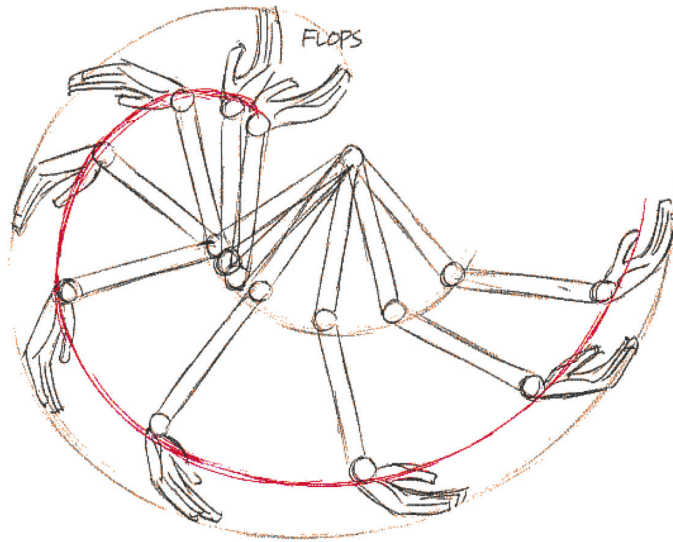
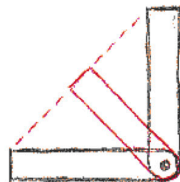


The ARC OF THE ACTION
GIVES US THE
CONTINUOUS FLOW

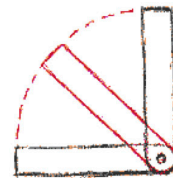
IN THIS ARM SWING
THE WRIST IS LEADING
THE ARC AND THE
HAND DRAGS.



AND OF COURSE THE BONES
DON'T SHRINK AND GROW -
THEY MAINTAIN THEIR
LENGTH

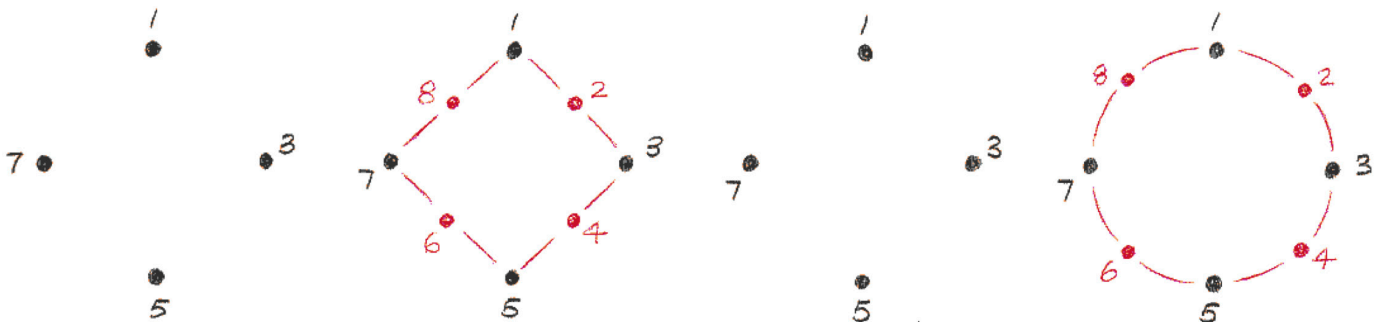


OBVIOUSLY
WRONG



OBVIOUSLY
RIGHT

THE ARC IS SO IMPORTANT! SAY WE HAVE POSITIONS 1, 3, 5 AND 7 -



DO WE JOIN THEM UP LIKE THIS?

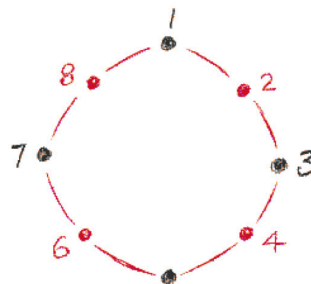
-OR LIKE THIS?

WE'LL GET AN UTTERLY DIFFERENT RESULT - SO WE ROLL OR FLIP THE DRAWINGS
TO MAKE SURE WHAT THE ARC OF THE ACTION OR PATH OF ACTION SHOULD BE.

OFTEN
WE GET THIS -

USUALLY
WE GET THIS -

NEITHER ONE THING NOR THE OTHER



WE'VE ALREADY INTRODUCED SOME OF THESE DEVICES WITH WALKS and RUNS, BUT I WANT TO TAKE EACH OF THEM SEPARATELY and DIG INTO THEM.

FIRST, The BREAKDOWN

A GREAT WAY TO GET FLEXIBILITY IS WHERE WE'RE GOING TO PLACE

The BREAKDOWN DRAWING
OR PASSING POSITION
OR MIDDLE POSITION
OR INTERMEDIATE POSITION
(WHATEVER YOU WANT TO CALL IT)

- BETWEEN 2 EXTREMES.

WHERE DO WE GO IN THE MIDDLE? CRUCIAL! AS WE'VE SEEN WITH THE WALKS, IT GIVES CHARACTER TO THE MOVE. IT'S A TRAVELLER - A TRANSITIONAL POSITION. AND WHERE WE PUT IT IS SO IMPORTANT. IT'S THE SECRET OF ANIMATION, I TELL YOU!

IT STOPS THINGS JUST GOING BORINGLY FROM A TO B.

GO SOMEWHERE ELSE THAT'S INTERESTING EN ROUTE FROM A TO B.

EMERY HAWKINS, A MASTER ANIMATOR OF 'CHANGE' SAID TO ME,

"DICK, DON'T GO FROM A TO B.

GO FROM A TO X TO B.

GO FROM A TO G TO B.

GO SOMEWHERE ELSE IN THE MIDDLE!"

A SIMPLE, POWERFUL TOOL:

I FIRST GOT ONTO THIS BY WORKING WITH KEN HARRIS, WHEN HE'D CUT UP MY DRAWINGS, OR BITS OF THEM, and HE'D STICK THEM DOWN IN A DIFFERENT PLACE.

I ENDED UP FEELING SO STRONGLY ABOUT THE BREAKDOWN THAT FOR YEARS I WENT AROUND RANTING and RAVING THAT I COULD WRITE A WHOLE BOOK ABOUT IT. (IT HAS ONLY JUST OCCURRED TO ME THAT THIS IS IT.)

LET'S TAKE OUR
2 EXTREMES
OF A MAN
GOING FROM
HAPPY to SAD -



PUT IN THE
MIDDLE POSITION
WHERE IT
WOULD BE
LOGICALLY -



OK, BUT DULL

EXTREME BREAKDOWN EXTREME

RIGHT, LET'S GO
SOMEWHERE ELSE
IN THE MIDDLE.



= MORE INTEREST,
MORE 'CHANGE'

WE COULD EVEN JUST
KEEP THE SAME MOUTH
BUT DELAY THE CHANGE -



= A QUICKER CHANGE
- MORE VITALITY

OR THE CONVERSE -
ADVANCE THE CHANGE



= A QUICKER
UNHAPPINESS.

LET'S KEEP
THE SAME MOUTH
BUT PUSH IT UP -



= IT WOULD AFFECT
THE CHEEKS and
MAYBE THE EYES
AND GIVE MORE
CHANGE TO UNHAPPY

KEEP
THE SAME MOUTH
BUT DROP IT DOWN



= IT WOULD
DISTEND THE FACE
STRETCHING
THE CHEEKS, NOSE, EYES.

OR TAKE
THE UNHAPPY MOUTH
and PUSH IT UP -



= A TOTALLY
DIFFERENT CHANGE

STRAIGHTEN IT
and PUSH IT UP -



= GULP...

STRAIGHT
and LOWER?



= OH, OH...

EXTREME BREAKDOWN EXTREME

DO WE GO UP
ON ONE SIDE?



= THINKS
ABOUT IT,

INCREASE
The SMILE?



= FALSE
CONFIDENCE

REDUCE IT?



= HMMM...

LET'S REDUCE
The
UNHAPPY MOUTH



= I KNEW IT...

EVEN JUST
A SIMPLE BLINK



= GIVES SOME
MOBILITY

WE CAN START
TO STRETCH THINGS



= OOPS.

LET'S START
TO BE
IMAGINATIVE..



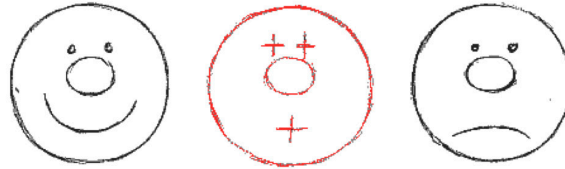
= SOMETHING I ET?
OR
HAD A DRINK?



= YOUR SECRET IS
SAFE WITH ME

WE CAN GO ON LIKE THIS FOREVER...

EXTREME BREAKDOWN EXTREME



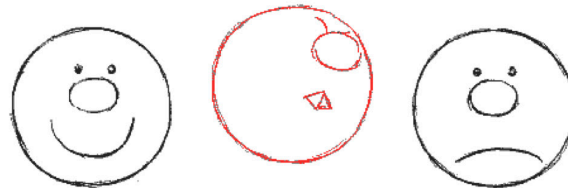
(THIS'D BE BETTER IN REVERSE...)



JUST A SIMPLE TILT TO IT...



LIFT THE MASS?



IT'S ENDLESS...

CONCLUSION:

WHERE WE GO WITH THE MIDDLE 'TRAVELLING' POSITION HAS A PROFOUND EFFECT ON THE ACTION AND CHARACTER.

I HANG MY HAT ON THIS!

MAKE THE EXTREMES (OR CONTACTS) THEN THE BREAKDOWN (OR PASSING POSITION.) THEN MAKE THE NEXT BREAKDOWN BETWEEN THE EXTREME AND THE MAIN BREAKDOWN. KEEP BREAKING IT DOWN INTO EVER SMALLER BITS.

(THEN DO SEPARATE 'STRAIGHT-AHEAD' RUNS ON SEPARATE BITS)

NOW WE COME TO ONE OF THE MOST FASCINATING DEVICES IN ANIMATION -

BREAKING OF JOINTS
TO GIVE FLEXIBILITY

AND EVEN MORE INTERESTING:

SUCCESSIVE BREAKING OF
JOINTS TO GIVE FLEXIBILITY

i.e. WE KEEP ON DOING IT TO LOOSEN THINGS UP.

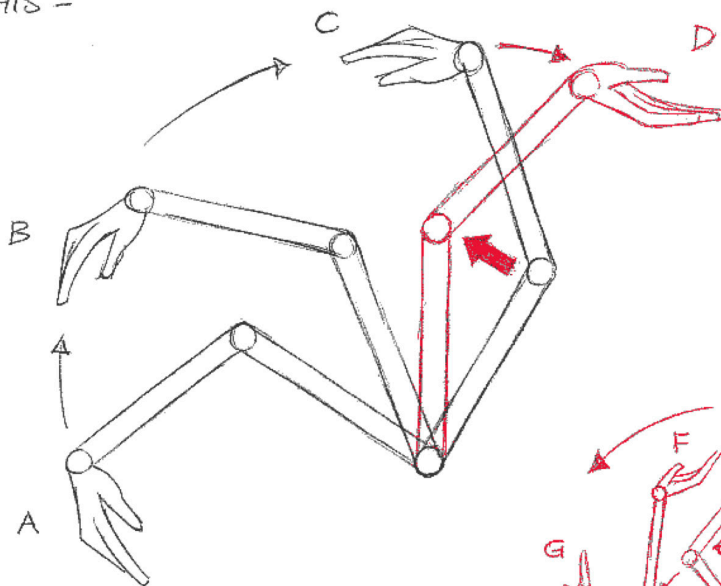
IT'S QUITE A MOUTHFUL. THE PIONEER DISNEY ANIMATORS DISCOVERED THIS DEVICE AND ALL THE GOOD GUYS WERE DOING IT, BUT ART BARBITT WAS THE ONE WHO GAVE IT A NAME.

WHEN I NOTICED MILT KAHL DOING IT, I REMARKED ON IT, AND MILT SAID, "OH, WELL, YOU'VE GOT TO DO THAT." I THINK IF I'D SAID, "OH, I NOTICE THAT YOU'RE BREAKING THE JOINTS HERE SUCCESSIVELY IN ORDER TO GIVE FLEXIBILITY," HE'D HAVE THROWN ME OUT OF THE ROOM.

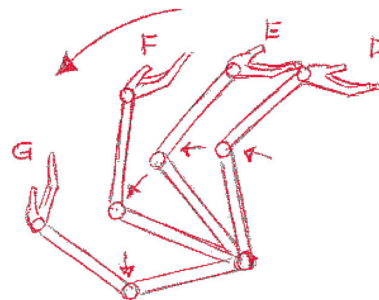
IT'S NOT WHAT IT'S CALLED - BUT WHAT IS IT?

PUT SIMPLY, IT'S THIS -

WHEN AN ARM
GOES UP
AND
IS GOING TO
COME BACK
DOWN AGAIN -



THE HAND WILL
KEEP ON GOING
BUT
THE ELBOW JOINT
BENDS OR 'BREAKS'
GOING BACK IN THE
OPPOSITE DIRECTION
- STARTING ON ITS
WAY BACK DOWN.



'BREAKING' MEANS BENDING THE JOINT WHETHER OR NOT IT WOULD ACTUALLY BEND IN REALITY.

AND THEN WE'RE GOING TO KEEP ON DOING IT CONTINUOUSLY - SUCCESSIVELY - TO MAKE THINGS LIMBER.

GRIM NATWICK, THE FIRST ANIMATOR TO REALLY DRAW WOMEN, ALWAYS SAID,
'CURVES ARE BEAUTIFUL TO WATCH.'

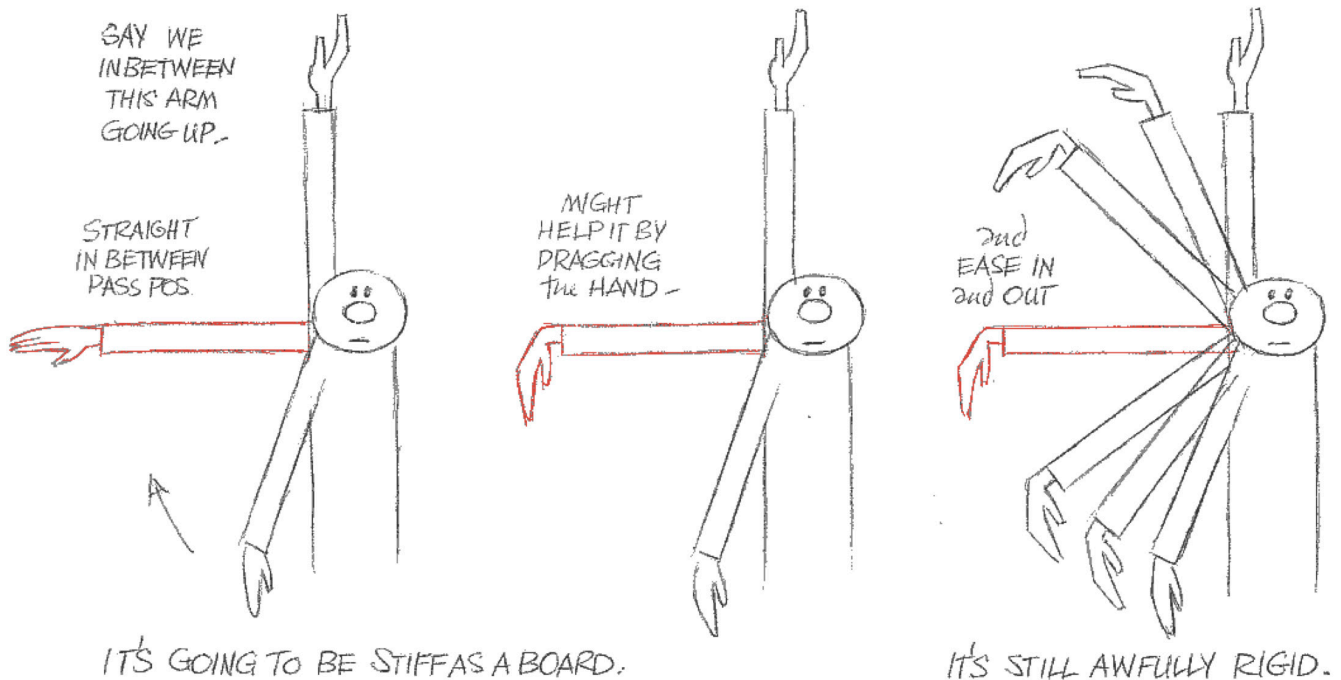
IN THE 1920'S GRIM'S FRIEND, ANIMATOR BILL NOLAN DEVELOPED 'RUBBER HOSE' ANIMATION. IT WAS NOVEL AND FUNNY SINCE NOBODY HAD ANY BONES AND EVERYTHING FLOWED WITH ENDLESS CURVING ACTIONS - LOTS OF VARIATIONS ON FIGURE 8'S, ROUND FIGURES MAKING ROUNDED ACTIONS.



BUT NOW WE CAN GET CURVES WITH STRAIGHT LINES!

SUCCESSIVE BREAKING JOINTS ENABLE US TO GET THE EFFECT OF CURVED ACTION BY USING STRAIGHT LINES.

WE'RE FREED FOREVER FROM THE TYRANNY OF HAVING TO ANIMATE RUBBERY FIGURES. I ALWAYS FIGURED THAT 'DRAWINGS THAT WALK AND TALK' SHOULD BE ANY TYPE OF FIGURE IN ANY STYLE, MADE OF FLESH AND BONES. THIS OPENS UP A PANDORA'S BOX OF STUFF. WHAT A TOOL! WE CAN HAVE BONES AND 'STRAIGHTS' IN OUR FIGURES AND STILL HAVE FLUID, FLOWING MOVEMENT.

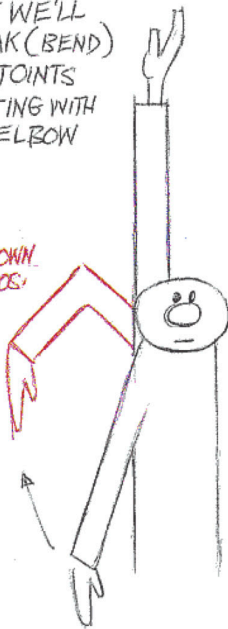


WE WON'T DUCK THE PROBLEM WITH A RUBBERISED ARM -



BUT WE'LL
BREAK (BEND)
THE JOINTS
STARTING WITH
THE ELBOW

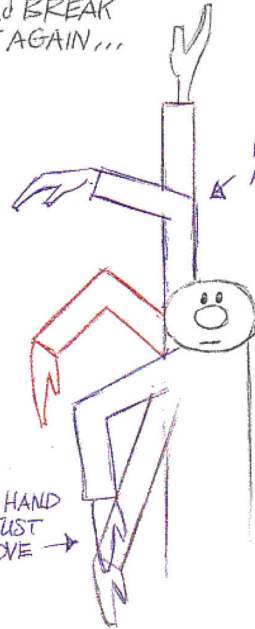
BREAKDOWN
OR PASS POS.



and BREAK
IT AGAIN...

THE
ELBOW
ARRIVES
FIRST

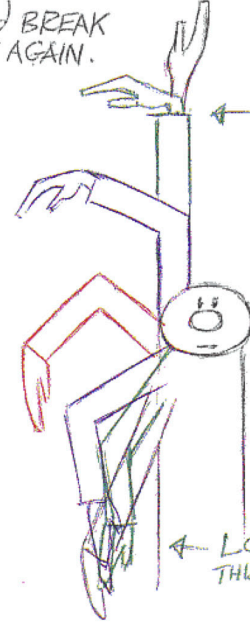
THIS HAND
IS JUST
ABOVE



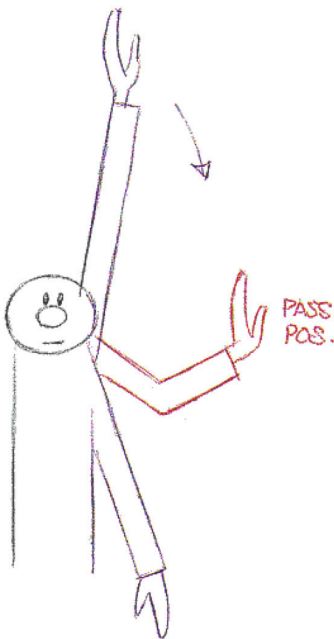
... and BREAK
IT AGAIN.

THEN THE
WRIST
ARRIVES
BEFORE
THE HAND

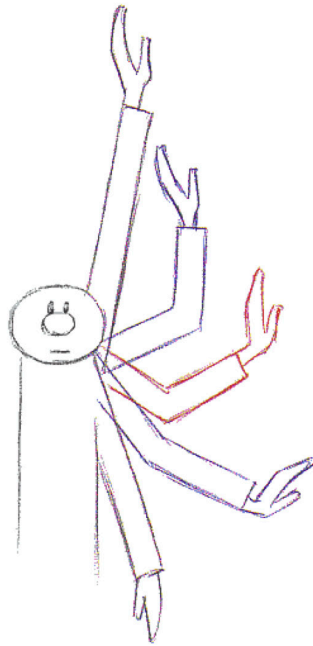
LOOK WHERE
THIS HAND IS.



NOW WE GO DOWN THE OTHER SIDE - SUCCESSIVELY BREAKING THE JOINTS:



PASS
POS.



LOOK
WHERE
THIS
ONE IS

MAKE
THIS ONE
STRAIGHT
BUT DELAY
THE HAND



IN THIS EXAMPLE ALL THE BENDS OR 'BREAKS' ARE PHYSICALLY POSSIBLE.
WE HAVEN'T HAD TO ACTUALLY BEND OR BREAK ANYTHING THE WRONG WAY YET.

(BUT WE CAN)