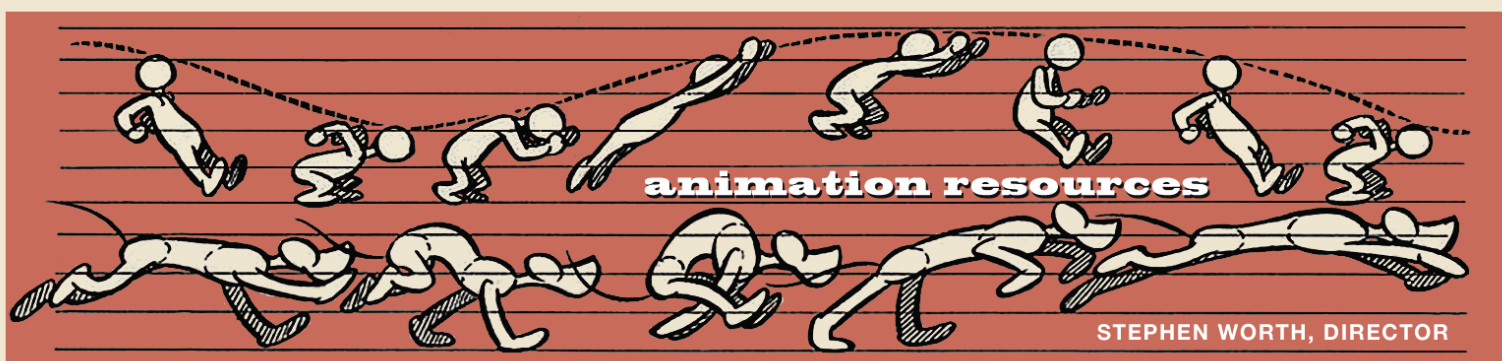


cene • John Canemaker on Bill Tytla • Gustaf Tenggren's Wonderbook • Swing, You Sinners • Natwick on Iwerks •



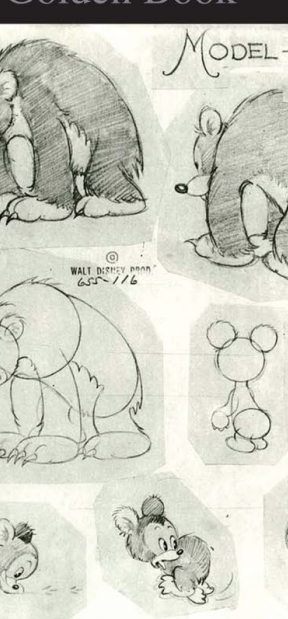
Doodles • Early



• Mary Blair



Golden Book •



ne Doodles • Early 50s UPA Model Sheets •



Carl • Sweet • 3-41 •

Golden Book • Carl • Sweet • 3-41 •

Golden Book • Carl • Sweet • 3-41 •

Golden Book • Carl • Sweet • 3-41 •

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Animation Resources Reference Pack #021

Preston Blair's ADVANCED ANIMATION First Edition

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ne Doodles • Early 50s UPA Model Sheets •

Jules Engel's Alvin Show Keys • Cliff Sterrett's Polly & Her Pals • Vip

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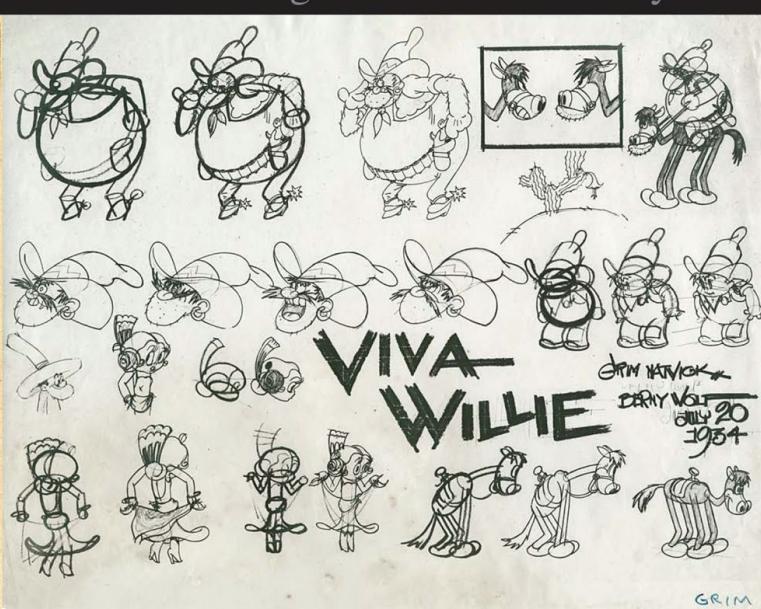
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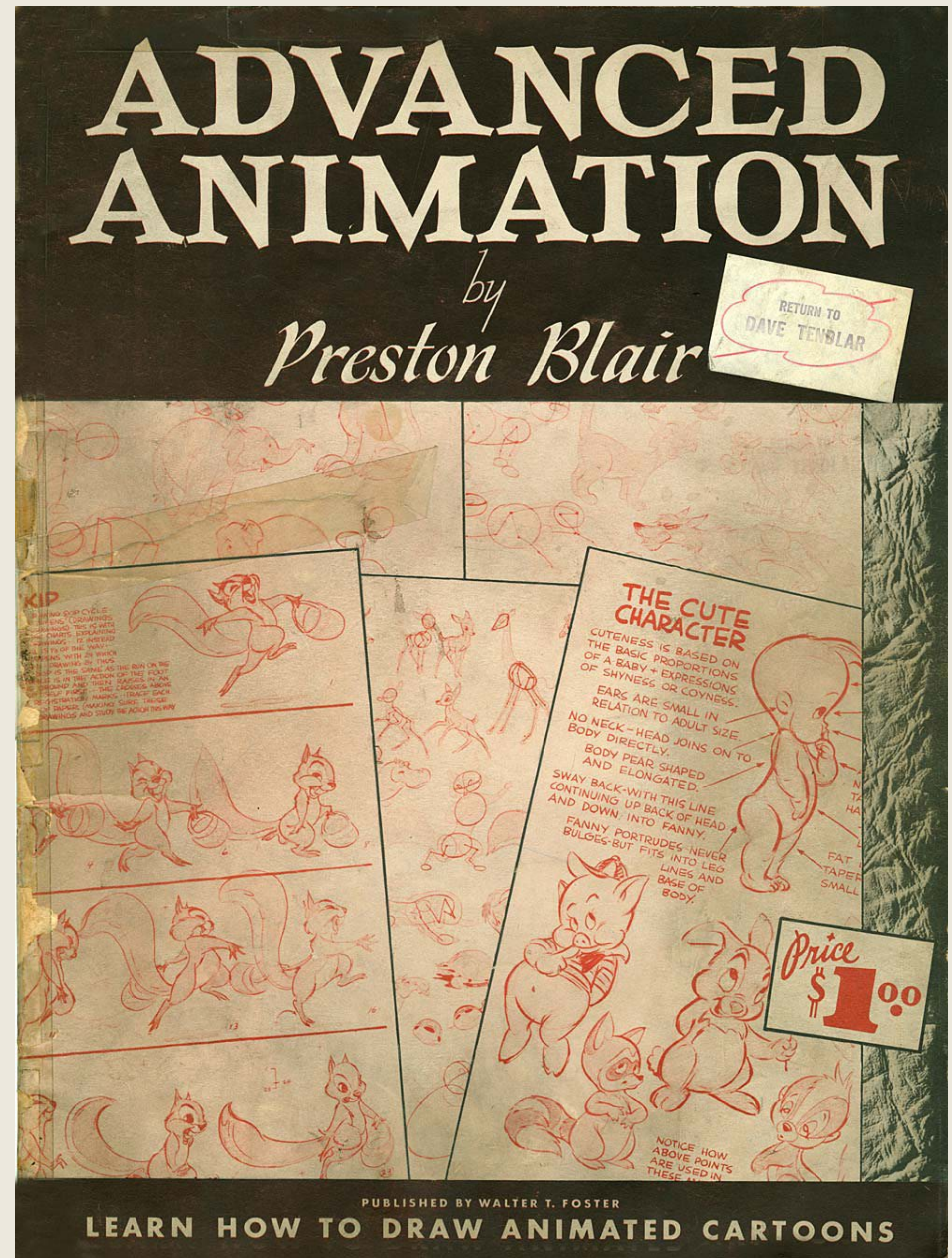
ABOUT THIS BOOK

"I began making animated films while I was a student at Santa Barbara Junior High School many, many years ago. The only text book I had was Preston Blair's animation book. Honestly, it was all I needed to get started. I can't remember how many copies of this book I've purchased over the years to give to young kids with an interest in animation. The book is pure gold." —Floyd Norman

Preston Blair's Animation (Book 1) is the best "how to" book on cartoon animation ever published. When Blair put the book together in 1947, he used the characters he had animated at Disney and MGM to illustrate the various basic principles of animation. Apparently, the rights to use some of the characters were revoked after the book was already in the stores. Publication was halted for a time, and he was forced to redraw most of the MGM characters, replacing them with generic characters of his own design. The revised edition went on to become a classic, and the first edition was forgotten.

This book is being provided to the supporters of Animation Resources as part of an online drawing course. If you would like to learn the fundamental principles of drawing for animation, see...

<https://animationresources.org/instruction/>



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.



THIS CHARACTER STARTS WITH A ROUND GLOBE



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 CIRCLE—THIS SETS FACE UP OR DOWN.



BASE OF EYES AND TOP OF NOSE TIE INTO EYE LINE.—NOTICE PERSPECTIVE MAKES LEFT EYE BIGGER THAN RIGHT

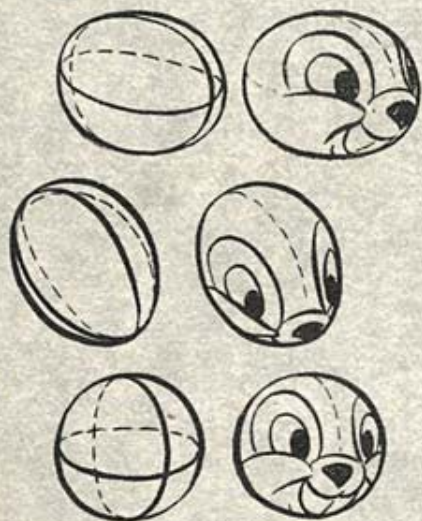


NOW THE DETAILS ARE PUT IN OVER THE FRAMEWORK.

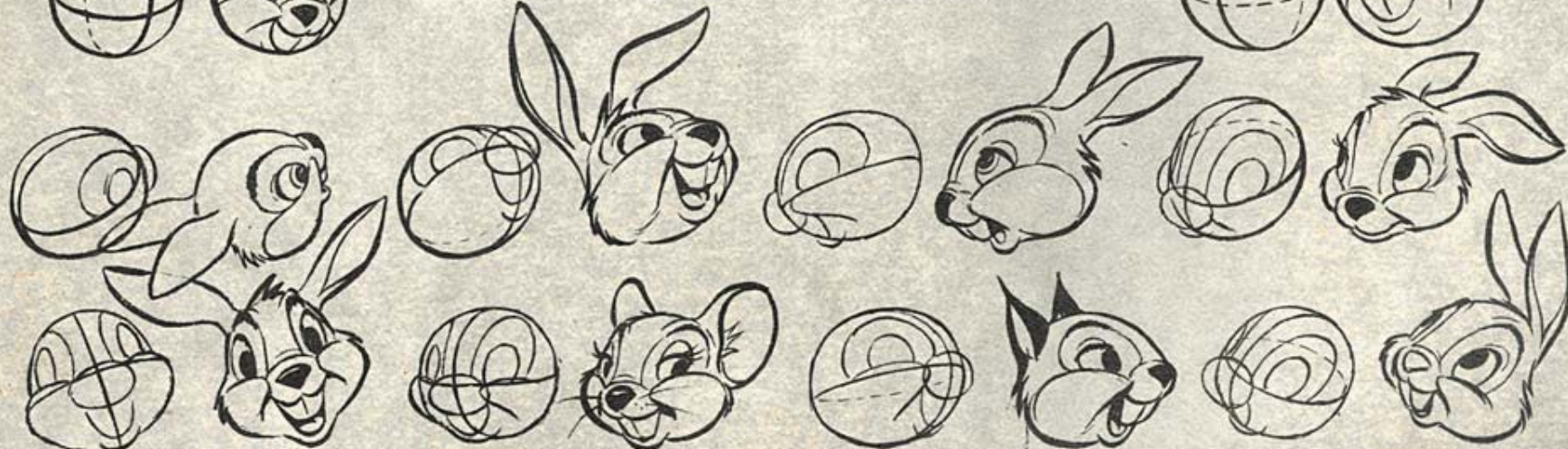


TAKE AN EGG—DRAW THE GUIDE CIRCLES AROUND IT—THEN PUT IN THE FACE.—NOW TURN THIS EGG IN EVERY CONCEIVABLE POSITION AND DRAW IT.—ANIMATION PRESENTS THE SAME PROBLEMS.

—NOW ADD A FEW DETAILS AND DRAW THESE HEADS IN EVERY POSITION USING THE ABOVE EGG AS A GUIDE.—CARTOON STUDIOS OFTEN MAKE SMALL CLAY MODELS TO AID THE ANIMATOR DRAW DIFFICULT 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



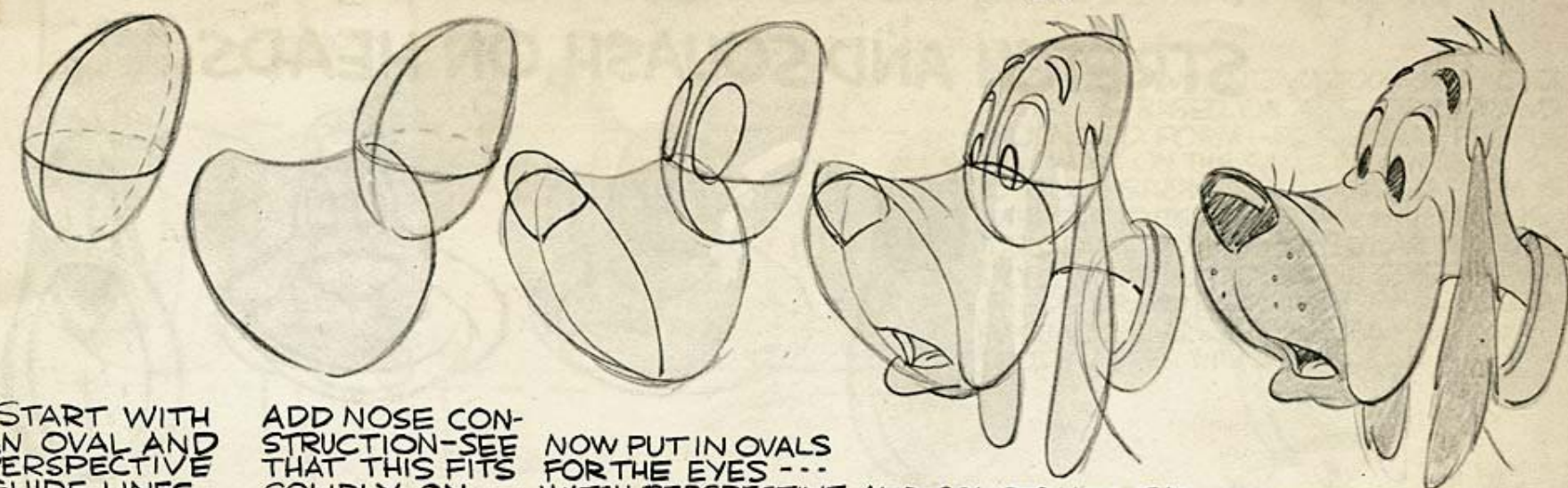
A NOTE ABOUT THE AUTHOR

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.

Walter P. Foster

DAVE TENDLAR MORE HEADS CONSTRUCTED

JAN. 1946



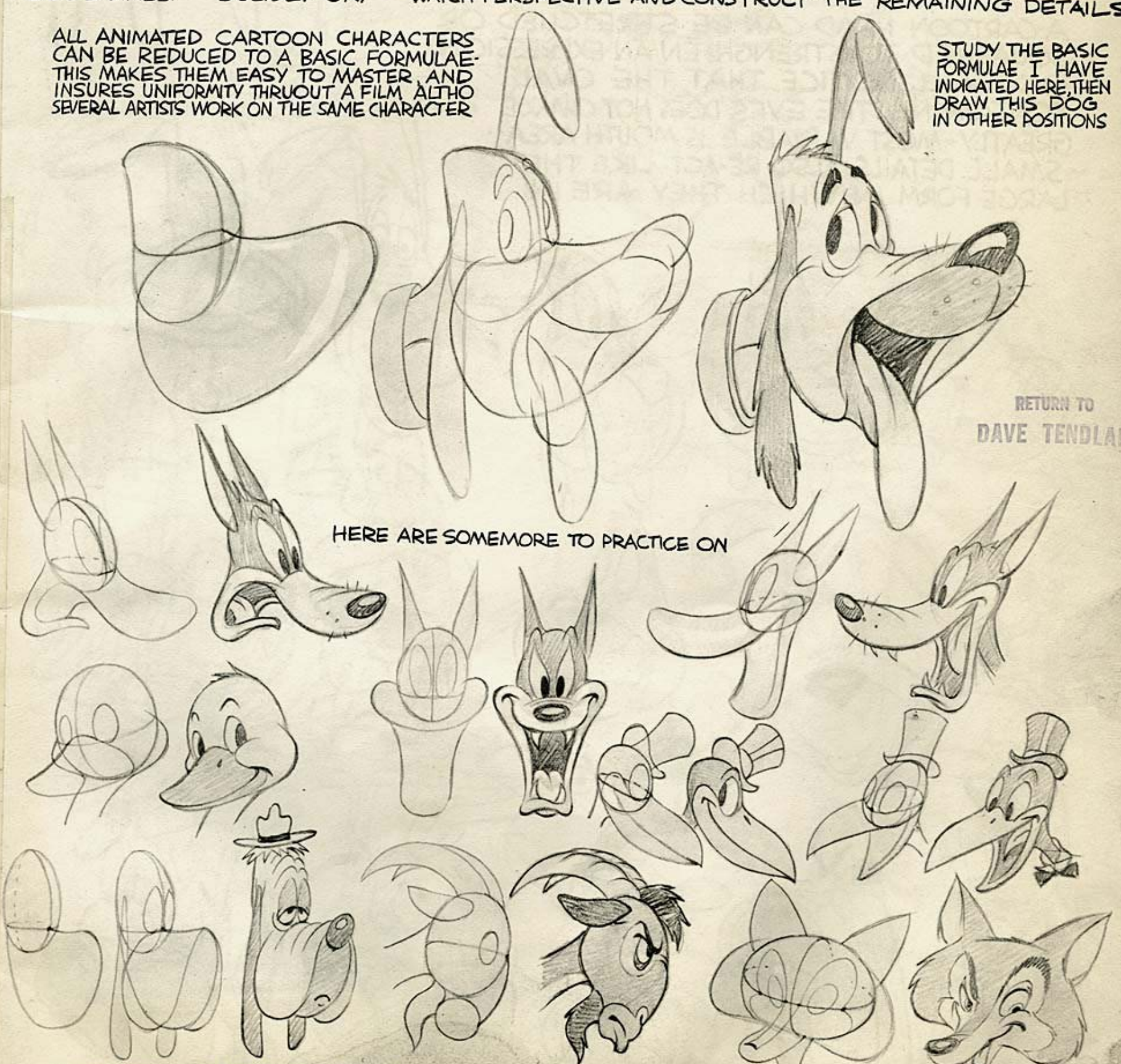
START WITH AN OVAL AND PERSPECTIVE GUIDE LINES.

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 FORMULAE.—THIS MAKES THEM EASY TO MASTER AND INSURES UNIFORMITY THROUGHT A FILM, ALTHO SEVERAL ARTISTS WORK ON THE SAME CHARACTER

STUDY THE BASIC FORMULAE I HAVE INDICATED HERE, THEN DRAW THIS DOG IN OTHER POSITIONS

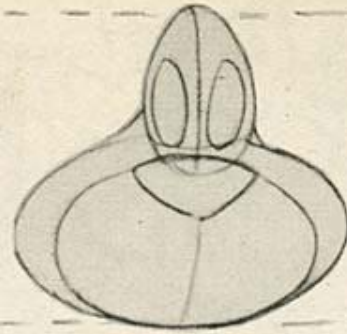
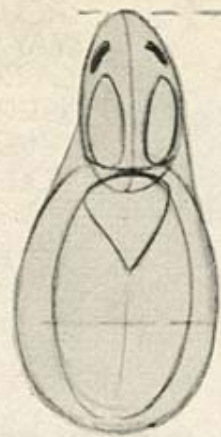
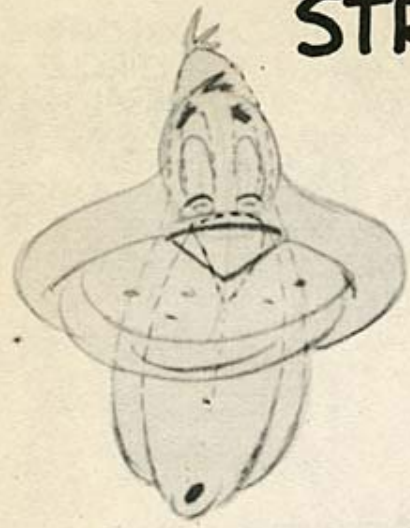


RETURN TO DAVE TENDLAR

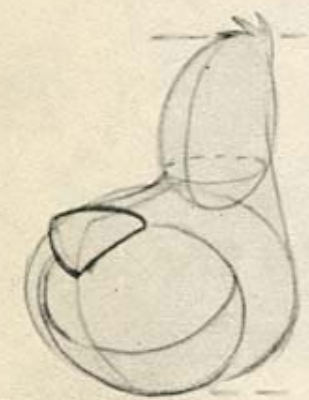
HERE ARE SOME MORE TO PRACTICE ON

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 that 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!

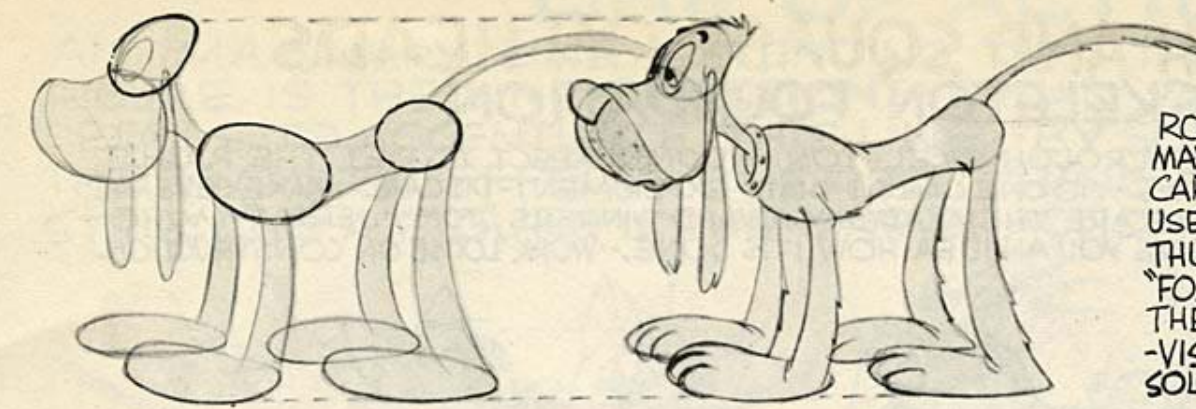
STRETCH AND SQUASH ON HEADS



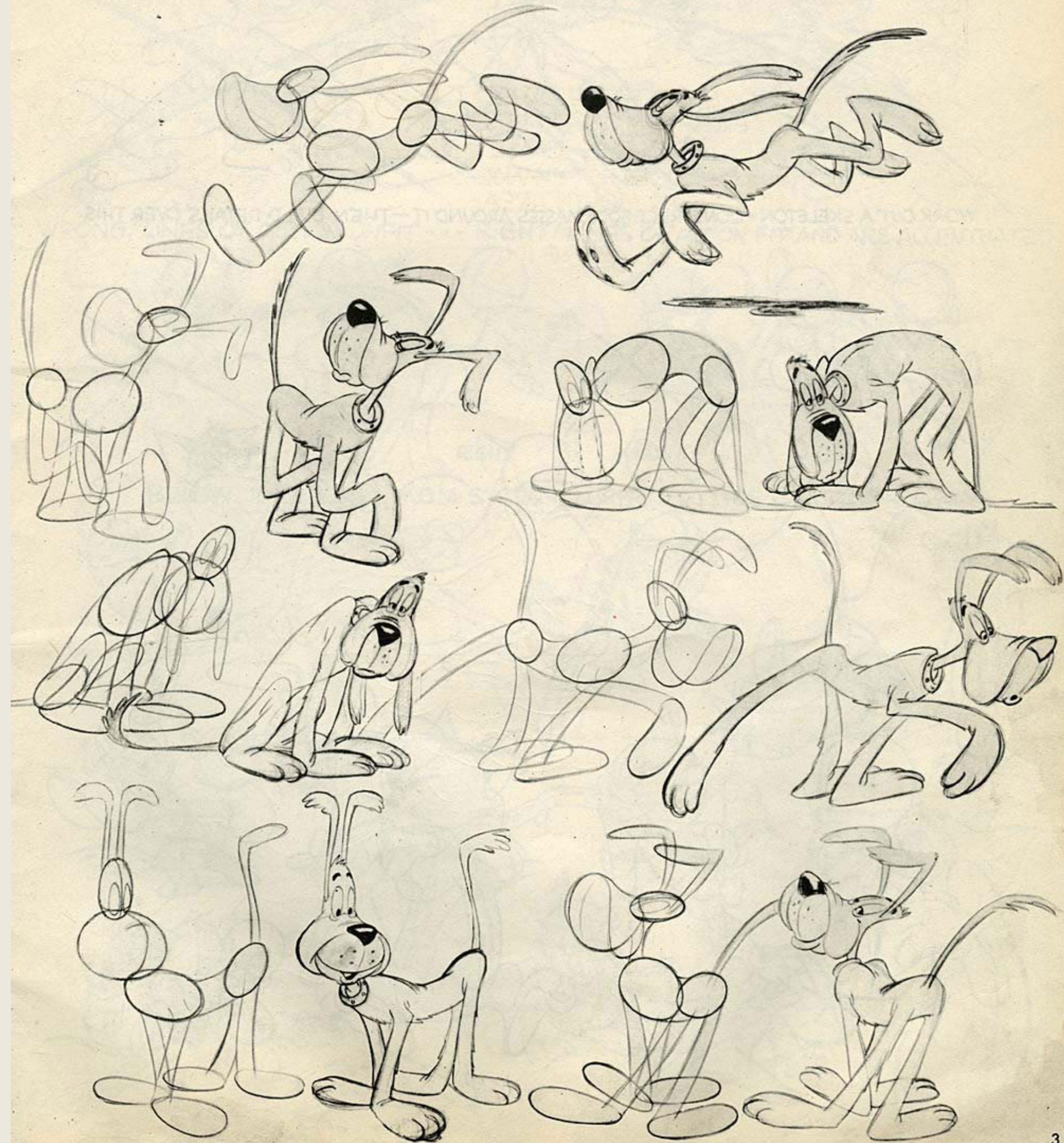
A CARTOON HEAD CAN BE STRETCHED OR SQUASHED TO STRENGTHEN AN EXPRESSION.
 ..YOU WILL NOTICE THAT THE OVAL CONTAINING THE EYES DOES NOT CHANGE GREATLY--MOST VARIABLE IS MOUTH AREA..
 ..SMALL DETAILS ALSO RE-ACT LIKE THE LARGE FORM IN WHICH THEY ARE IN.



BODY BUILT FROM ROUNDED OR CIRCULAR FORMS

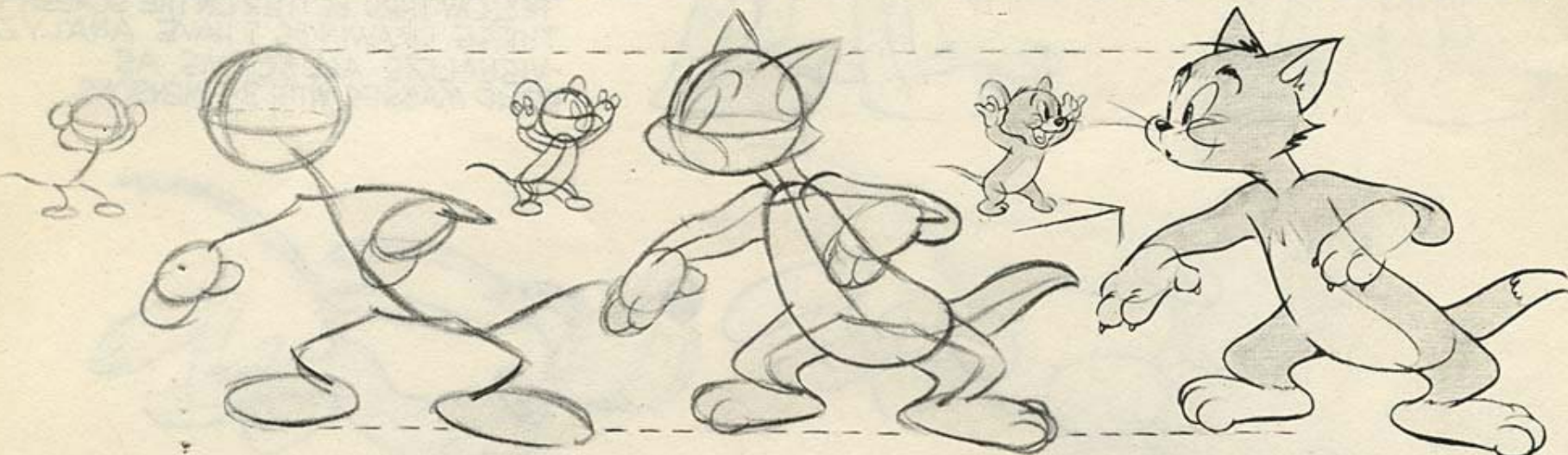


THE ANIMATED CARTOON CHARACTER IS BASED ON THE CIRCLE AND ROUNDED FORM--AS SEVERAL PEOPLE MAY WORK ON THE SAME DRAWING IN A CARTOON STUDIO, THE ROUNDED FORM IS USED DUE TO ITS SIMPLICITY--ANIMATION IS THUS EASIER--ALSO CIRCULAR FORMS FOLLOW THRU BETTER ON THE SCREEN--STUDY THESE DRAWINGS I HAVE ANALYZED--VISUALIZE ALL FORMS AS SOLID MASSES WITH 3 DIMENSIONS.

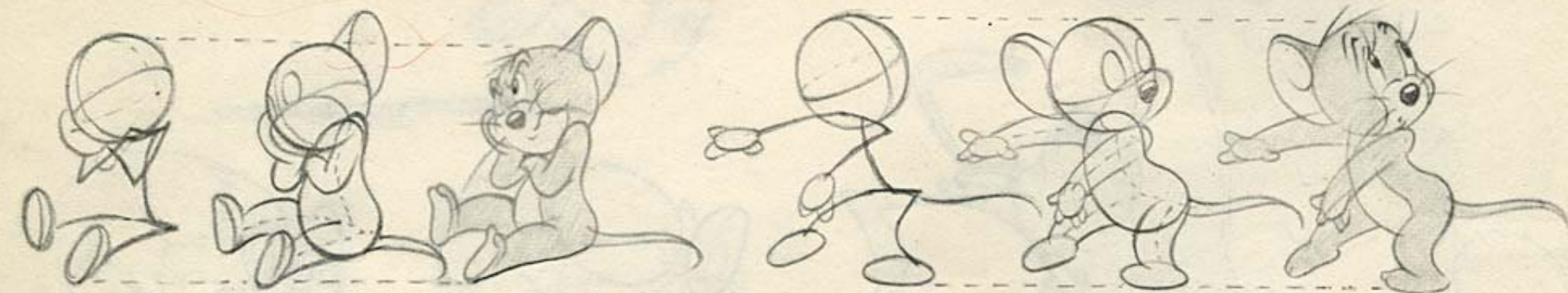


THE SKELETON FOUNDATION

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.

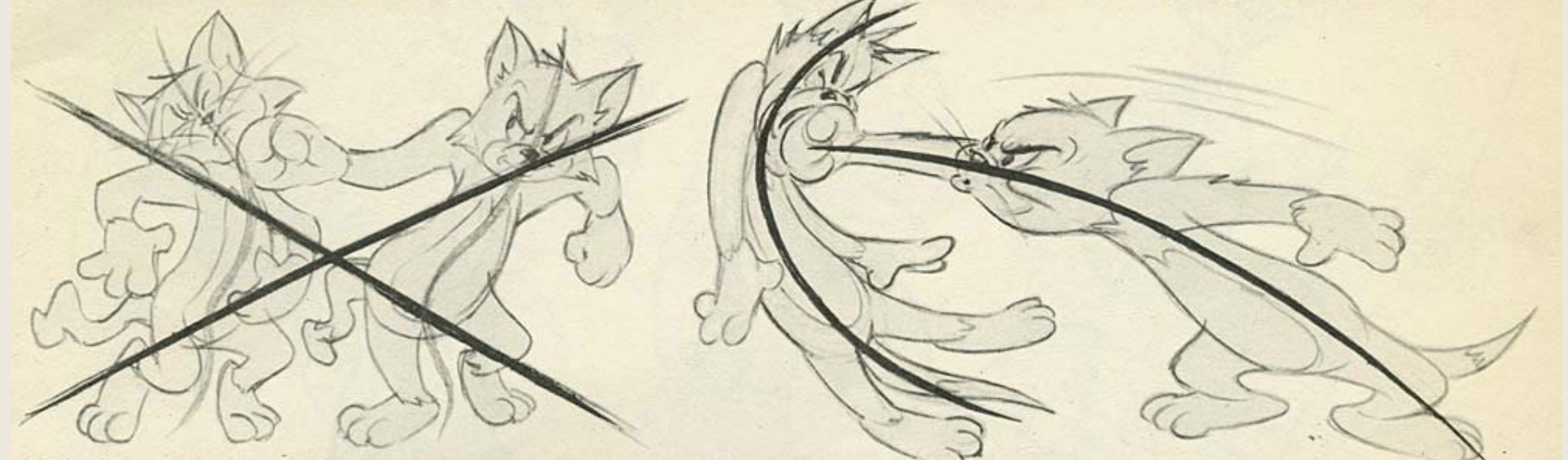


WORK OUT A SKELETON -- CONSTRUCT BODY MASSES AROUND IT -- THEN BUILD DETAILS OVER THIS

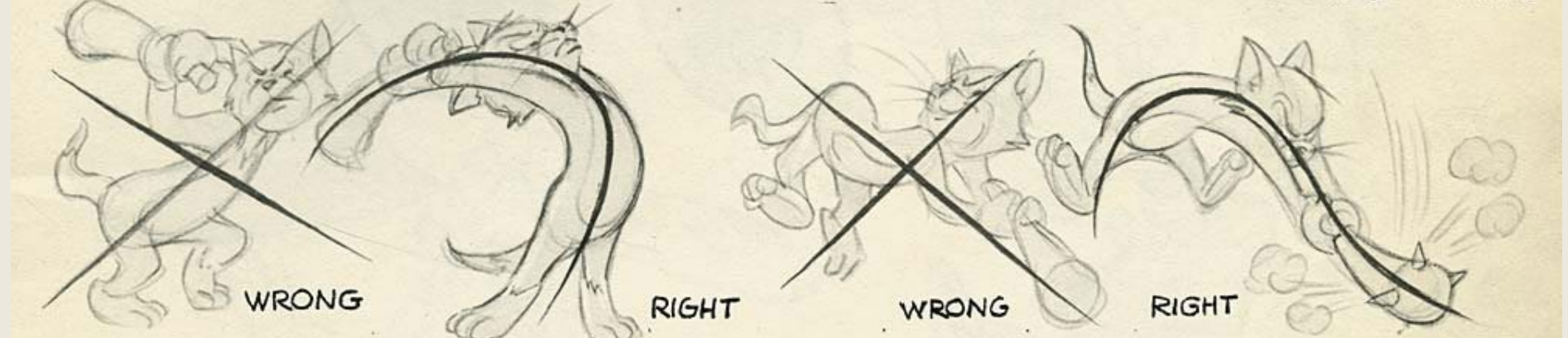


LINE OF ACTION

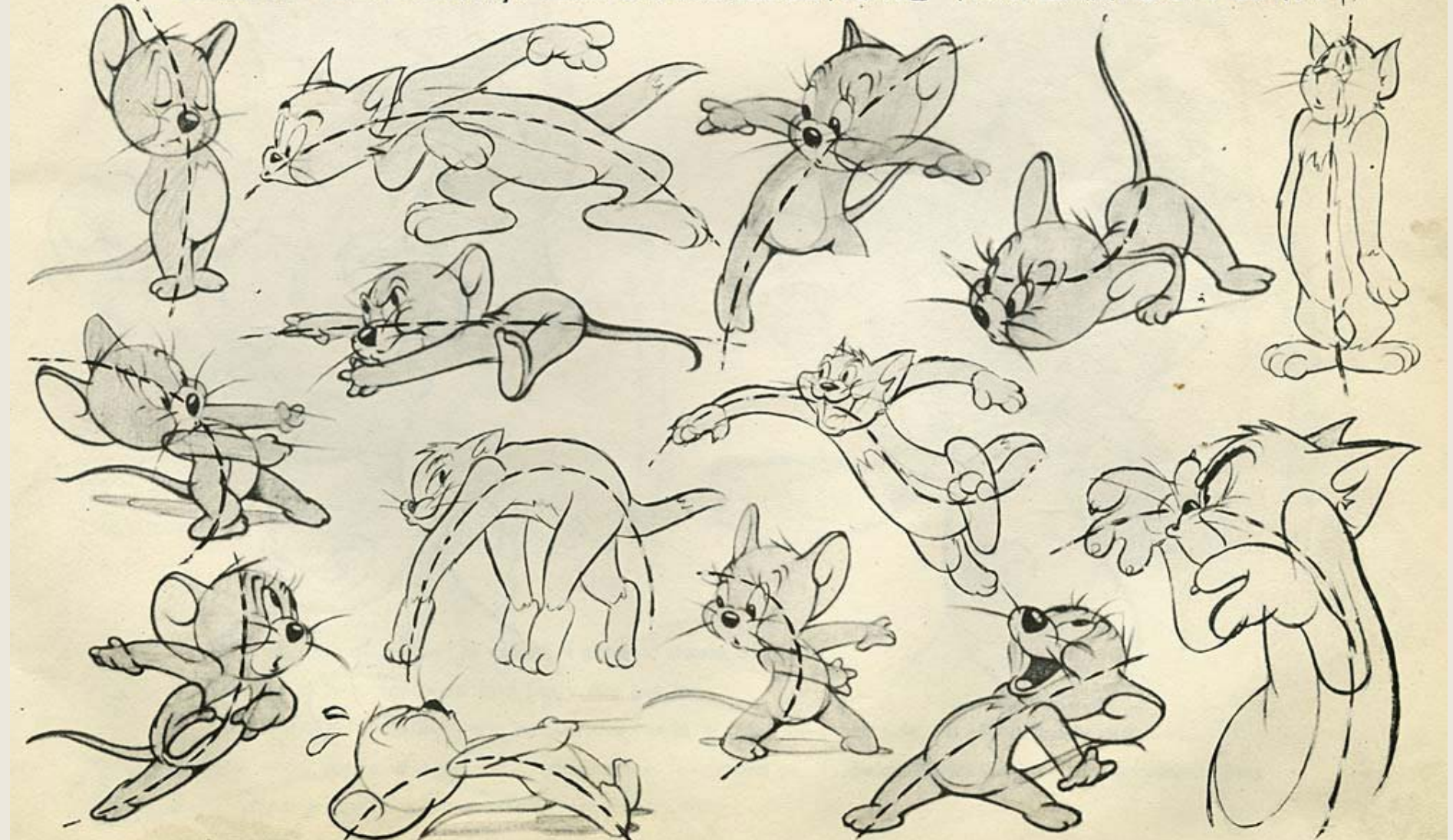
AN IMAGINARY LINE EXTENDING THRU THE MAIN ACTION OF THE FIGURE IS THE "LINE OF ACTION" -- PLAN YOUR FIGURE AND IT'S DETAILS TO ACCENTUATE THIS LINE -- BY SO DOING YOU STRENGTHEN THE DRAMATIC EFFECT -- THE FIRST THING TO DRAW WHEN CONSTRUCTING A FIGURE IS THE LINE OF ACTION -- THEN BUILD OVER THAT.



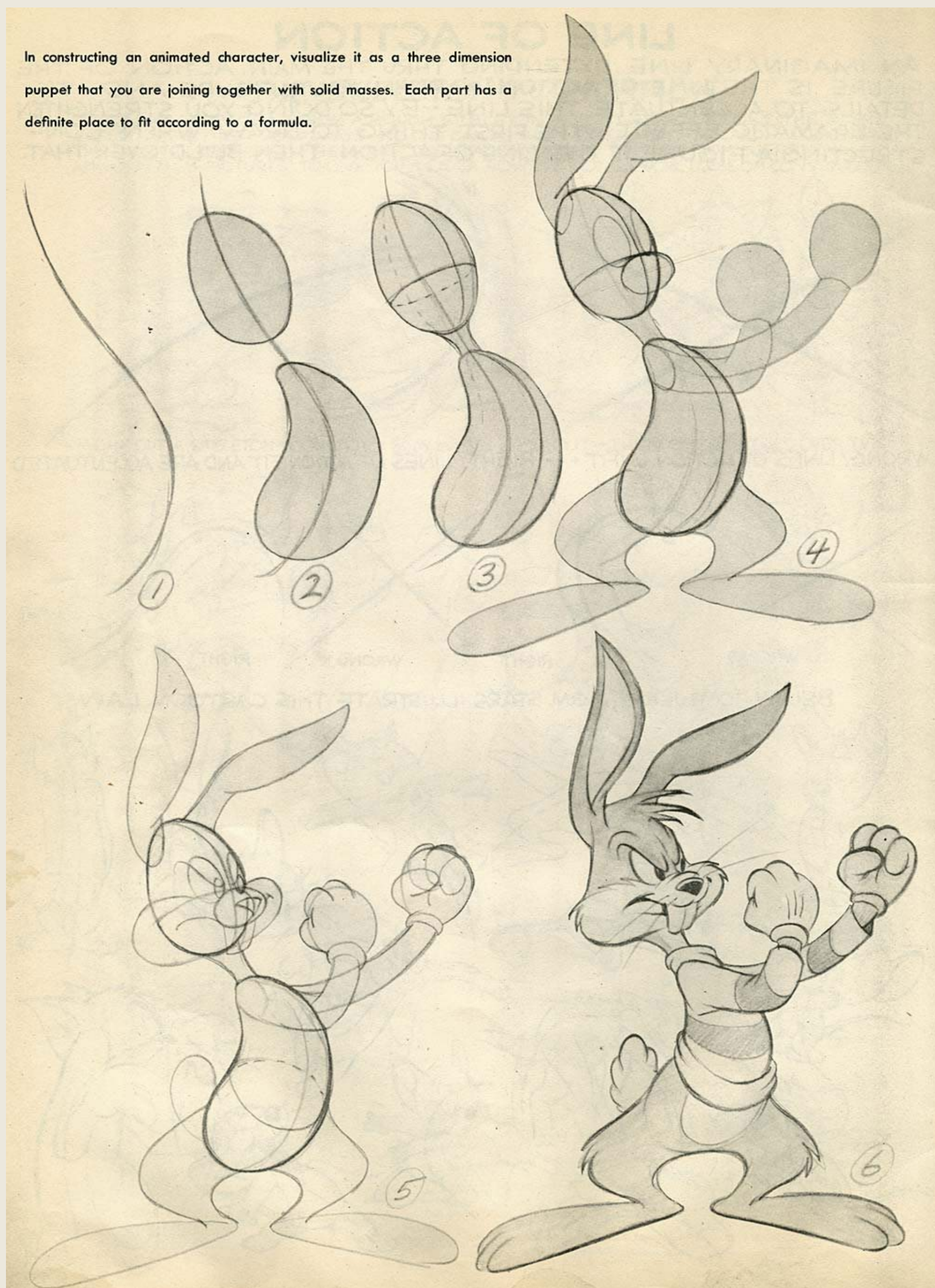
WRONG! LINES OF ACTION UNFIT --- RIGHT! LINES OF ACTION FIT AND ARE ACCENTUATED



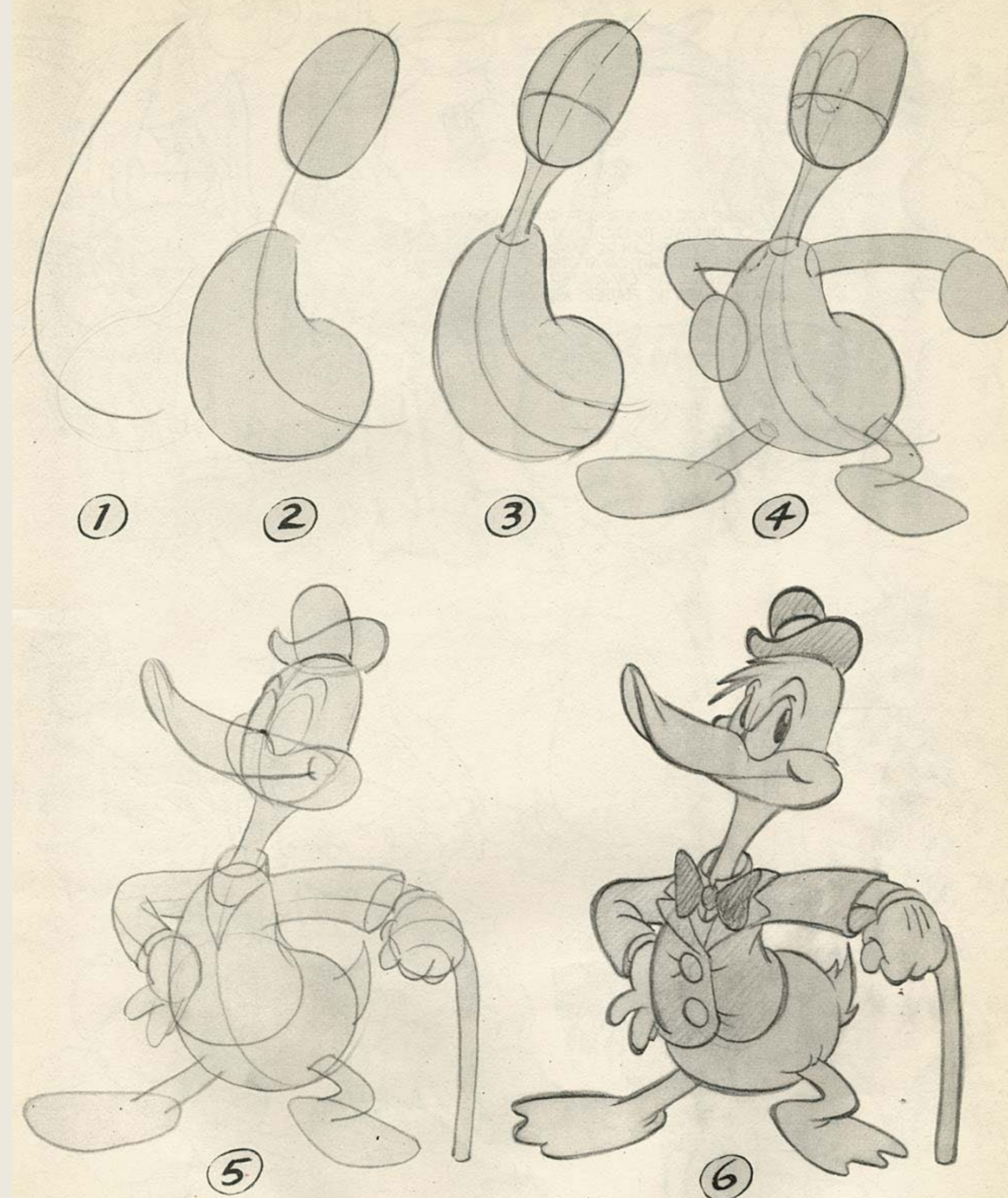
BELOW "TOM + JERRY," M.G.M. STARS, ILLUSTRATE THIS CARTOON LAW



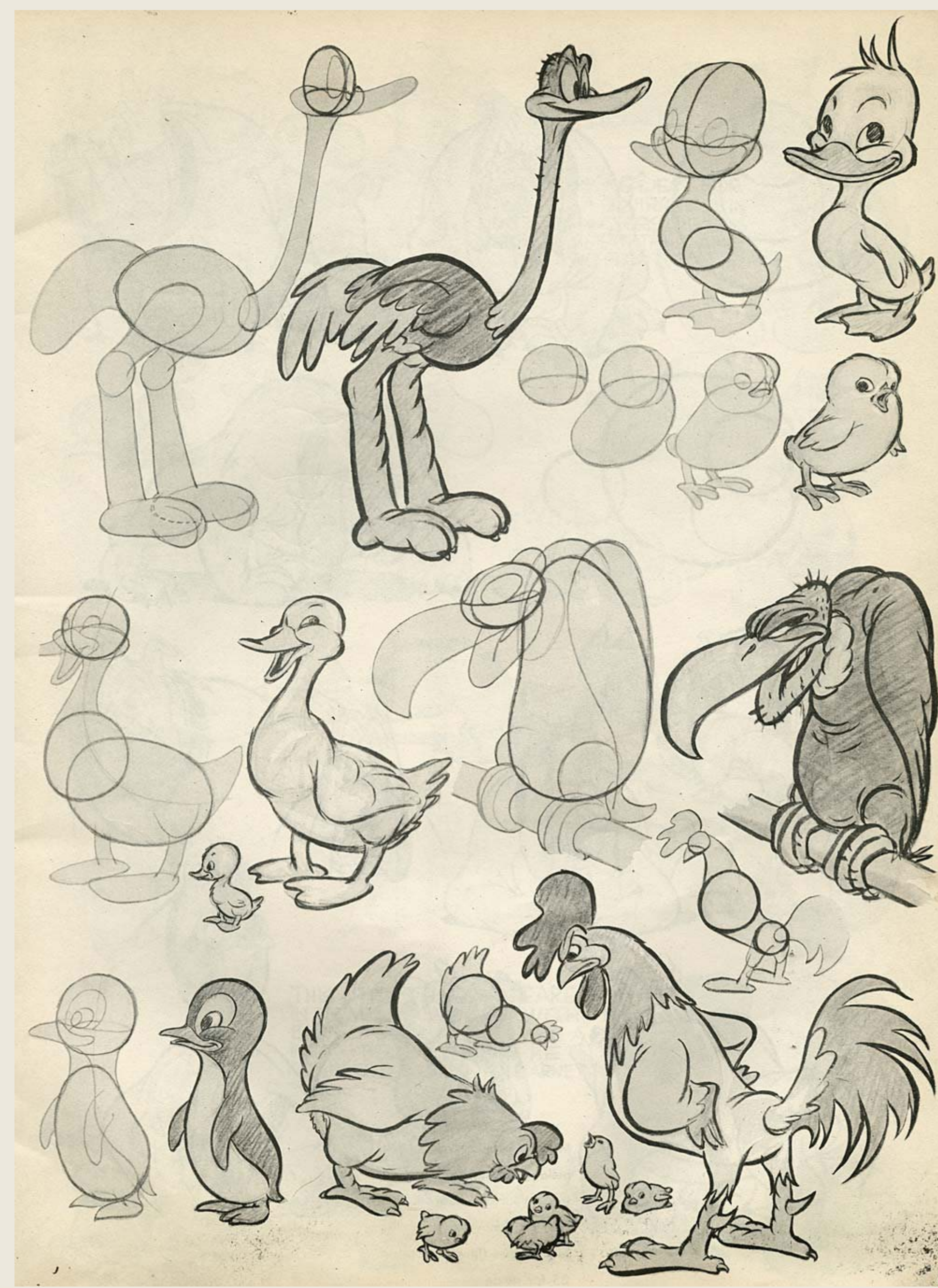
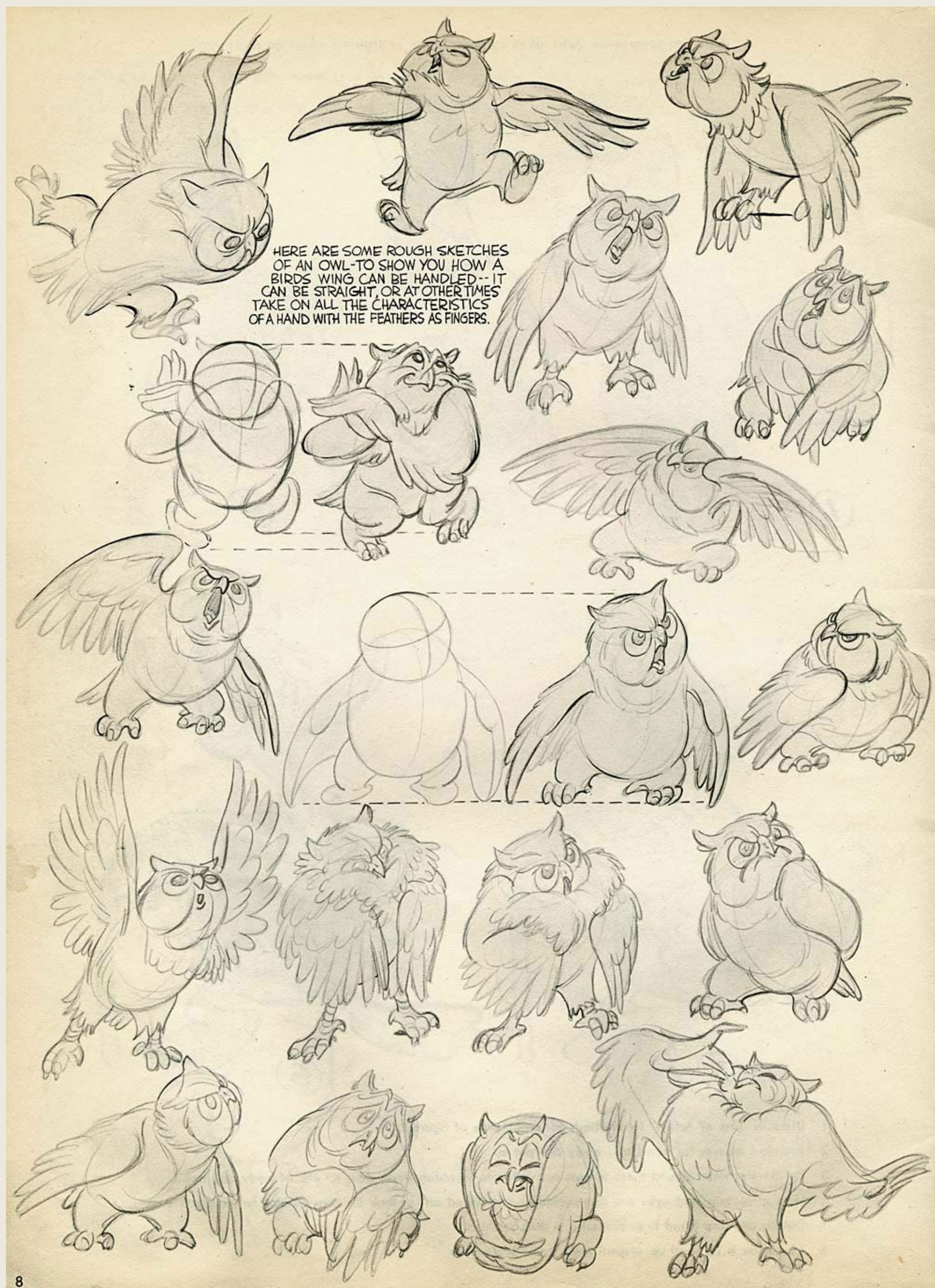
In constructing an animated character, visualize it as a three dimension puppet that you are joining together with solid masses. Each part has a definite place to fit according to a formula.

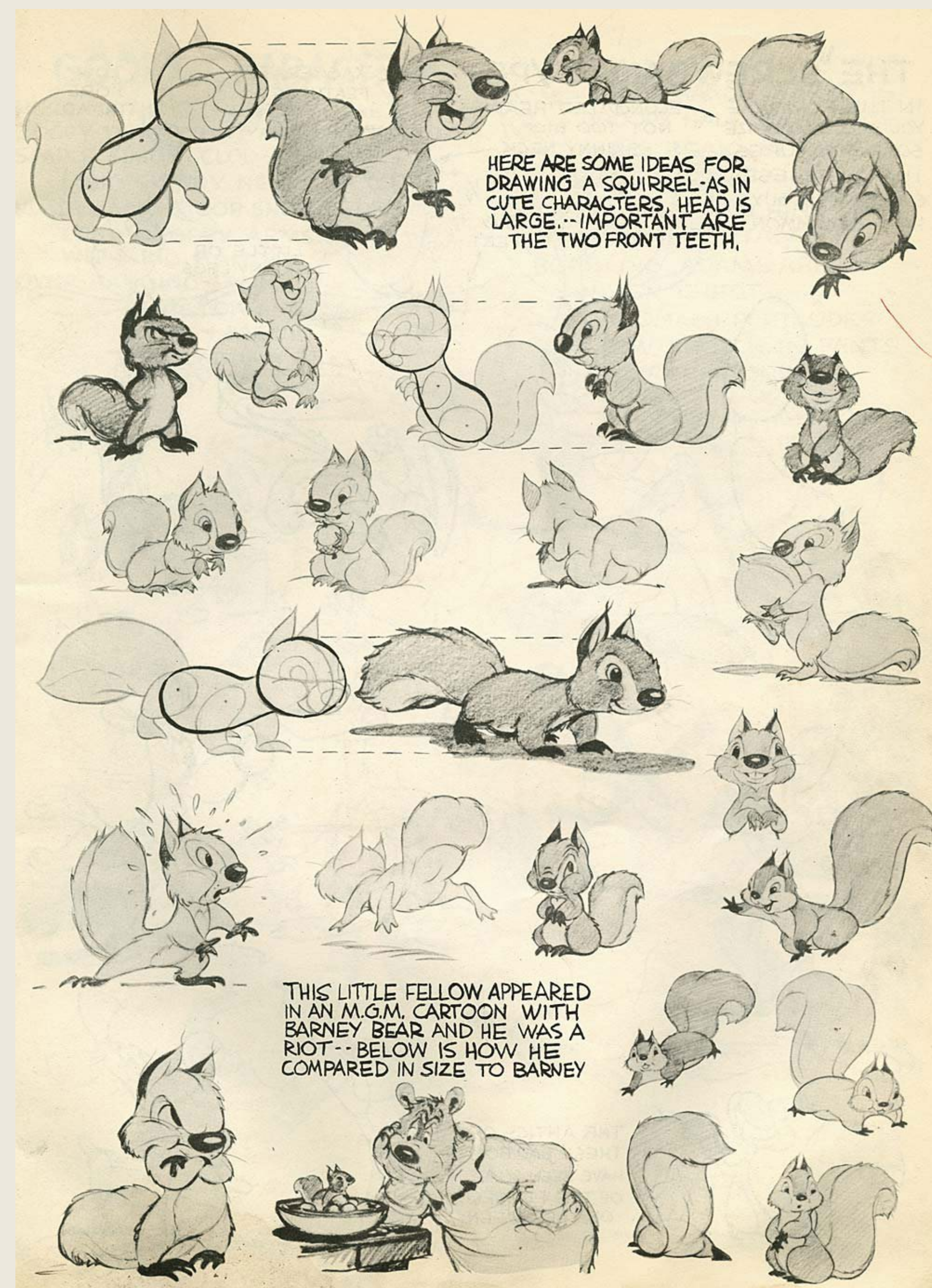
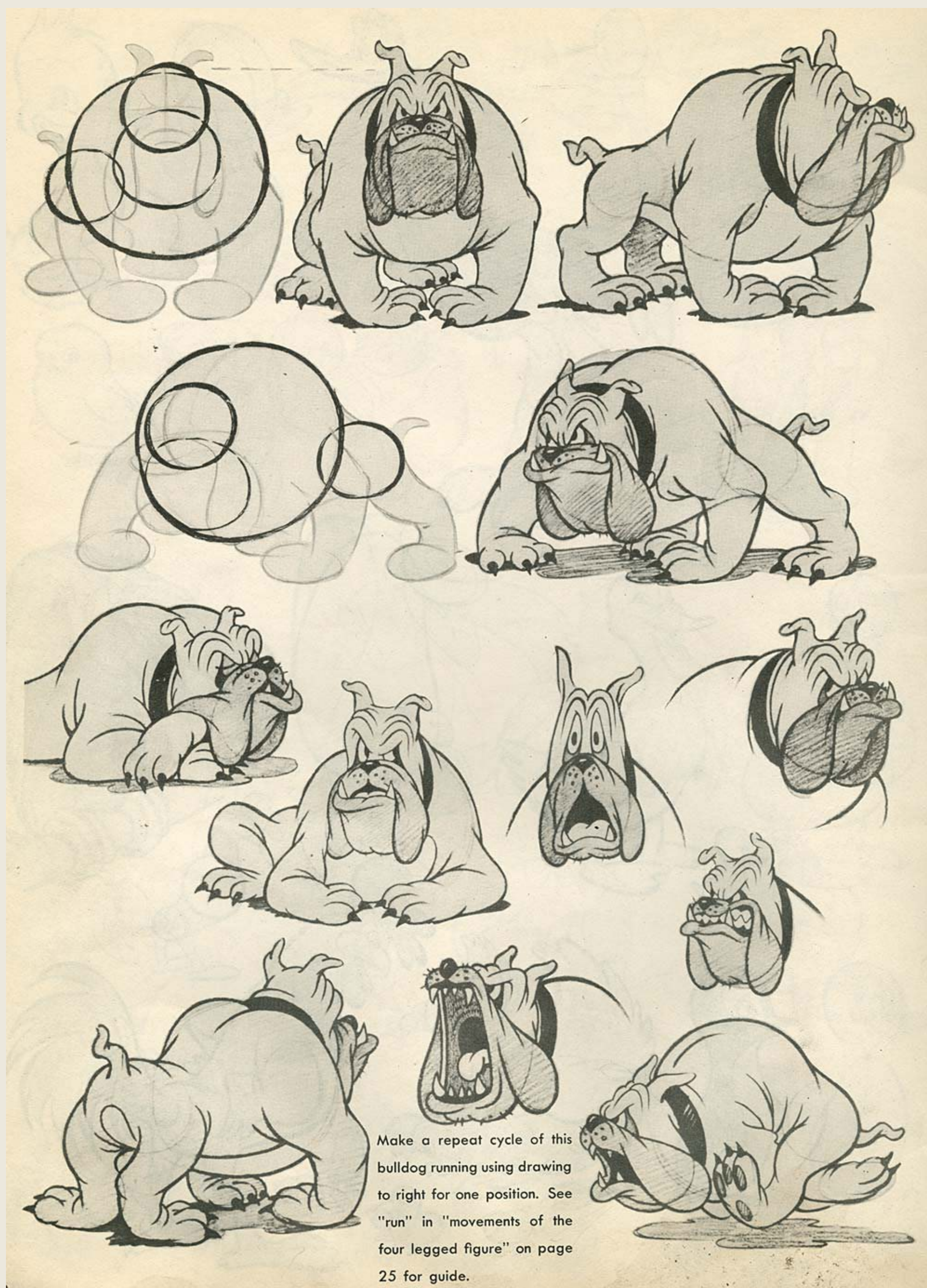


These are progressive steps taken by an animator in drawing a cartoon character



- 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.





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

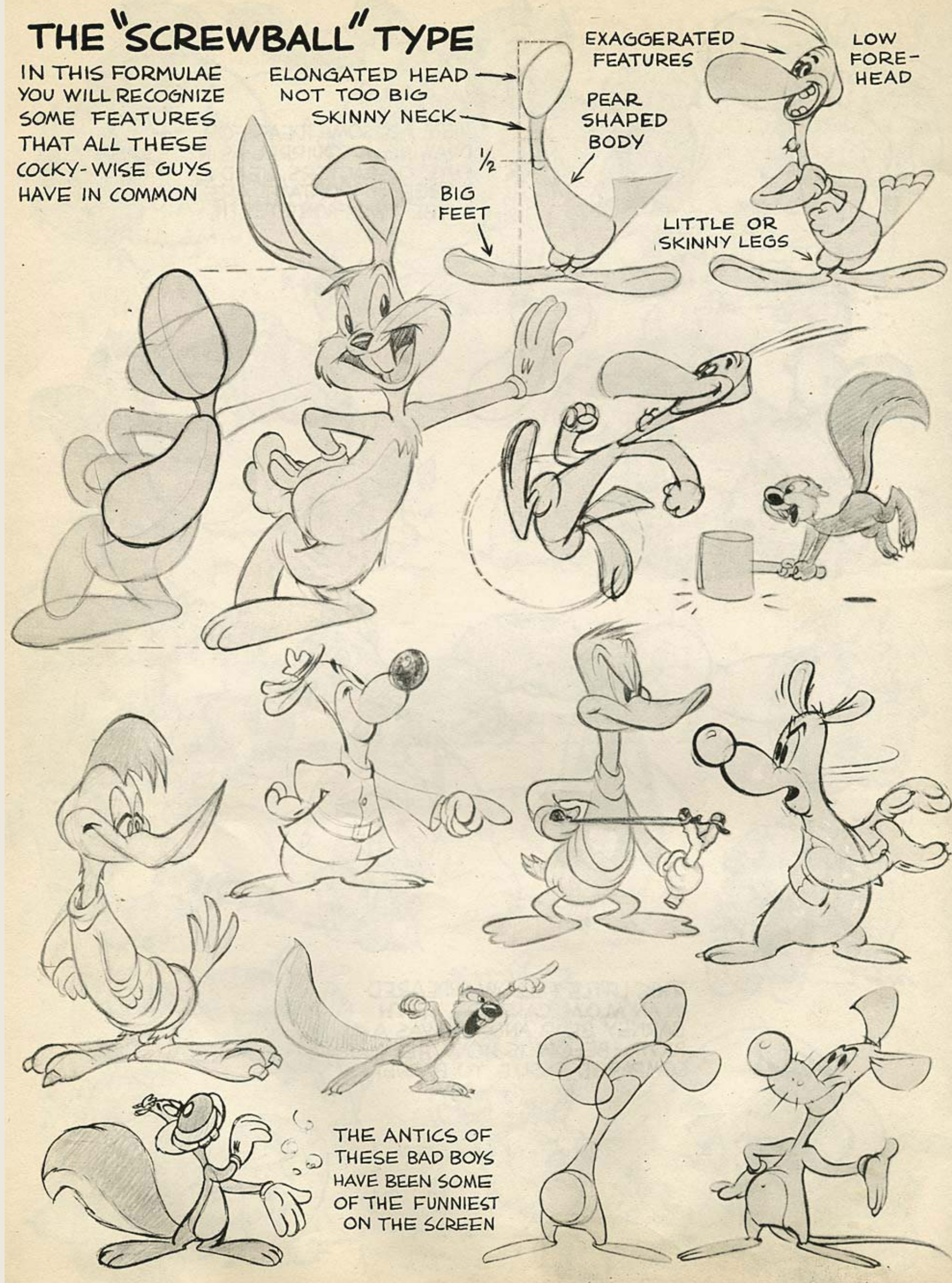
EXAGGERATED
FEATURES

LOW
FORE-
HEAD

PEAR
SHAPED
BODY

1/2
BIG
FEET

LITTLE OR
SKINNY LEGS



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.

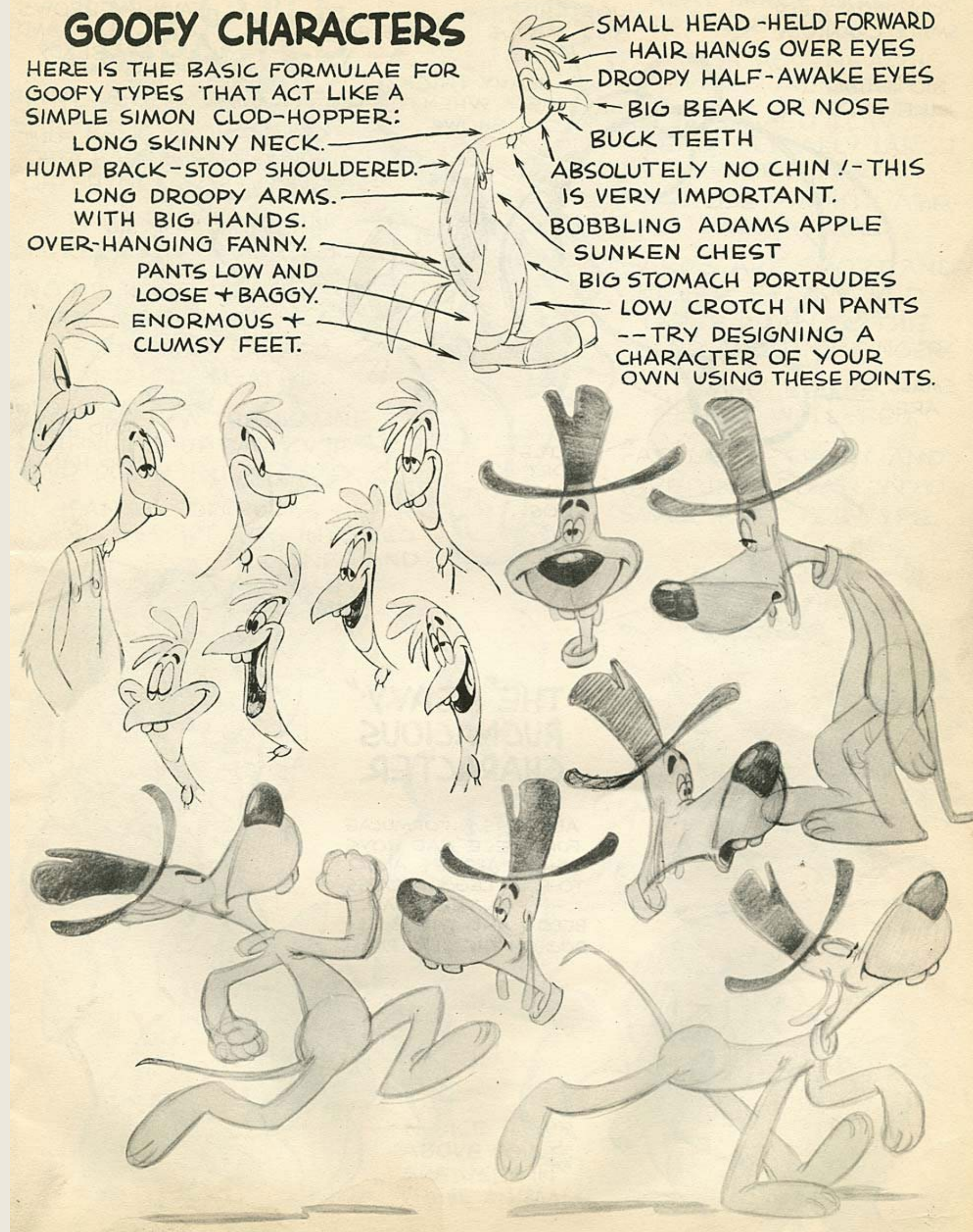
BOBBLING ADAMS APPLE

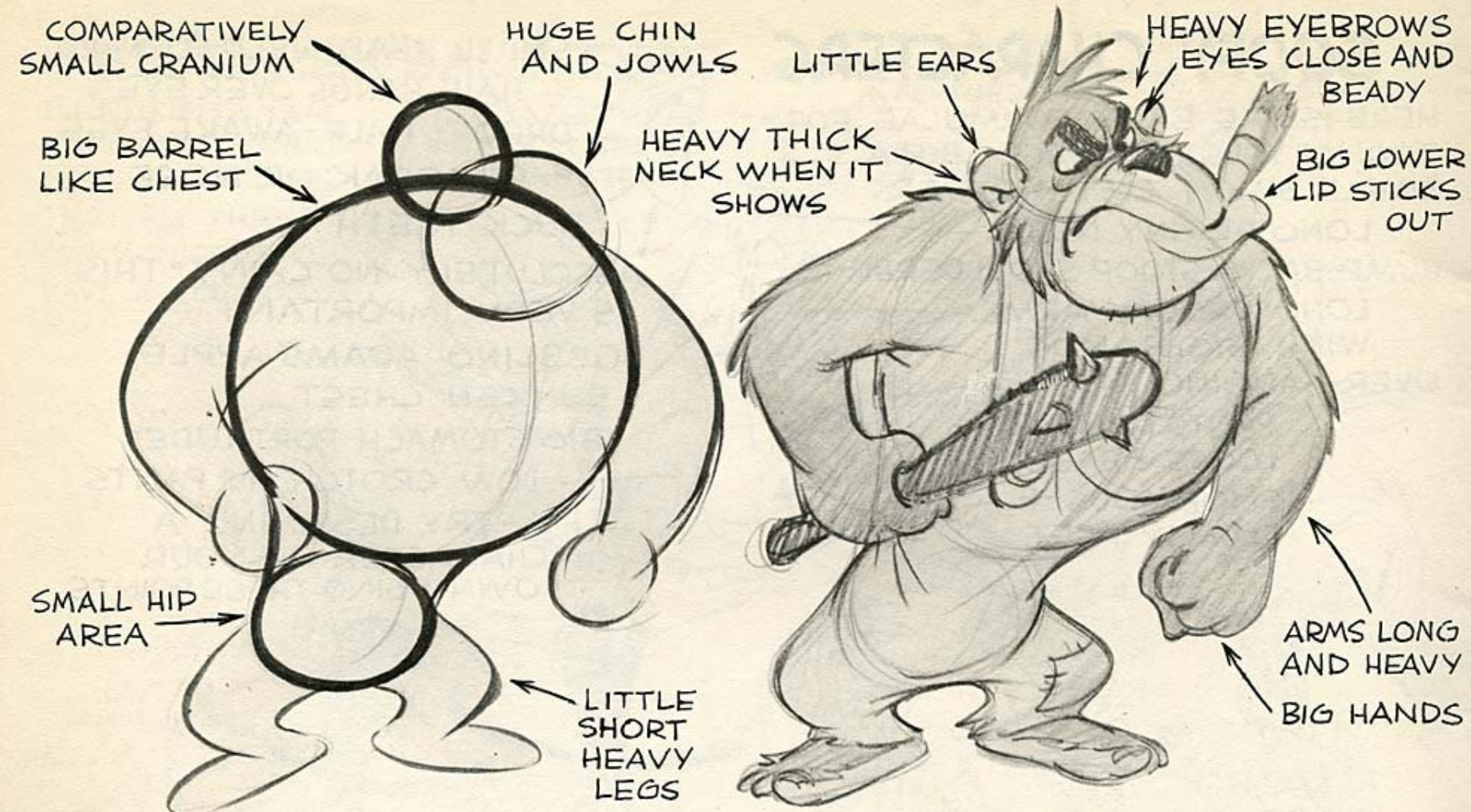
SUNKEN CHEST

BIG STOMACH PORTRUDES

LOW CROTCH IN PANTS

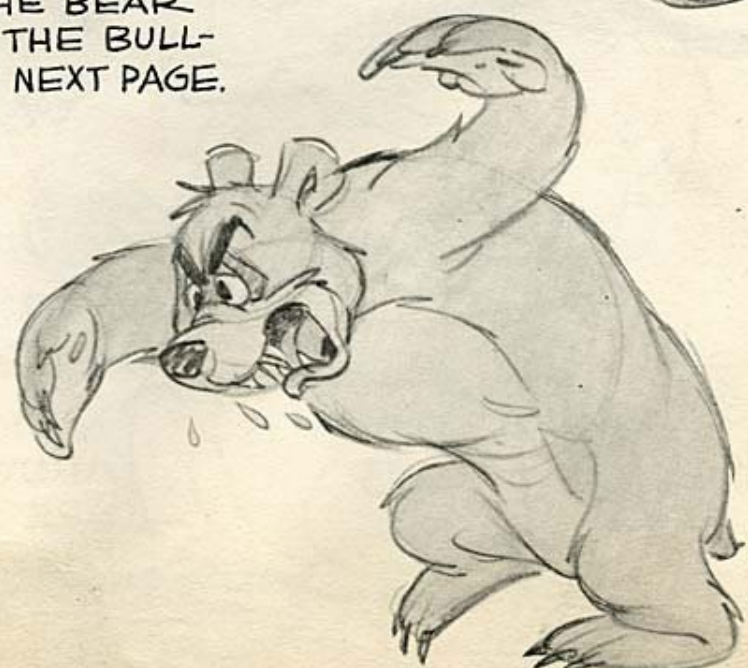
--TRY DESIGNING A CHARACTER OF YOUR OWN USING THESE POINTS.





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 BULL-DOG 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 LINES AND BASE OF BODY.

HEAD LARGE IN RELATION TO THE BODY.

HIGH FOREHEAD IS VERY IMPORTANT.

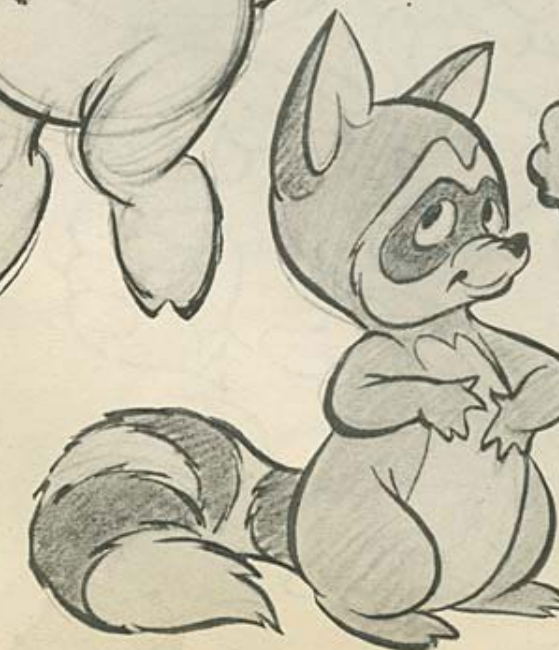
EYES SPACED LOW ON HEAD + USUALLY LARGE AND WIDE APART.

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.

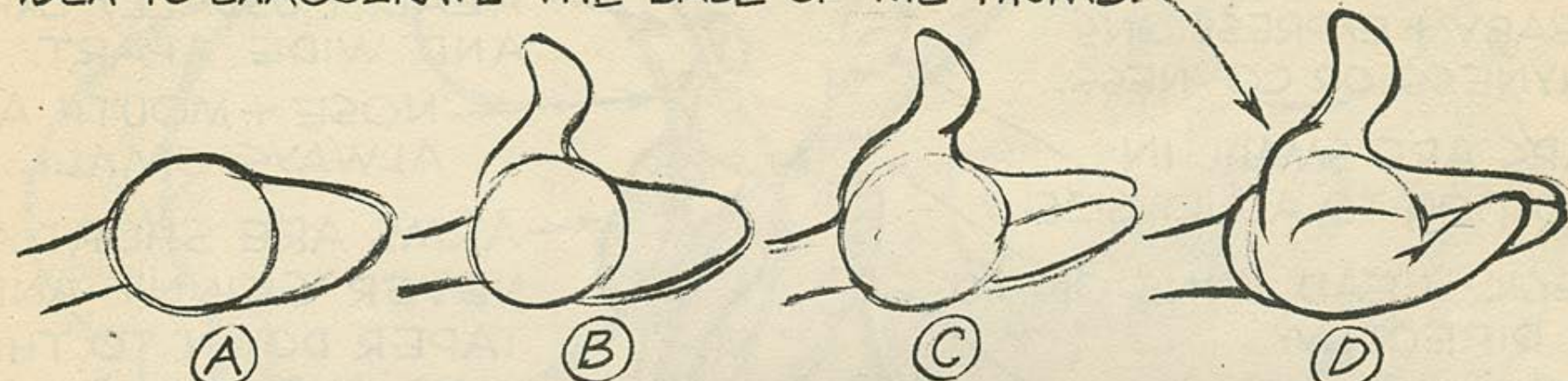
FAT LEGS - SHORT AND TAPERING DOWN INTO SMALL FEET FOR TYPE.



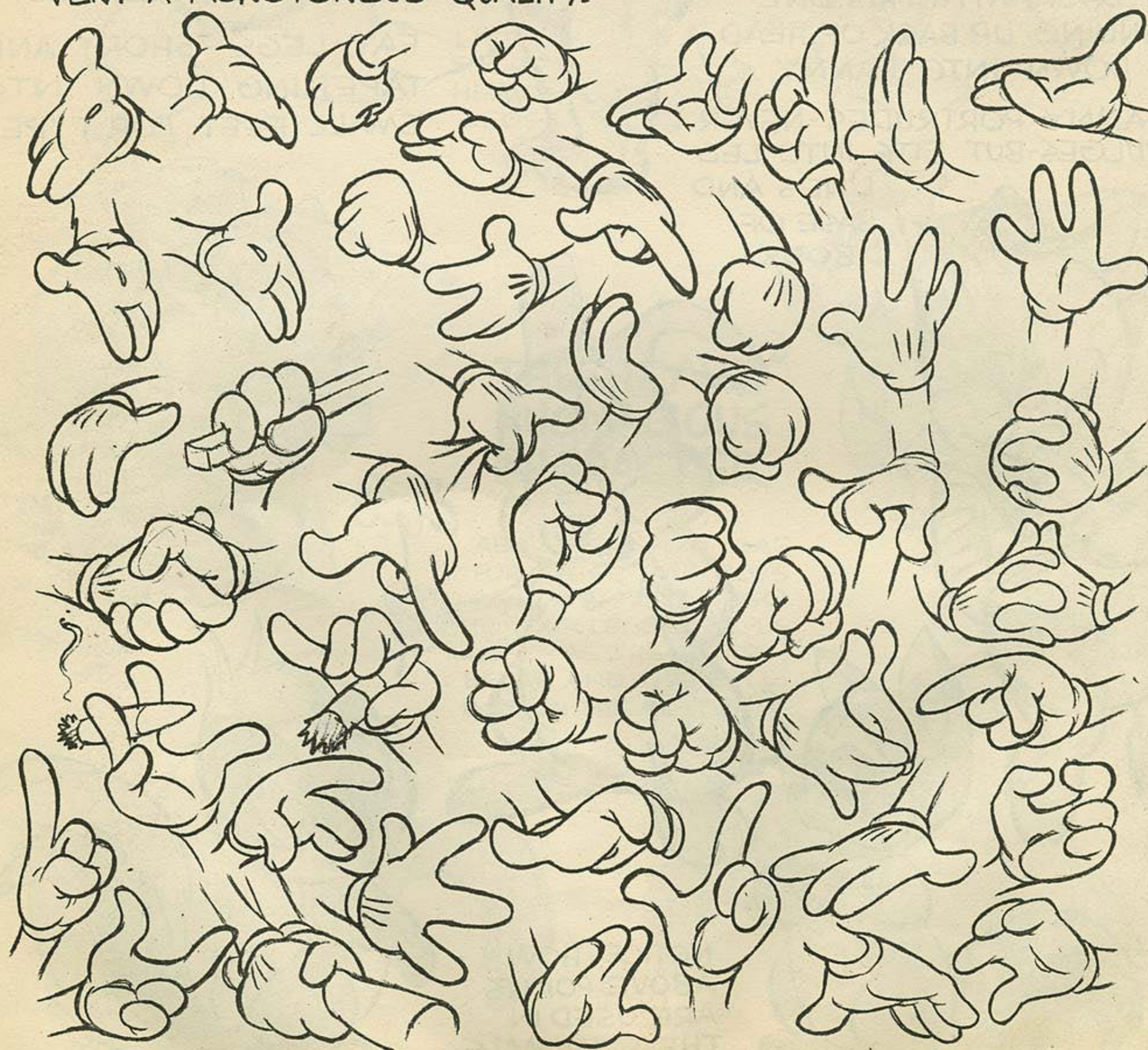
NOTICE HOW ABOVE POINTS ARE USED IN THESE ANIMALS

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.

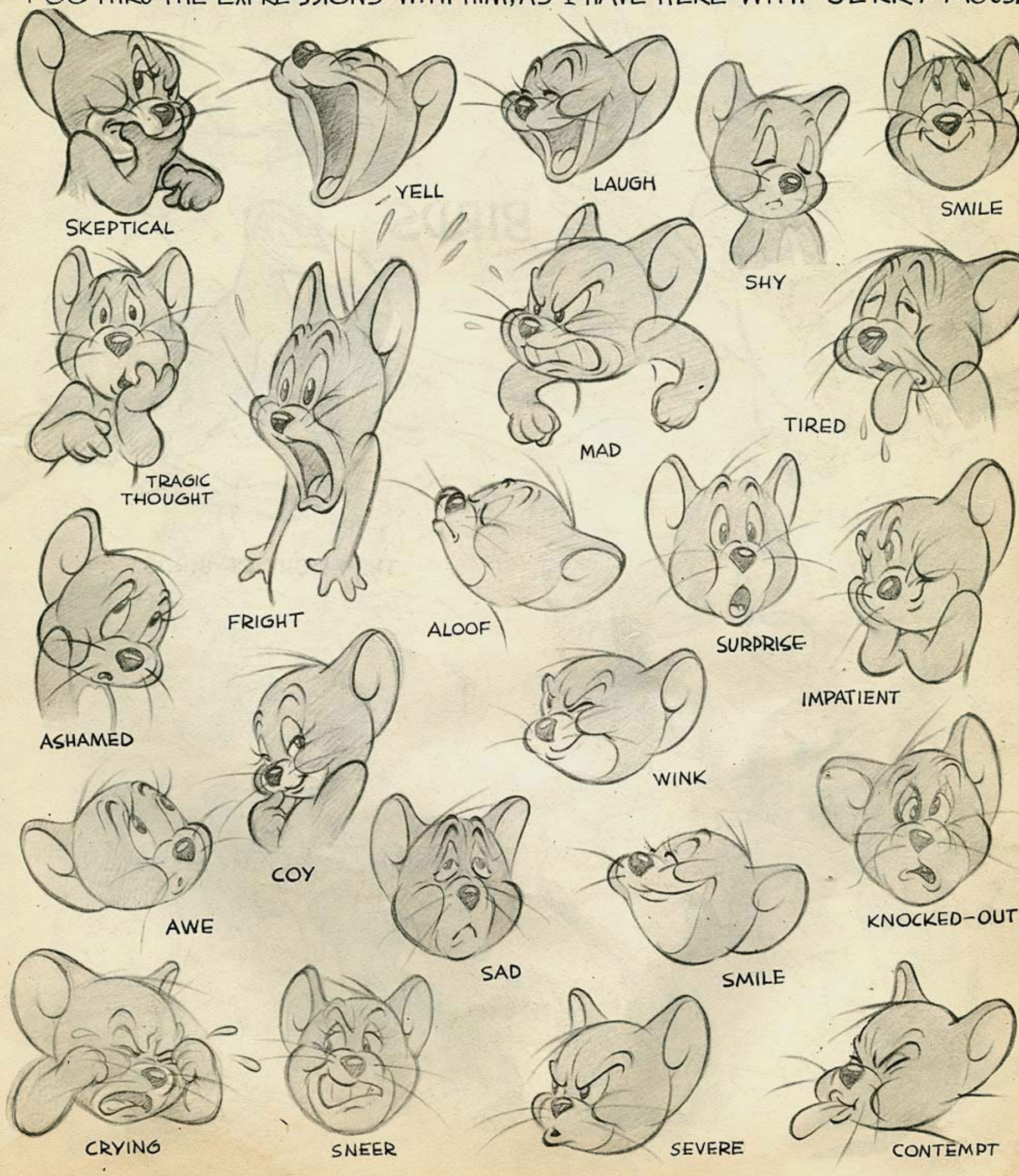


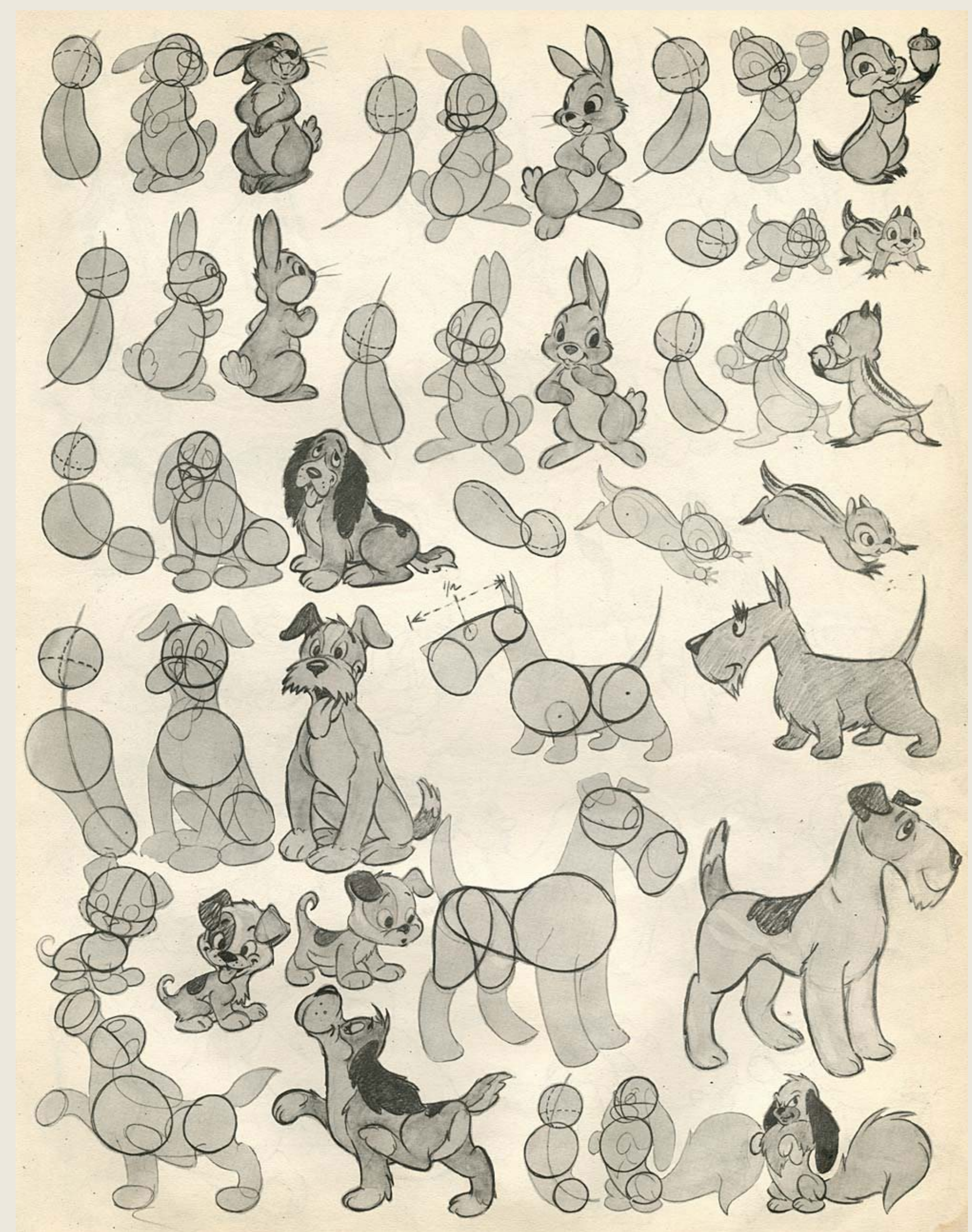
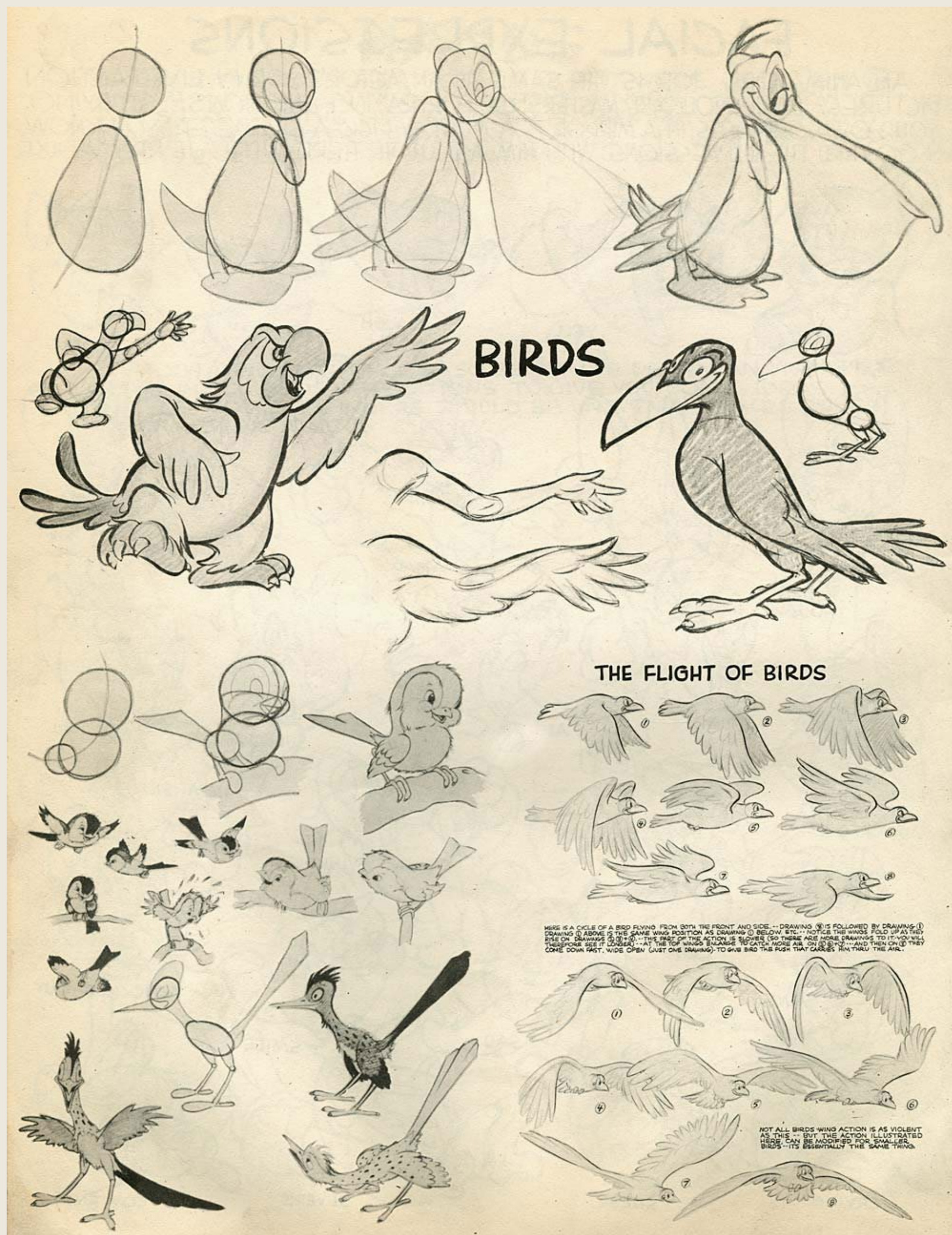
CARTOON HANDS ARE TRICKY — SO BELOW I'VE DRAWN AN AVERAGE HAND IN ALL KINDS OF POSITIONS TO GIVE YOU SOME IDEAS. — NOTICE THAT THE FINGERS SHOULD BE UNEVENLY PLACED TO PREVENT A MONOTONOUS QUALITY.

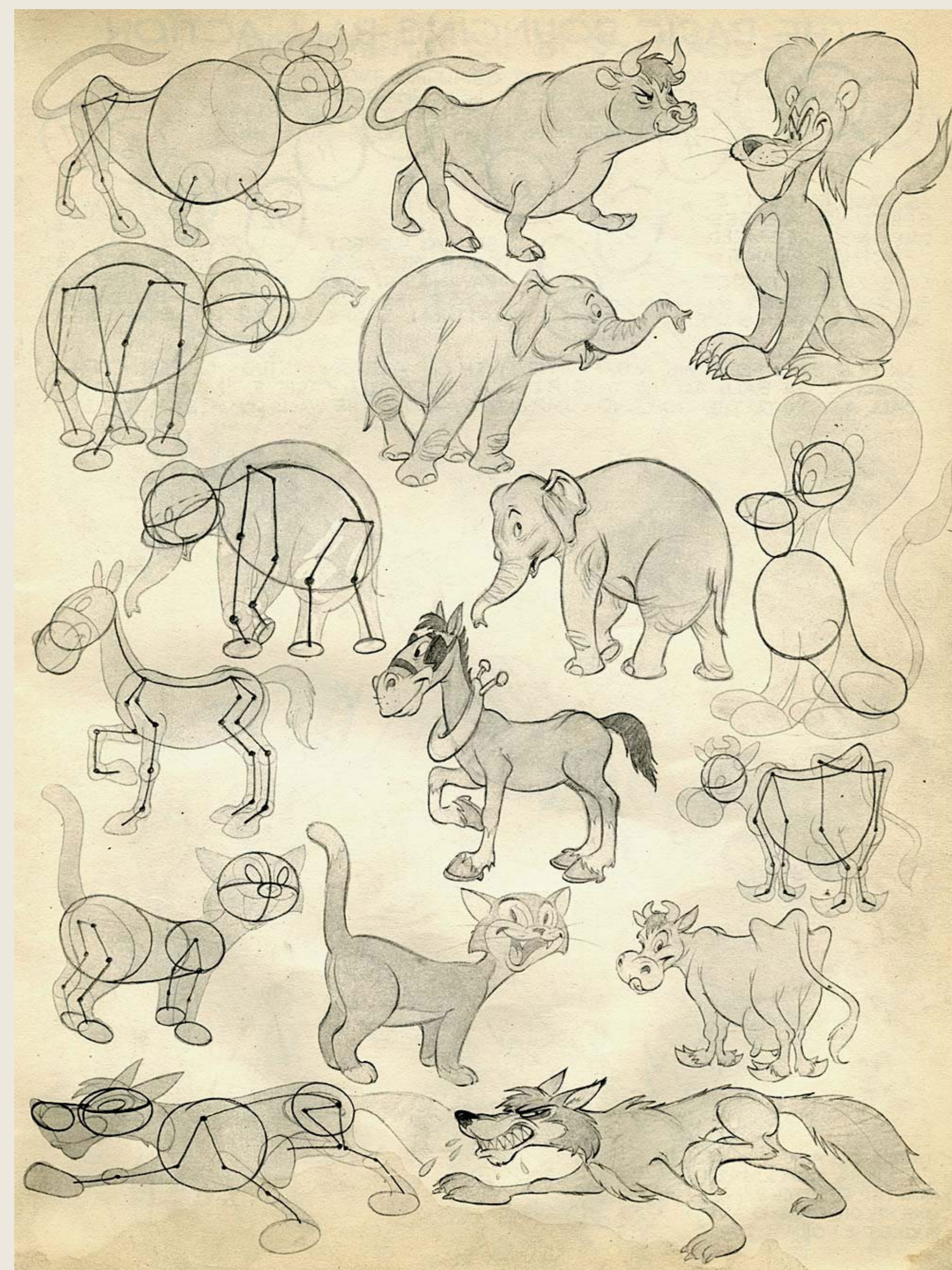
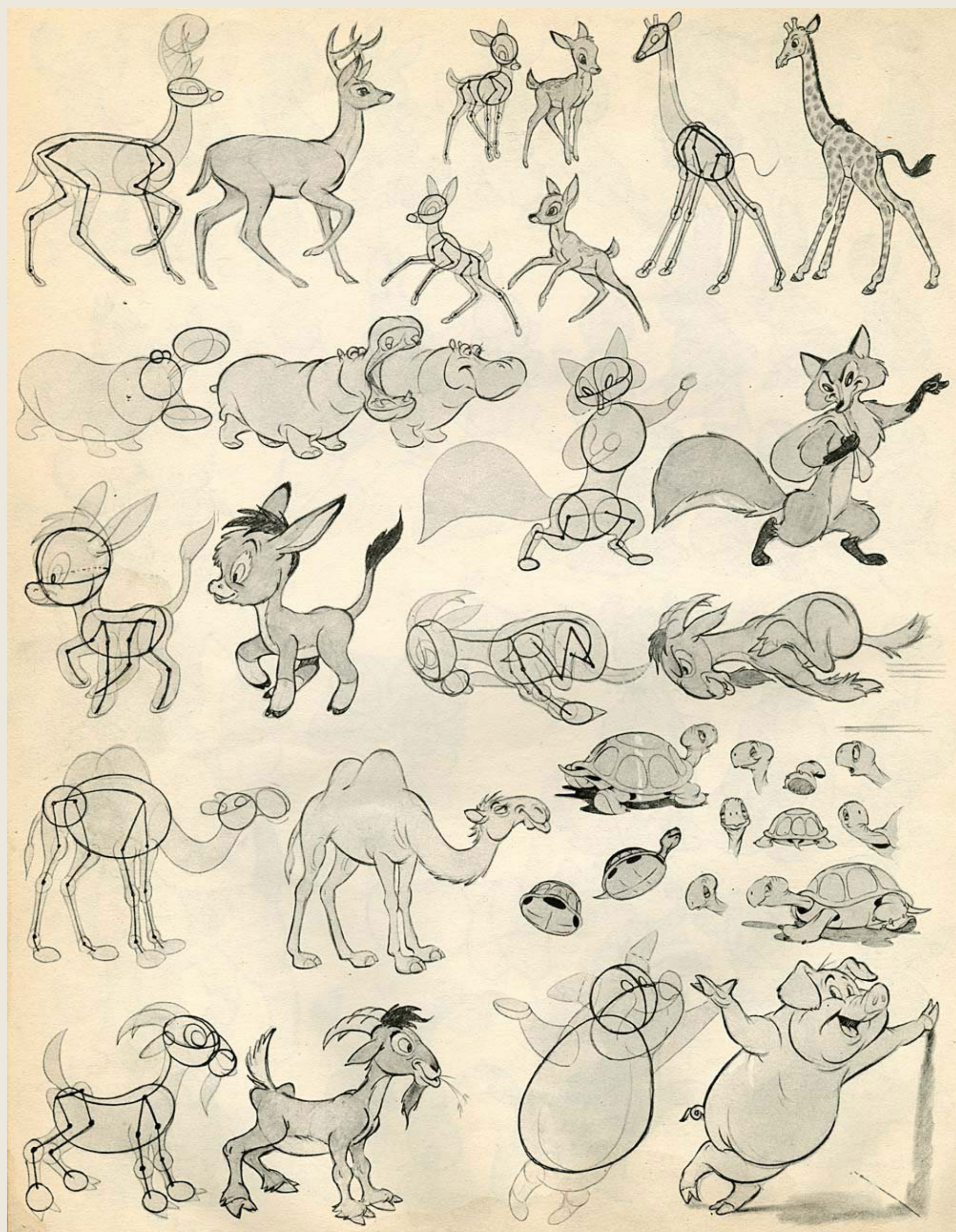


FACIAL EXPRESSIONS

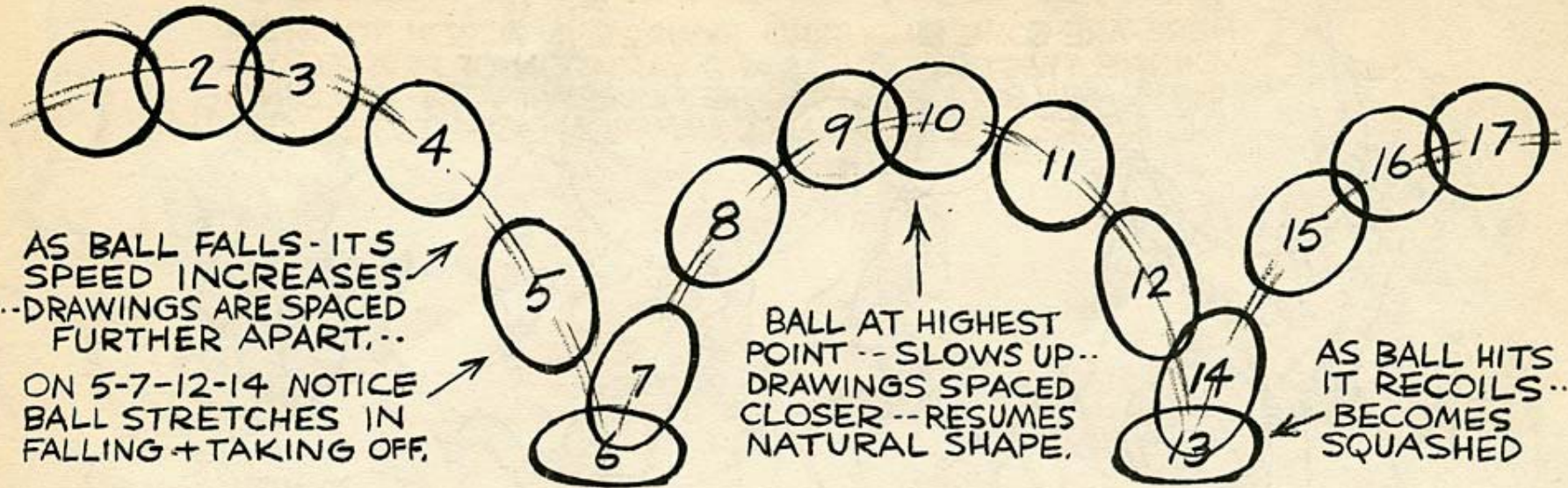
AN ANIMATOR'S JOB IS THE SAME AS AN ACTOR'S JOB IN LIVE ACTION PICTURES. — BOTH SHOULD BE MASTERS OF PORTRAYING EMOTIONS. — STUDYING YOUR OWN GRIMACES IN A MIRROR IS A MUST. — PICK A CHARACTER YOU KNOW + GO THRU THE EXPRESSIONS WITH HIM, AS I HAVE HERE WITH "JERRY" MOUSE.



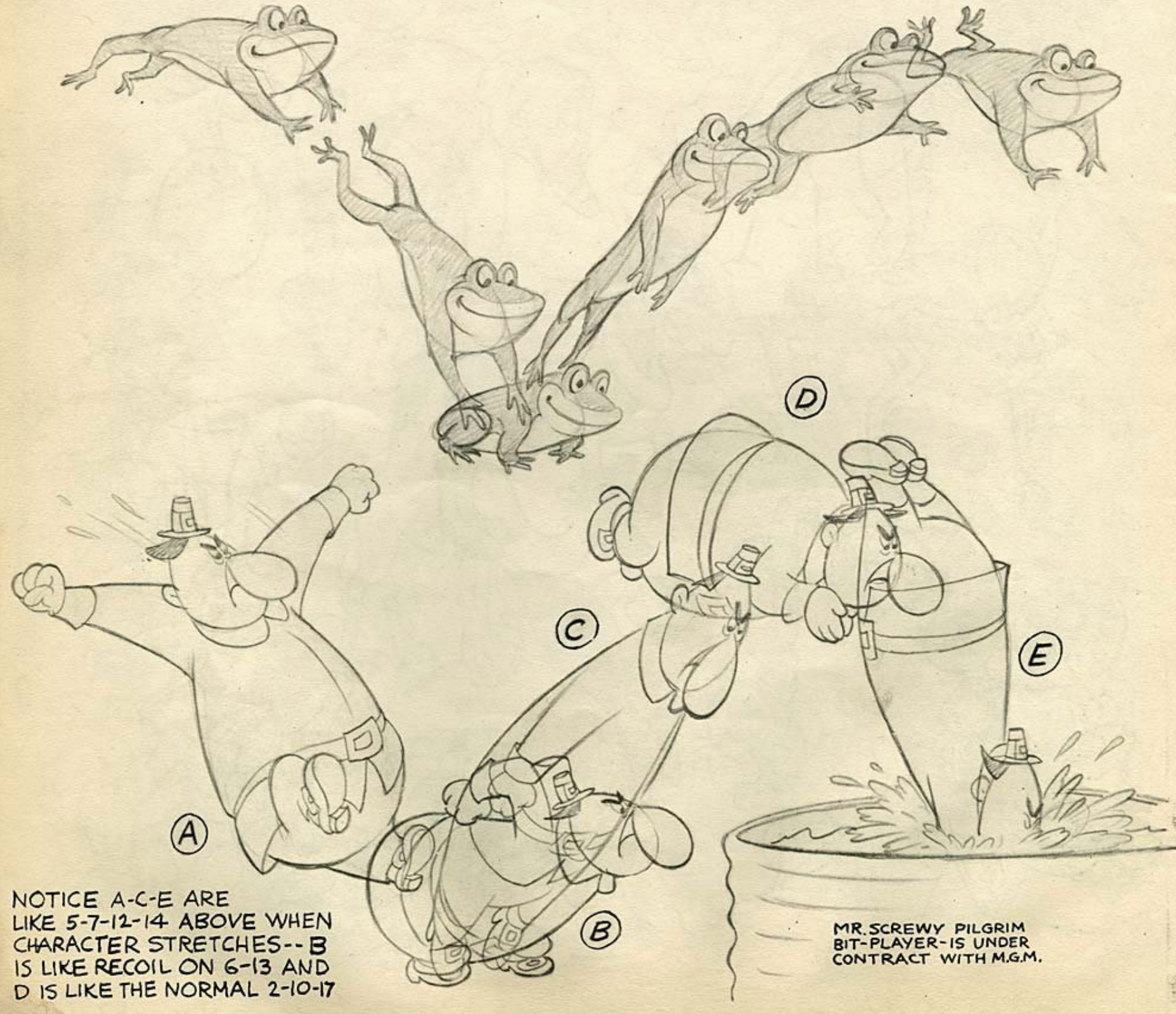




THE BASIC BOUNCING BALL ACTION

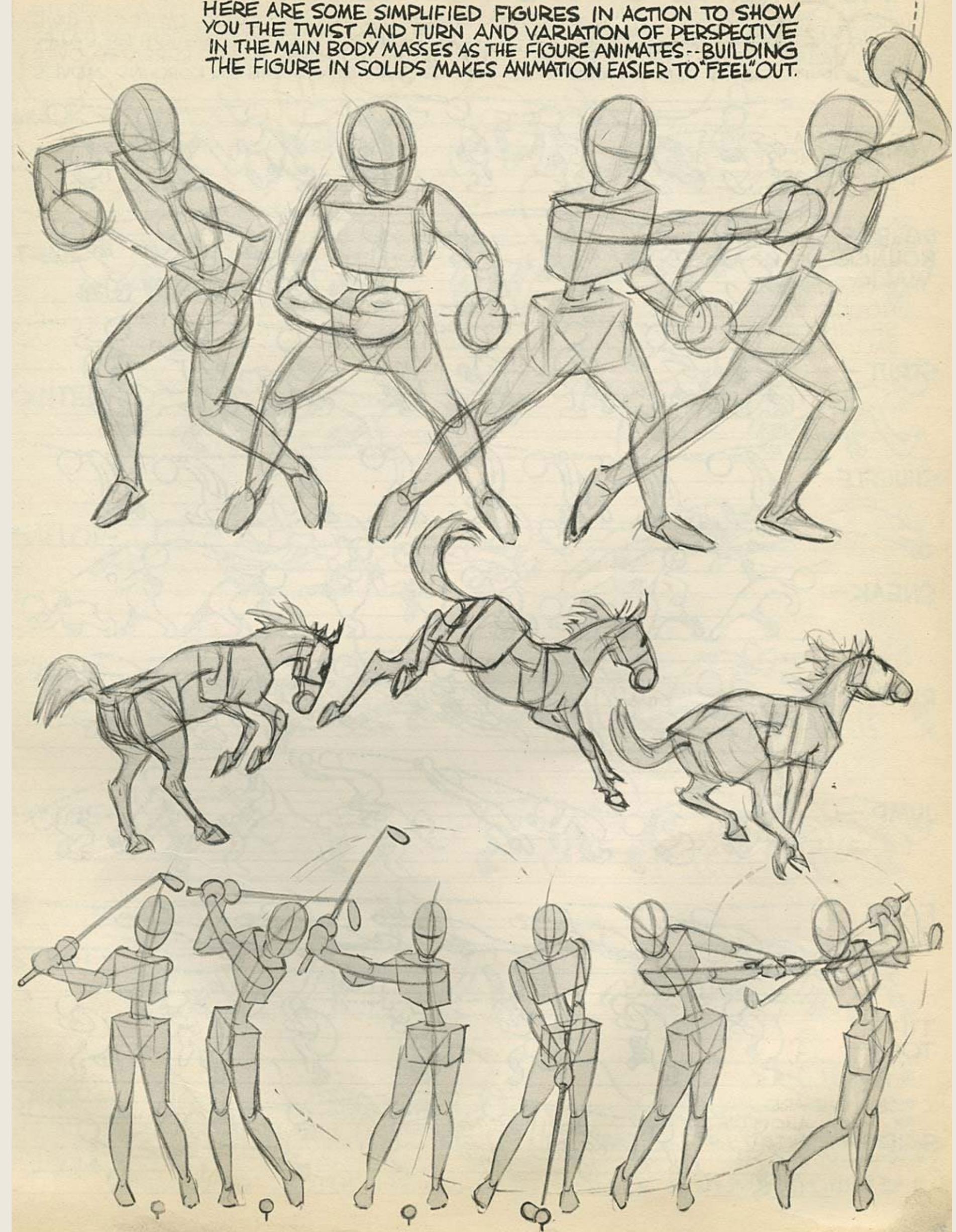


NOTICE BALL FOLLOWS A DEFINITE PATH OF ACTION -- STUDY CLOSELY THE SPACING OF BALL ALONG THIS PATH -- NOTICE THE BASIC SIMILARITY OF THIS BALL ACTION TO THE HOP AND JUMP BELOW; ALSO TO THE WALK-RUN-LEAP-SKIP-ETC.



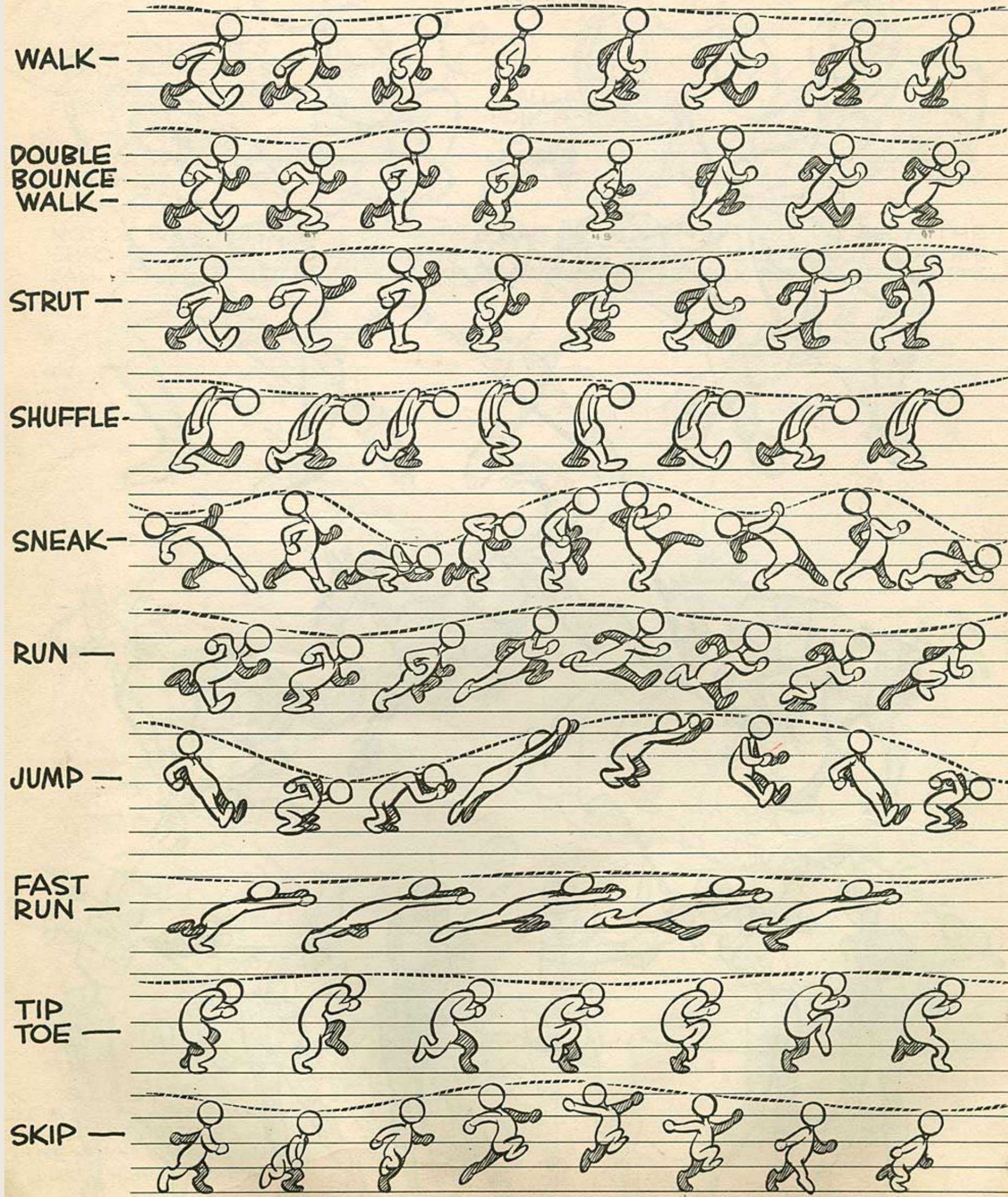
MOVEMENT OF BODY MASSES

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.



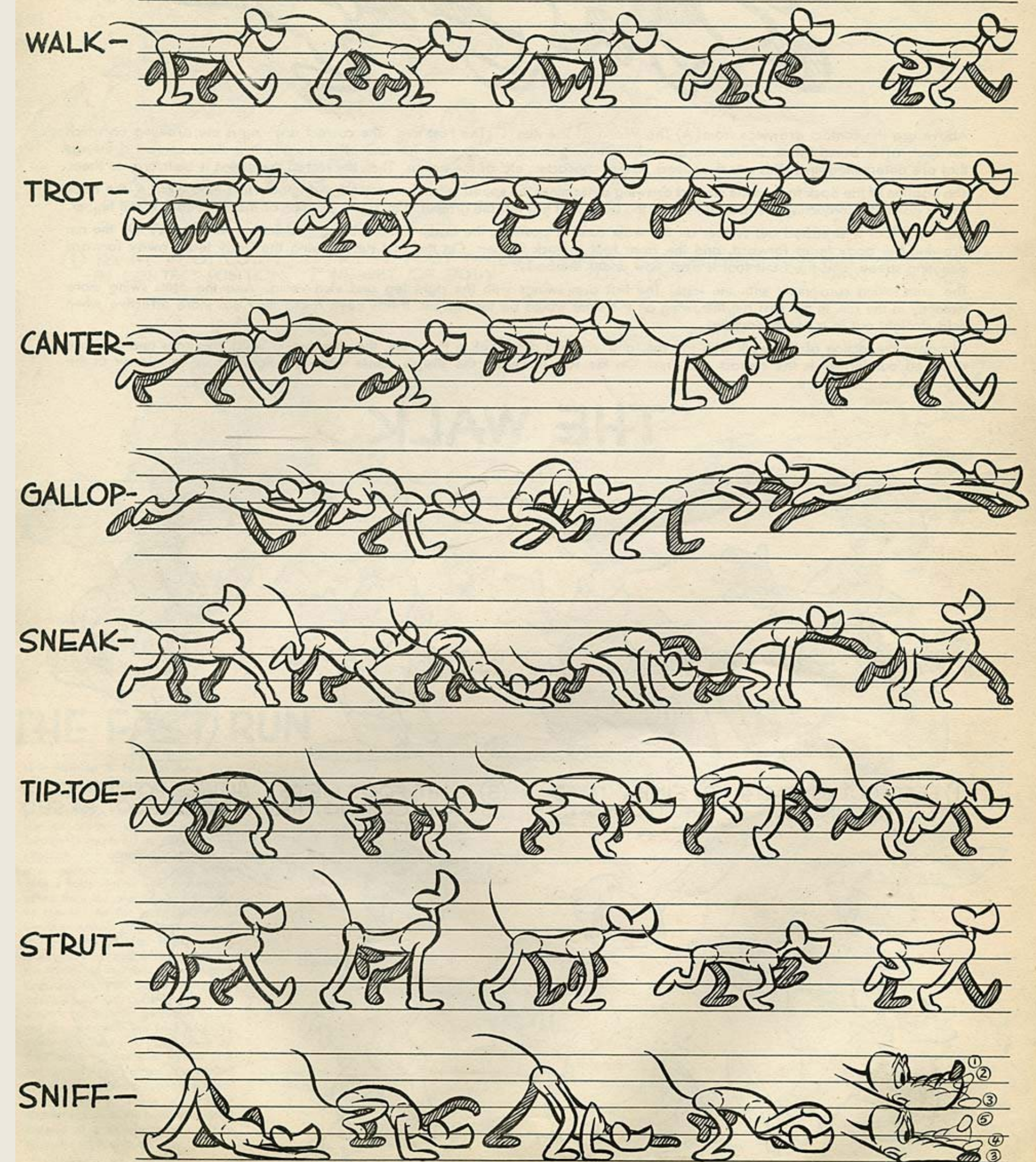
MOVEMENTS OF THE TWO LEGGED FIGURE

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.



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.



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.

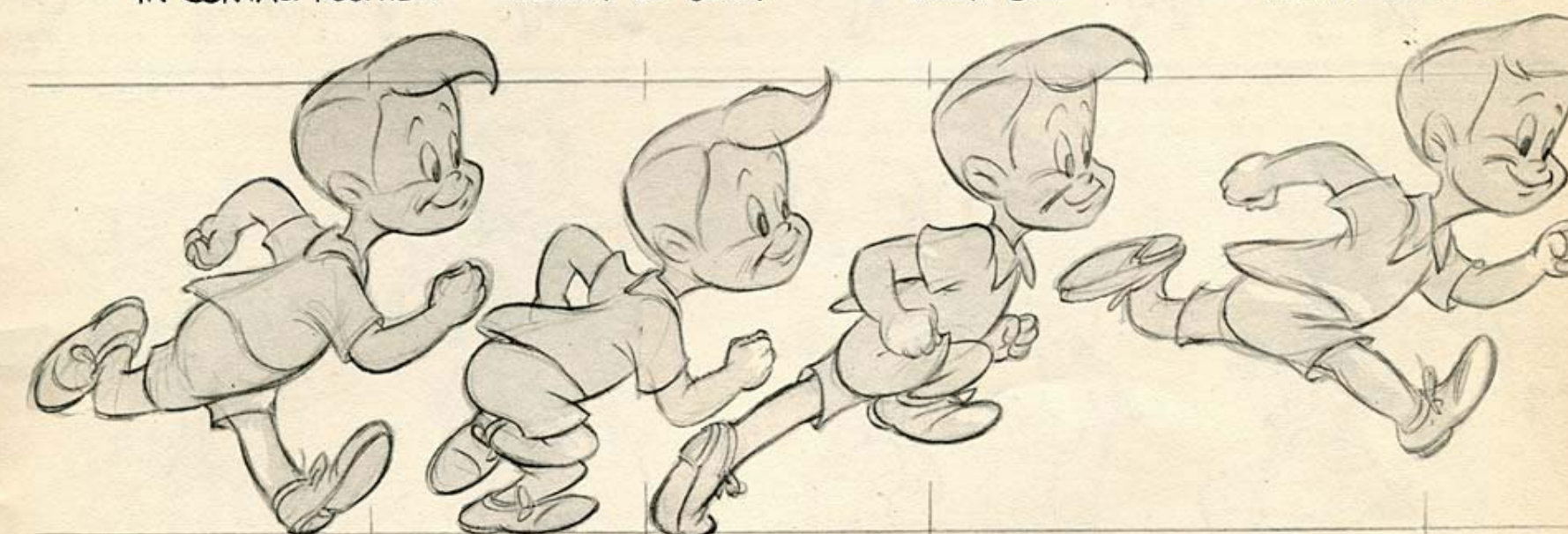


- ⑤ RIGHT LEG STIFFENS INTO CONTACT POSITIONS
- ⑥ RECOIL POSITION LEGS BEND.
- ⑦ RABBIT UP AS LEFT LEGS LIFTS.
- ⑧ HIGH POSITION NO. ① FOLLOWS THIS.

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

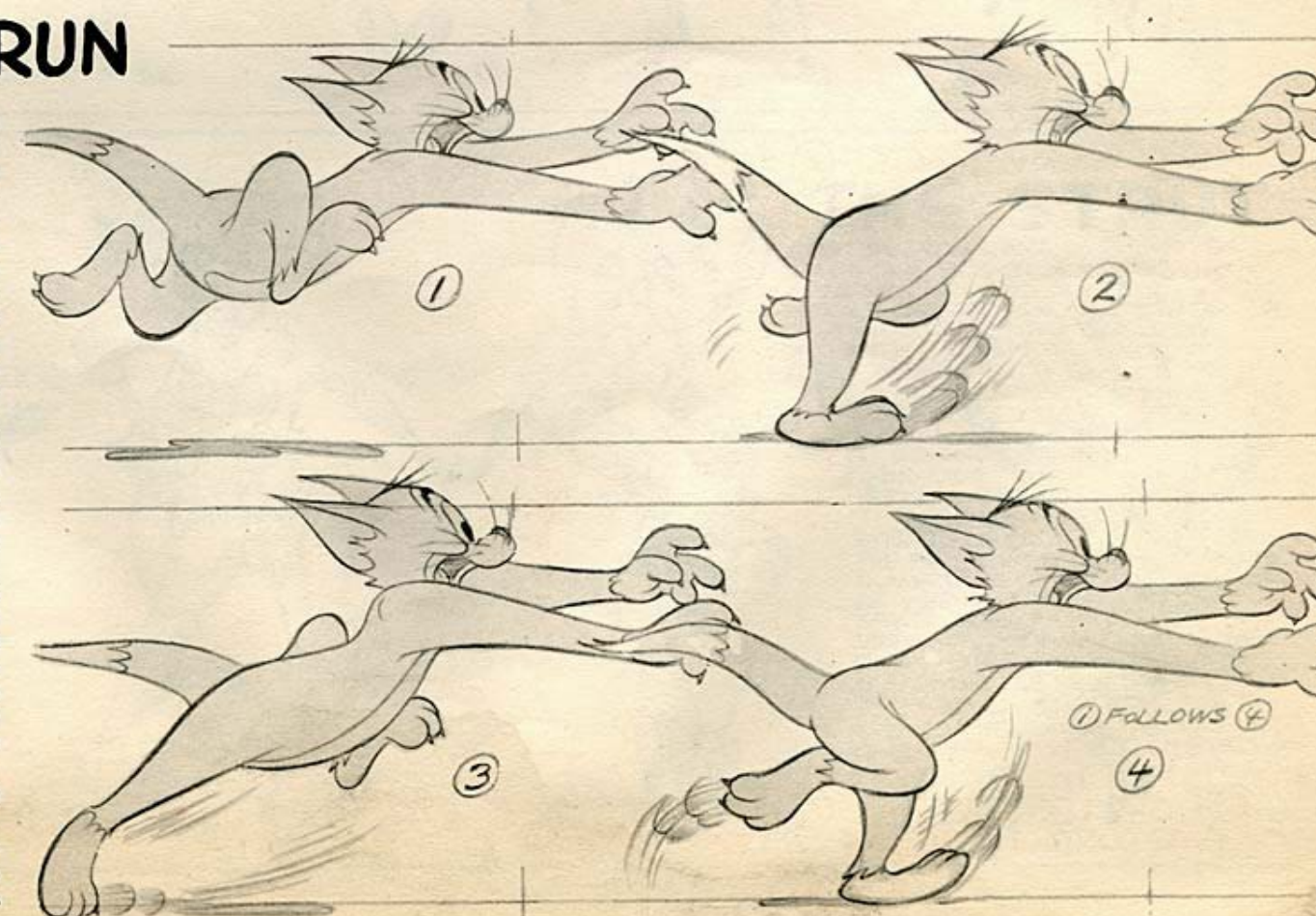


- ⑤ LEFT FOOT REACHES FOR GROUND
- ⑥ RECOIL - RIGHT FOOT COMING THROUGH
- ⑦ LEFT FOOT STRETCHES FOR TAKE-OFF
- ⑧ ARMS + LEGS STRETCH NO. ① FOLLOWS THIS.

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 apt 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. In the walk and run there 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.

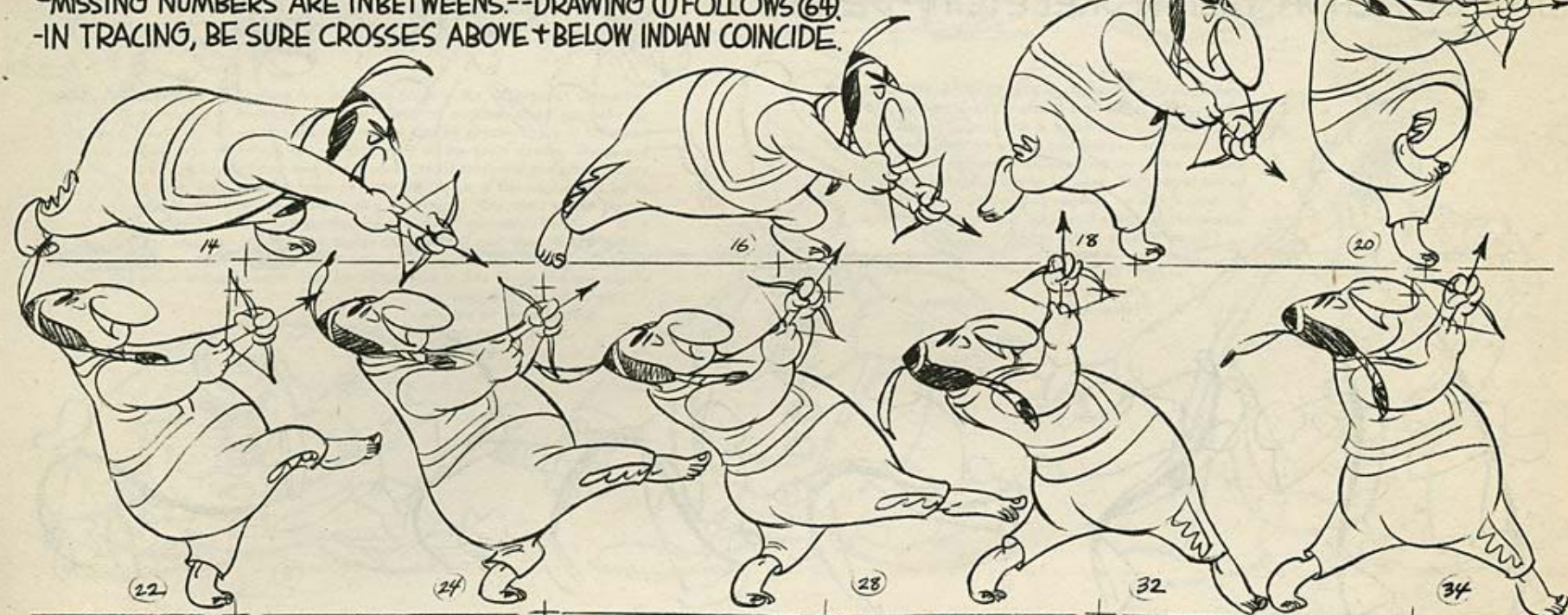


- ① FOLLOWS ④
- ④

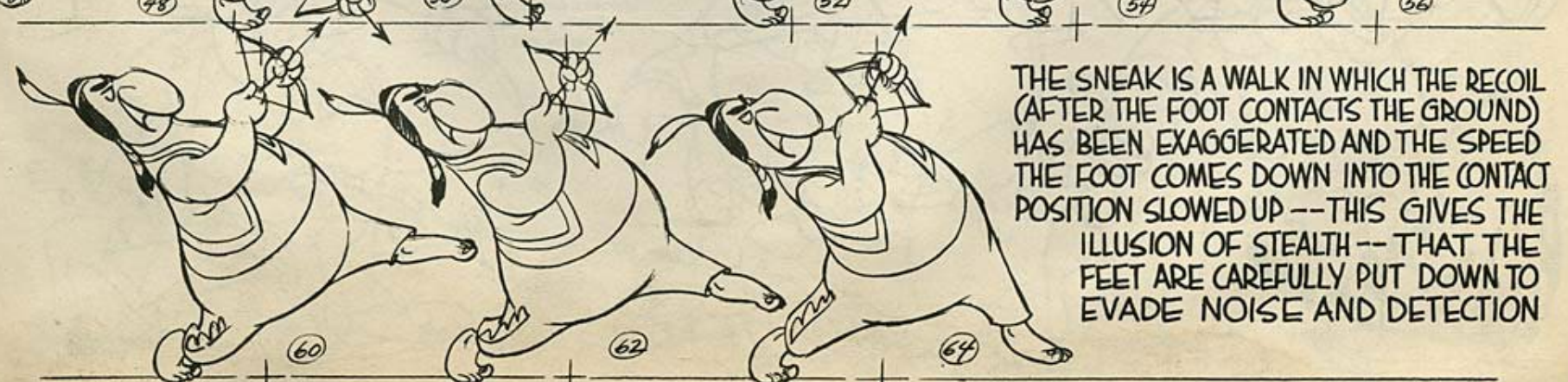
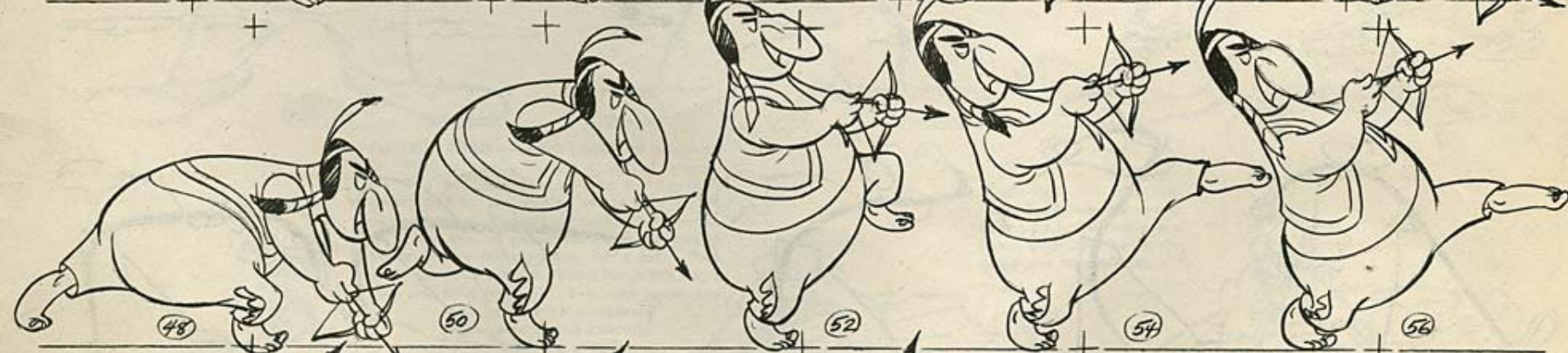
THE SNEAK



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 + 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 IN-BETWEENS 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

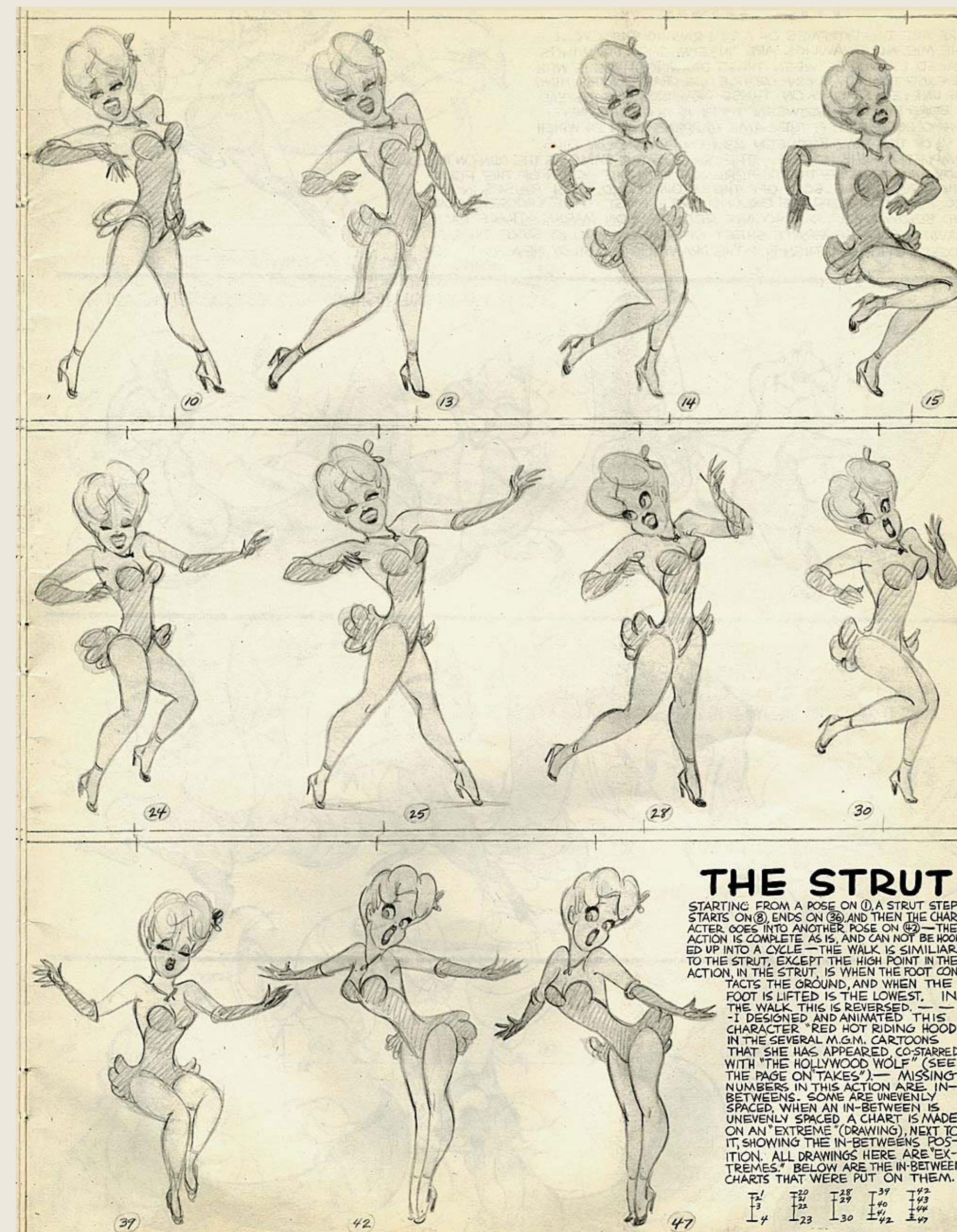
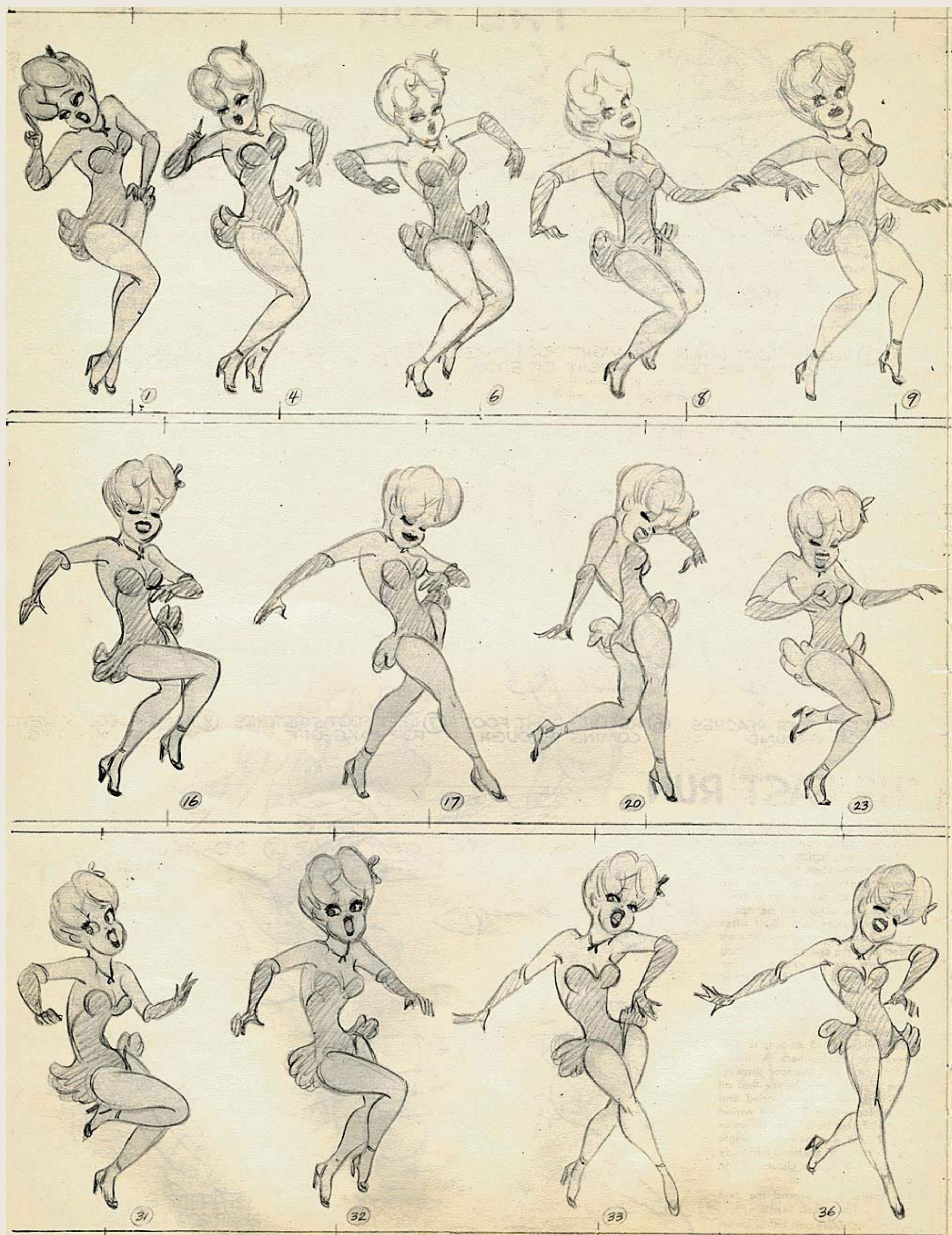
3

THE SKIP

HERE ARE THE EXTREMES OF A 24 DRAWING 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 1/3 OF THE WAY--
AND CLOSER TO 11-- THE SAME HAPPENS WITH 24 WHICH
IS 1/3 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 SEPERATE SHEET OF PAPER (MAKING SURE THESE
CROSSES OVERLAP)--THEN FLIP THE DRAWINGS AND STUDY THE ACTION THIS WAY



30



THE STRUT

STARTING FROM A POSE ON (1), A STRUT STEP STARTS ON (8), ENDS ON (30) AND THEN THE CHARACTER GOES INTO ANOTHER POSE ON (31) — THE ACTION IS COMPLETE AS IS, AND CAN NOT BE HOOKED UP INTO A CYCLE — THE WALK IS SIMILAR TO THE STRUT, EXCEPT THE HIGH POINT 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 THIS CHARACTER "RED HOT RIDING HOOD" IN THE SEVERAL M.G.M. CARTOONS THAT SHE HAS APPEARED CO-STARRED WITH "THE HOLLYWOOD WOLF" (SEE THE PAGE ON TAKES). — MISSING NUMBERS IN THIS ACTION ARE IN-BETWEENS. 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-BETWEENS POSITION. ALL DRAWINGS HERE ARE "EXTREMES." BELOW ARE THE IN-BETWEEN CHARTS THAT WERE PUT ON THEM.

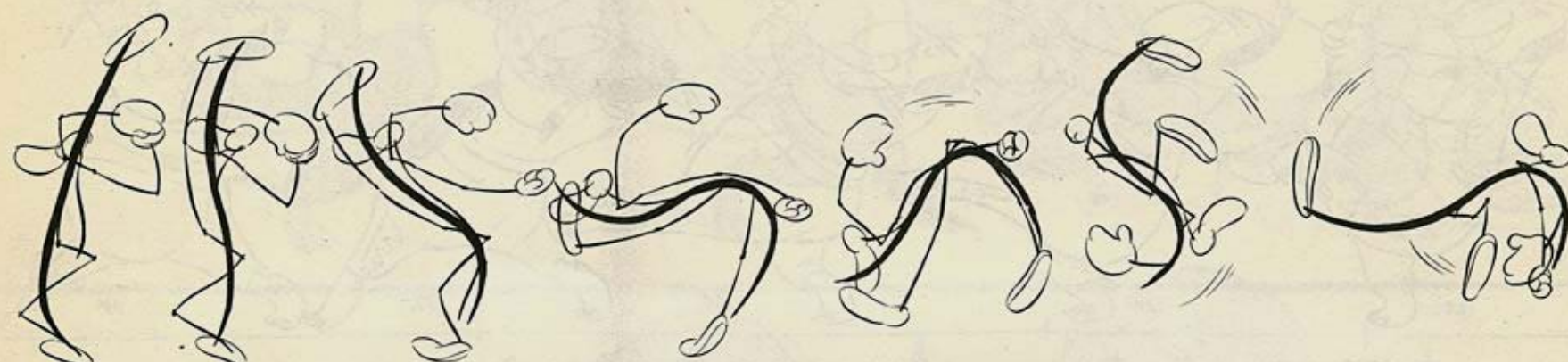
12	13	14	15	16
17	18	19	20	21
22	23	24	25	26
27	28	29	30	31
32	33	34	35	36
37	38	39	40	41
42	43	44	45	46
47	48	49	50	51

LINE OF ACTION IN ANIMATION

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

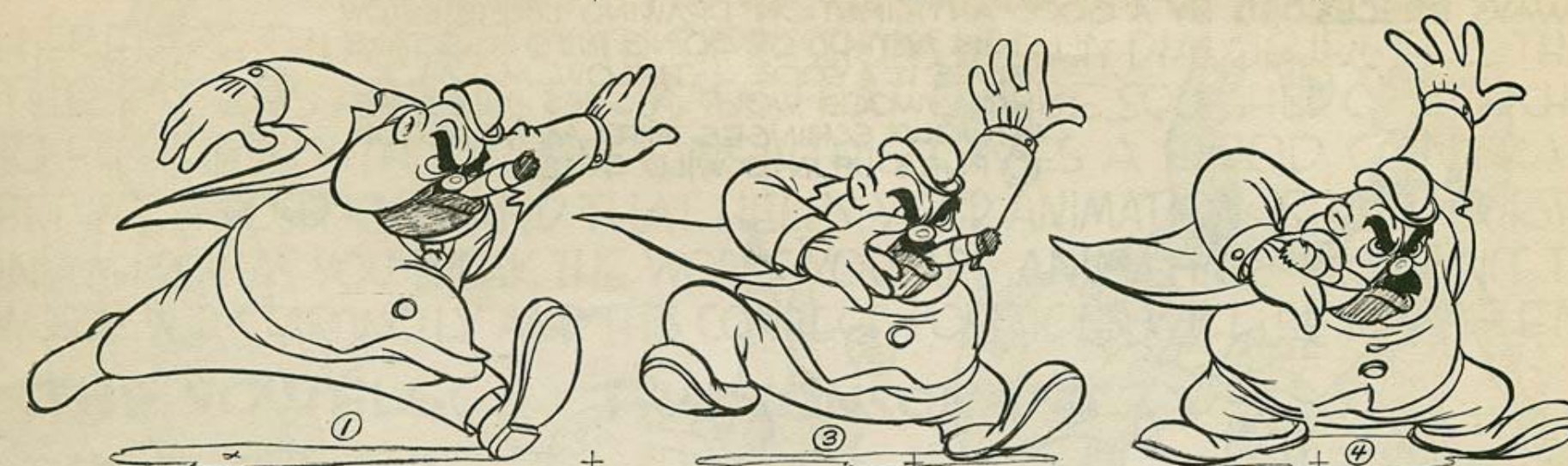


START YOUR ANIMATION FIRST WITH A LINE OF ACTION-THEN A SKELETON+DETAILS



32

OVERLAPPING ACTION—FOLLOW THRU—SQUASH + STRETCH



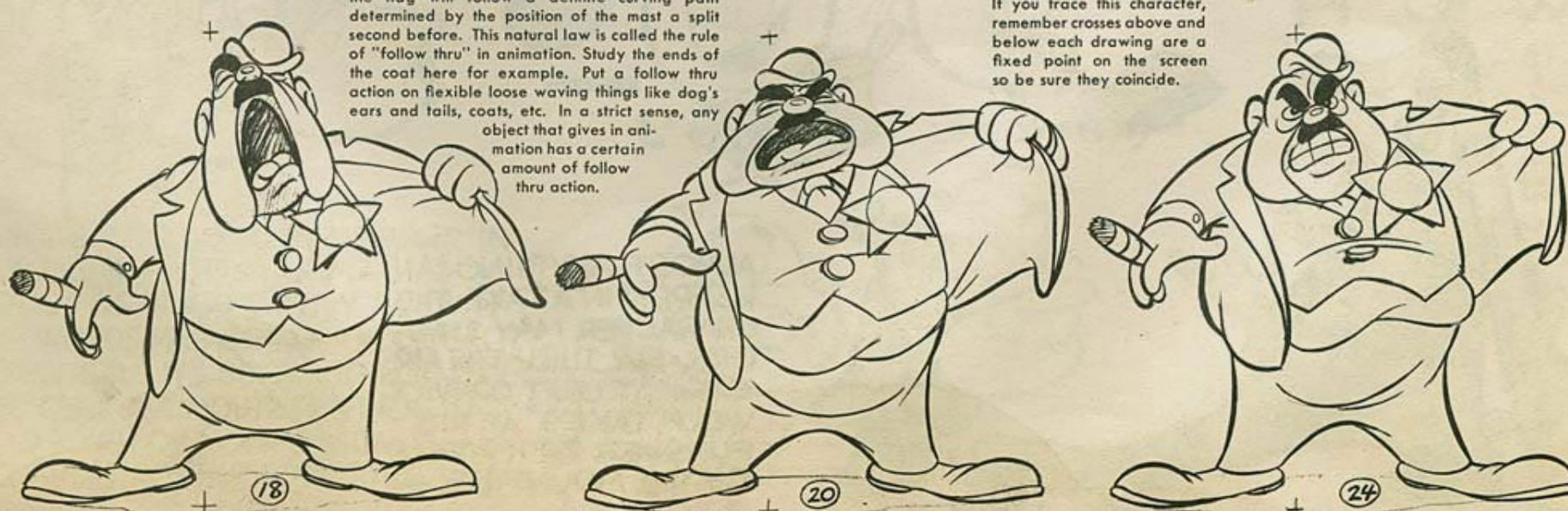
OVERLAPPING ACTION—Here is a rule that holds in the majority of animation actions: "In animating a character from one point to another, don't go there all at the same time." By this I mean the main action can be preceded and followed by lesser actions that all relate or are the result of the main action. 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 cop 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 cop's stomach. Down on 10 it recoils up like 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 cop closely and you will see other examples of overlapping action on all parts of the figure.

SQUASH AND STRETCH—When a sand 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 if is essential in creating a feeling of weight in characters. You can bet I used it when I designed and animated the Hippos 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 animation has a certain amount of follow thru action.

If you trace this character, remember crosses above and below each drawing are a fixed point on the screen so be sure they coincide.



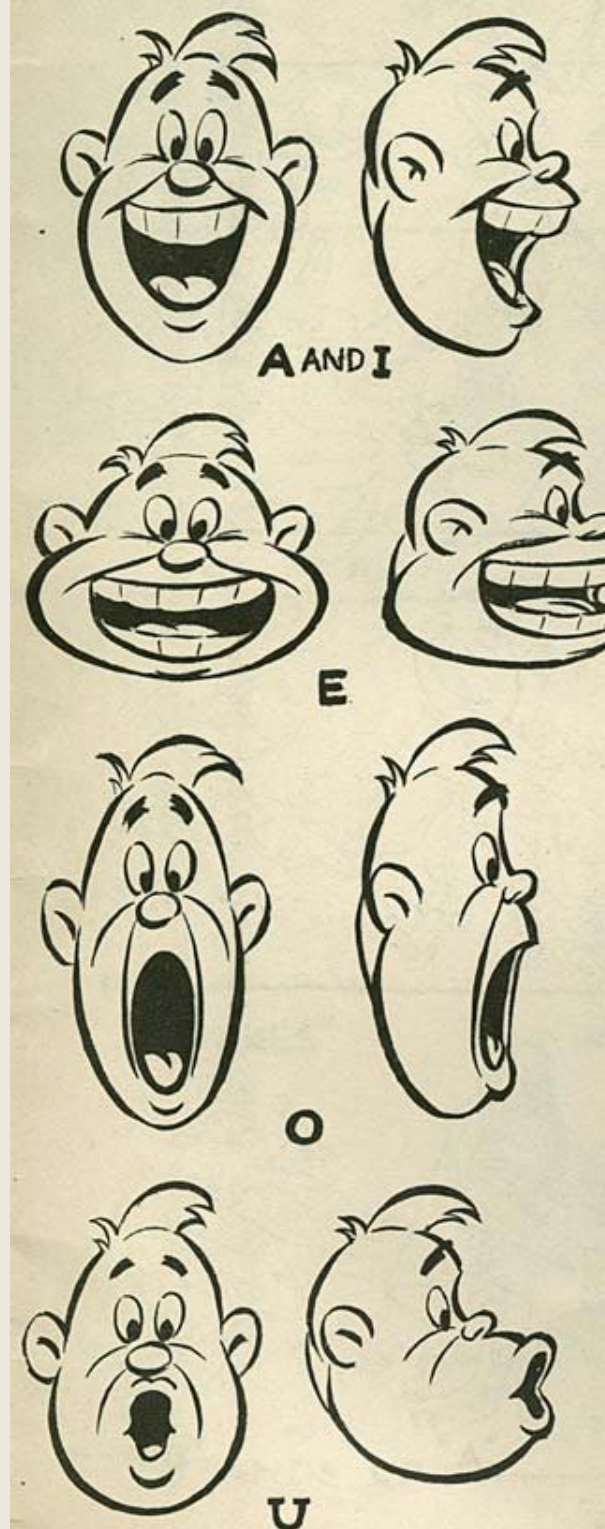
A "TAKE" REGISTERS A CHARACTER'S SUDDEN SURPRISE IN A CARTOON. --THE AVERAGE CARTOON IS FULL OF THESE -- SOME ARE SUBDUED TAKES, OTHERS ARE VIOLENT LIKE THE ONES ON THIS PAGE. -- THE TAKE IS NEARLY ALWAYS PRECEDED BY A GOOD ANTICIPATION DRAWING-LIKE (B) BELOW. --THIS METHOD OF GOING INTO THE TAKE GIVES IT A SOCK. -- BELOW M.G.M.'S HOLLYWOOD WOLF (A) SEES UGLY DAME (B) WOLF SCRINGES INTO ANTICIPATION (C) FLIES UP INTO WILD TAKE.



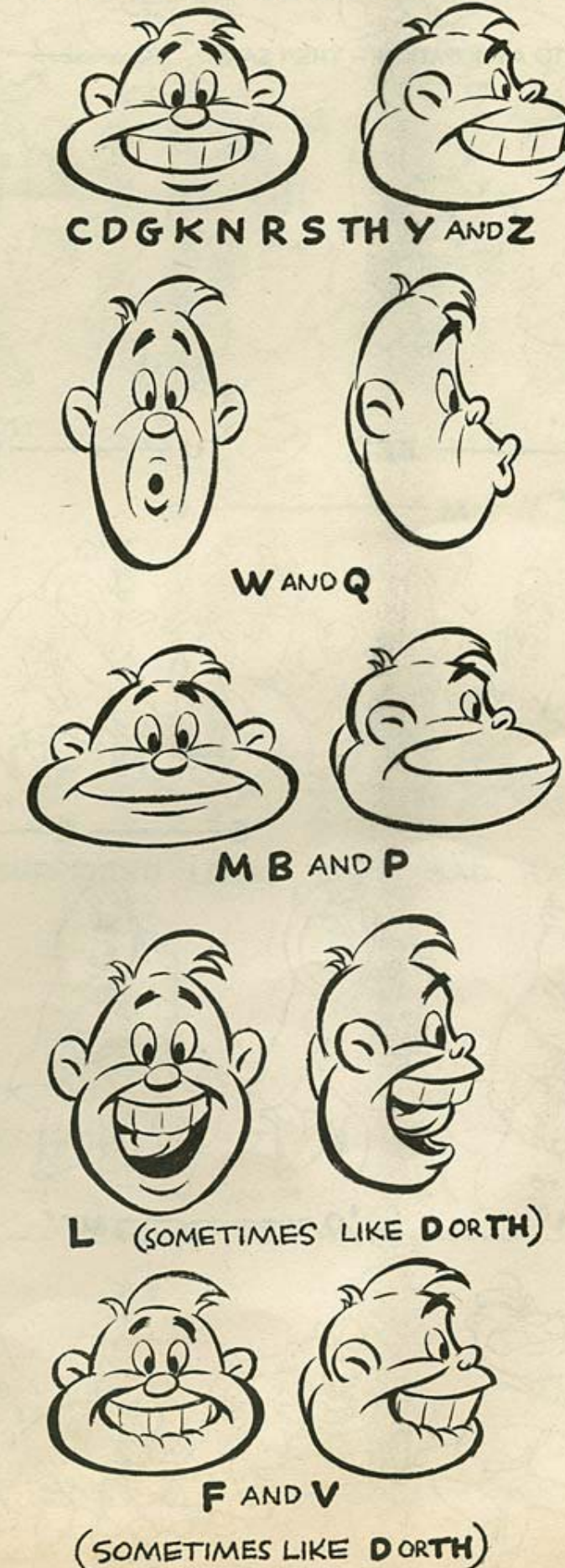
DIALOGUE

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



THE CONSONANTS

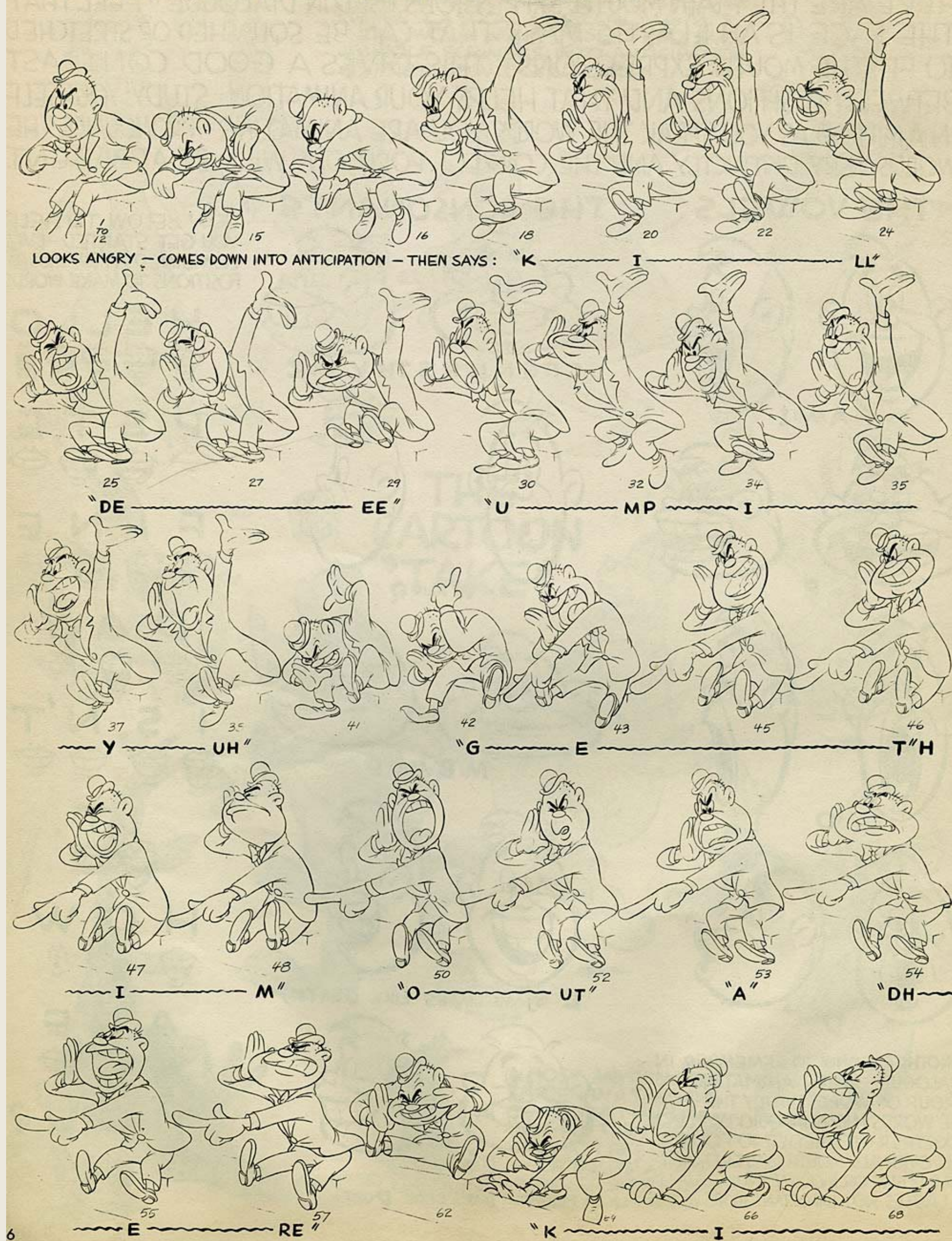


NOW BELOW TO HELP YOU GET STARTED-I'VE COMBINED A FEW MOUTH POSITIONS TO MAKE WORDS

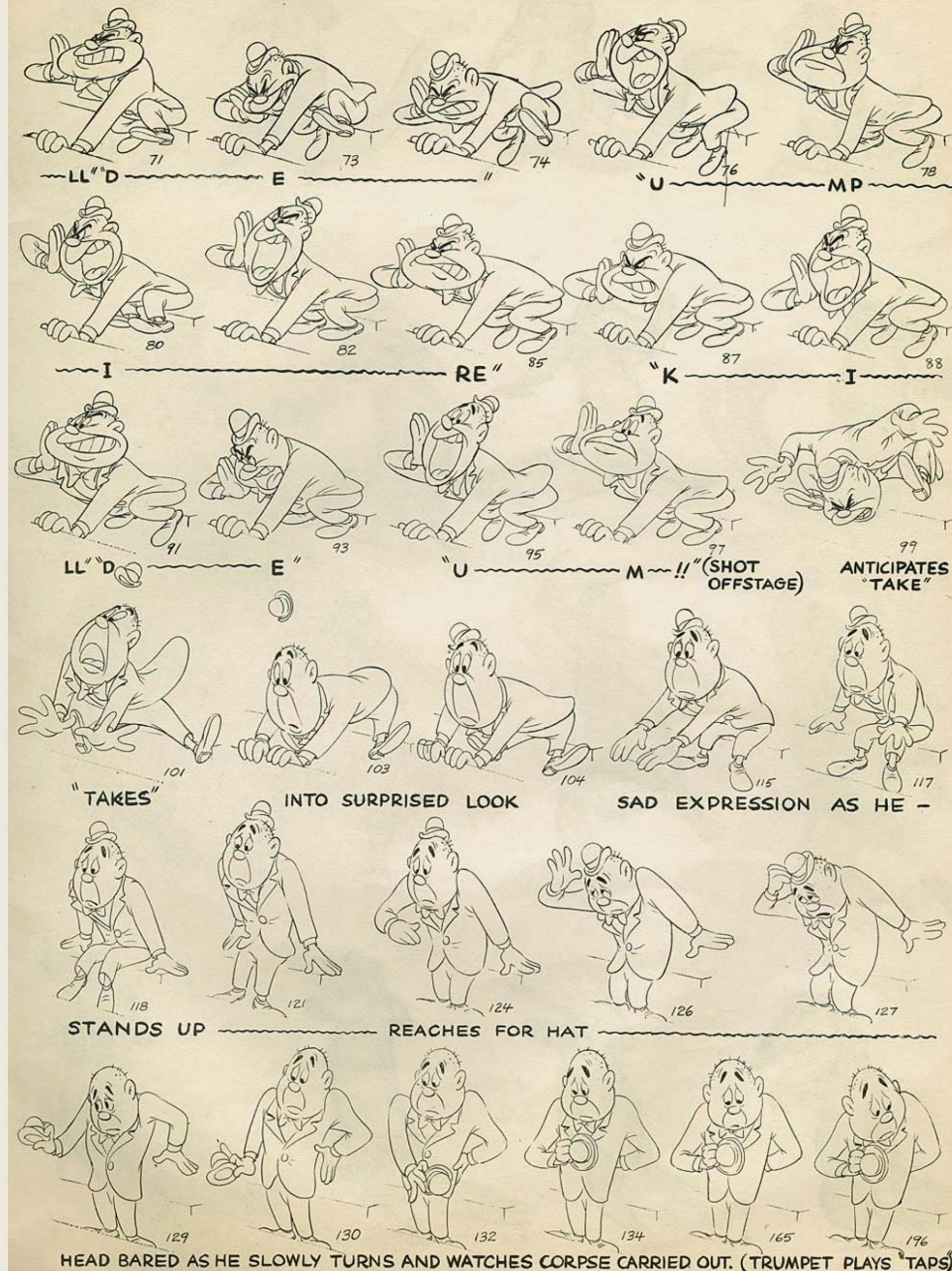


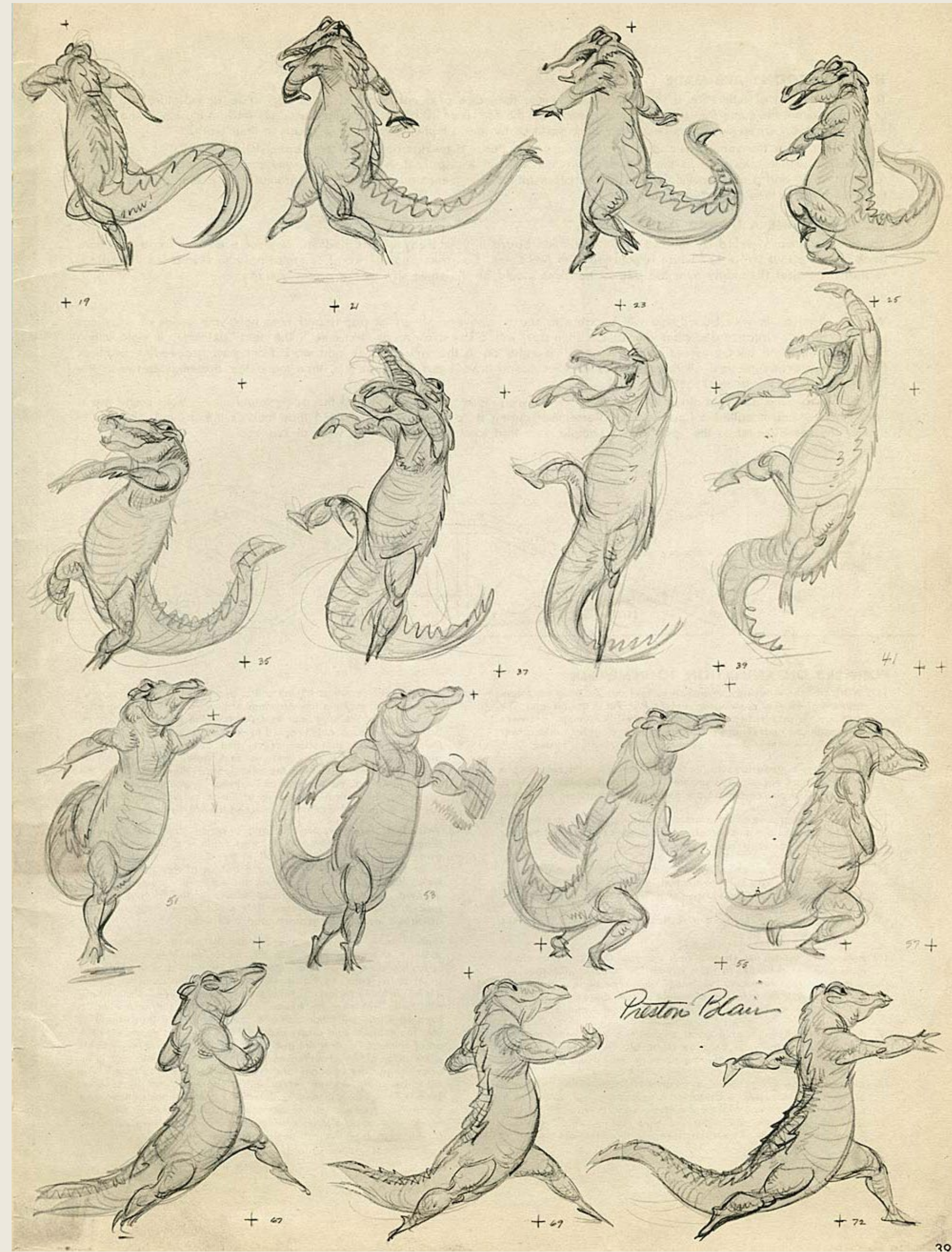
ANOTHER THING TO REMEMBER IN DIALOGUE:- WHEN ANIMATING A GROUP OF WORDS, STUDY THE WAY THE WORDS MIGHT BE QUICKLY SPOKEN TOGETHER. IT'S BETTER TO FOLLOW THIS OVER-ALL MOUTH PATTERN, AND HOLD DOWN OR MODIFY INDIVIDUAL SYLLABLES NOT IMPORTANT TO THE WHOLE.

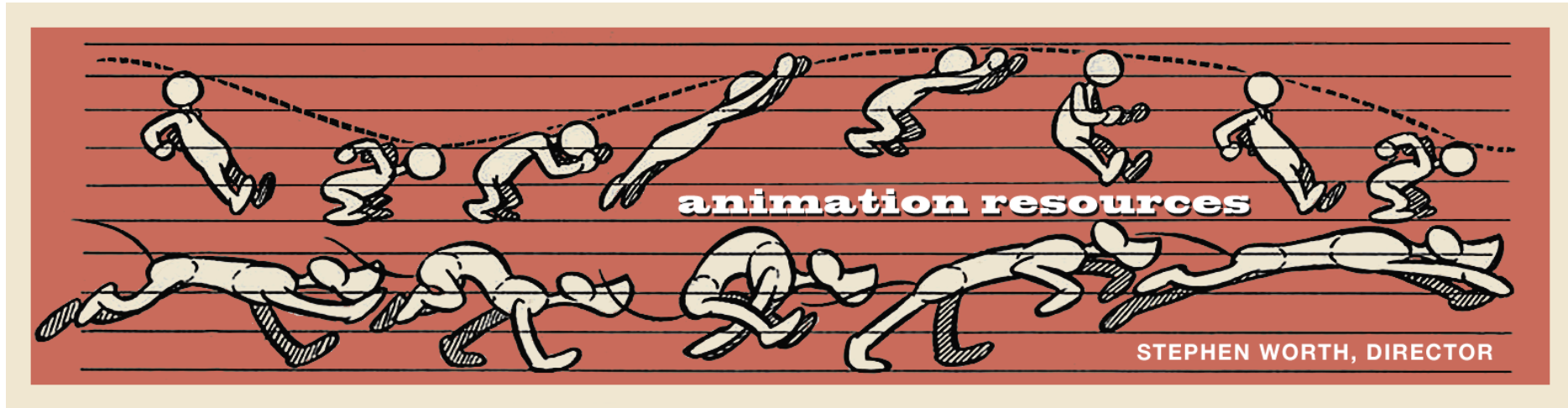
Here are the cleaned up "key" drawings from a Scene I animated in a M.G.M. cartoon to give you some ideas how dialogue can be animated. Missing numbers are inbetween drawings put in by assistant artists. First drawing is a twelve drawing "hold." The scene is a baseball grandstand. This little heckler 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."



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 35 — 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.







Building A Foundation For The Future Of Animation

The Genesis of the Project

In 1982, Stephen Worth was a student at UCLA studying design. He attended an event hosted by The International Animated Film Society: ASIFA-Hollywood and had the opportunity to speak with the organization's President, the legendary cartoon Producer, Story Man and Voice Artist, Bill Scott. Scott shared with Worth an idea he was nurturing. He described his plans to create an "Animateque"— a research facility for animation professionals and students. Steve never forgot that meeting. "The resources weren't there to pull it off during Bill's tenure as President of ASIFA-Hollywood. But a few years ago, I remembered Bill's idea and realized that computers had made organizing educational material much easier. The concept of a "digital Animateque" excited me. I guess you could say that when Bill passed away, his passion for the idea was transferred to me."



After 20 years as an animation Producer, Stephen Worth decided it was time to give back to the muse. He went to work full time at ASIFA-Hollywood to try to build support for Bill's concept of the Animateque. "The animation business is in dire need of inspiration and new ideas," Worth explains. "I kept reading in the trades that traditional animation techniques were dead and artists would soon be replaced by technology. But I know from working with innovative filmmakers like Ralph Bakshi and John Kricfalusi that the principles that created Pinocchio and Bugs Bunny are the same ones that will lead new technologies to the same heights reached in the 'golden age' of animation. The technology is just a tool. The artist is the one who creates. We need to invest in artists."

Almost overnight, Worth established a world class facility for self-study and research into the art of animation. Housed in a storefront in Burbank, the ASIFA-Hollywood Animation Archive provided information, digitized animated films, assembled biographical information and prepared high resolution scans of artwork for use by countless animators, educators, art students and researchers. The facility became world famous through its exhaustive website and extensive collection of material from the personal files of legendary animators like Grim Natwick, Les Clark, Michael Lah, Herb Klynn and John Kricfalusi. A dedicated group of volunteers worked tirelessly digitizing and cataloguing the material, guaranteeing that future generations will be able to benefit from the valuable information.

In January of 2011, ASIFA-Hollywood informed Worth that regrettably they were no longer able to sponsor his project. Worth wasn't willing to let Bill Scott's dream end there, so he scrambled to

create a permanent organizational umbrella for the collection. He established Animation Resources, a 501(c)(3) California non-profit organization dedicated to supporting and encouraging animation education. The core of Animation Resources' offerings is Stephen Worth's valuable research and curation efforts and the generous efforts of the dozens of dedicated volunteers who dedicated their time and energy to creating this resource. Animation Resources is making great strides towards its stated goal of "building a foundation for the future of animation."

About the Collection

The archive database of Animation Resources consists of biographical information, images and filmographic data culled from from a variety of sources. In a remarkably short span of time, the collection grew to contain over 6,000 digitized animated films and over 125,000 high-resolution images. These assets are searchable by keywords, and all of the data is cross-linked within the database structure.

This means that it is possible to search for an artist's name and find his biography and filmography, then click through to watch a digitized movie file of a film he worked on. One more click reveals animation drawings by that artist from that particular film. "It's a way of organizing information that's never been attempted before," says Worth. At this point, the database is not available on the internet, but plans are in the works to build the infrastructure required to share the entire collection online with the world.



In the "golden age" of animation, production designers didn't look to other cartoons for inspiration on how their films should look... they looked to classic illustration, like that of Gustaf Tenggren. Animation Resources's archive database includes hundreds of illustrated children books, each one bursting at the seams with new ideas for how animated films can look.



Animation Resources's archive database contains information on influential women animators like Lotte Reiniger, the creator of the oldest surviving animated feature.

"The purpose of Animation Resources is to be an archive FOR animators, not just an archive OF animation," Worth explains. "Because of this, the collection doesn't just include animated films and related artwork, but art instructional material and a wide range of items dealing with the history of cartooning and illustration as well." The collection is basically the world's largest artist's "clip file"- children's book illustrations by Rackham and Dulac, magazine cartoons by Virgil Partch and Erich Sokol, superhero comics by Jack Kirby and Jack Cole, newspaper comics by Cliff Sterrett and Milton Caniff, drawing instruction by Preston Blair and Willy Pogany... a whole world of inspiration for artists and cartoonists.

The animation related material in the collection includes storyboards, animation drawings, production correspondence, exposure sheets, publicity materials, production photos, model sheets, pencil tests, background paintings, and more.

Digitized films in the collection include rare cartoons by the Fleischers, Terry-Toons, Iwerks, Lantz and Columbia studios. "These are primarily films that have never been released to home video. Many of them haven't been broadcast on television since the 50s or 60s. We're specializing in the studios that don't currently have extensive commercial distribution," says Worth. Animation historians like John Canemaker, Leonard Maltin, Jerry Beck and Mark Kausler have been supporting the project as well by sharing valuable research and helping to acquire rare animated films for digitization.

The scope of the material in this collection is unique. Animation Resources has collected over a century of lost cartoons, comics, children's books, and classic illustration and made them available to cartoonists, illustrators and fans all over the world. This interdisciplinary

approach has revealed links between art forms that formal art training and trade school approaches often miss. Animation Resources makes it easy to trace styles across studios, across different media and back through time to see where artists got their influences and how whole schools of styles evolved. This has made the collection useful to more than just animators and cartoonists, but to academics and social historians as well.



A Non-Traditional Approach

Traditionally, libraries and archives have limited access to their collections in the interest of preservation. Delicate paper and film stock requires special handling and cannot stand up to the rigors of general circulation among artists and students. In most archives, collections are donated unsorted by the boxload. An archivist must go through piece by piece inventorying, stabilizing and storing the items before they can begin to be utilized. This process typically takes several years. Once the collection has been inventoried and shelved, a curator is brought in to examine the holdings and determine a contextual format- a book, an exhibit, an article- that will make the public aware of the collection and its importance. Curation can take another year or longer, and by this time five or six years may pass before the public is even aware that the collection exists.

In the era of YouTube and Google, this is beginning to change. Digital technology removes the problems associated with storage and preservation of vintage artifacts. Once digitized, a film or piece of artwork can efficiently and inexpensively be backed up and distributed, making open access a possibility. Without physical objects to catalog and store, archivists are able to shorten the time it takes to prepare a group of items for public access. This allows the collection to be curated as it is assembled. The curator isn't limited by the pool of material that he has to work with. He is free to actively solicit outside sources for material that fills in gaps in the rest of the collection and relates to the concepts he is trying to put across. Most collectors are more than happy to share a digital copy of their items.

(Below) Ralph Bakshi, the animator who was responsible for bringing about the modern age of animation has written several inspiring articles for the Animation Resources blog and has contributed material to the collection. The storyboard section above is from Bakshi's "Cool World" and was drawn by Louise Zingarelli.

Supplementing Animation Education

Animation Resources is intended to serve creative professionals and students of the artform who are looking to develop the necessary skill set to become an accomplished animator. These artists have a tough road to haul. They are facing an industry where the quest for technical knowledge has often times eclipsed the need to develop artistic proficiency. Schools and universities don't have the time and resources to provide their students with all of the experience required to be a professional animator. So they focus on the most immediate and practical elements and expect the students to acquire the creative and artistic aspects of their education on their own.

In tough economic times, the studios cut budgets for in-house training, so the young artists aren't able to pick up the fundamentals on the job either. It's a difficult situation, and many students of animation aren't even aware of the vital need for self-study until after they have graduated and joined the ranks of job hunters. By that time, it may be too late for them to pick up the creative skills they need to be a productive employee in animation.

Joseph Baptista, a student intern on the project who is now a professional animator comments, "Doing an exercise for a class at school, you're not really sure how it fits in functionally and how those principles apply to a real world job. You just do it for a letter grade and you move on. But if you are trying to learn to animate, the best way is to first learn about the principle, and then to try to understand how it was applied through

analyzing and imitating the work of great artists." Worth set out to fully integrate an educational mission into the structure of Animation Resources. Educational material is accompanied by contextual information to help a student fully understand and absorb it and is accompanied by real-world examples of the principles in use. Through self-study, a student learns to recognize principles among the art in the vast collection and, with practice and determination, begins to master the techniques for themselves.



The family of legendary animator, Carlo Vinci has been sharing artwork from Vinci's fifty year career in animation. The collection includes a number of class assignments from his studies at the prestigious National Academy of Design, documenting the education of a golden age animator.

The animators who created the classic cartoons of the 1930s and 40s did not attend animation schools. They studied fine art- life drawing, sculpting, and painting- and learned the nuts and bolts of animation after graduation on the job. In those days, animators were trained as a part of apprenticeship systems. An experienced animator would take fledgling artists under his wing and train them to assist his scenes as they worked their way up the ladder of production. A young artist would start as an assistant, then graduate to animator, and perhaps eventually to director, learning as he worked.

However, changes in the business environment in animation in the 1960s and 70s stopped this system in its tracks. Studios were downsizing and sending work overseas. Experienced "old timers" who possessed the accu-

mulated knowledge of decades of experience were retiring without passing along their techniques to the next generation. By the mid 1970s, it looked as if animation was a dying artform in the United States. A few animators, most notably Eric Larson, Ralph Bakshi and Richard Williams refused to let the artform die, and acted as a bridge across the gap, instituting training programs at the studios where they worked. Most successful animators today who got their start in the early 1980s have one of these three men to thank for their careers.

In the 21st century animation business, the employment of an animator only lasts the life of the project, and the ladder of upward mobility is either weak or non-existent. Art schools have largely shifted towards a "trade school" approach, focusing on technical skills like proficiency in Flash and Maya instead of classical art training. This leaves young animators without a means of developing their craft and growing as an artist. Animation Resources steps into the breach, acting as an adjunct to animation schools and training programs, encouraging students to begin an organized program of creative self-study early on so they will be prepared when the time comes to find a job in the industry.

"Everything an animator needs to know is in those old films and sketches." Worth explains. "The great animators of the past may no longer be with us, but that doesn't mean that we can't still learn from them. It doesn't matter if artists animate using a pencil or a computer. The fundamental principles are the same. All a student of animation today needs is access to the material, a mind for analyzing what makes a scene work, and lots and lots of practice." Animation Resources is trying to help fill the gap by providing a facility for artists to study core art skills and encouraging them to carry the art form forward.



Students at the National Academy of Design in the early 1920s. Traditional art studies from the past form the foundation for artists of the future.

Future Plans

You might wonder where the funding to accomplish all of the things Animation Resources is doing is coming from. "We're very much flying by the seat of our pants."

Worth admits. “Thankfully, there are a lot of great people who believe in this idea who are willing to support it through individual donations. The student volunteers are enthusiastic too and are willing to roll up their sleeves and make it happen. Everything is on an achievable level and momentum is building to allow us to take on even more in the future.”

The full collection is not yet able to be shared online, but a wonderful selection of images and information are available on the Animation Resources blog, which can be found at www.animationresources.org. The website contains thousands of images and streaming videos, along with biographical articles and information on the progress of the project itself. According to Stephen Worth, the blog serves over a quarter of a million articles a month to over 1.5 million unique visitors. “Our web traffic comes from around the world. We’ve heard from artists as far away as Japan, Kazakhstan and Italy who follow our progress on the internet every day.”

There are also plans to syndicate the database to schools and universities around the world. Worth says, “Animation Resources’s collection should be available to as many people as possible. I’d love to work out a way to put our entire archive database on university servers, so students could access it through their school intranet. That wouldn’t be too difficult to do, and I could see that it would help broaden the students’ horizons considerably.”

Do You Know This Man?

Though few would recognize his name, and even fewer his face, nearly every person on earth knows of this man’s work. This is Ub Iwerks, the man who created Mickey Mouse.

This self portrait from 1931 was found in a trash can at a local TV cartoon studio. No one knows how the drawing got there and no one at the studio could identify him. At a reunion of animators from the most successful animated feature of recent times, this sketch was shown to a hall full of employees from the studio this man made famous- not a single person recognized him.

“The next step for us is to establish a steady stream of revenue to fund the sustained growth of the project,” says Worth. “I see in my head a full brick and mortar museum dedicated to animation with satellite facilities all over the world. I’m willing to do whatever I can to make this a reality. There are a lot of other people here who love animation and are happy to help. I don’t think it’s an unattainable goal.”

Conclusion

Part of what makes Animation Resources so unique is that they are so progressive and yet so willfully different from other archives. Their unique vision is encapsulated in a remark from Worth, “I’m not a library science person, I’m an animated film-maker, so I don’t know what normal is for a facility like this. I do know what animators need and how they need it organized so they can use it.”

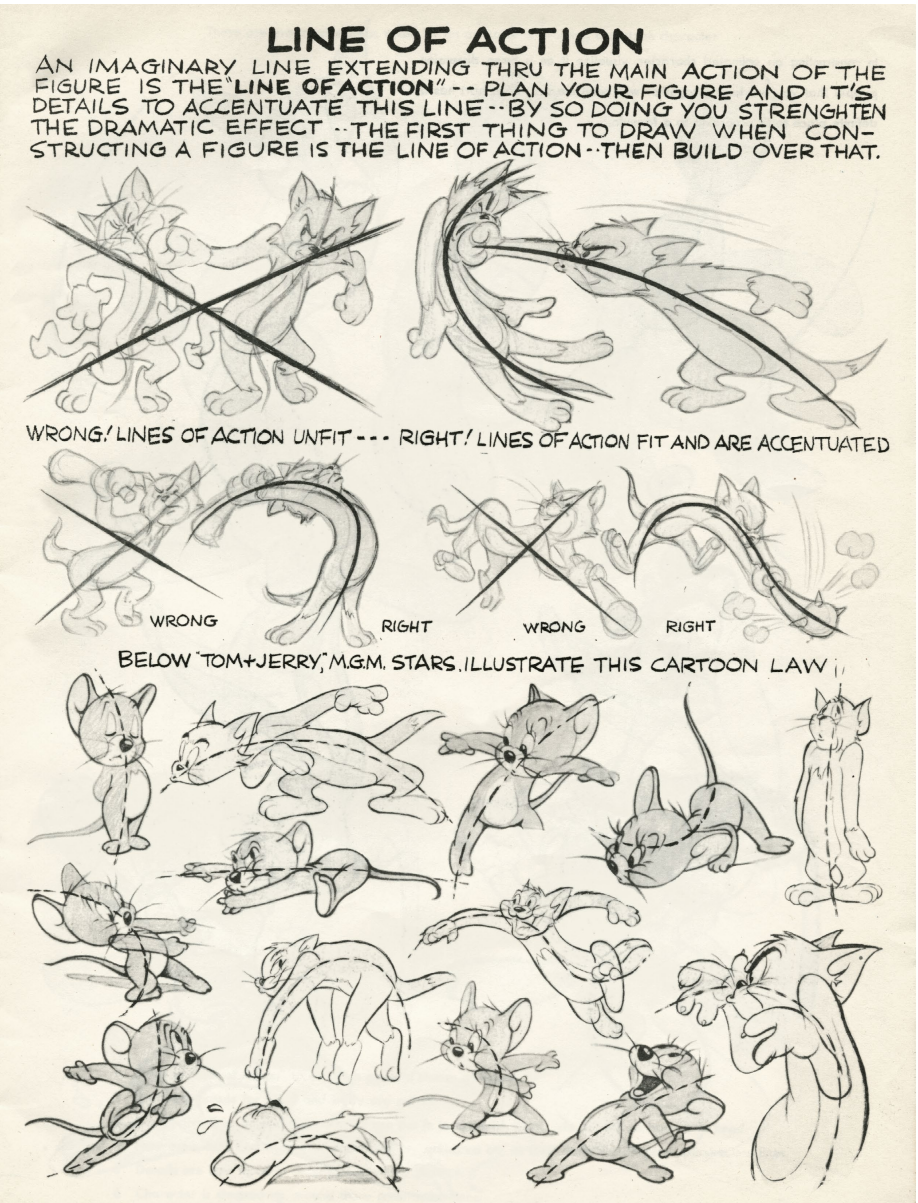


This pro-access and pro-digital approach is refreshing. Animation Resources is clearly designed by and for animators. These specialized artists not only need to understand the basic elements of form, design, and nuances of character performance, but how to rigorously time and structure the creation of their art down to 1/24th of a second. It’s a big challenge and it requires a good education.

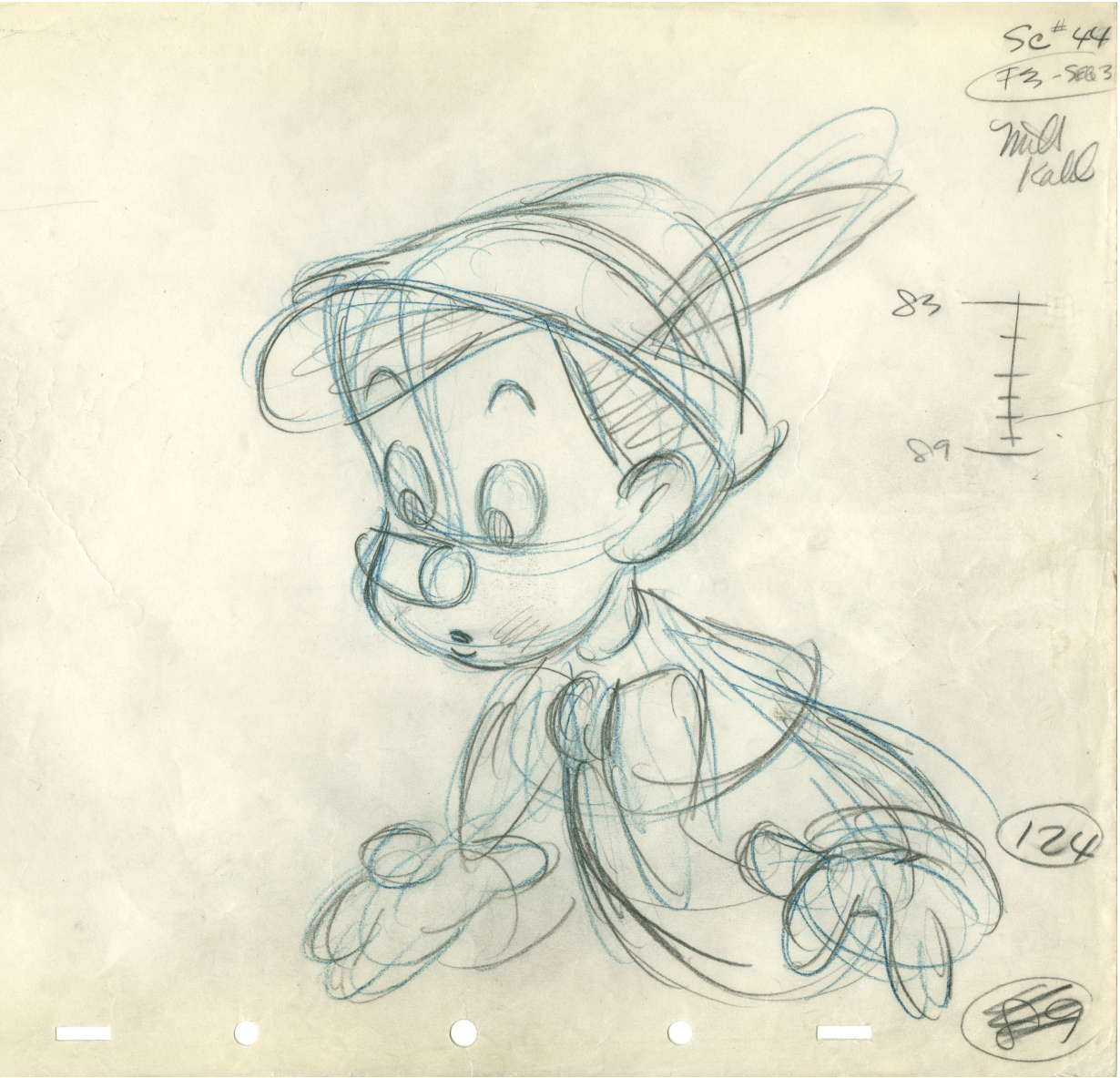
Certainly the professional world contains a scattered sampling of people as committed to their medium as Stephen Worth and his group of dedicated volunteers, but it’s extremely rare to find such a concentrated few in any one place. Their passion and co-operation are achieving great things. Archivists and librarians might have a lot to learn from these animators. Animation Resources is rapidly becoming the model of what the “21st century archive” must become.

Most importantly however is the impact Animation Resources is having on the artform. By making the incredible work of artists and cartoonists from the past available to young artists, it will inspire them to set their standards of quality higher. It can also show them that animation is capable of being more than just “kid-die cartoons”. This could help spawn a new renaissance in cartooning and make the artform an even more vital part of culture as it was in the past.

Worth expands upon this point, “What point is there pickling the past in formaldehyde and setting it up in bottles on a dusty shelf? The past should be put to work informing the present and helping to improve the future.” It’s clear that the people behind Animation Resources don’t think small.



Animation Resources hosts an online drawing course based on Preston Blair’s book, “Advanced Animation”. See... <https://animationresources.org/instruction/>



Animation Resources depends on the support of the people who benefit from it. If you feel that this website is of value to you, we encourage you to contribute, volunteer and support the project. Every other month, Animation Resources shares a new Reference Pack with its members. They consist of an e-book packed with high resolution scans and two video downloads set up for still frame study. You can join Animation Resources by visiting...

<https://animationresources.org/membersonly/>

With your help, Animation Resources can grow. Together, we can take the project forward and build the foundation for the future of animation.

(Left) A rough animation drawing by the legendary Milt Kahl. The animation of the past is being put back to work, educating and inspiring the animators of the future.

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