CONSTRUCTION OF THE HEAD

THINK OF THE HEAD AS A ROUNDED MASS, EITHER BALL SHAPED, PEAR SHAPED OR EGG SHAPED AS THE CASE MAY BE. IN ANIMATION THIS HEAD SHAPE MAY CHANGE PERSPECTIVE AND FORM A GREAT NUMBER OF TIMES DURING A SCENE. TO SIMPLIFY MATTERS, A CORRECT PERSPECTIVE FRAMEWORK SHOULD FIRST BE DRAWN, THEN THE DETAILS CONSTRUCTED OVER THIS FORM.

THE CHARACTER SHOULDS WITH A ROUND Shape

DRAW AROUND THIS A CIRCLE THAT WILL DIVIDE FACE IN THE MIDDLE LENGTHWISE. THIS DETERMINES THE TILT OF HEAD

AT RIGHT ANGLES TO THIS, PUT IN THE EYE LINE CIRCLES. THE SET FACE UP OR DOWN.

BASE OF EYES AND TOP OF NOSE THE INTO ONE LINE, NOTICE PERSPECTIVE MAKE LEFT EYE BIGGER THAN RIGHT

NOW THE DETAILS ARE PUT IN OVER THE FRAMEWORK.

TAKE AN EGG—DRAW THE GUIDE CIRCLES AROUND IT—THEN PUT IN THE FACE—NOW TURN THIS EGG IN EVERY CONCEIVABLE POSITION AND DRAW IT. ANIMATION PRESENTS THE SAME PROBLEMS.

—NOW ADD A FEW DETAILS AND DRAW THOSE HEADS IN EVERY POSITION USING THE ABOVE EGG AS A GUIDE.
—CARTOON STUDIOS OFTEN MAKE SMALL CLAY MODELS TO AID THE ANIMATOR DRAW DIFFERENT CHARACTERS FROM ALL THE ANGLES CORRECTLY.

HERE IS THE BASIS OF A GREAT MANY CARTOON HEADS. DRAW UP AN EGG LIKE THIS AND STUDY IT FROM ALL ANGLES. BELOW ARE VARIATIONS

A NOTE ABOUT THE AUTHOR

Preston Blair, Cartoon Director, is one of the fine artists of animation. Associated with the Disney Organization, he animated in "Pinocchio," "Bambi," and "Fantasia," in the later he designed the hippos. Later for Fred Quimby, shorts Producer at Metro-Goldwyn-Mayer, he designed and animated the highly successful, "Red Hot Riding Hood," directed "Barney Bear" shorts, and animated in "Anchors Aweigh." Blair is active in magazine illustration and fine arts, and is a member of the California and American Watercolor Societies. Recently when he won first prize in our National Print Exhibition at the Laguna Beach Art Gallery, I met him and suggested he make this book for you. I am sure it will prove interesting and helpful to all those studying this popular cartoon medium.
MORE HEADS CONSTRUCTED

START WITH AN OVAL AND PERSPECTIVE GUIDE LINES.
ADD NOSE CONSTRUCTION—SEE THAT THIS FITS SOLIDLY ON.
NOW PUT IN OVALS FOR THE EYES—WATCH PERSPECTIVE AND CONSTRUCT THE REMAINING DETAILS.

ALL ANIMATED CARTOON CHARACTERS CAN BE REDUCED TO A BASIC FORMULA—THIS MAKES THEM EASY TO MASTER AND INSURES UNIFORMITY THROUGHOUT A FILM, ALTHOUGH SEVERAL ARTISTS WORK ON THE SAME CHARACTER.

STUDY THE BASIC FORMULA I HAVE INDICATED HERE THEN DRAW THIS DOG IN OTHER POSITIONS.

HERE ARE SOME MORE TO PRACTICE ON.

We are grateful to Fred Quimby, Shorts Producer, at Metro-Goldwyn-Mayer, for his permission to allow some of M.G.M.'s excellent cartoon characters to appear in this book, among them Tom and Jerry, the riotously funny team of cat and mouse, that have captured the hearts of all of us, including the Motion Picture Academy judging from the Oscars the two have received with Fred Quimby. Yes, our hats are off to these fellows and M.G.M., creators of the most entertaining and amusing cartoons in recent years!
STRETCH AND SQUASH ON HEADS

A CARTOON HEAD CAN BE STRETCHED OR SQUASHED TO STRENGTHEN AN EXPRESSION. YOU WILL NOTICE THAT THE OVAL CONTAINING THE EYES DOES NOT CHANGE GREATLY—MOST VARIABLE IS MOUTH AREA. SMALL DETAILS ALSO RE-ACT LIKE THE LARGE FORM IN WHICH THEY ARE IN.
BODY BUILT FROM ROUNDED OR CIRCULAR FORMS

The animated cartoon character is based on the circle and rounded form—as several people may work on the same drawing in a cartoon studio, the rounded form is used due to its simplicity—animation is thus easier—also circular forms “follow thru” better on the screen—study these drawings I have analyzed—visualize all forms as solid masses with 3 dimensions.
THE SKELETON FOUNDATION

BUILD THE CARTOON UP FROM A ROUGH SKELETON -- DON'T EXPECT TO GET THE RIGHT SKELETON THE FIRST TRY ALWAYS -- NO ONE CAN DO THAT -- EXPERIMENT -- DISCARD -- MAKE SEVERAL THEN PICK THE BEST ONE -- HERE ARE THE ACADEMY AWARD WINNERS "TOM & JERRY" (WHO APPEAR IN M.G.M. PICTURES) TO GIVE YOU AN IDEA HOW IT'S DONE -- WORK LOOSE ON CONSTRUCTION.

WORK OUT A SKELETON -- CONSTRUCT BODY MASSES AROUND IT -- THEN BUILD DETAILS OVER THIS
LINE OF ACTION

An imaginary line extending thru the main action of the figure is the "Line of Action" -- plan your figure and its details to accentuate this line -- by so doing you strengthen the dramatic effect -- the first thing to draw when constructing a figure is the line of action -- then build over that.

Wrong! Lines of action unfit -- Right! Lines of action fit and are accentuated.

Below "Tom & Jerry," M.G.M. Stars illustrate this cartoon law.
In constructing an animated character, visualize it as a three dimension puppet that you are joining together with solid masses. Each part has a definite place to fit according to a formula.
These are progressive steps taken by an animator in drawing a cartoon character.

1. Draw in "Line of Action" to establish general stance of figure.
2. Rounded masses for head and body are put in.
3. Perspective lines around these masses are put in to establish front, side, tilt etc. of body and head.
4. Now arms, legs and eyes are constructed or "anchored on" in their definite position to perspective lines.
5. Details are now fitted in or hinged into their position.
6. Character is cleaned up around these construction lines.
Here are some rough sketches of an owl to show you how a bird's wing can be handled. It can be straight or at other times take on all the characteristics of a hand with the feathers as fingers.
Make a repeat cycle of this bulldog running using drawing to right for one position. See "run" in "movements of the four legged figure" on page 25 for guide.
Here are some ideas for drawing a squirrel. As in cute characters, head is large. Important are the two front teeth.

This little fellow appeared in an M.G.M. cartoon with Barney Bear and he was a riot. Below is how he compared in size to Barney.
THE "SCREWBALL" TYPE

In this formulae you will recognize some features that all these cocky-wise guys have in common.

- Elongated head
- Not too big
- Skinny neck
- Half
- Big feet
- Exaggerated features
- Pear-shaped body
- Little or skinny legs
- Low forehead

The antics of these bad boys have been some of the funniest on the screen.
GOOFY CHARACTERS

Here is the basic formulae for goofy types that act like a simple Simon Clod-Hopper:

- Long skinny neck.
- Hump back - stoop shouldered.
- Long droopy arms.
- With big hands.
- Over-hanging fanny.
- Pants low and loose + baggy.
- Enormous + clumsy feet.

- Small head - held forward.
- Hair hangs over eyes.
- Droopy half-awake eyes.
- Big beak or nose.
- Buck teeth.

Absolutely no chin! - This is very important.

Bobbling Adams Apple.
Sunken chest.
Big stomach protrudes.
Low crotch in pants.

-- Try designing a character of your own using these points.
Comparatively Small Cranium

Big Barrel Like Chest

Small Hip Area

Huge Chin and Jowls

Little Ears

Heavy Thick Neck When It Shows

Heavy Eyebrows Eyes Close and Beady

Big Lower Lip Sticks Out

Arms Long and Heavy

Big Hands

Little Short Heavy Legs

The "Heavy" Pugnacious Character

Above is a Formulae for These Bad Boys Which Applies Also to Four Legged Types — As the Bear Below and the Bulldog on the Next Page.
THE CUTE CHARACTER

CUTENESS IS BASED ON
THE BASIC PROPORTIONS
OF A BABY + EXPRESSIONS
OF SHYNESS OR COYNESS.

EARS ARE SMALL IN
RELATION TO ADULT SIZE.
NO NECK - HEAD JOINS ON TO
BODY DIRECTLY.
BODY PEAR SHAPED
AND ELONGATED.
SWAY BACK - WITH THIS LINE
CONTINUING UP BACK OF HEAD
AND DOWN INTO FANNY.
FANNY PORTRUDES - NEVER
BULGES - BUT FITS INTO LEG
OUT LINES AND
BASE OF
BODY.

HEAD LARGE IN RELATION
TO THE BODY.
HIGH FOREHEAD IS
VERY IMPORTANT.
EYES SPACED LOW ON
HEAD & USUALLY LARGE
AND WIDE APART.
NOSE & MOUTH ARE
ALWAYS SMALL.
ARMS ARE SHORT AND
NEVER SKINNY AND
TAPER DOWN TO THE
HAND AND TINY FINGERS
TUMMY BULGES -
LOOKS WELL-FED.
FAT LEGS - SHORT AND
TAPERING DOWN INTO
SMALL FEET FOR TYPE.

NOTICE HOW
ABOVE POINTS
ARE USED IN
THESE ANIMALS
HANDS

To draw the hand, first start as if it were a mitten (A) and (B)—then put the two middle fingers in following this shape (C)—the little finger is then put in, varying it in any fashion to prevent monotony (D)—it is often a good idea to exaggerate the base of the thumb.

Cartoon hands are tricky—so below I’ve drawn an average hand in all kinds of positions to give you some ideas. Notice that the fingers should be unevenly placed to prevent a monotonous quality.
FACIAL EXPRESSIONS

An animator’s job is the same as an actor’s job in live action pictures—both should be masters of portraying emotions. Studying your own grimaces in a mirror is a must. Pick a character you know and go thru the expressions with him, as I have here with “Jerry” Mouse.

- Skeptical
- Yell
- Laugh
- Smile
- Tragic Thought
- Fright
- Aloof
- Mad
- Tired
- Ashamed
- Surprise
- Impatient
- Wink
- Coy
- Awe
- Sad
- Smile
- Crying
- Sneer
- Severe
- Contempt
THE BASIC BOUNCING BALL ACTION

As ball falls - its speed increases. Drawings are spaced further apart.

On 5-7-12-14 notice ball stretches in falling + taking off.

Ball at highest point -- slows up. Drawings spaced closer -- resumes natural shape.

As ball hits it recoils... becomes squashed.

Notice ball follows a definite path of action -- study closely the spacing of ball along this path. Notice the basic similarity of this ball action to the hop and jump below: also to the walk-run-leap-skip-etc.

Notice A-C-E are like 5-7-12-14 above when character stretches.-- B is like recoil on 6-13 and D is like the normal 2-10-17.

MR. SCREWY PILGRIM  
BIT-PLAYER--IS UNDER CONTRACT WITH M.G.M.
MOVEMENT OF BODY MASSES

Here are some simplified figures in action to show you the twist and turn and variation of perspective in the main body masses as the figure animates. Building the figure in solids makes animation easier to 'feel out.'
MOVEMENTS OF THE TWO LEGGED FIGURE

Here is a comparison of the various two legged forward movement cycles. I have drawn one half of each cycle below; reverse hands + feet for the other half. These cycles can be used as "repeats" (that is the drawings may be repeated over + over if the figure remains centered on the screen and the background moves.

WALK —

DOUBLE BOUNCE WALK —

STRUT —

SHUFFLE —

SNEAK —

RUN —

JUMP —

FAST RUN —

TIP TOE —

SKIP —
MOVEMENTS OF THE FOUR LEGGED FIGURE

Here is a comparison of the main cycles of four legged movement. Some of these cycles are complete -- others are one-half of the cycle -- on these reverse feet for the other half. Study the differences in these.

WALK

TROT

CANTER

GALLOP

SNEAK

TIP-TOE

STRUT

SNIFF
DIFFERENCE BETWEEN WALK + RUN

Above are the contact drawings from (A) The Walk (B) The Run (C) The Fast Run. The contact drawing is the drawing on which the foot, after being lifted, strikes the ground. In laying out a run or walk for animation, usually it is these contact drawings that are determined first. This sets the speed, size of character, etc. of the action. Then the rest of the action is built around them.

The position of the back foot on the contact drawing determines the speed more than any other single factor. Notice on (A) the back foot is down still contacting the ground. On (B) the back foot has left the ground. On (C) the position of the back foot is still higher.

The front foot is stretched out further on the walk contact position, the body is more upright, denoting less speed. On the run drawing the body leans forward, and the front foot is back further. On the fast run drawing the body leans away forward denoting speed, and the front foot is back now under the body.

The arms swing conversely with the legs. The left arm swings with the right leg and vice versa. Also the arms swing more violently in the run. In the fast run the swing on the arms would be too violent. It has been found they are more effective when held straight out in a reach position.

Compare the action of the walk with the run, and you will note that in the walk, the drawing in which the arms and legs are stretched out further is the contact drawing. On the run, however, the stretch comes when the figure is up in mid-air at the high point in the action.

THE WALK

1. LEFT FOOT CONTACTS THE GROUND.
2. SINKS INTO RECOIL POSITION.
3. RIGHT FOOT LIFTS STARTS COMING THRU FOR STEP.
4. HIGH POINT IN STEP RIGHT FOOT RAISED.

5. RIGHT LEG STIFFENS INTO CONTACT POSITIONS.
6. RECOIL POSITION LEGS BEND.
7. RABBIT UP AS LEFT LEGS LIFTS.
8. HIGH POSITION NO.1 FOLLOWS THIS.
THE RUN

1. Right foot down in contact position
2. Right foot takes weight of body
3. Right foot pushes body off
4. Body at highest point in run
5. Left foot reaches for ground
6. Recoil—right foot coming through
7. Left foot stretches for take-off
8. Arms and legs stretch

THE FAST RUN

In animating a fast run here is a rule about animation to remember: To have an action drawing in practically the same silhouette position as another within one or two frames (exposures) is not a good practice. The action will be opt to look monotonous and might often give a false illusion and a different effect than the one you are striving to create. As for example, those moving wheels in old fashioned movies, that appear to be going backwards instead of forwards. If the walk and run here are enough drawings between similar silhouette positions (1 and 5 above) so that there is no problem here. But that is not the case with this four drawing cycle of a fast run. Notice that all foot action drawing is varied and not similar to any other. 3 is varied to be different from 1, and the same with 2 and 4. There is a single circular action on the head and body instead of a double circular action as in the walk and run.

The speed lines around the feet help in a fast action like this.

The crosses above and below drawings represent a fixed point on the screen. If you trace these repeats be sure that they coincide.
THE STRUT

Starting from a pose on #1, a strut step starts on #2. Ends on #3. And then the character goes into another pose on #4. The action is complete as #5, and can not be blocked up into a cycle. The walk is similar to the strut, except the heel point is in the action. In the strut, is when the foot contacts the ground, and when the foot is lifted is the lowest. In the walk, this is reversed.

I designed and animated the character “Red hot Riding Hood” in the several M.G.M. cartoons. That she has appeared costumed with “The Hollywood Wolf” (see the page on “Takes”). — Missed numbers in this action are in-between. Some are unevenly spaced. When an in-between is unevenly spaced a chart is made on an extreme (drawing). Next to it, showing the in-between position. All drawings here are extremes. Below are the in-between charts that were put on them.
THE SKIP

Here are the extremes of a 24-draw skip cycle... the missing drawings are "inbetweens" (drawings spaced evenly between these drawings). This is with the exception of 12+24. Notice the charts explaining the uneven spacing on these drawings... 12, instead of being evenly inbetween 11+13 is 3/4 of the way... and closer to 11. The same happens with 24 which is 1/4 of the way between 23+1. Drawing 24 thus completes the cycle. The skip is the same as the run on the body and hands. The difference is in the action of the foot which pushes the body off the ground and then raises in an arc and contacts the ground itself first. The crosses above and below each drawing are registration marks. Trace each drawing on a separate sheet of paper. (Making sure these crosses overlap.) Then flip the drawings and study the action this way.
THE SNEAK

These are the key drawings in a 64 drawing sneak cycle. Missing numbers are inbetweens. Drawing 1 follows 64. In tracing, be sure crosses above and below Indian coincide.

Not all sneaks are as violent as this one, but they all are based on the same principle. This is also a slow sneak—less inbetweens will speed it up.

The sneak is a walk in which the recoil (after the foot contacts the ground) has been exaggerated and the speed the foot comes down into the contact position slowed up—this gives the illusion of stealth—that the feet are carefully put down to evade noise and detection.
LINE OF ACTION IN ANIMATION

IN ANIMATION THE LINE OF ACTION IS THE BASIS FOR RHYTHM-SIMPLICITY + DIRECTNESS!

START YOUR ANIMATION FIRST WITH A LINE OF ACTION-THEN A SKELETON+DETAILS
OVERLAPPING ACTION—Here is a rule that holds in the majority of animation actions. "In animating a character from one point to another, don't go there all at the same time!" By this I mean the main action can be preceded and followed by lesser actions that all relate or are the result of the main action. These are known as "Overlapping Actions" and the proper use of them will greatly improve the quality of your work. Notice from an anticipation on 8 this cap comes up to an extreme accent on 10 as he starts saying "All right." This main action on the figure causes a lesser action or reaction on the cap's stomach. Drawn on 10 it recedes up the rubber on 13 to 16, bounces back on 18 and then finally settles back up on 24. In other words a main action between 8 and 10 has caused an overlapping lesser action to occur from 10 all the way to 24. Study this cap closely and you will see other examples of overlapping action on all parts of the figure.

SQUASH AND STRETCH—When a sound bag moves thru the air, it will stretch the direction of movement and when it's progress is arrested it will squash out. If it were alive anything can happen in a cartoon. It would also squash in anticipating an action in which it stretches. Notice 8 and 10 here. The proper use of squash and stretch will strengthen an action and it's essential in creating a feeling of weight in characters. You can bet I used it when I designed and animated the Hippo in Disney's "Fantasia."

FOLLOW THRU—Another pointer on animation is: When a flag is waved or jerked around, the flag will follow a definite curving path determined by the position of the mast a split second before. This natural law is called the rule of "follow thru" in animation. Study the ends of the coat here for example. Put a follow thru action on flexible loose waving things like dog's ears and tails, coats, etc. In a strict sense, any object that gives in ex- motion has a certain amount of follow thru action.

If you trace this character, remember交叉 above and below each drawing are a fixed point on the screen so be sure they coincide.
A "take" registers a character's sudden surprise in a cartoon. The average cartoon is full of these - some are subdued takes, others are violent like the ones on this page. The "take" is nearly always preceded by a good anticipation drawing - like (B) below. This method of going into the "take" gives it a sock. Below M.G.M.'s Hollywood Wolf (A) sees ugly dame (B) Wolf springs into anticipation (C) flies up into wild take.

THE CARTOON "TAKE"

Almost anything can happen in a take - the character may stagger, fly thru the air, etc. At left convict wolf "takes" at his pursuer Sgt. Huckleberry of the Mounties.
DIALOGUE

Here are the main mouth expressions used in dialogue. Feel that the face is an elastic mass that can be squashed or stretched to fit the mouth expressions. This gives a good contrast between positions and that helps your animation. Study yourself in a mirror as you speak the words you are animating—pronounce the words very distinctly and the correct positions will be apparent.

THE VOWELS
A and I
E
O
U

THE CONSONANTS
CDGKNRSTHY and Z
W and Q
MB and P
L (sometimes like DORTH)
F and V (sometimes like DORTH)

Now below to help you get started—I’ve combined a few mouth positions to make words

HELLO
PETE
FINE
DAY
ISN’T
IT
HOW
ARE
YOU?
Here are the cleaned up "key" drawings from a Scene I animated in a M.G.M. cartoon to give you some ideas how dialogue can be animated. Missing numbers are inbetween drawings put in by assistant artists. First drawing is a twelve drawing "hold." The scene is a baseball grandstand. This little heckler is yelling, "Kill de Umpire—get 'im out o' dere—kill de Umpire—kill de Ump." At this time an offstage shot signifies the umpires execution. Heckler goes into a surprise "take." Then he rises, removes his derby, and sadly watches the dead official carried off—as a trumpet plays "taps."

LOOKS ANGRY—COMES DOWN INTO ANTICIPATION—THEN SAYS: "K" "I" "LL"

"DE" "EE" "U" "MP" "I"

"Y" "UH" "G" "E" "T" "H"

"M" "OUT" "A" "DH"

"E" "RE" "K" "I"
Look over this action and study the animation points I have previously outlined as: Squash and stretch on heads, overlapping action, follow thru, the use of the anticipation drawing, and the dialogue vowels and consonants from page 33 — also notice the general phrasing of the dialogue here. How the heckler assumes a general position for a whole sentence — then changes to another position for the next sentence — instead of changing positions on every word.

LL"D 71 E 73 U 76 MP 88

I 80 RE" 85 K 87

LL"D 91 E" U 95 M 115 (SHOT OFFSTAGE) ANTICIPATES TAKE"

"TAKES" INTO SURPRISED LOOK SAD EXPRESSION AS HE —

STANDS UP REACHES FOR HAT

HEAD BARED AS HE SLOWLY TURNS AND WATCHES CORPSE CARRIED OUT. (TRUMPET PLAYS "TAPS")