CAST MODIFICATION

CHAPTER 22

ORIGINAL CAST CUTTING

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ORIGINAL CAST CUTTING AND MODIFICATION

The raw cast does not make a "good" fitting shoe, boot or sandal. ONLY the modified cast which becomes the last makes a "good" fitting shoe, boot or sandal.

There are many reasons why the raw cast doesn't work very well. The first, as discussed in checking cast measurements, is that the human body changes size and shape very readily from one position to another. Second, is that the casting materials: plaster of Paris, plaster splints etc. shrink, swell and distort especially at the interface of another material or layer.

Therefore, making shoes, boots and sandals from plaster casts has philosophical merit, but it has to be improved by an artisan and/or craftsperson who understands how to change the raw material into something better and more useful.

This is the initial step that Mr. Murray came to understand. And, it took him some time to work out a generalized system that worked for himself and others. He was the first person of record to develop the molded shoe concept and principles of fabrication.

Mr. Murray recognized that there was no "one size fits all" solution to cast modification. But, he was able to establish criteria that allowed him to be granted a lot of patents. They are all expired and can be found through the United States Patent Office.

Mr. Murray licensed a good number of people to utilize his development including some doctors. Patents have a shelf life and people usually find ways they can develop their own somewhat different system which they usually end up keeping to themselves.

The parameters of business change over time, but the human need for individualized footwear still exists. However, I feel it is time to let the public know that they can make their own molded shoes, boots and sandals.

Here is your opportunity to learn the heart of the process of turning casts of the feet into lasts in order to make your own molded shoes, boots and sandals.

The techniques are a craft of pure artistry!

You will become an artist!

Learn from my explanations and experience. Then you will be on your way to doing it all yourself without any strings attached except the fallowing:

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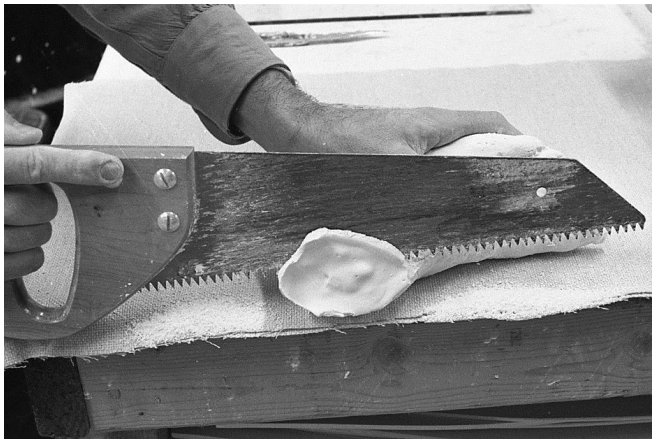
1 The raw cast.

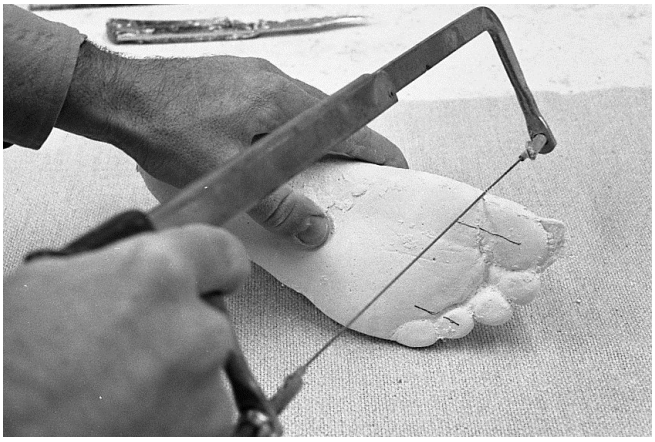
2 Scraping off the unwanted plaster.



3 Cutting off the top of cast.

4 The top of cast has been sanded level. Markings have been placed on the top of cast where the toes join the ball of foot.

5 Markings have been added on the bottom where the toes join the ball of foot.



6 Using a spiral wire saw blade to cut the toes off. A 10pt coping saw blade is a good alternative.

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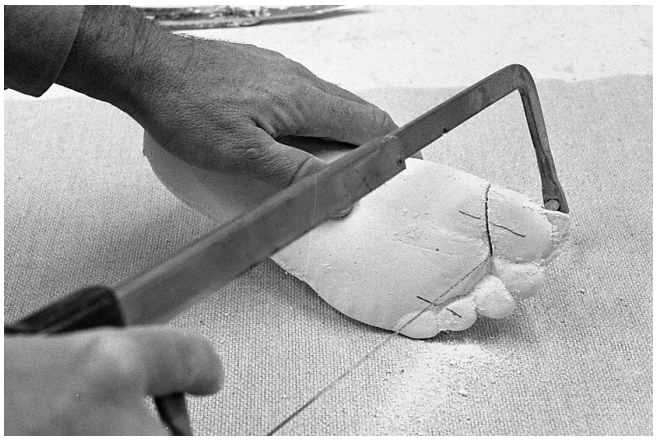
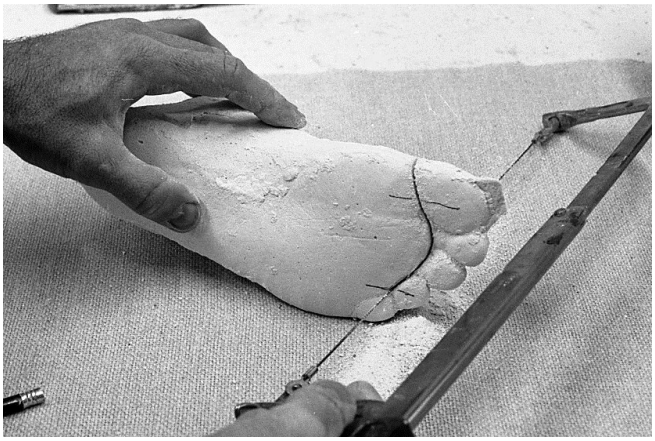
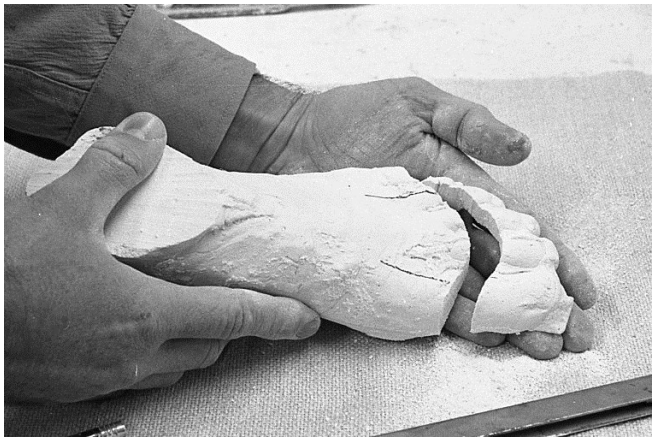


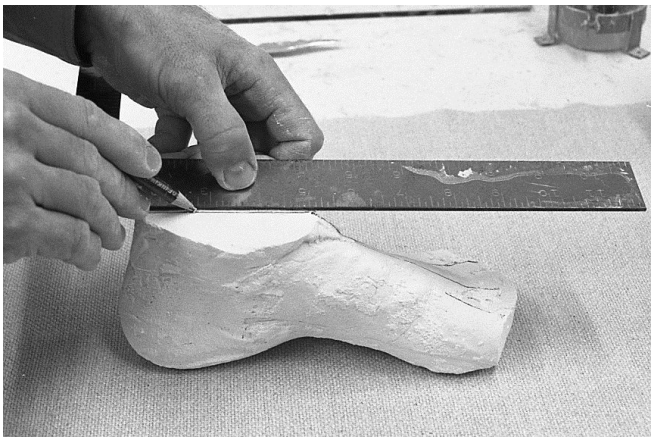
7 Ditto.



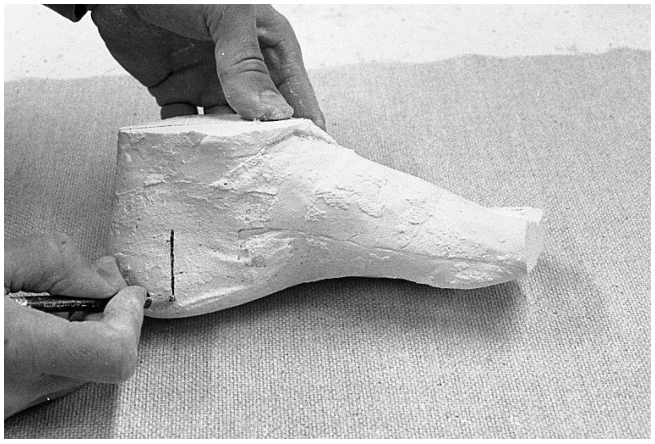
8 Ditto.



9 The toes have been removed from the cast.



10 The top is marked.



11 The medial heel is marked.

12 The lateral heel is marked.

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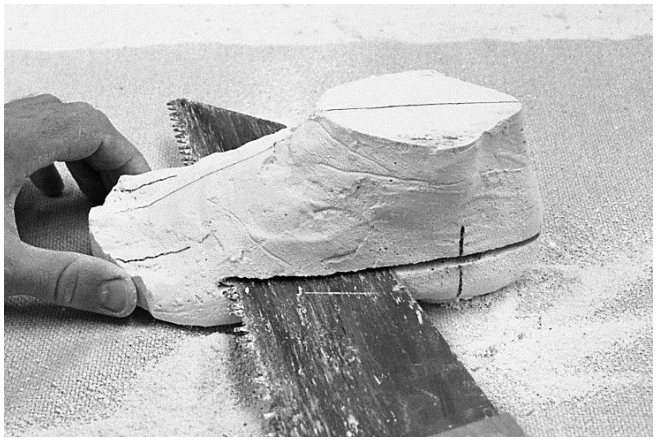
13 A horizontal cut is made with a drywall (plaster) saw.

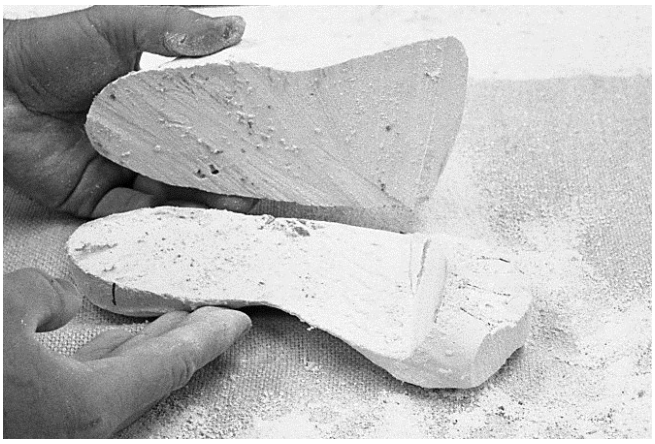
14 Ditto.



15 The front of cut is just to the rear of the bunion (big toe) and tailors (little toe) joint.

16 An angled vertical cut is made down to the horizontal cut.

17 The two pieces.



18 The two pieces separated.

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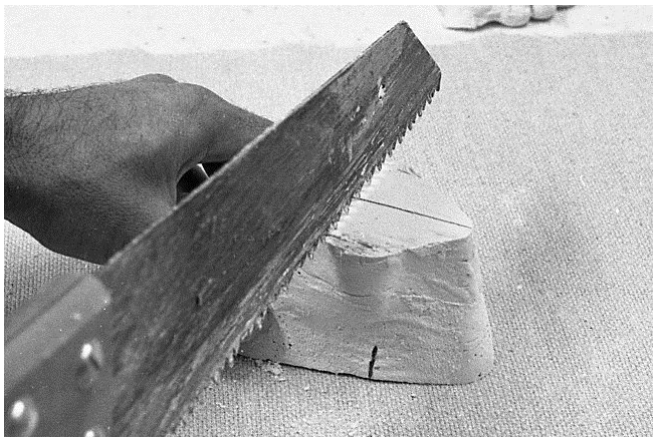
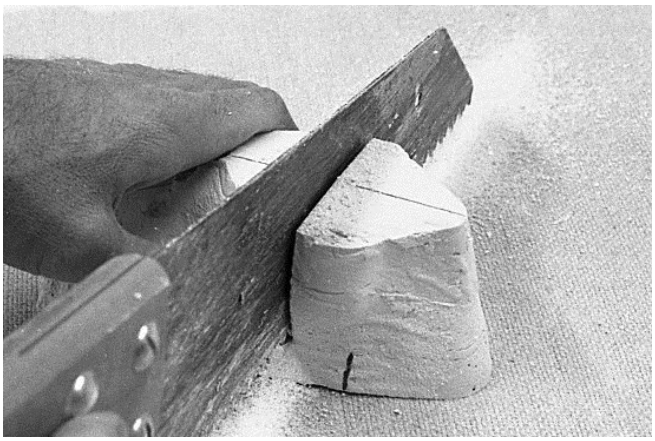


19 A vertical cut is made through the ankles.



20 Ditto.

21 The four pieces.

22 Cleaning the top of the bottom. The rough saw blade marks are scraped smooth with a knife.

23 Ditto.

24 Brushing the fine plaster off the bottom piece.

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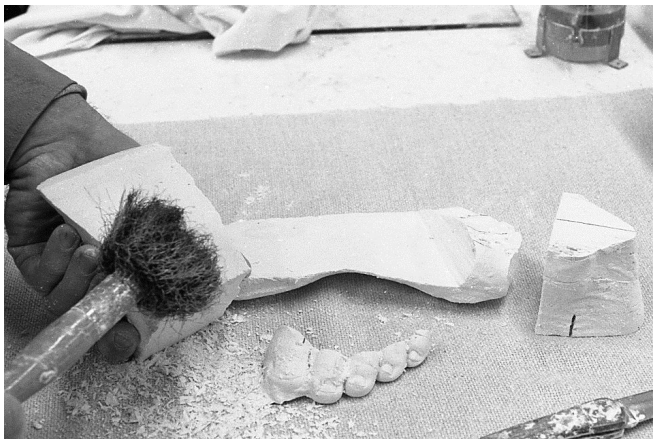
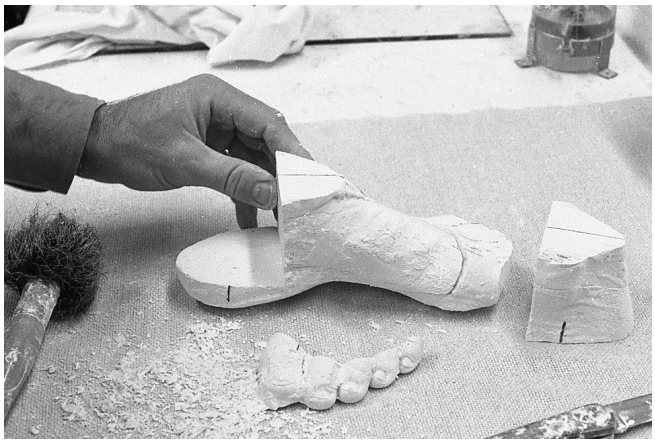
25 Cleaning the top front with a knife.

26 Ditto.

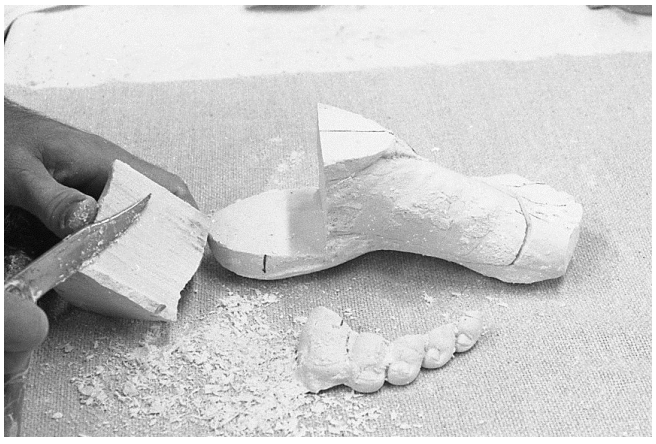
27 Ditto.



28 The fine plaster dust is brushed off.



29 The top front of cast is put onto the bottom.



30 More cleaning.

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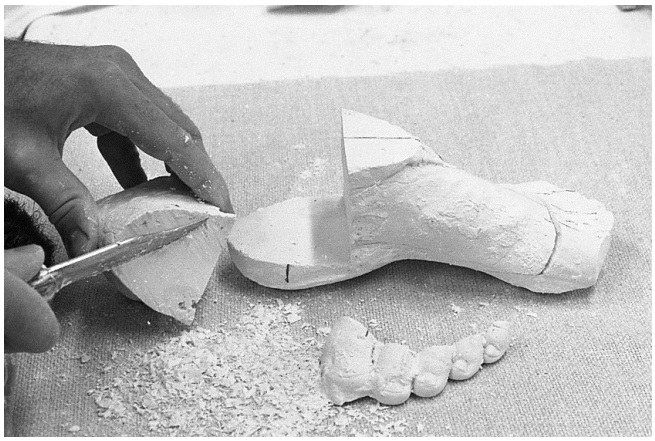
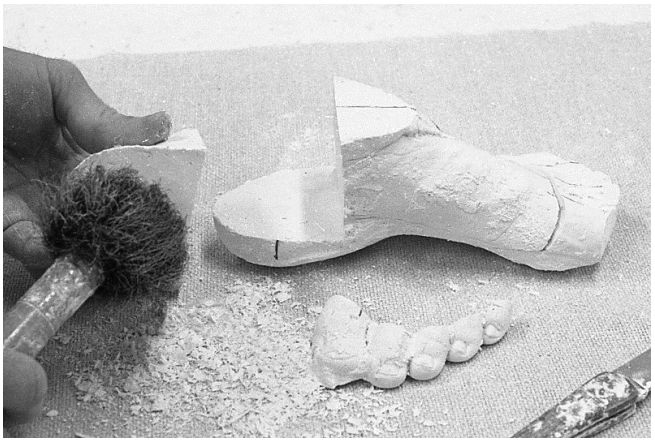
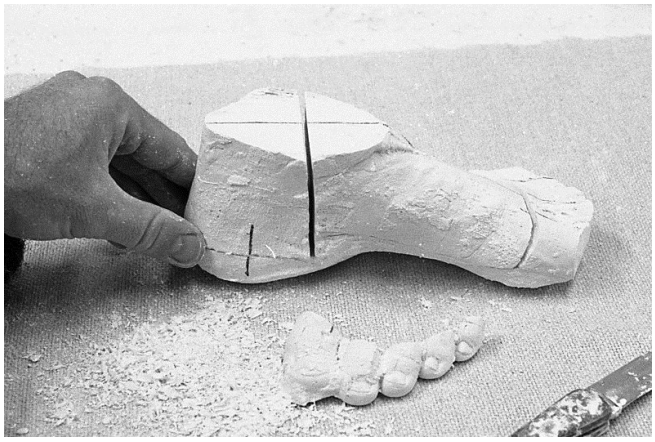


31 Ditto.



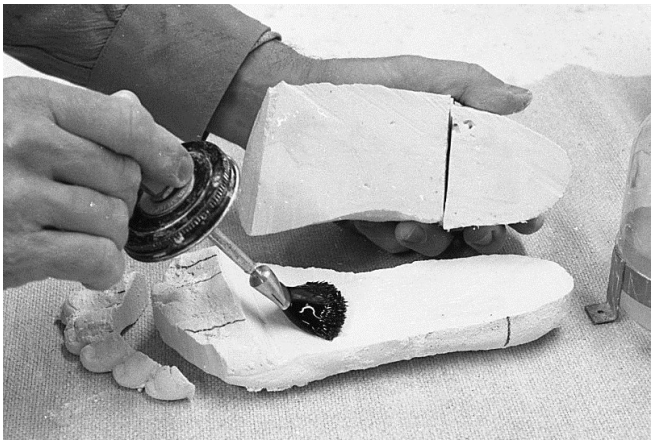
32 Ditto.



33 Putting the back top onto the bottom.

34 Putting glue on the parts; either rubber cement or a vinyl adhesive.

35 Ditto. Plaster parts can be bonded together with high solids latex (undiluted). The latex bonding will take longer to cure.



36 Applying glue to the bottom.

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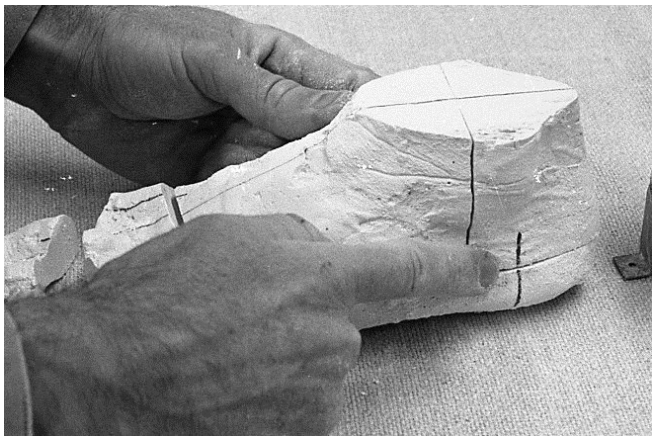
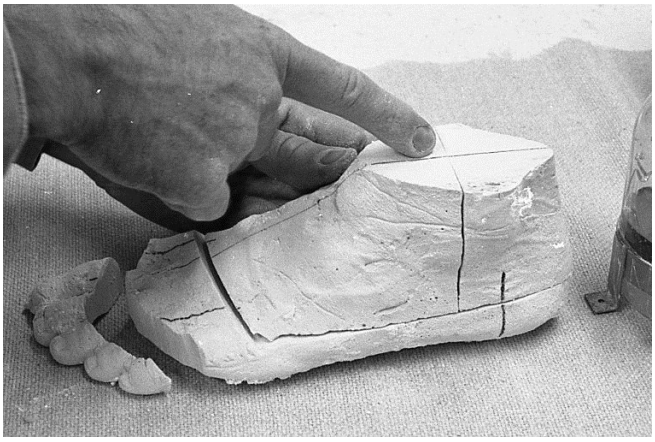
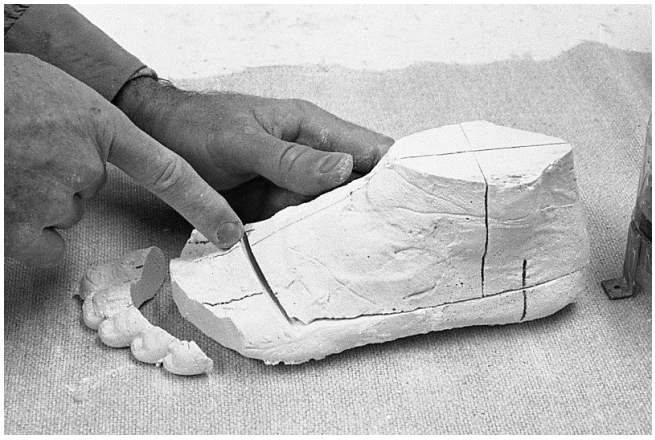


37 These are press cements. Which means press when the cement is wet and hold. If you want to use a contact cement, then you have to wait for it to become tack free before sticking together.



38 Line up the center line.



39 Notice the gap which is the width of two saw blades.

40 Cut plaster splinting material with a single edge razor blade. If you want to make a straight cut, pull with your elbow.

41 Cut as many strips as you need. A bundle is 5 layers times 3 bundles equals 15 individual strips.

42 This is the approximate count for the old traditional shoes which were notoriously a little short in the toes. Remember Mr. Murray was an ice skater not a runner.

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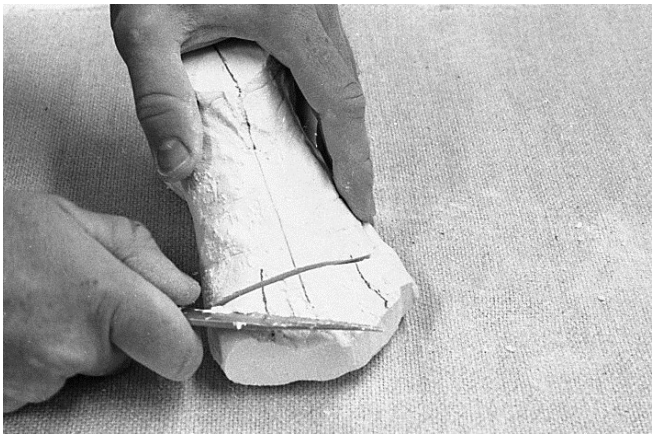


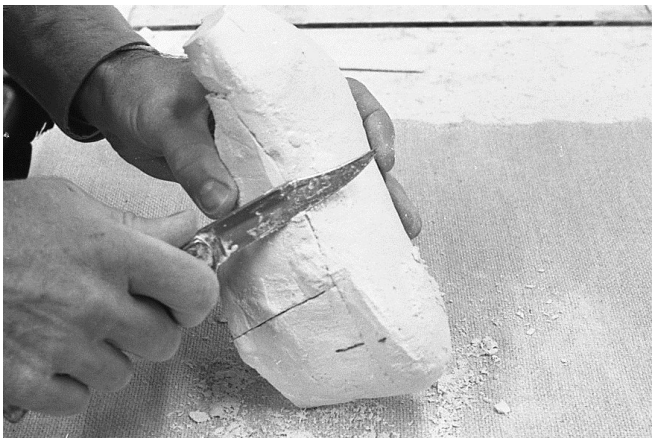
43 Cut back some plaster as pictured.

44 Ditto.

45 Scrape this area down a little.

46 Shave this area.

47 Shave this area.



48 Shave the arch.

Don't ask me how much! You will have to use your own judgment! You are the artist and/or craftsperson!

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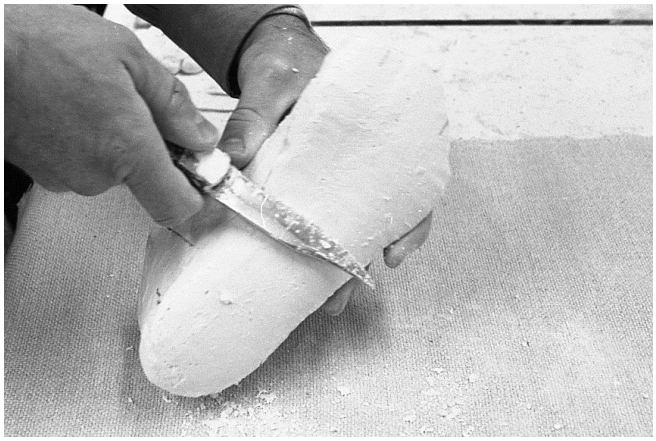
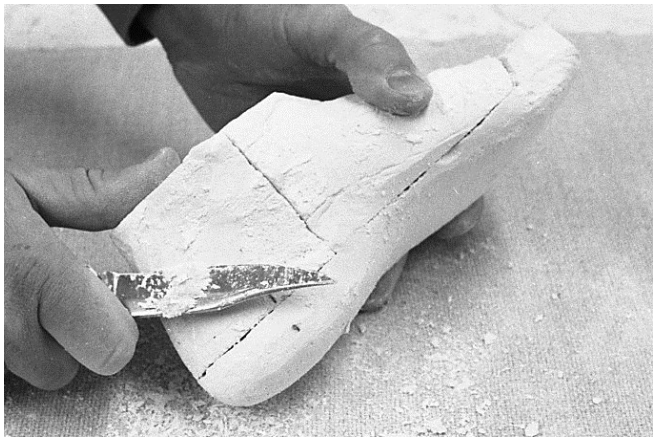
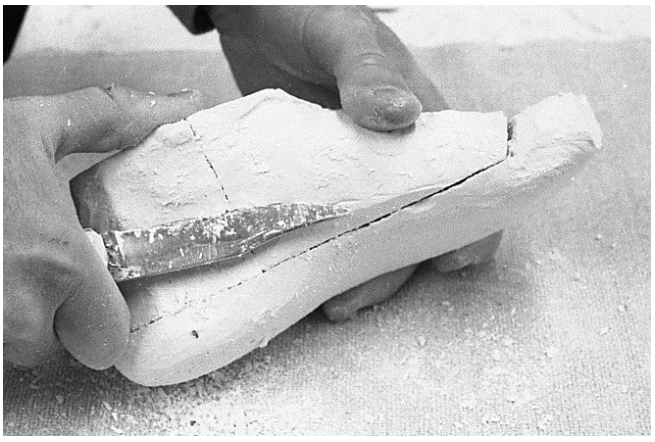


49 Ditto.

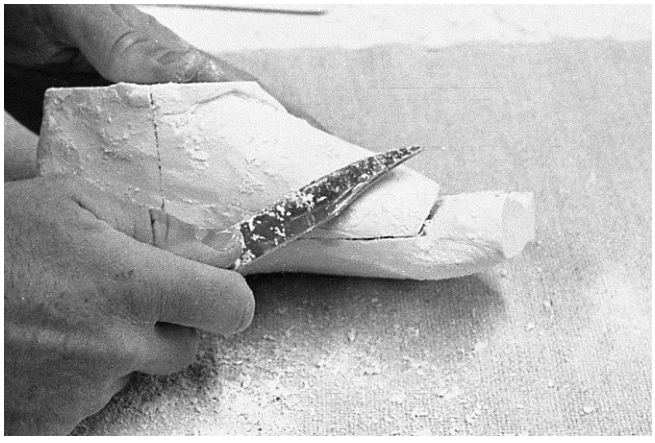
50 Scrape some off around the bottom of the heel.



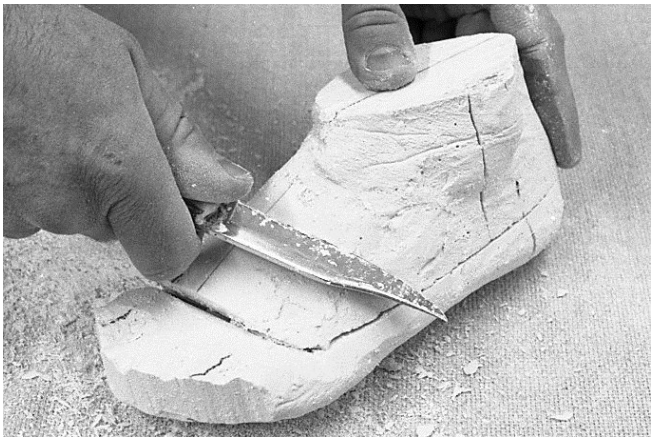
51 Shave some off the sides around the bck.



52 Shave some off the sides under the ankle bone.



53 Shave a little here.



54 Shave a little here.

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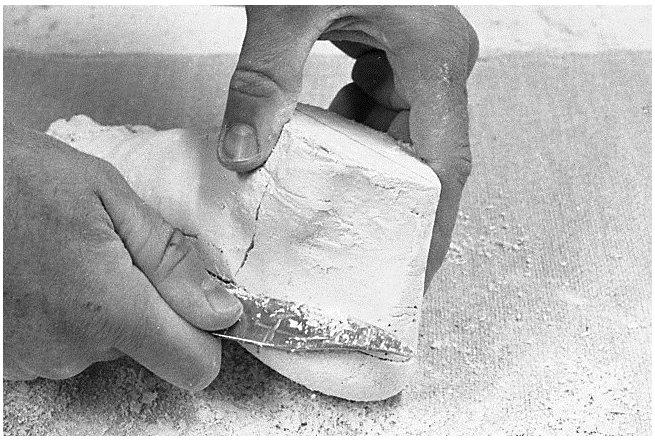
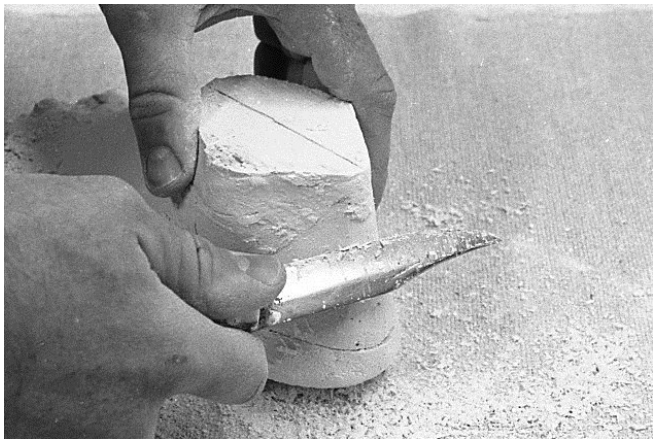
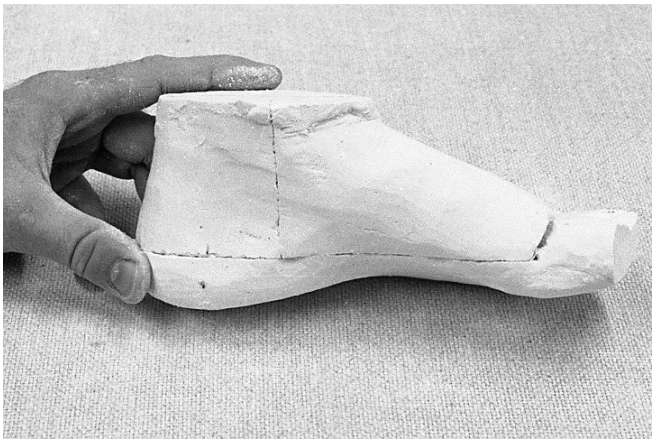
55 Shave under the ankle bone.



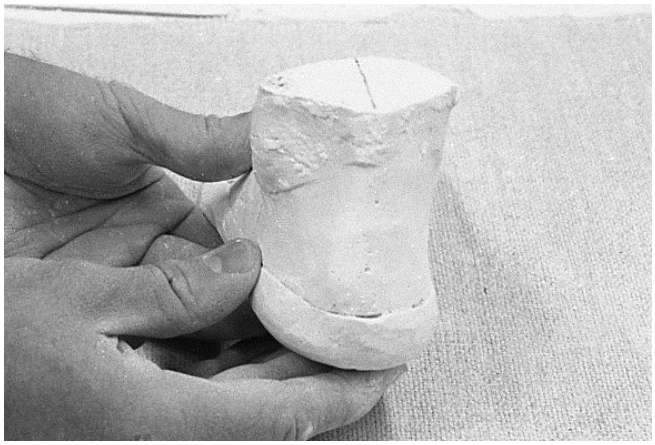
56 Shave on the side at the back.



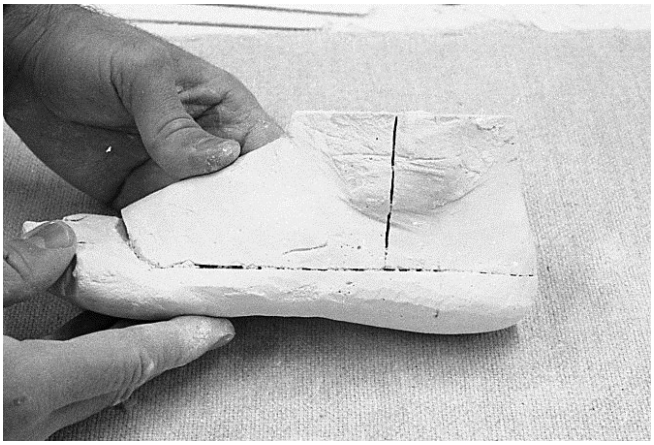
57 Shave around the back.



58 This is typically what the cast should look like at this point in the process.



59 Ditto.



60 Ditto.

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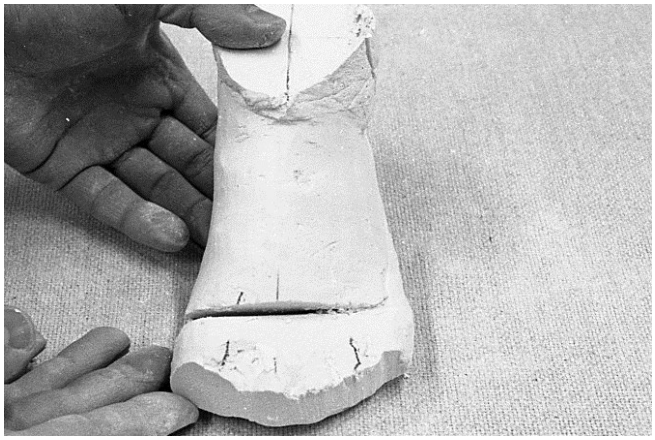
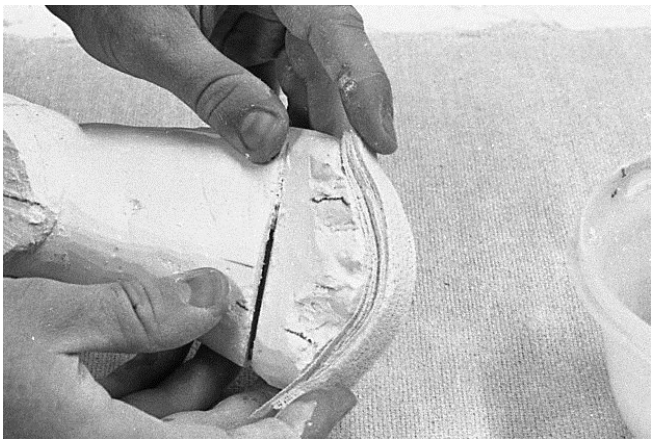


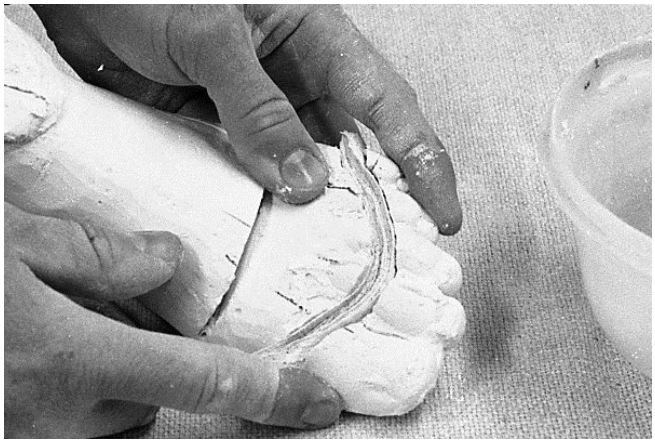
61 Ditto.

62 Wet the plaster strips all together.

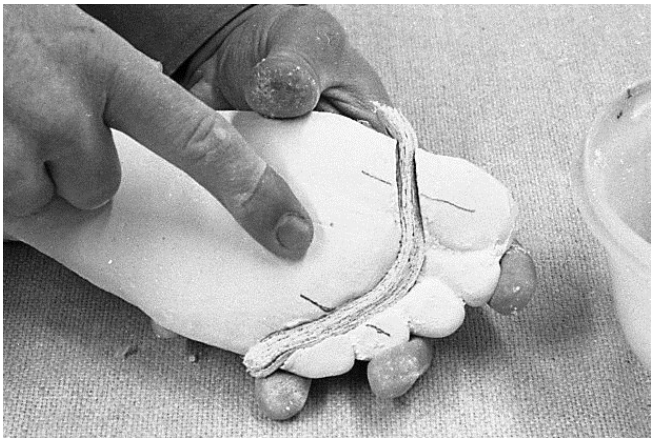
63 Briefly let the plaster strips drain.



64 Place the plaster strips into position as pictured.



65 Place the toes in front.



66 Line up everything, press together and hold until it begins to set.

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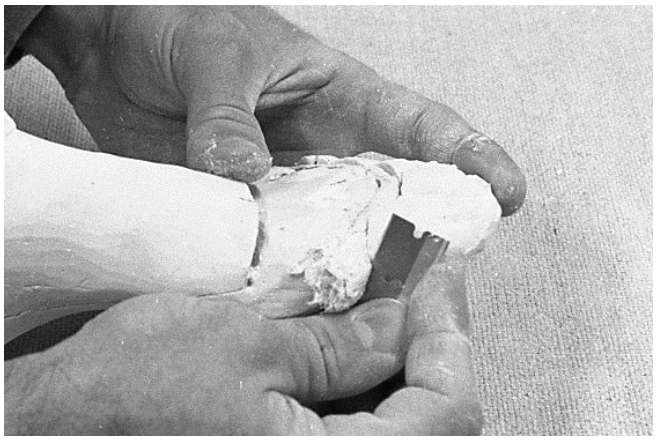
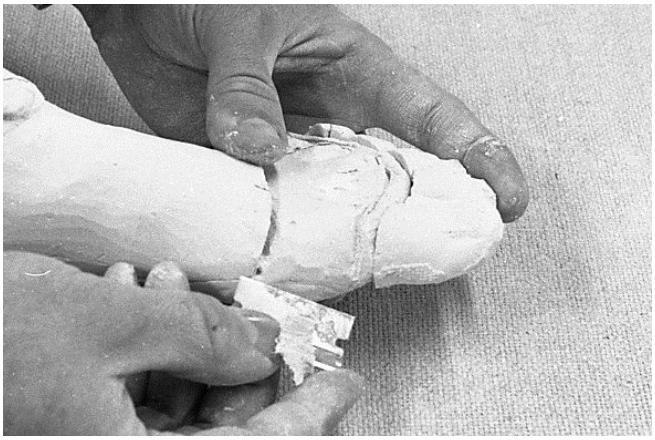
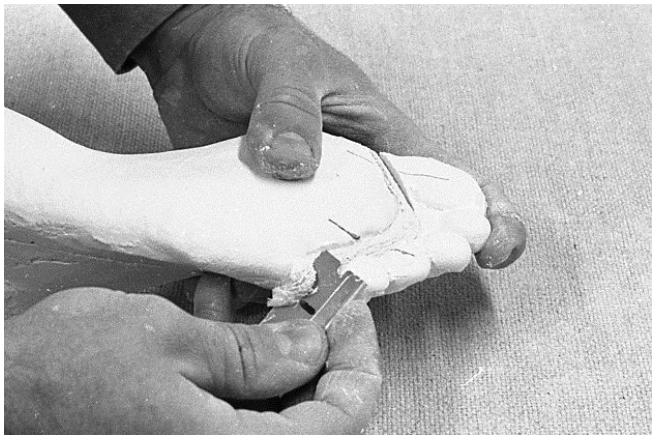


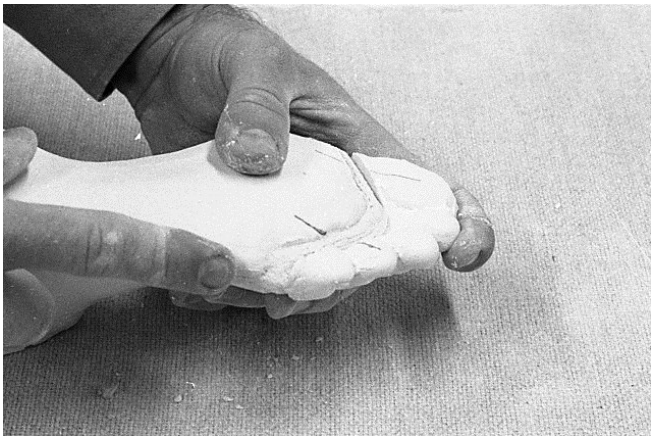
67 While still wet, trim off the excess of plaster splints.



68 Ditto.

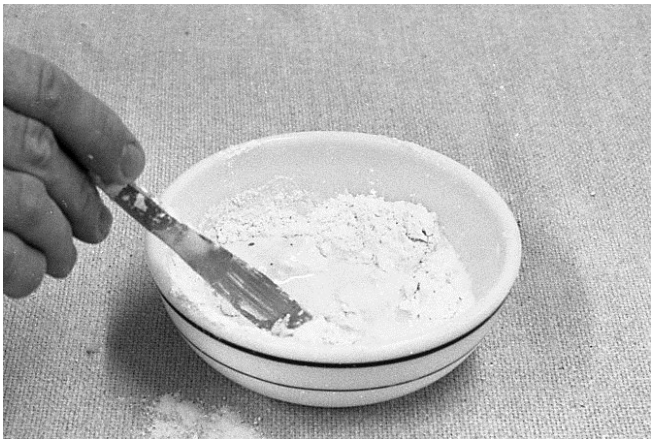


69 Ditto.



70 Ditto.

71 Mix water and plaster.



72 Stir together.

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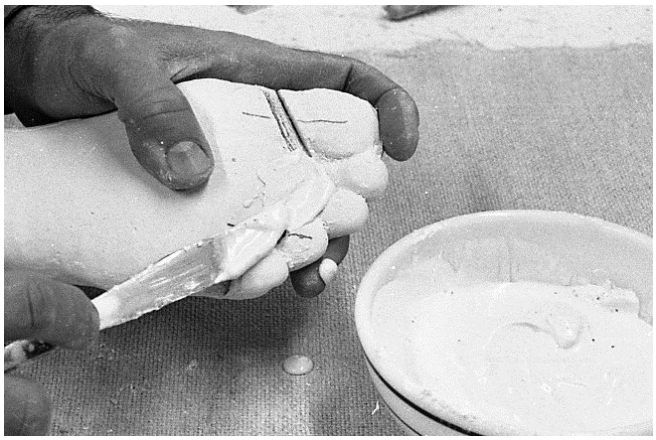
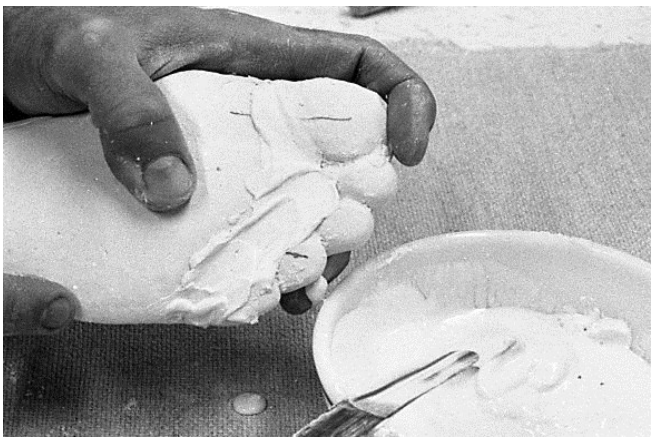


73 Apply plaster to cover plaster splints and bond it all into one piece.



74 Ditto.

75 Wet your fingers and smooth the plaster.

76 Ditto.

77 Apply more plaster.

78 And, smooth the plaster.

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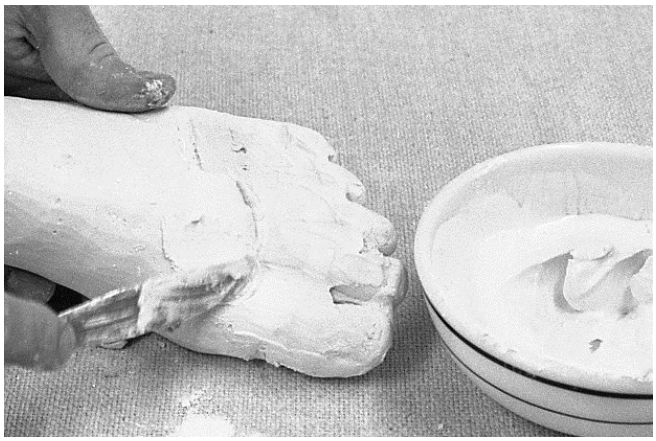
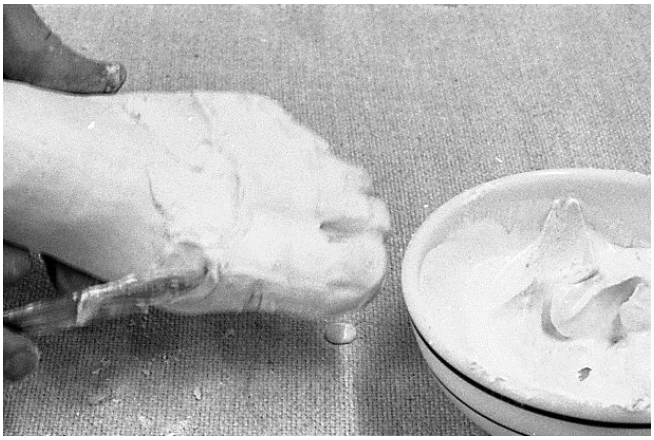
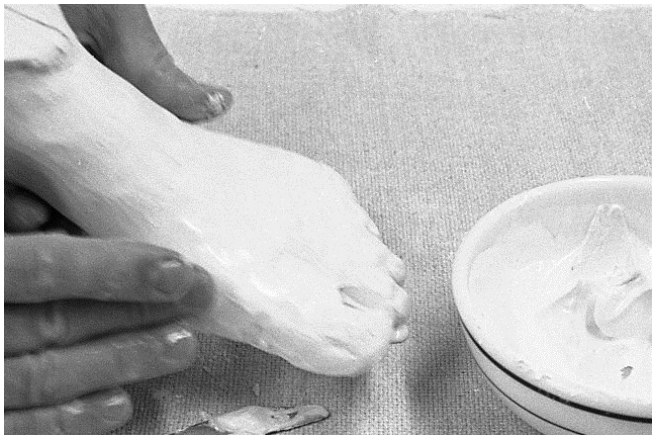


79 Ditto.

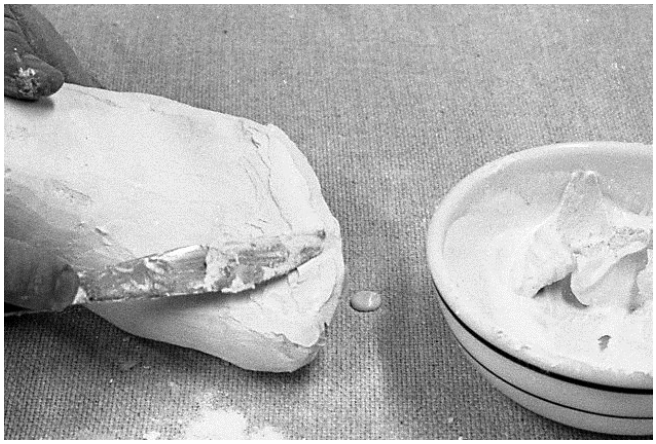


80 Ditto.

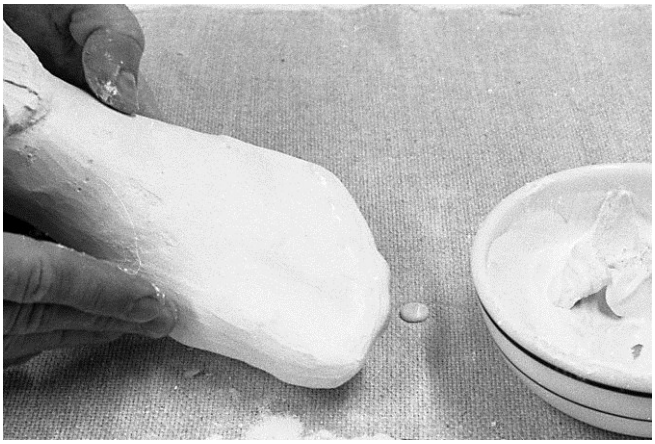


81 Ditto.

82 Ditto.



83 Fill in between the tops of the toes.



84 Ditto.

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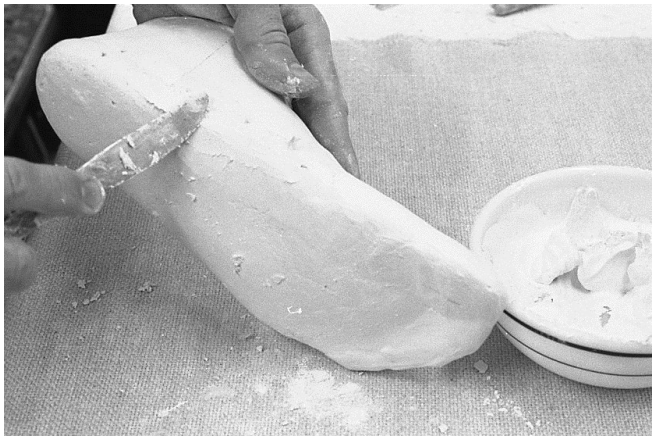
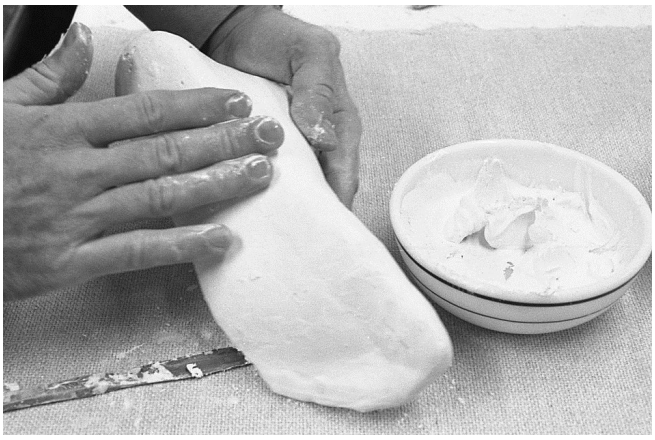
85 Smooth the ends of the toes.

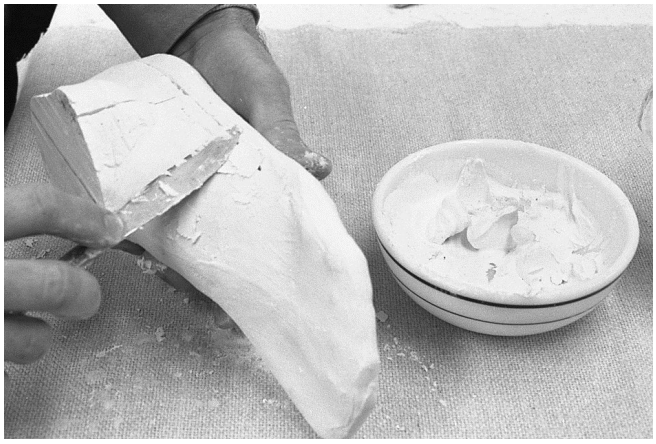
86 Ditto.



87 Fill any voids along the arch and smooth up any rough contours.



88 Ditto.



89 Fill in any voids and make smooth.

90 Ditto.

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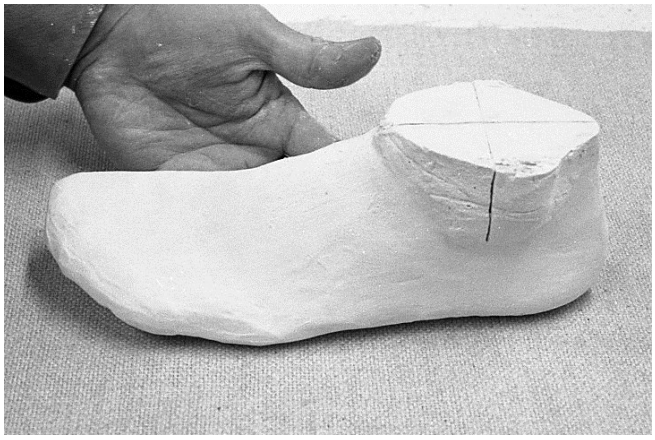
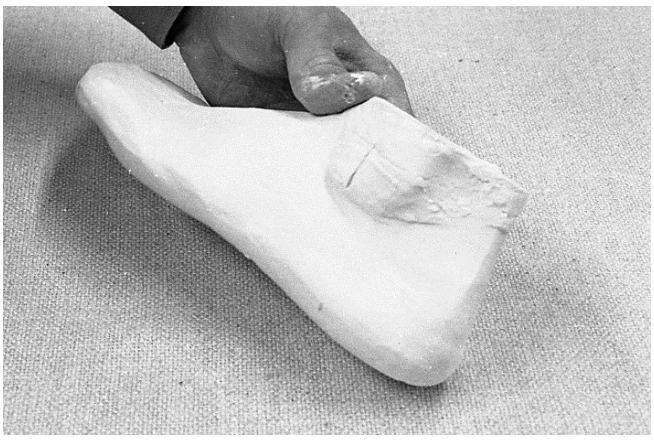
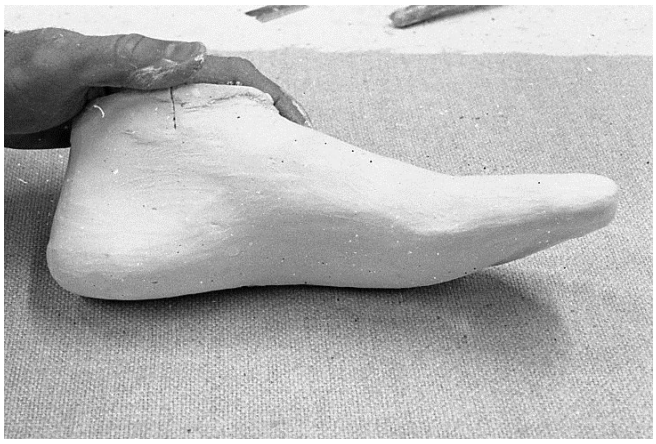


91 Now we have a finished "LAST".

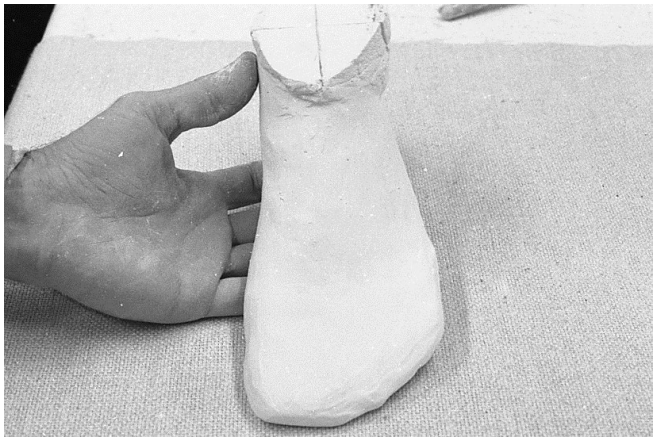


92 Ditto.

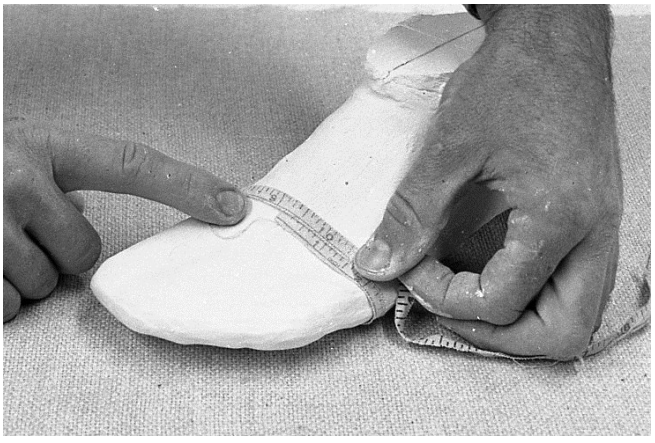


93 Ditto.

94 Ditto.



95 Ditto.



96 Check the ball measurement.

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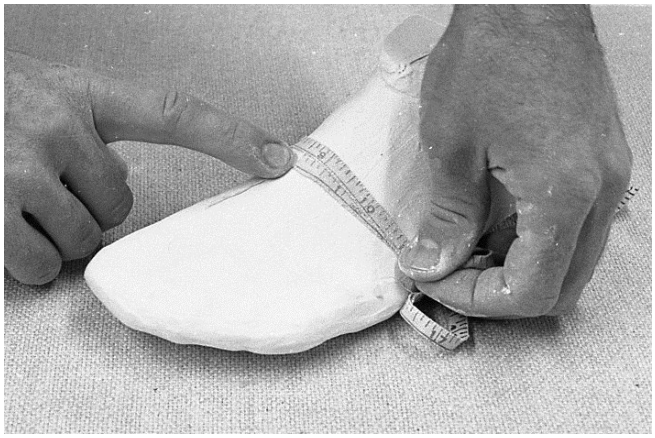
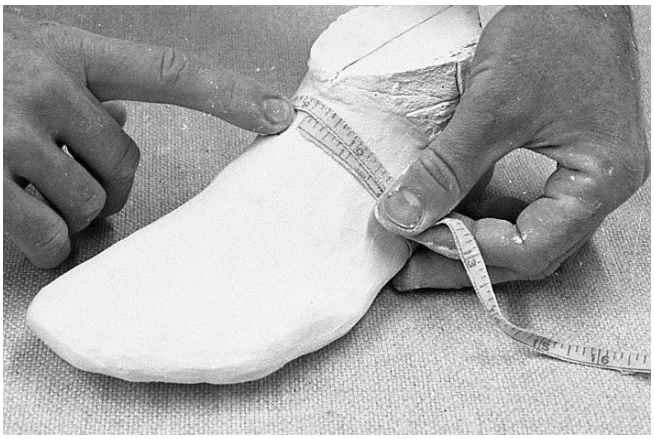
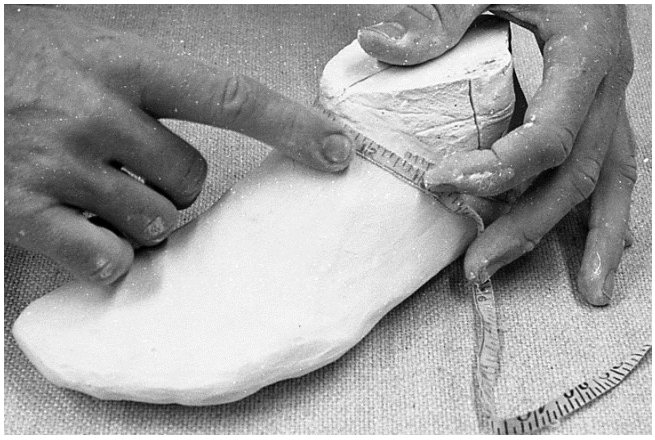


97 Check the waist measurement.



98 Check the instep measurement.



99 Check the heel measurement.

100 This picture is to let you compare the original raw cast with the finished "LAST", modified the old traditional way.

Mr. Murray was an ice skater. Ice skates attach to a rigid blade. The foot doesn't bend very much on the bottom. Therefore, Mr. Murray's original shoes gave proper space in most directions, but not much allowance for foot lengthening and the bending of materials when the foot flexes.

The natural foot has the ability to grip and shorten through the arch and toes, but most people today don't practice that ability. Some people with compromised foot function do need short and stiff shoes. Most people need a little more length than Mr. Murray originally gave in his shoes.

If you are athletic, your foot will bend in all sorts of ways to accommodate to the terrain. You will probably want a more flexible shoe that will adapt to the dynamics of your feet as you walk, run and play.

Everyone's physical footwear needs are different. Therefore, there developed other cast cutting and modification techniques.

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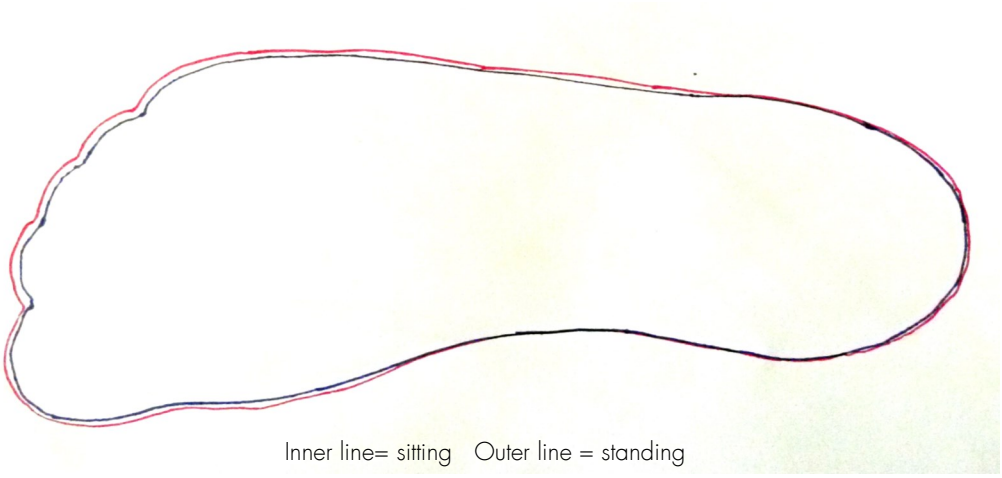
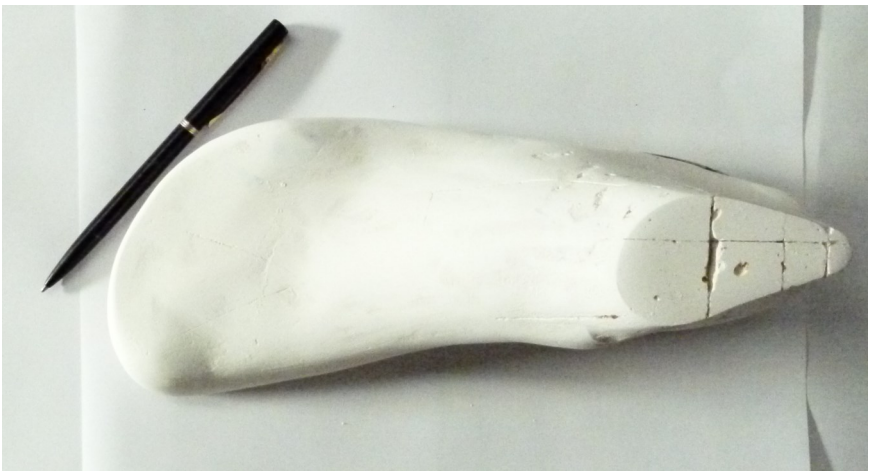
ORIGINAL CAST CUTTING MODIFICATIONSS FOR SHOES

Elongation Drawing

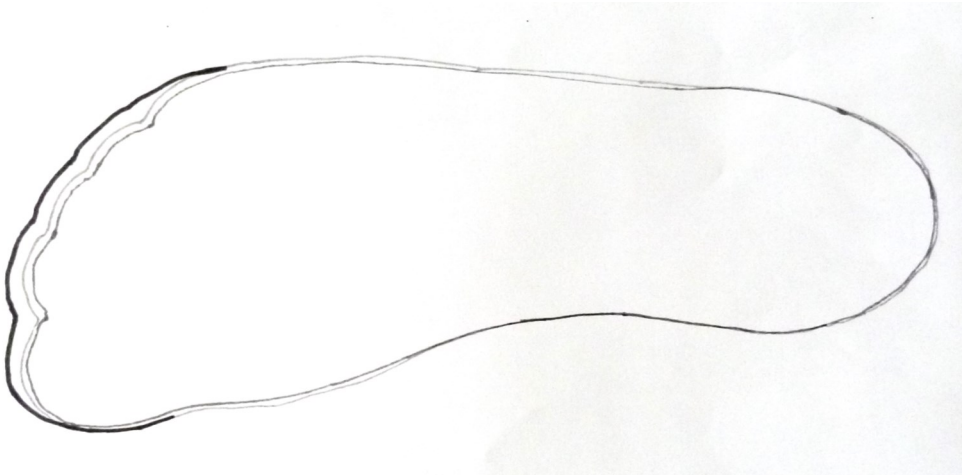


Inner line= sitting Outer line = standing

Tracing Last Over Elongation Drawing Especially Around Toe Box



Traced Elongation Drawing Showing Size and Length of Last Toe Box in Front of Standing and Sitting Lines



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SUMMING UP ORIGINAL CAST CUTTING MODIFICATION TECHNIQUES

Modifying and plastering the cast is a subjective art. Wearing a molded shoe, boot or sandal is a subjective experience. The results of modifying and plastering a cast will be best understood when the artisan and/or craftsperson is the wearer.

Remember: every person and every foot is different, no two articles of molded footwear are going to come out exactly alike. There is no precise formula of modification that fits every article of molded footwear.

Look at the common likenesses in the procedures. Then adjust according to your own ideas and expectations about what might work the best for what you are trying to do.

Measurements are just a tool to help you achieve what you want to do.

Comparison Chart for Original Cutting and Modification for a Shoe

This chart should be viewed as a theoretical example of one foot.

	Measurements BALL	WAIST	INSTEP	HEEL	LENGTH
RAW FOOT	9	8 1/4	9 1/4	12	9
RAW CAST	9 1/2	9	9 1/2	12 3/4	9 1/8+
CUTS MALE	1 Horizontal 1 Vertical				
CUTS FEMALE	1 Horizontal 1 Vertical lengthwise and 1 Vertical crosswise				
SPLINTS	15 Splints and application of plaster				
FINISHED LAST MALE	9 1/4	8 3/4	9	12 1/2	9 3/8
FINISHED LAST FEMALE	9 1/4	8 1/2	8 7/8	12 1/2	9 3/8

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