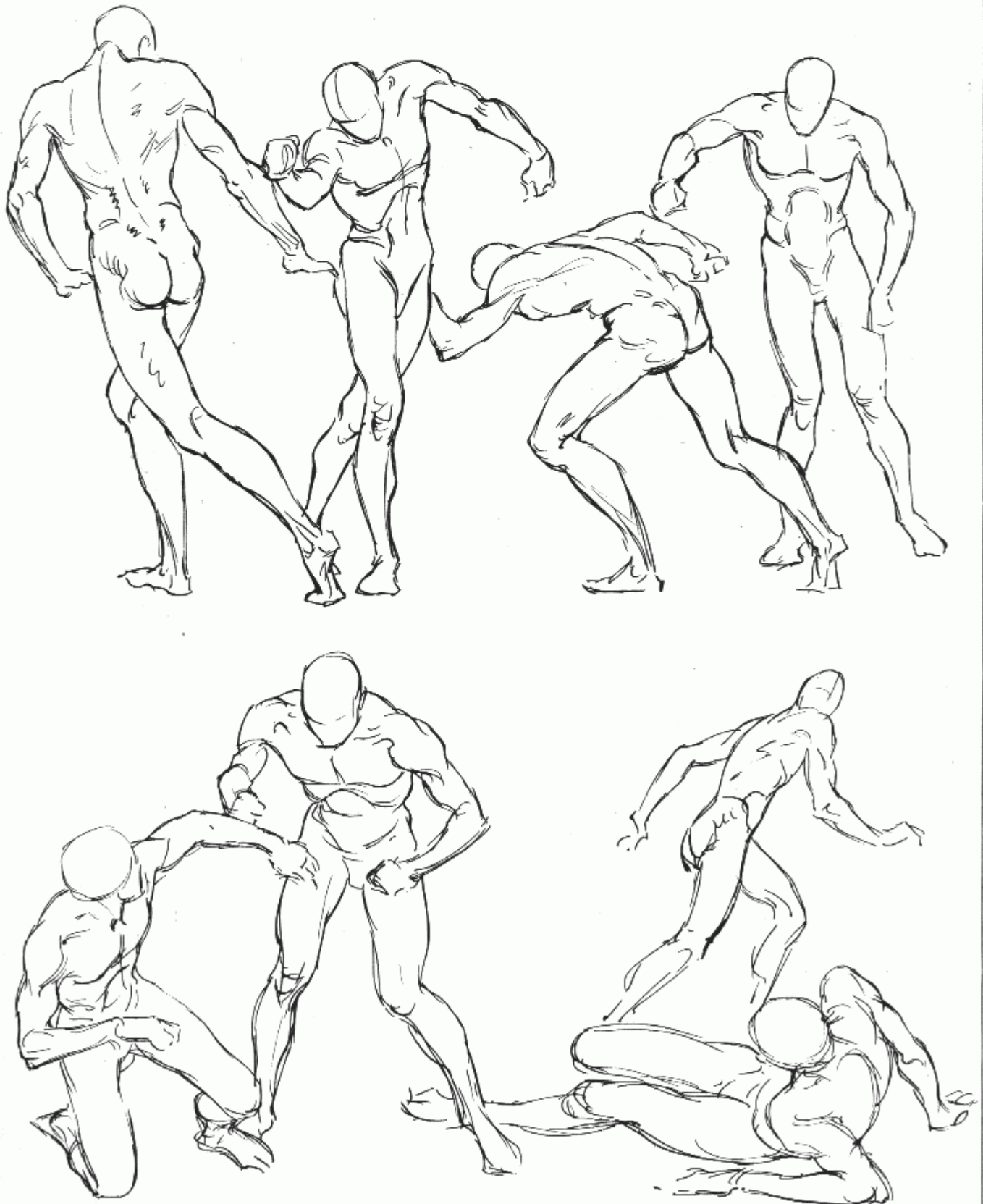


AND DON'T GET
DISCOURAGED, HE'S
A TOUGH OLD BIRD!

SKETCHING THE FIGURE IN ACTION FROM IMAGINATION



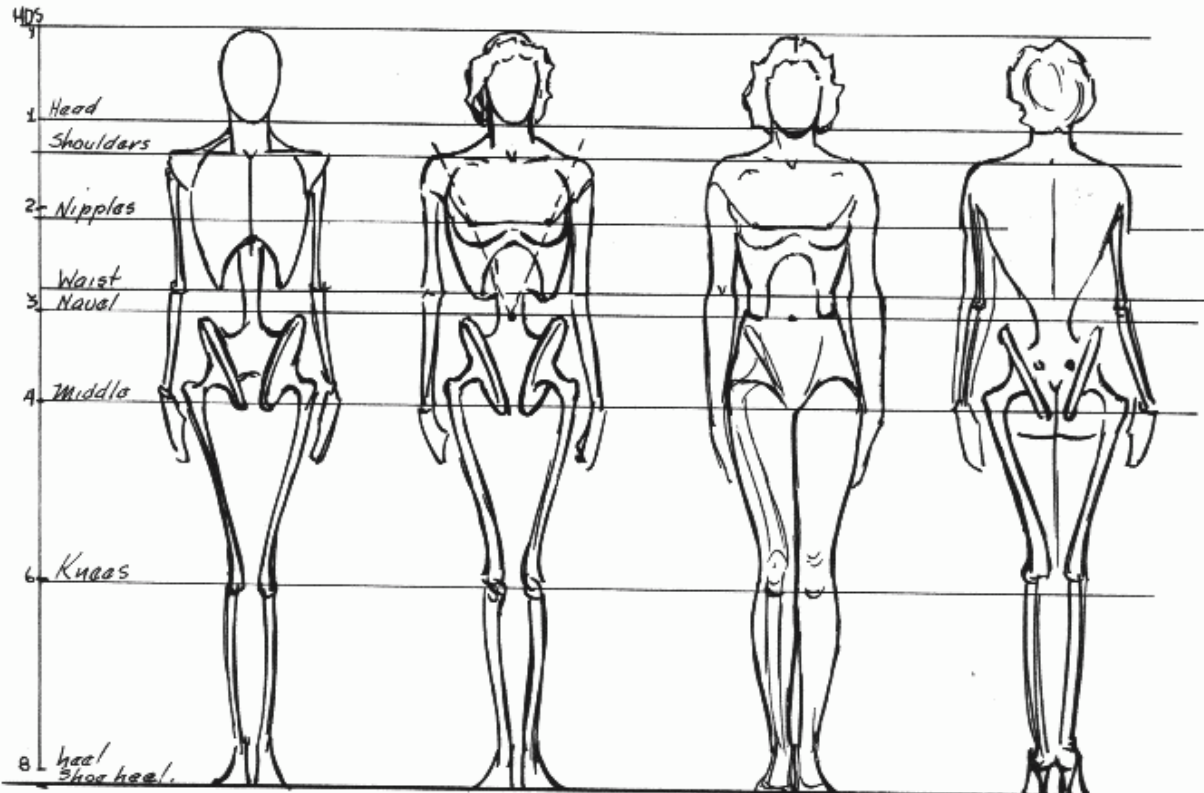
DRAW SOME OF THESE, BUT DRAW MANY OF YOUR OWN



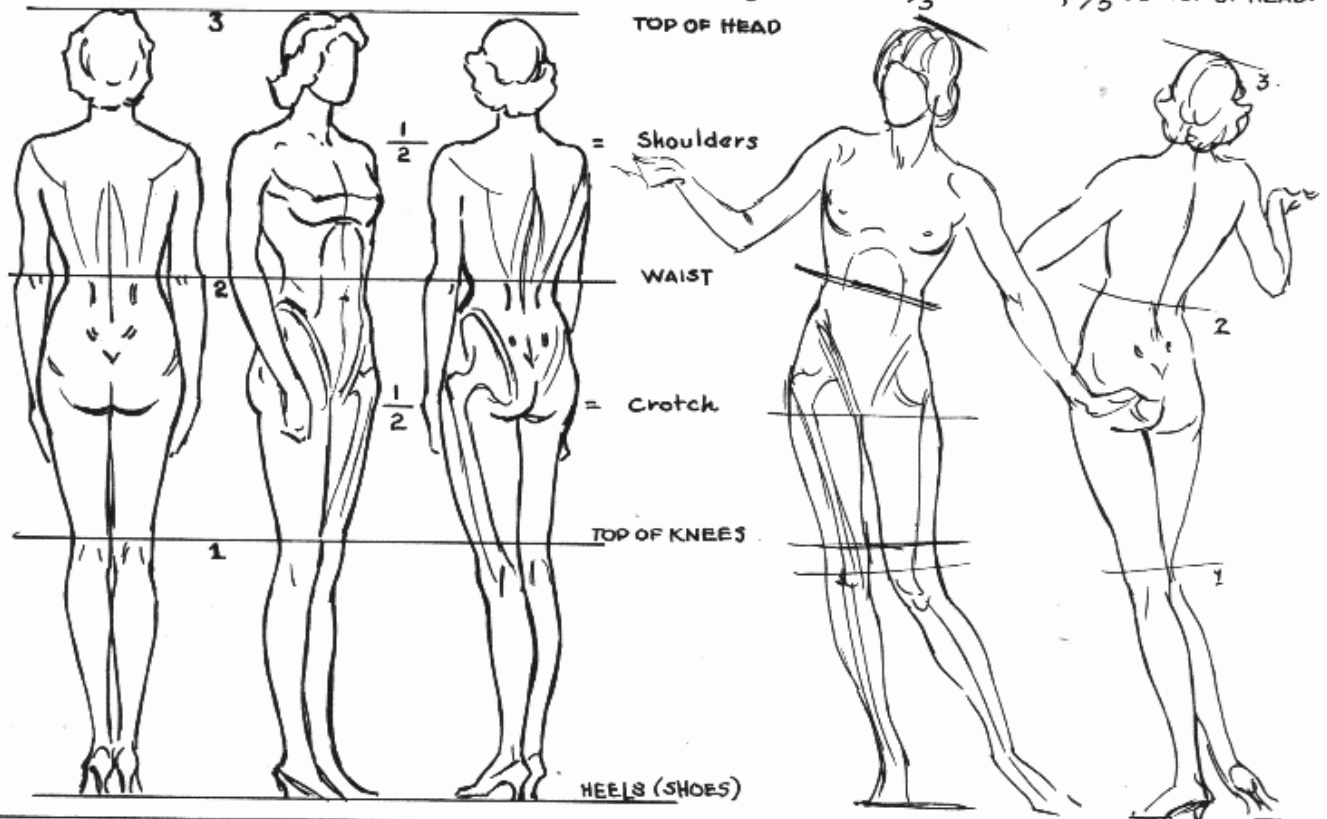
KEEP YOUR DRAWINGS FREE AND SKETCHY. DRAW MANY FIGURES AT VARIOUS EYE LEVELS.

THE FEMALE MANNIKIN

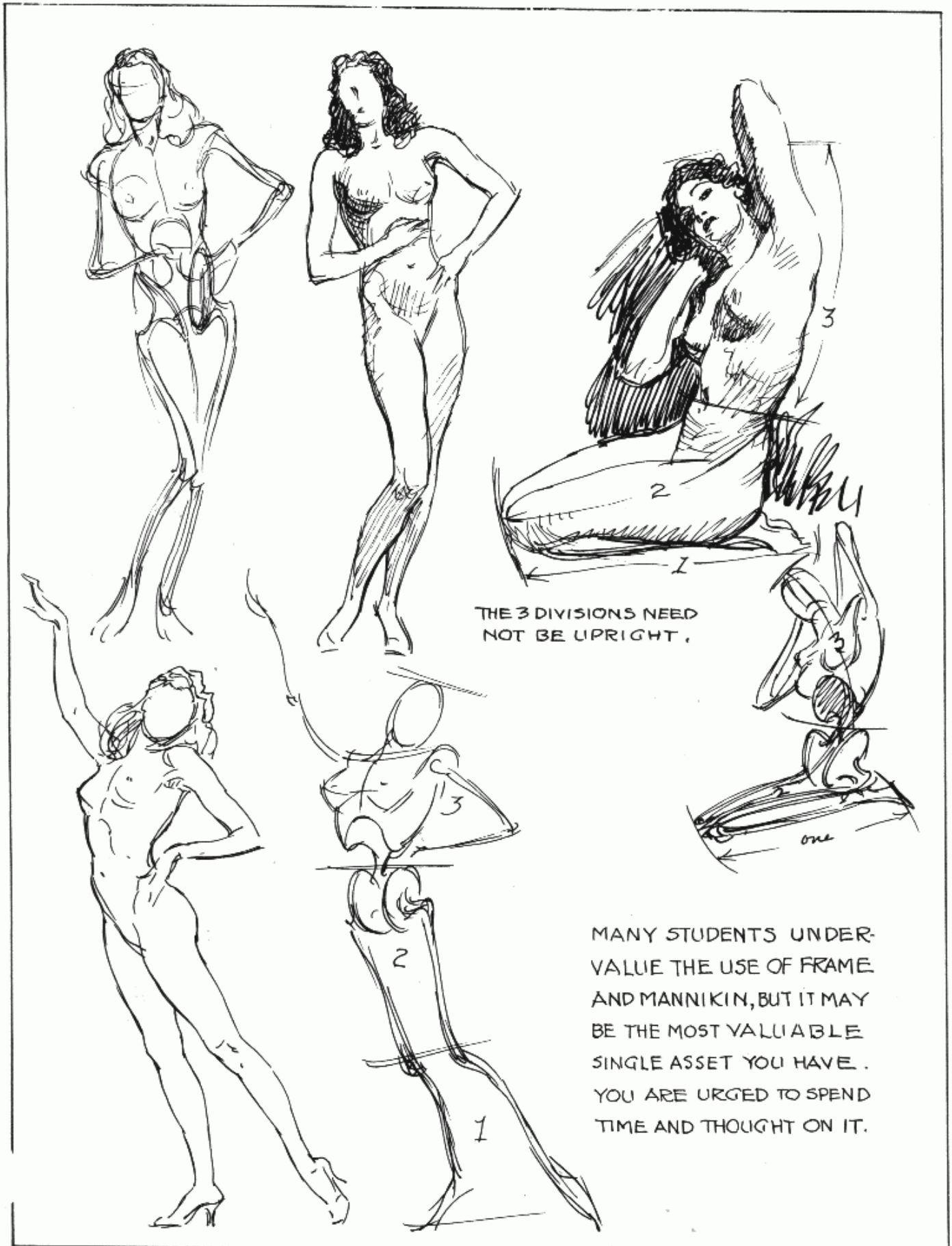
THE MAIN DIFFERENCE BETWEEN THE MALE AND FEMALE MANNIKIN IS IN THE PELVIS (DISCS). THE HIP BONES COME UP TO THE LINE OF THE NAVEL (MALE, THEY ARE TWO OR THREE INCHES BELOW). THE FEMALE WAISTLINE IS ABOVE THE NAVEL, THE MALE AT OR JUST BELOW. FEMALE RIB CASE IS SMALLER, PELVIS WIDER AND DEEPER, SHOULDERS NARROWER. CAPE DROPS IN FRONT TO INCLUDE BREASTS.



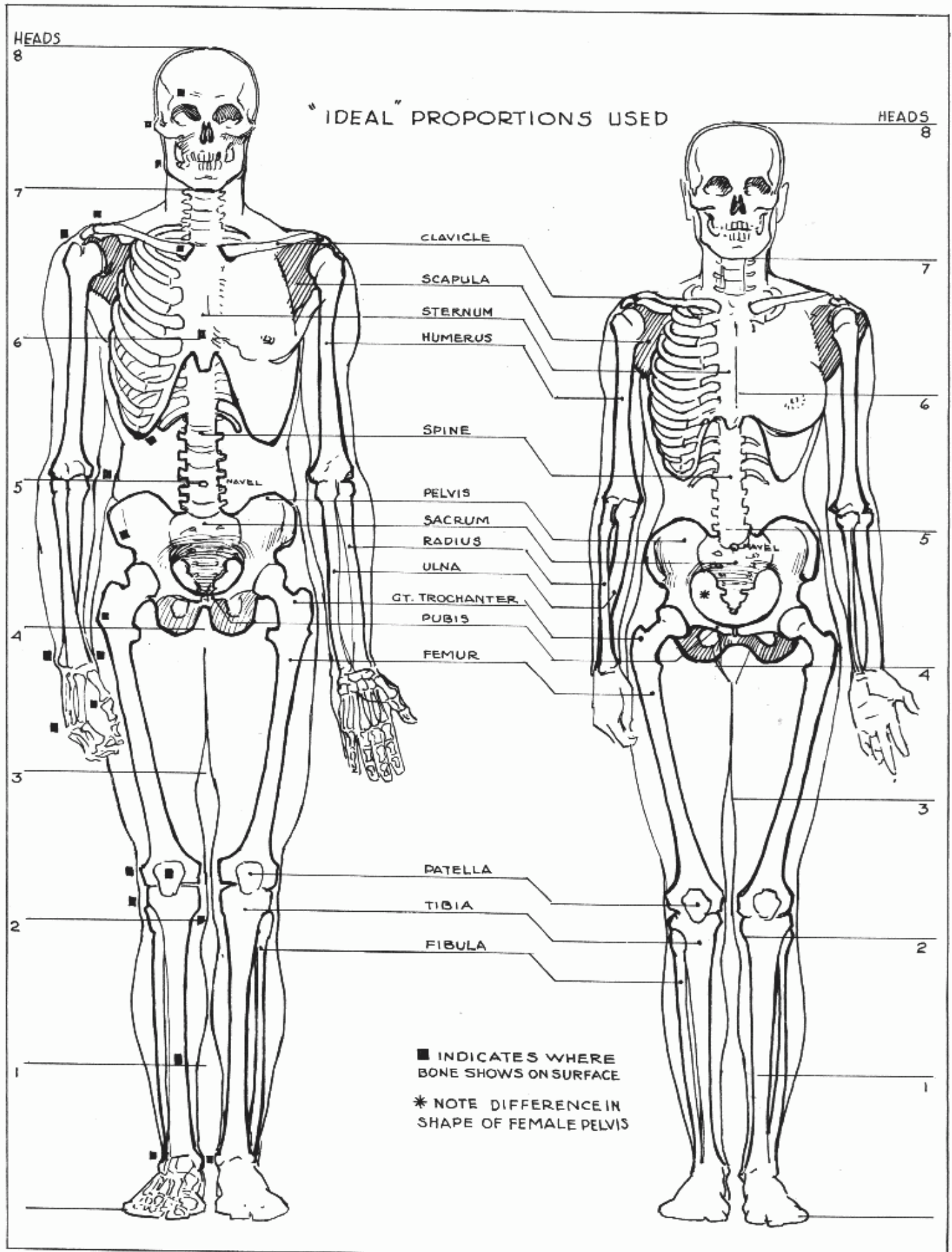
A SIMPLE WAY OF GETTING FEMALE PROPORTIONS-TAKE $\frac{1}{3}$ TO KNEES- $\frac{2}{3}$ TO WAIST, $\frac{3}{3}$ TO TOP OF HEAD.



SKETCHES



THE MALE AND FEMALE SKELETONS



II. THE BONES AND MUSCLES

The further you go in the study of anatomy, the more interesting it becomes. Made of soft and pliable material, elastic yet strong, capable of unlimited movement and of performing countless tasks, operating on self-generated power, and repairing or renewing itself over a period of time in which the strongest of steel parts would wear out—the human body is indeed an engineering miracle.

On the opposite page the male and female skeletons have been set up. I have kept the head units alongside so that you may relate the bones to the figure in correct proportion.

The skeleton, though strong, is really not so rigid as it appears. Though the spine has a rigid base in the pelvis, it possesses great flexibility; and the ribs, too, though they are fastened firmly into the spine, are flexible. All the bones are held together and upright by cartilage and muscle, and the joints operate on a ball-and-socket plan with a "stop" for stability. The whole structure collapses with a loss of consciousness.

Strain upon the muscles can usually be transferred to the bony structure. The weight of a heavy load, for example, is largely taken over by the bones, leaving the muscles free to propel the limbs. Bones also form a protection to delicate organs and parts. The skull protects the eyes, the brain, and the delicate inner parts of the throat. The ribs and pelvis protect the heart, lungs, and other organs. Where protection is most needed, the bone comes closest to the surface.

It is very important for the artist to know that no bone is perfectly straight. An arm or a leg drawn with a perfectly straight bone will be rigid and stiff-looking. Curvature in the bones has much to do with the rhythm and action of a figure. It helps make it appear alive.

The chief differences between the male and

female skeletons are the proportionately larger pelvis in the female and the proportionately larger thorax, or rib case, in the male. These differences account for the wider shoulders and narrower hips of the male; the longer waistline, lower buttocks, and wider hips of the female. They also cause the female arms to flare out wider when they are swinging back and forth and the femur, or thigh bone, to be a little more oblique. The hair and breasts, of course, distinguish the female figure, but they are merely its most obvious characteristics. The female is different from head to toe. The jaw is less developed. The neck is more slender. The hands are smaller and much more delicate. The muscles of the arms are smaller and much less in evidence. The waistline is higher. The great trochanter of the femur extends out farther; the buttocks are fuller, rounder, and lower. The thighs are flatter and wider. The calf is much less developed. The ankles and wrists are smaller. The feet are smaller and more arched. The muscles, in general, are less prominent, more straplike—all but those of the thighs and buttocks, which are proportionately larger and stronger in the female. This extra strength is, like the larger pelvis, designed to carry the extra burden of the unborn child. Concentrate upon these fundamental differences until you can set up an unmistakable male or female figure at will.

Note the black squares on the male skeleton. These are bony prominences where the bones are so near the surface that they affect the contour. When the body becomes fat, these spots become dimples or recessions in the surface. In thin or aged figures, these bones protrude.

Working from life or photographs will not eliminate the necessity of knowing anatomy and proportion. You should recognize what the

REQUIREMENTS OF SUCCESSFUL FIGURE DRAWING

humps and bumps are—and why they are there. Otherwise your drawing will have the look of inflated rubber, or a wax department-store dummy. The final work on any commission of importance should be drawn from a model or good copy of some kind, since it must compete with the work of men who use models and good copy. Most artists own and operate a camera as a help. But it will not do the whole job. Outlines traced from a photograph, because of the exaggerated foreshortening by the lenses, have a wide and dumpy look. Limbs look short and heavy. Hands and feet appear too large. If these distortions are not corrected, your drawing will simply look photographic.

It might be well to mention here some of the requirements of successful figure drawing. The “smart” female figure has some mannish contours. The shoulders are drawn a little wider than normal, without much slope, the hips a little narrower. The thighs and legs are made longer and more slender, with tapering calves. When the legs are together, they should touch at the thigh, knee, and ankle. The knees should be small. The leg is elongated from the knee down with small ankles. It is merely a waste of time to show an art director a figure that looks large-headed, narrow-shouldered, short-armed or -legged, wide-hipped, short, fat, dumpy, or pudgy. But a figure may be actually bony and unusually tall and still please a fashion editor.

Slimness in figure drawing has become almost a cult. What the artists of the Middle Ages considered voluptuous appeal would be plain fat today. Nothing will kill a sale so quickly as fatness or shortness. (It is a curious fact that short people are apt to draw short figures. A man with a short wife will tend to draw short women.) If my figures seem absurdly tall, remember that I am giving you the conception accepted as a standard. They will not look too tall to the art buyer. In fact, some of my figures here are even

shorter than I would instinctively draw them.

The essence of successful male figure drawing is that it be kept masculine—plenty of bone and muscle. The face should be lean, the cheeks slightly hollowed, the eyebrows fairly thick (never in a thin line), the mouth full, the chin prominent and well defined. The figure is, of course, wide shouldered and at least six feet (eight or more heads) tall. Unfortunately, it is not easy to find these lean-faced, hard-muscled male models. They are usually at harder work.

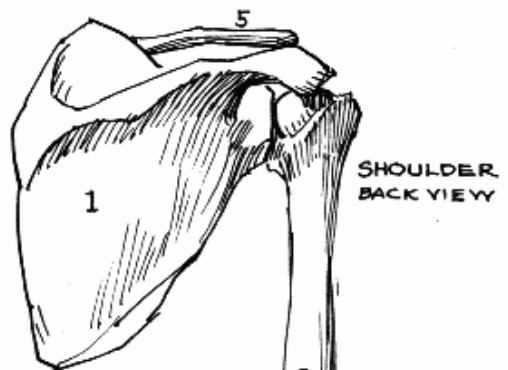
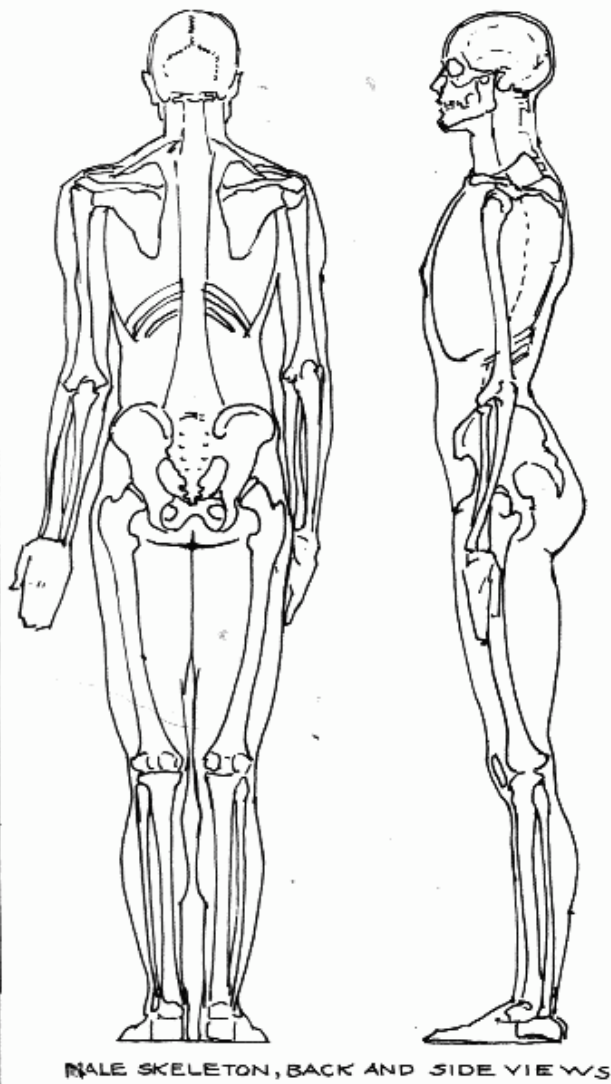
Children should be drawn fairly close to the scale of proportions given in this book. Babies obviously should be plump, dimpled, and healthy. Special study should be given to the folds and creases at the neck, wrists, and ankles. The cheeks are full and round, the chin is well under. The upper lip protrudes somewhat. The nose is round and small and concave at the bridge. The ears are small, thick, and round. The eyes practically fill the openings. The hands are fat and dimpled and there is considerable taper to the short fingers. Until the structure of babies is well understood it is almost fatal to try to draw them without good working material.

Keep all children up to six or eight years quite chubby. From eight to twelve they can be drawn very much as they appear, though the relative size of the head should be a little larger than normal.

If you get into character drawing, you may do a fat fellow—but don't make him too young. Do not draw ears too large or protruding in any male drawing. The male hands should be exaggerated a little in size and in the ideal type must look bony and muscular. Soft, round hands on a man simply won't go.

The art director seldom points out your faults. He simply says he does not like your drawing. Any one of the above mistakes may account for his dislike. Ignorance of the demands upon you is as great a handicap as ignorance of anatomy.

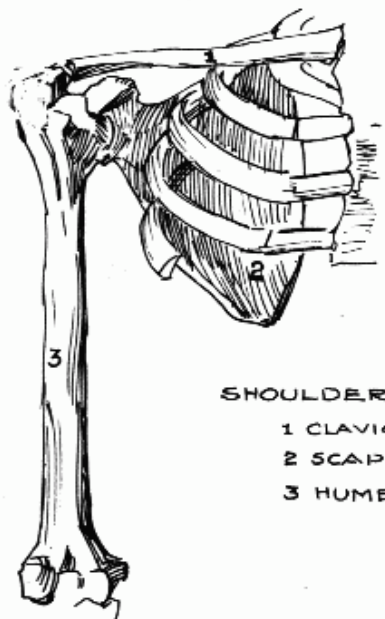
IMPORTANT BONES



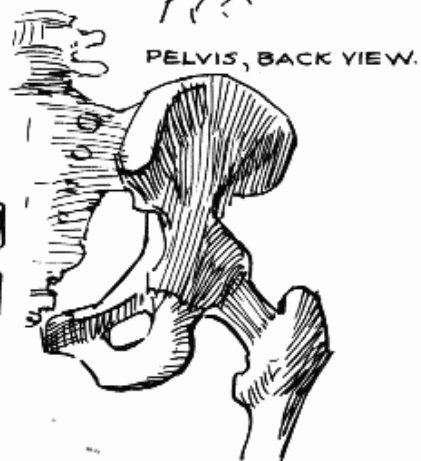
- 1 SCAPULA
- 2 HUMERUS
- 3 ULNA
- 4 RADIUS
- 5 CLAVICLE



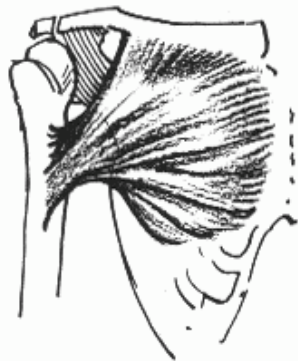
- 1 PELVIS
- 2 SACRUM
- 3 FEMUR
- 4 PATELLA
- 5 TIBIA
- 6 FIBULA



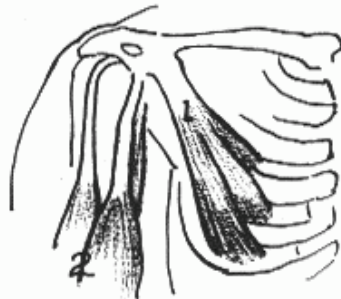
- 1 CLAVICLE
- 2 SCAPULA
- 3 HUMERUS



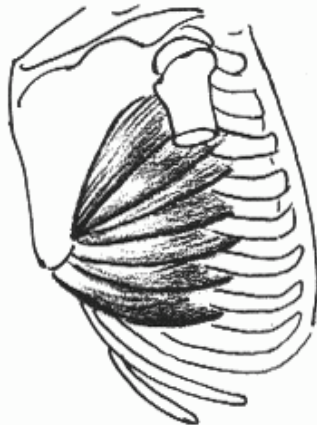
MUSCLES ON THE FRONT OF THE FIGURE



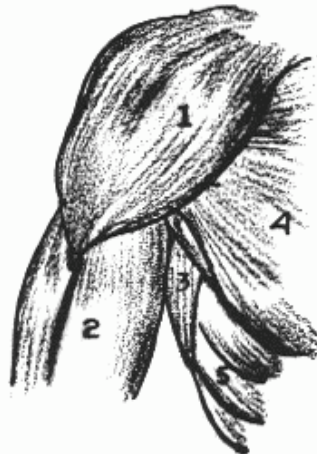
PECTORALIS MAJOR



1 PECTORALIS MINOR
2 BICEPS



SERRATUS MAGNUS



1 DELTOID
2 BICEPS
3 PECTORALIS MAJOR
4 LATISSIMUS DORSI
5 SERRATUS MAGNUS



1 STERNO MASTOID
2 TRAPEZIUS
3 STERNOHYOID



STERNOHYOID
STERNO MASTOID
TRAPEZIUS

DELTOID

PECTORALIS MAJOR

BICEPS

SERRATUS MAGNUS
RECTUS ABDOMINIS

EXTERNAL OBLIQUE

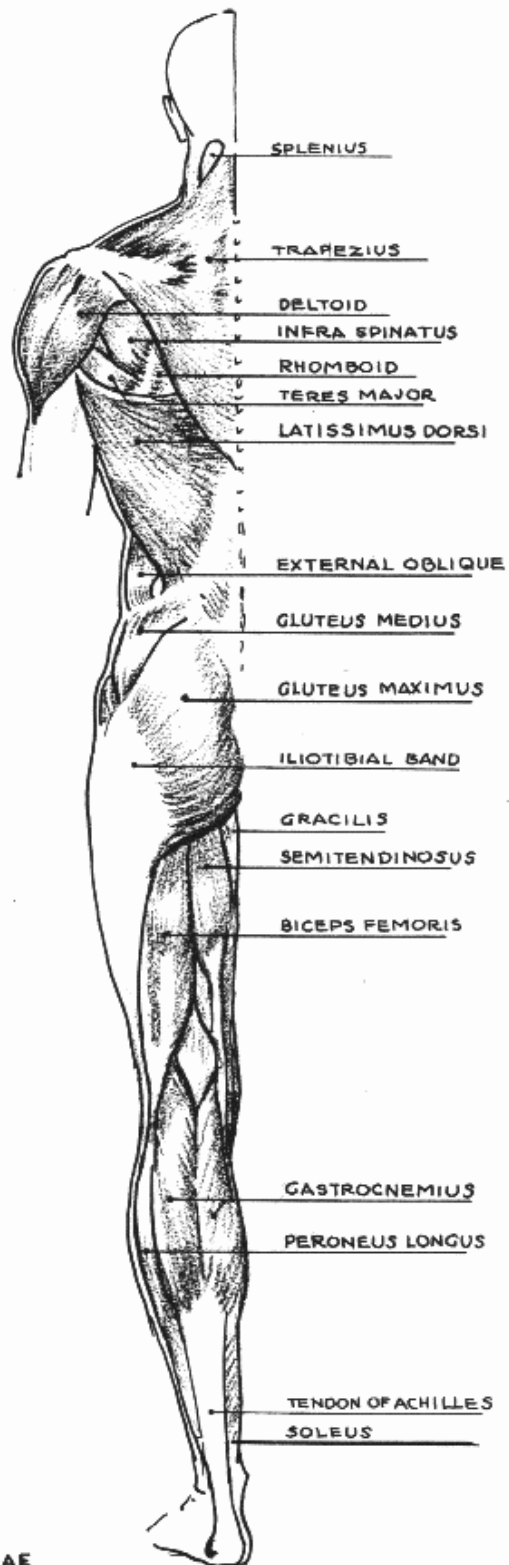
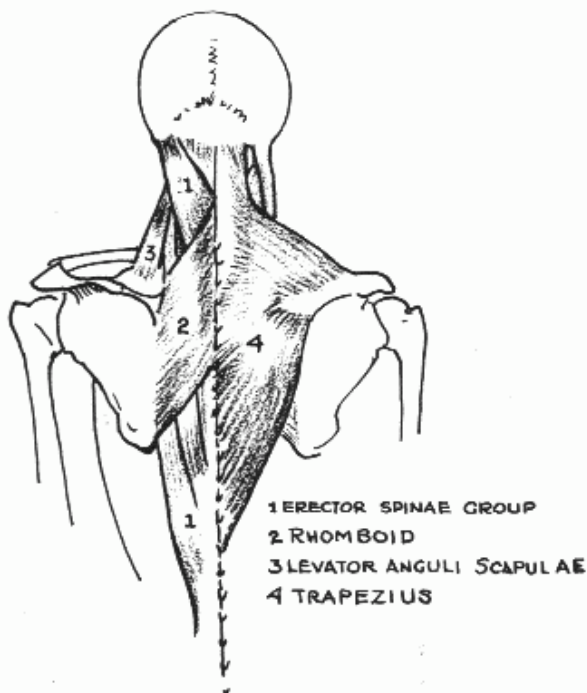
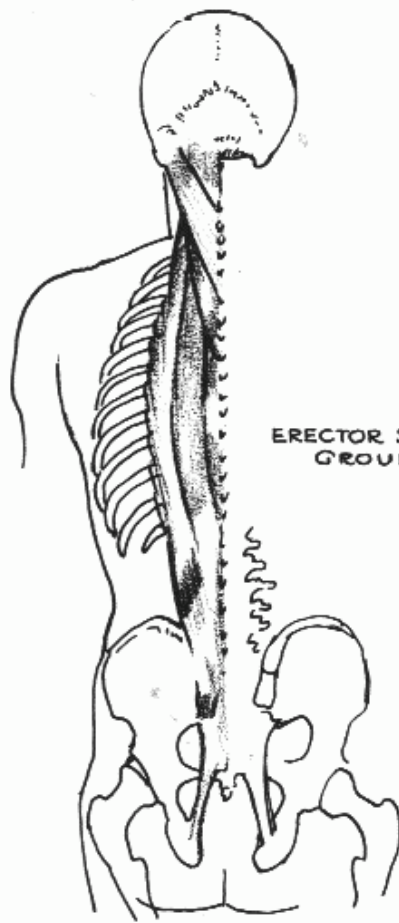
GLUTEUS MEDIUS
PSOAS ILIACUS
TENSOR FASCIAE LATAE
PECTINEUS
ADDUCTOR LONGUS
SARTORIUS
GRACILIS
VASTUS LATERALIS
RECTUS FEMORIS

VASTUS MEDIALIS
BAND OF RICHTER

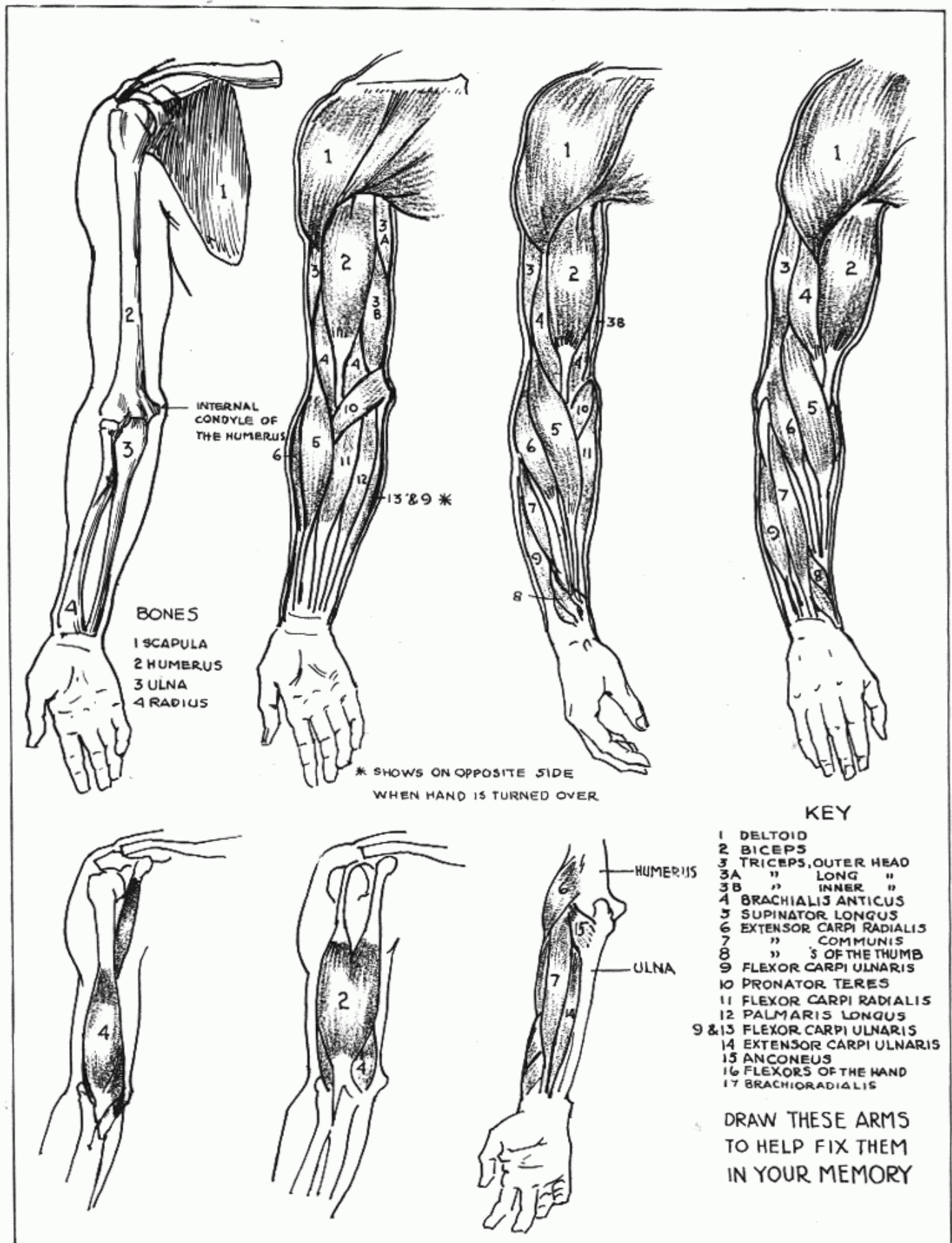
PATELLA

GASTROCNEMIUS (CALF)
TIBIA (SHIN BONE)
TIBIALIS ANTERIOR
PERONEUS LONGUS
SOLEUS

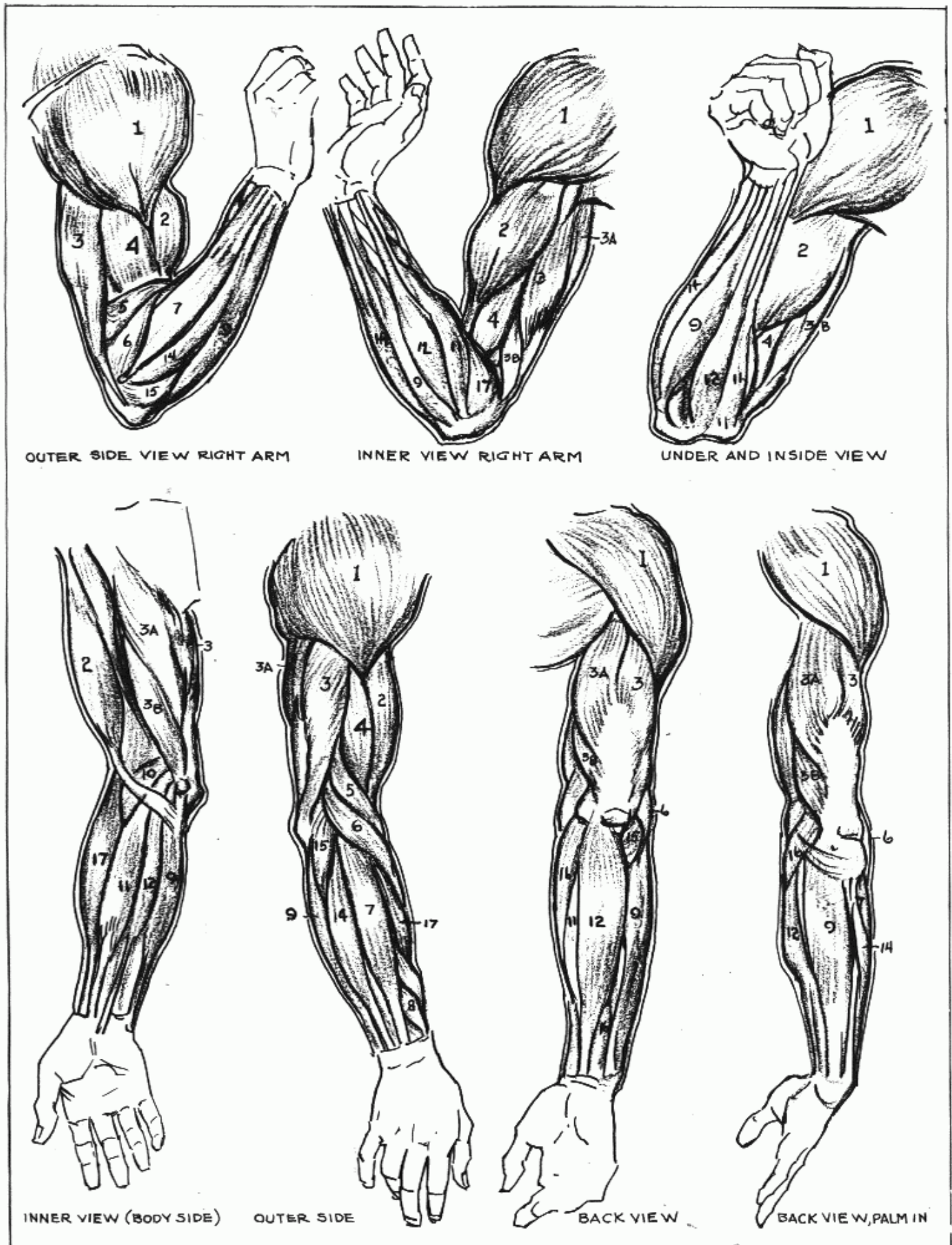
MUSCLES ON THE BACK OF THE FIGURE



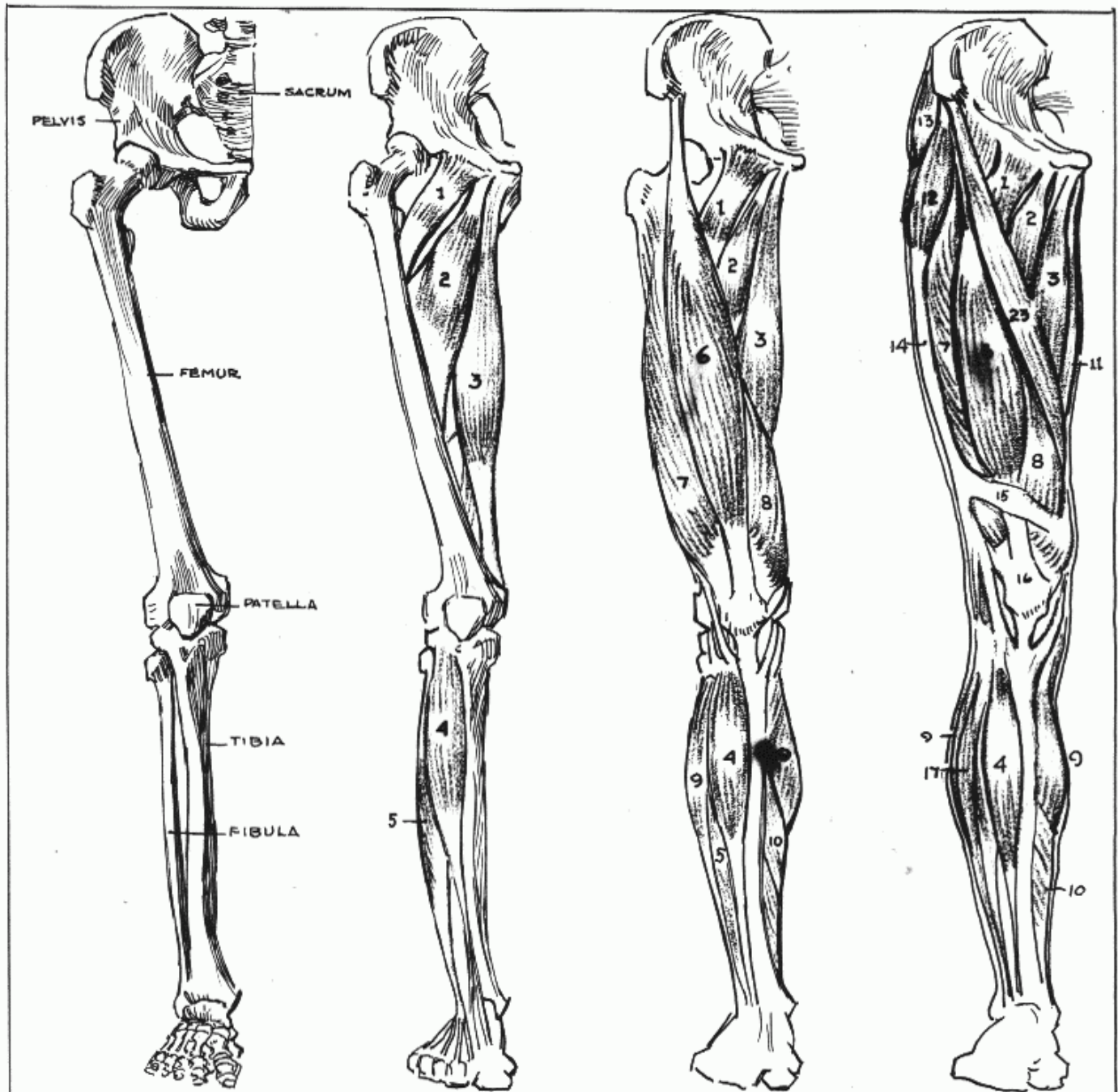
MUSCLES OF THE ARM, FRONT VIEW



MUSCLES OF THE ARM, VARIED VIEWS



MUSCLES OF THE LEG. FRONT VIEW



MUSCLES OF THE LEG

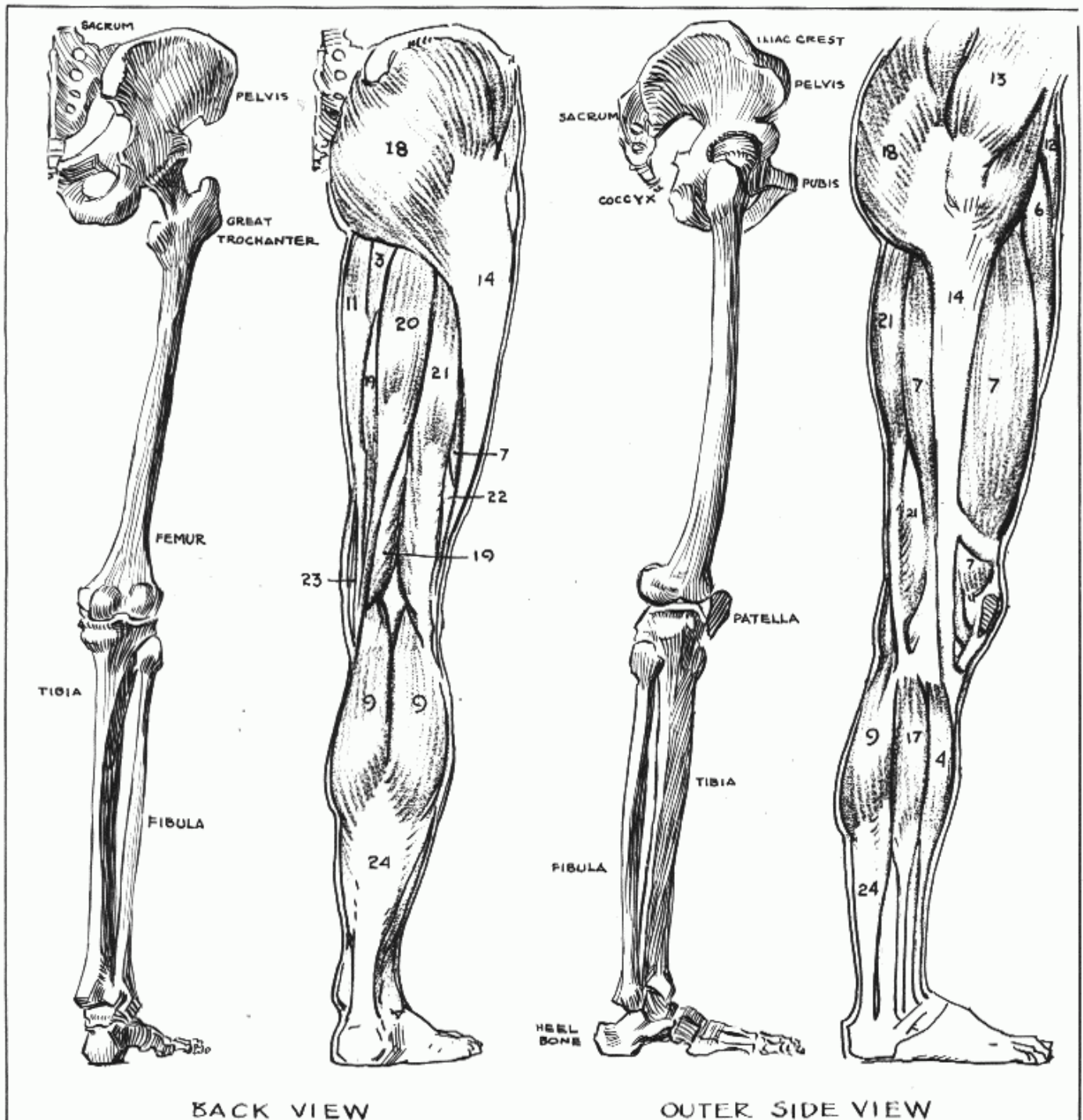


1. PSOAS ILIACUS
2. PECTINEUS
3. ADDUCTOR MAGNUS
4. TIBIALIS ANTICUS
5. EXTENSOR LONGUS DIGITORUM
6. RECTUS FEMORIS
7. VASTUS LATERALIS
8. VASTUS MEDIALIS
9. GASTROCNEMIUS
10. SOLEUS

11. GRACILIS
12. TENSOR FASCIAE LATAE
13. GLUTEUS MEDIUS
14. ILIOTIBIAL BAND
15. BAND OF RICHTER
16. PATELLAR LIGAMENT
17. PERONEUS LONGUS
18. GLUTEUS MAXIMUS
19. SEMIMEMBRANOSUS
20. SEMITENDINOSUS

21. BICEPS FEMORIS
22. VASTUS INTERMEDIUS
23. SARTORIS
24. TENDON OF ACHILLES

MUSCLES OF THE LEG BACK AND SIDE VIEW



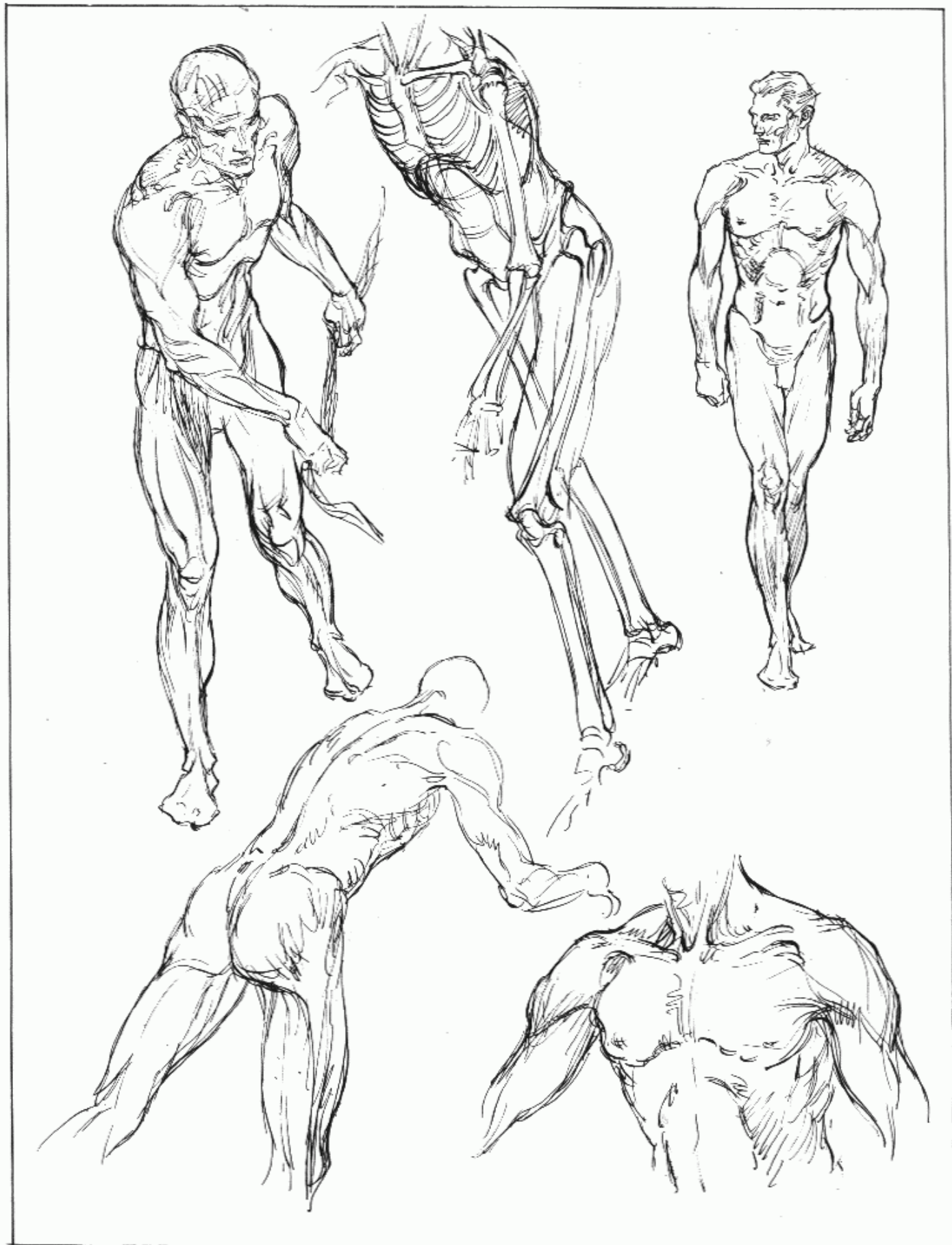
BACK VIEW

OUTER SIDE VIEW

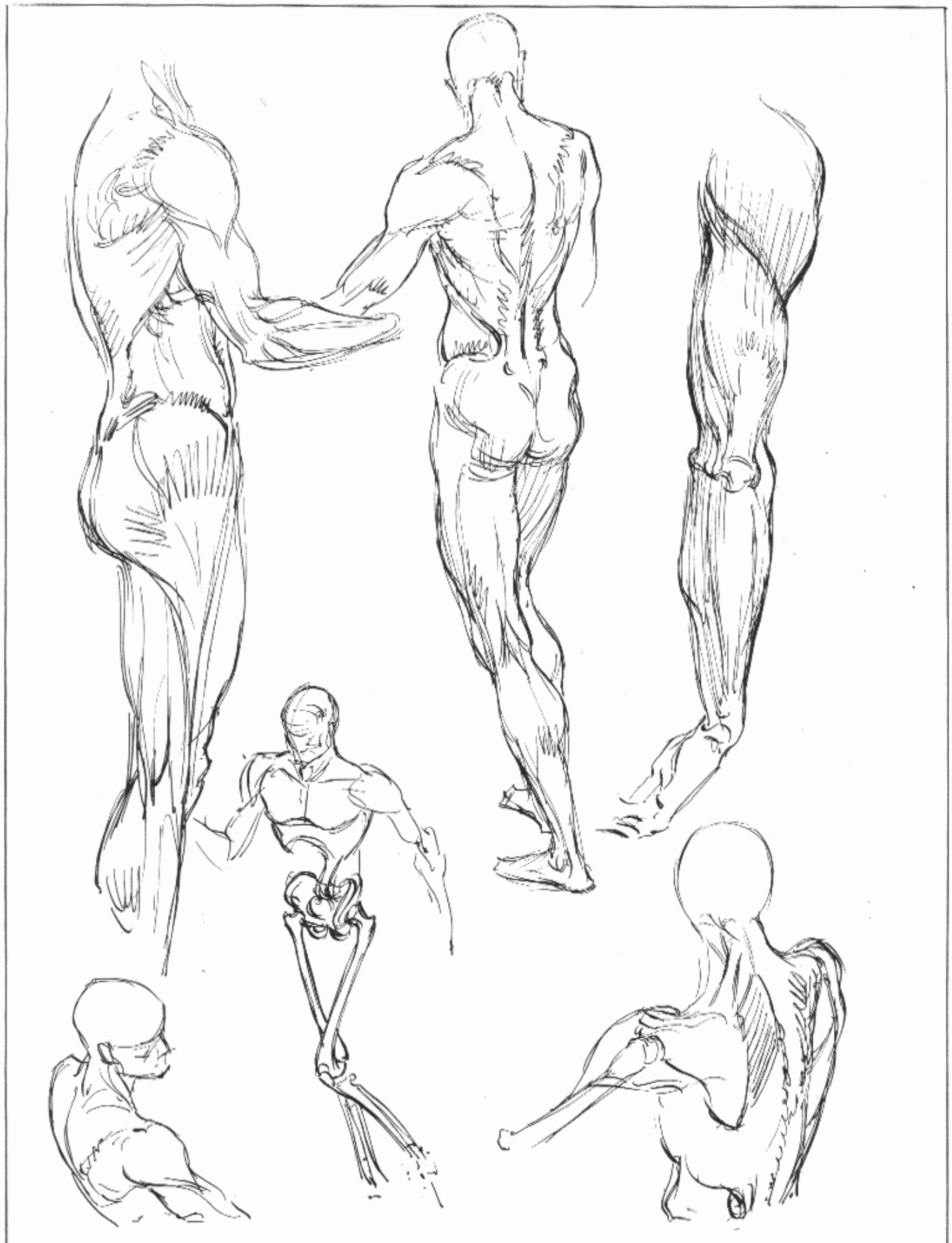
THERE IS NO OTHER WAY TO ACQUIRE A KNOWLEDGE OF ANATOMY THAN TO "DIG IT OUT." STAY WITH IT UNTIL YOU CAN DRAW THE MUSCLES FROM MEMORY. GET FURTHER BOOKS ON THE SUBJECT. THE AUTHOR RECOMMENDS THE BOOKS

BY GEORGE BRIDGMAN AS EXCELLENT. THERE IS ALSO A VERY FINE BOOK OF DIAGRAMS, "ARTISTIC ANATOMY" BY WALTER F. MOSES. IN THESE BOOKS, THE SUBJECT IS MORE EXPERTLY COVERED, AND MUCH MORE COMPLETE. "IT PAYS TO KNOW," SO STAY WITH IT!

NOW JUST PLAY WITH WHAT YOU HAVE LEARNED



TRY BUILDING FIGURES WITHOUT MODEL OR COPY



III. BLOCK FORMS, PLANES, FORESHORTENING, AND LIGHTING

The transition from outline and specific construction to the figure rendered in light and shadow is quite a hurdle. Often the student is unable to make this jump. The difficulty arises from a lack of conception of the solid. Yet there are intermediate steps that can make the rendering of the third dimension (thickness) fairly simple.

How can a solid form be set into space? How do we conceive of it so that we know it has bulk and weight—that we can pick it up or bump into it? The answer is that our eye instinctively recognizes the solid by the way light falls upon it. As far as the artist is concerned, when there is no light there is no form. The only reason an outline drawing can suggest the solid is that theoretically a drawing represents the form in a light that comes from directly behind the artist; hence the form casts no shadow visible to us. As the contours and edges turn away from us and the light, they tend to darken until they begin to look like lines, sharp at the edges and softening as they approach the middle or closer part of the form. We call this “flat lighting.” It is the only way that form can be rendered without shadow, but it does include “halftone,” which is the next step between the full light and the shadow. The shadow is really there also, but we cannot see it from our viewpoint.

When white paper is used for the drawing, the paper theoretically represents the greatest light—that is, the *plane which is at right angles to the source of light*. In all cases other than flat-front lighting, the form is rendered by the correct interpretation of the direction of the planes away from the right-angle planes, or the turning away of the form from the source of light.

The first and brightest planes are called the “light planes.” The next planes are the “halftone planes,” and the third planes, which are unable to receive direct lighting because of their angle, are called “shadow planes.” Within the shadow planes may be those that are still receiving subdued, reflected light; these are called “planes of reflection.” Form cannot be rendered without a clear grasp of this principle. The planes are worked out in the simple order of: (1) light, (2) halftone, (3) shadow—which is the darkest and is at the point where the plane parallels the direction of light, and (4) reflected light. This is called “simple lighting.” It is unquestionably the best for our purpose. When there are several sources of light, the whole composition becomes a hodgepodge, inconsistent with natural light and highly confusing to the student. Sunlight naturally gives us the most perfect rendition of form. Daylight is softer and more diffused, but the principle still holds. Artificial light, unless controlled and based upon the sun principle, is the fly in the ointment. The camera may be able to get away with four or five sources of light; the chances are that the artist cannot.

Before you plunge into the intricacies of light and shadow, it would be well to know what is going to happen to form when light strikes it. Since the light can be made to come from any direction, the organization of the light-to-dark may start with any plane as the light plane. In other words, in a top lighting slightly to the front, the plane across the breast would be the light plane. Move the light to the side, and that plane would become a halftone plane. Set the light below, and the same plane is in shadow. Hence *all planes are relative to the light source*.

FORESHORTENING AND LIGHTING

Let us start, then, with the form in the simplest possible terms. By drawing block forms we cut out the extreme subtleties of halftone. Continuing a plane as a single tone on a surface as long as we can before turning it in another direction is simplification, or massing. Actually the figure is very rounded. But rounded surfaces produce such a delicate gradation of light and shadow that it is difficult to approach without a simplification and massing of these tones. Strangely enough, the simplification is a good deal better in the end than the exact photographic and literal interpretation. It is somewhat like trying to paint a tree by painting every leaf instead of massing the foliage into its big forms and working for bulk rather than intricate detail.

After we have mastered the larger plane, we can soften it at its edges to mold it into the more rounded form, while retaining all we can of the bigness of conception. Or, we can start with a big block, as the sculptor would start with a block of stone or marble. We hew away the excess and block in the general mass that we want. We then subdivide the big, straight planes into smaller ones until the rounded effect has been produced. It is like going around a circle with a series of short, straight lines. You may question why we do not at once proceed to the finished, smooth, and round form. The answer is that in a drawing or painting, something of the individual procedure and structural quality should remain. When it is too much smoothed down and polished, it becomes entirely factual. The camera can do *that*. In a drawing, however, "finish" is not necessarily art. It is the interpretation and process of individual conception that is art and that has value. If you include all the literal facts and actualities, the result will be boring. It is your selection of relevant facts that will create interest. A sweeping conception carries with it vitality, purpose, and conviction. The more detailed and involved we get, the less

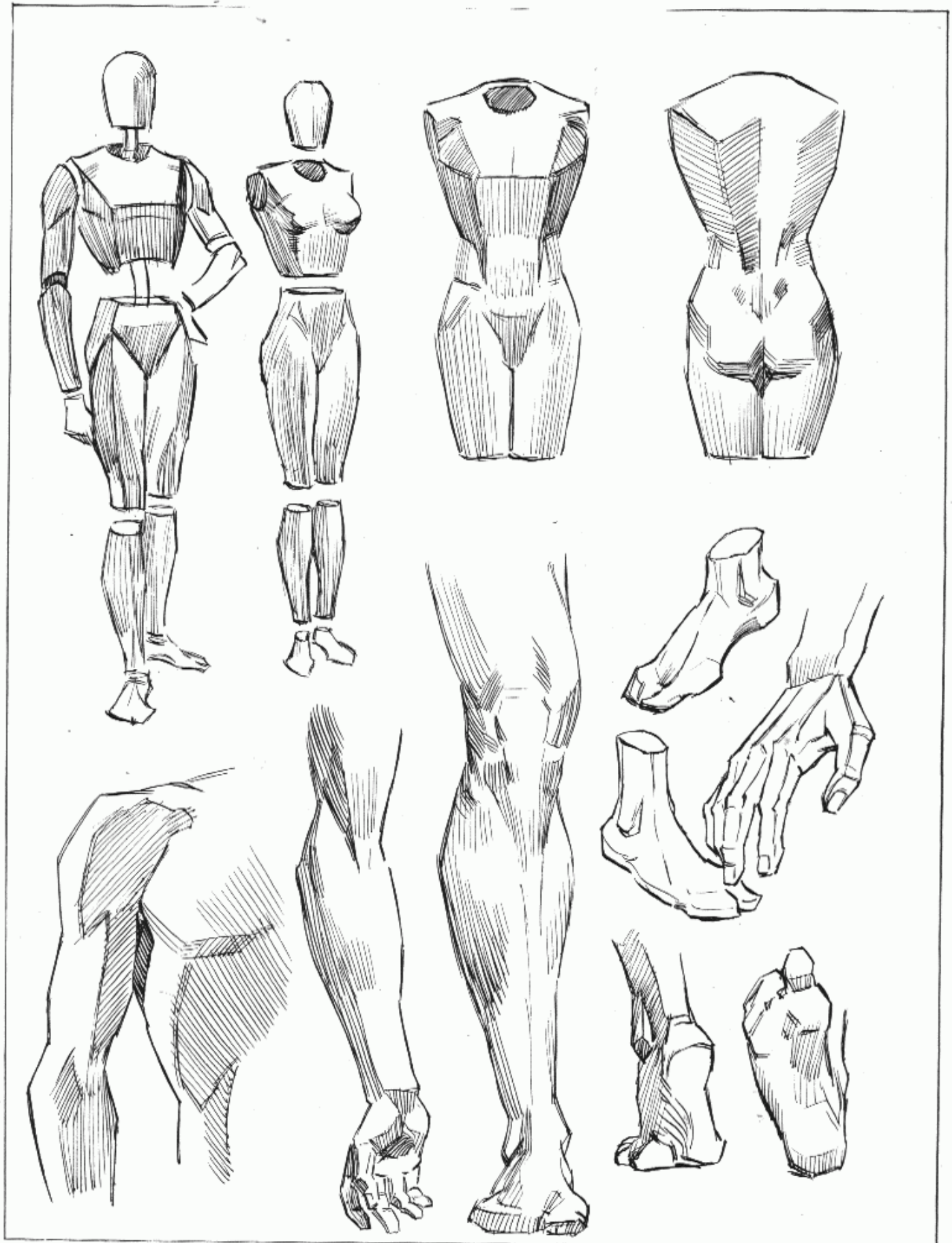
forceful and powerful is our message. We can take a compass and draw a circle perfectly, but we have left no trace of ourselves in what we have set down. It is the big form that does the job—not the little and the exact.

On pages 70 and 71 I have tried to give an inkling of what I mean. Here the surface is conceived of as having mass and bulk. The effect is sculptural. It is looking at our mannikin a little differently. If we are to compose the mannikin of simplified blocks, how shall we shape those blocks? Your way is as good as mine. Shape them any way you will to arrive at a massed or bulk effect. This is the real approach to "solidity" in your work: actually thinking of the mass, bulk, and weight of it.

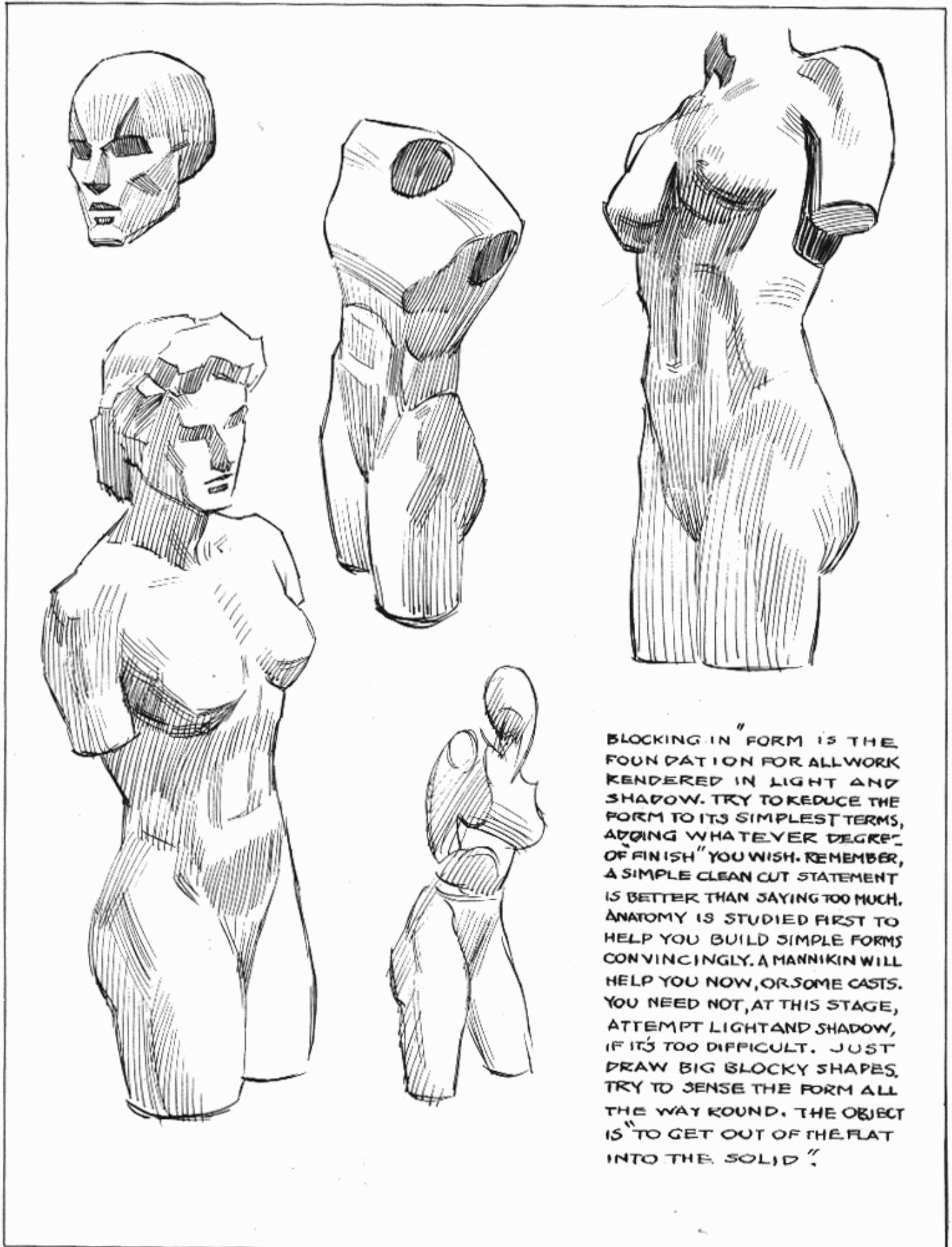
With this approach, we take the art-store wooden mannikin and use it as a basis for setting up a figure (page 72). We go a step further with the mannikin on page 73 and attempt to eliminate the stiffness of the jointed parts, still thinking though in terms of masses.

Retaining these terms we take solids (page 74) and tip them, remembering at all times what each *section* of the mass would be and where it belongs in relation to the whole. We must depend chiefly upon line to render the form, or that part of it which goes back into space, as seen by the eye of the observer. This is foreshortening. Actual measurement of length cannot be made, since viewing the form from one point is like looking at a gun barrel aimed directly at you. We must think of the contours and form as sections lined up one behind the other. An outline is rarely sufficient, however, to represent the receding sections; most often halftone and shadow are needed as well, as shown on page 75. Pages 76 and 77 are an interpretation of the rounded figure flattened into planes that go a step further than our simplest block forms. On pages 78 and 79 we place the simplified form of the head under various kinds of lighting.

BLOCK FORMS HELP TO DEVELOP YOUR SENSE OF BULK

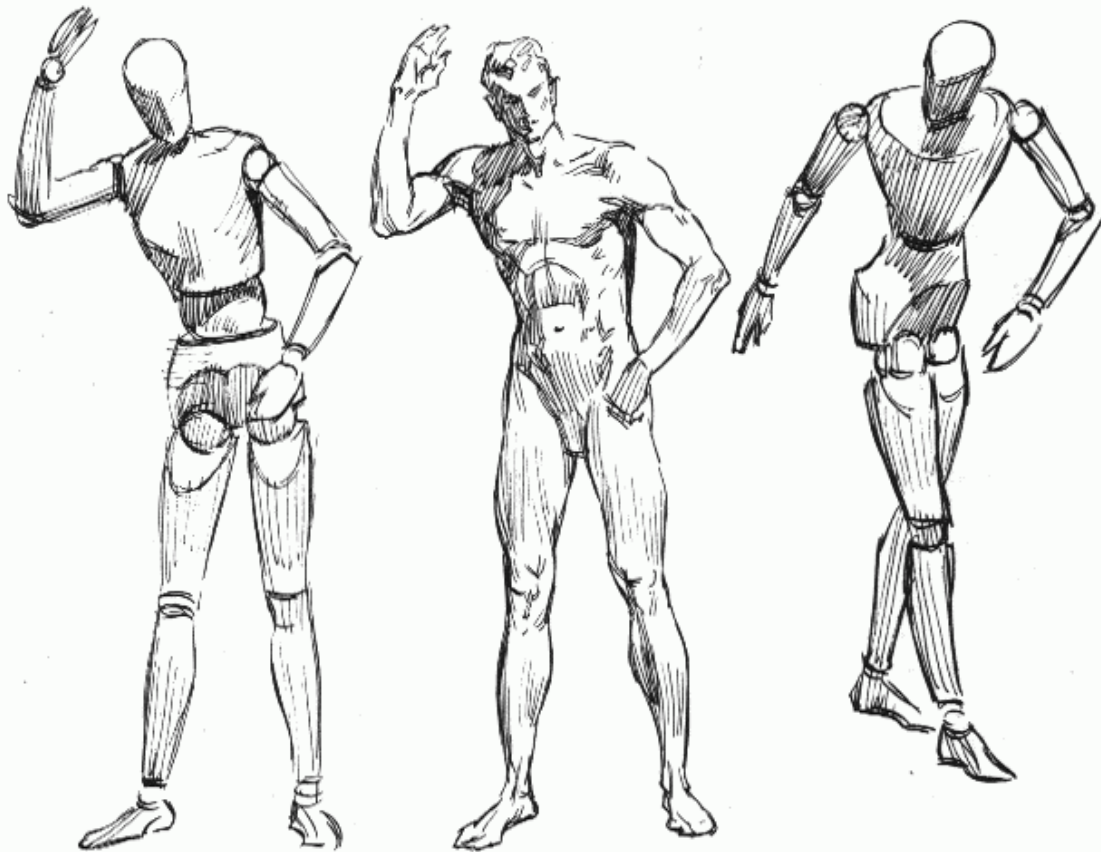


FEEL FREE TO INVENT YOUR OWN BLOCKS.



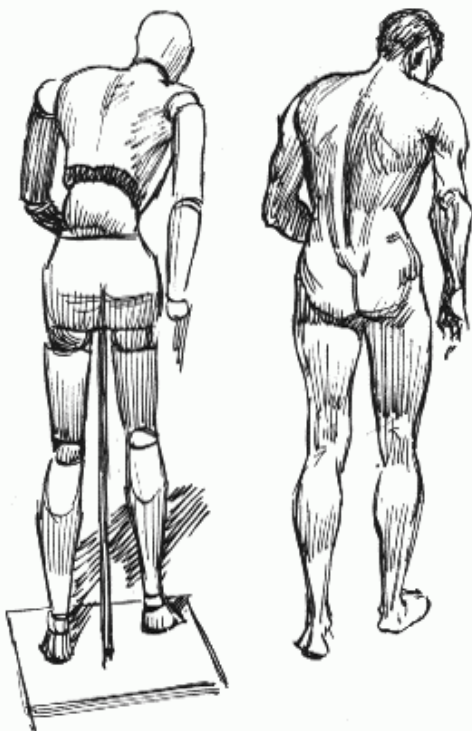
BLOCKING IN "FORM" IS THE FOUNDATION FOR ALL WORK RENDERED IN LIGHT AND SHADOW. TRY TO REDUCE THE FORM TO ITS SIMPLEST TERMS, ADDING WHATEVER DEGREE OF FINISH YOU WISH. REMEMBER, A SIMPLE CLEAN CUT STATEMENT IS BETTER THAN SAYING TOO MUCH. ANATOMY IS STUDIED FIRST TO HELP YOU BUILD SIMPLE FORMS CONVINCINGLY. A MANNEKIN WILL HELP YOU NOW, OR SOME CASTS. YOU NEED NOT, AT THIS STAGE, ATTEMPT LIGHT AND SHADOW, IF IT'S TOO DIFFICULT. JUST DRAW BIG BLOCKY SHAPES, TRY TO SENSE THE FORM ALL THE WAY ROUND. THE OBJECT IS "TO GET OUT OF THE FLAT INTO THE SOLID".

HOW TO USE AN ART-STORE WOODEN MANNIKIN



SKETCH THE MANNIKIN

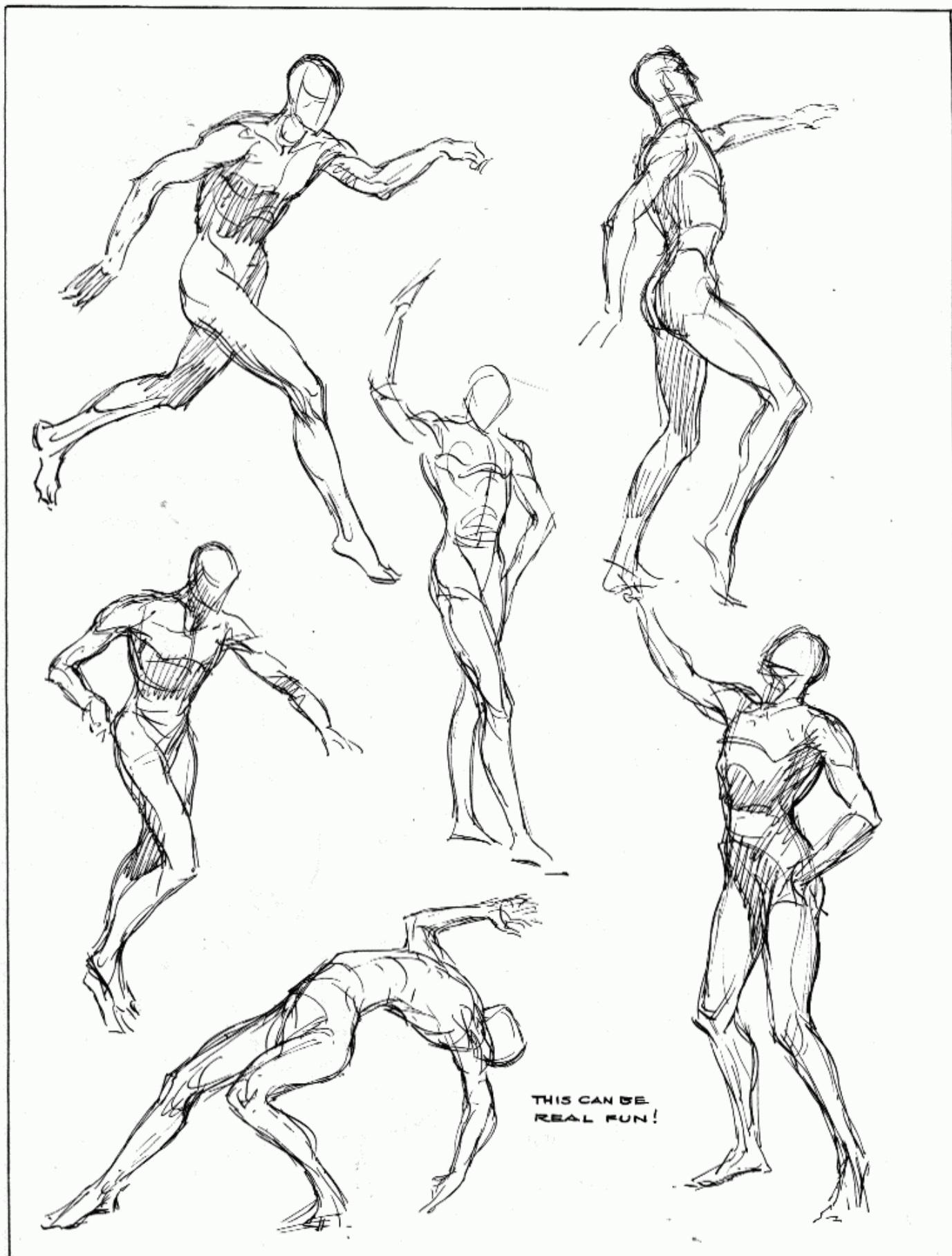
THEN BUILD YOUR FIGURE



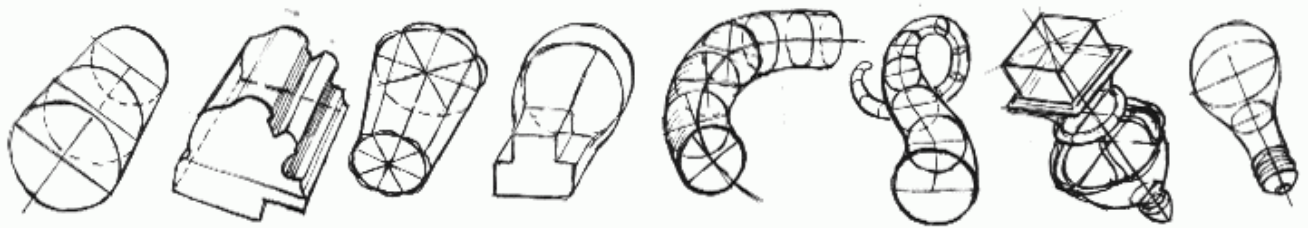
WHEN USED WITH A BIT OF ANATOMICAL KNOWLEDGE THE WOODEN MANNIKIN CAN BE A GREAT HELP IN MAKING PRELIMINARY SKETCHES, LAYOUTS AND COMPOSITIONS. YOUR ART DEALER MAY HAVE ONE OR CAN GET IT FOR YOU.



QUICK SKETCHES FROM THE WOODEN MANNIKIN



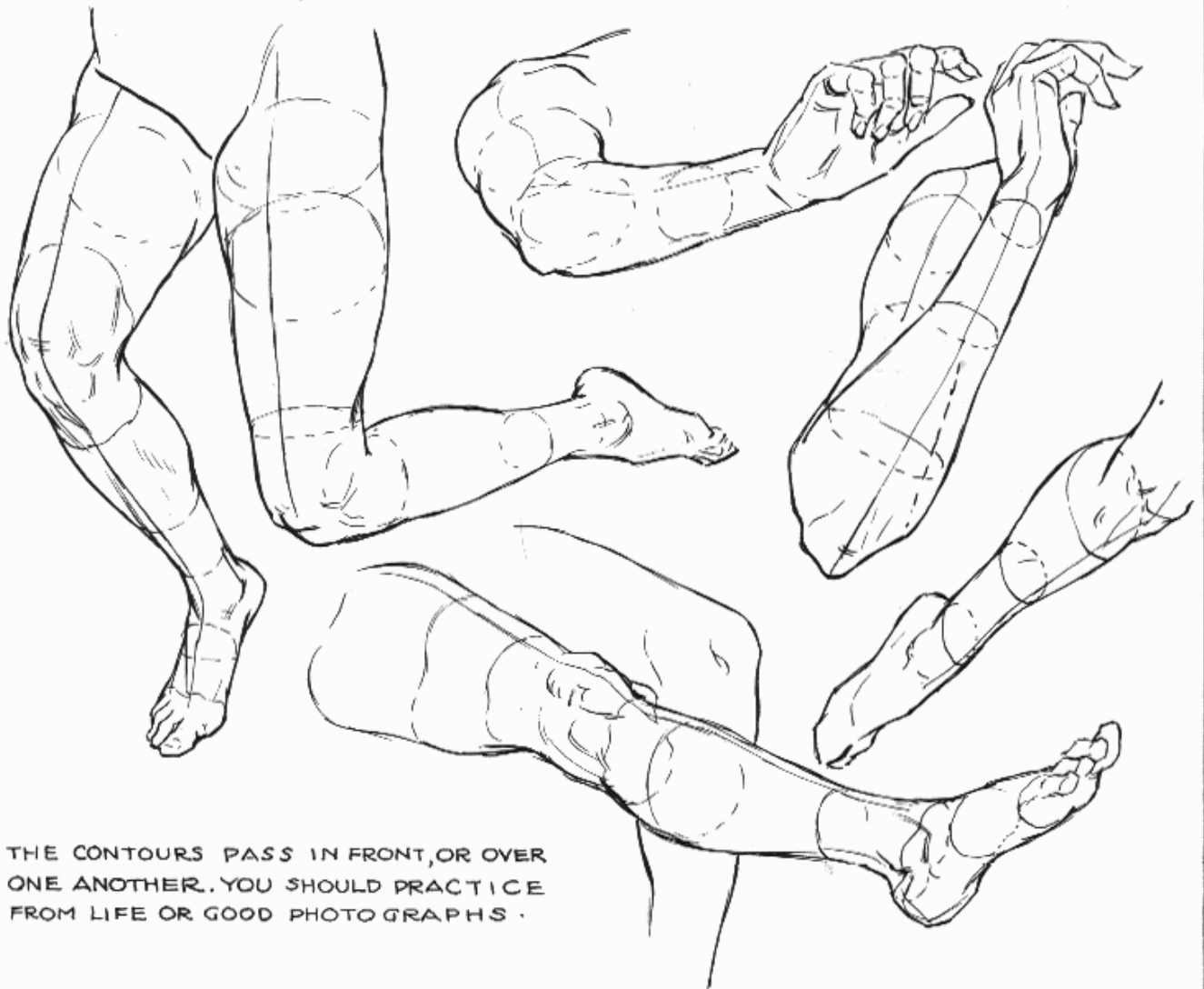
FORESHORTENING



YOU CAN FORESHORTEN ANY FORM BY DRAWING INTERMITTENT CROSS SECTIONS AND CONNECTING.



NO MATTER WHAT THE FORM IS LIKE, IT CAN BE DRAWN THIS WAY. BUT YOU MUST CONSIDER THE COMPLETE FORM, NOT JUST THE VISIBLE PORTION. SENSE THE FORM ALL AROUND



THE CONTOURS PASS IN FRONT, OR OVER ONE ANOTHER. YOU SHOULD PRACTICE FROM LIFE OR GOOD PHOTOGRAPHS.