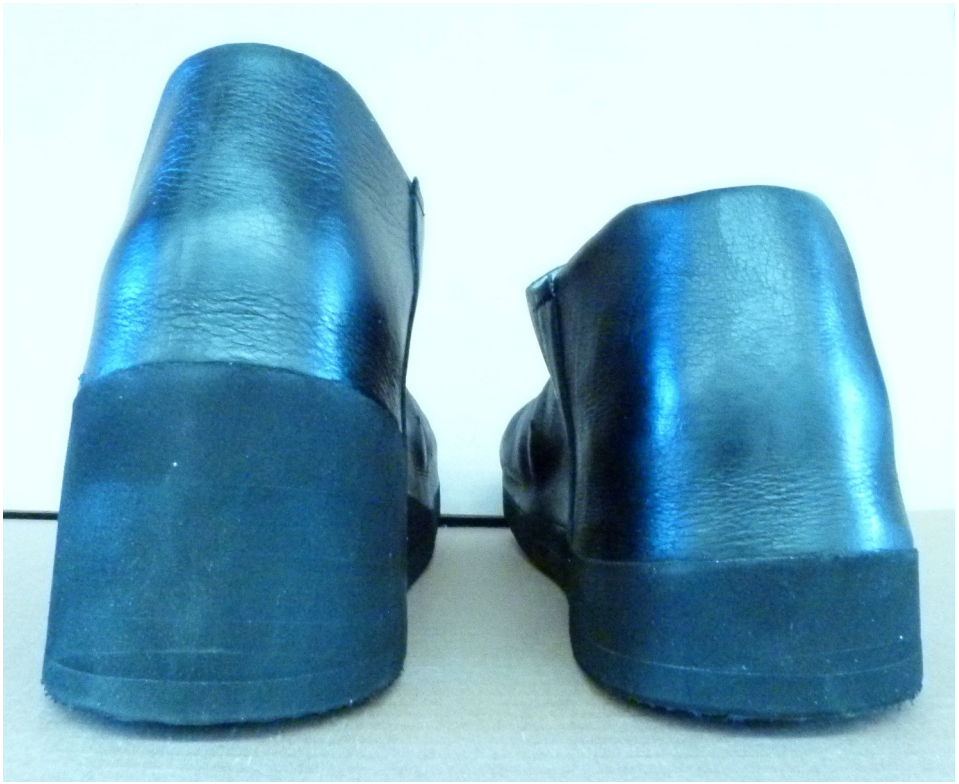
CASTING METHODS & SPECIALTY FOOTWEAR

CHAPTER 17

SPECIALTY FOOTWEAR, A COMPLETE PROCESS AND MORE



COMPLEX SPECIALTY FOOTWEAR

This chapter contains three different cases of very unique specialty footwear. Each case is really a complex challenge. All three cases were ultimately successful.

The emphasis of these four books is for you to learn how to make your own molded shoes, boots and sandals. If you are making footwear for others, be very cautious about the work you do for anybody.

One of the purposes of this chapter is to let people who have problems know that there may be helpful solutions and/or improvements available with molded footwear. Another purpose is to give them confidence in the learning of how to make their own molded footwear.

This is a look and observe chapter.

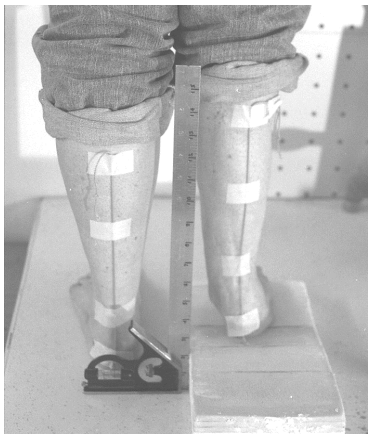
1 This customer had a lot of previous experiences with orthopedic type shoes before coming to me. But, she had never had a pair of MURRAY SPACE SHOE® shoes.

2 This was my first pair for her.

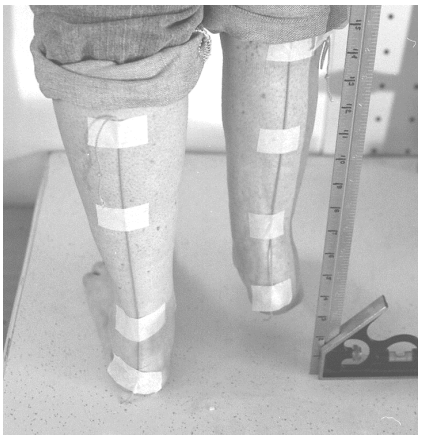
3 These shoes were good except they were large around the heel and ankle. Some of that excess fullness can come from the build up of fluids in the legs and feet during a long automobile ride. The castings are, therefore, a little large.

4 These shoes allowed her to walk well and with more comfort than any other shoe she had worn. We both agreed to start with one pair of shoes as a first pair of footwear.

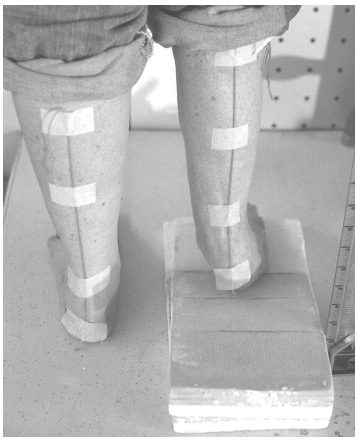
5 I thought they were pretty good for a first pair starting from scratch and getting the balance, lift and gait issues satisfactorily addressed.



6 These pictures of the first pair were taken when she came back for another pair about a year later. I want you to see the complexity in the required lift. No body knows the correct measurements and angles.

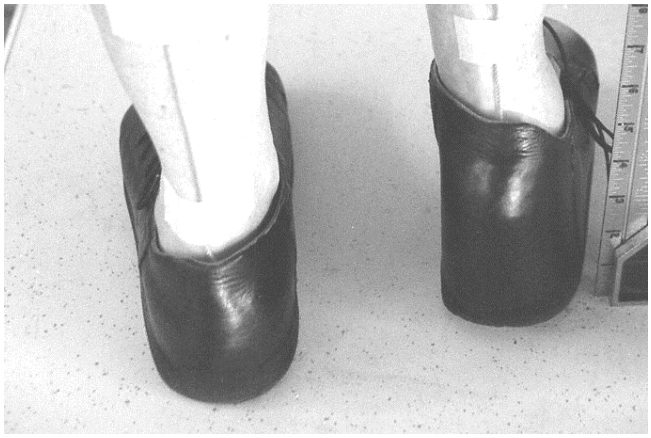


7 Ditto.



8 The wearer has to determine what feels best.

9 Ditto. Notice that the shoes look large around the back of heel. Some of that fullness will be reduced by the thickness of socks. The next pair of shoes or boots will definitely fit better.



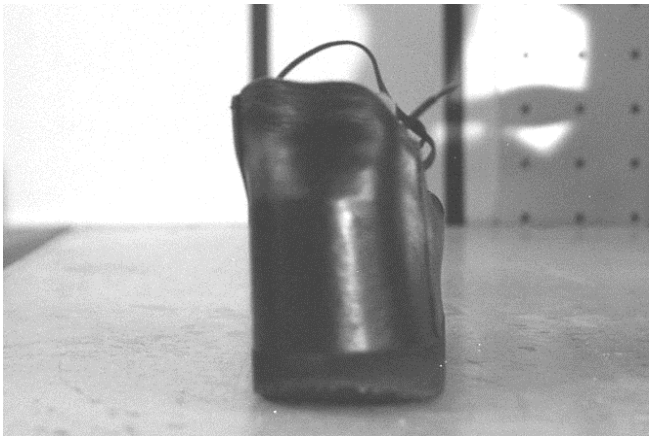
10 Ditto.

11 Ditto.

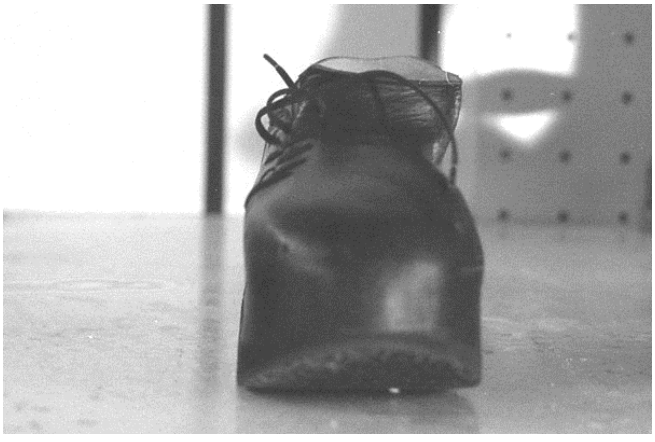
12 Ditto.

13 Notice the bottom of shoe. The shape is important.

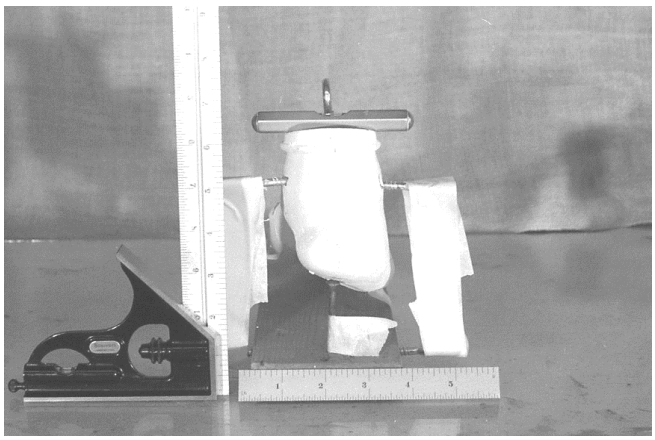
14 The wearer has to determine what contributes to the most comfortable gait. I can only recommend and listen to the wearer.



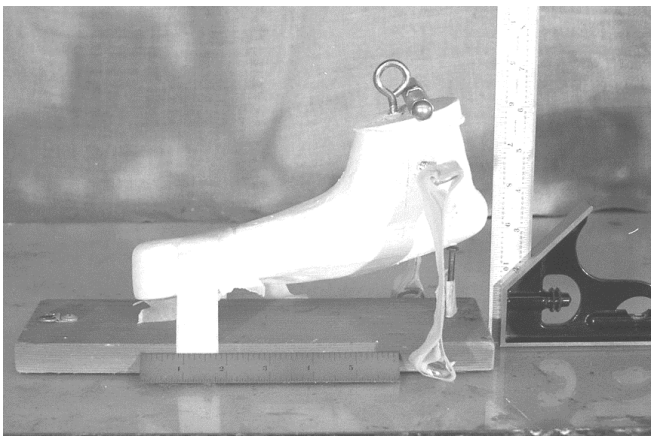
15 Notice the tilt for stability.



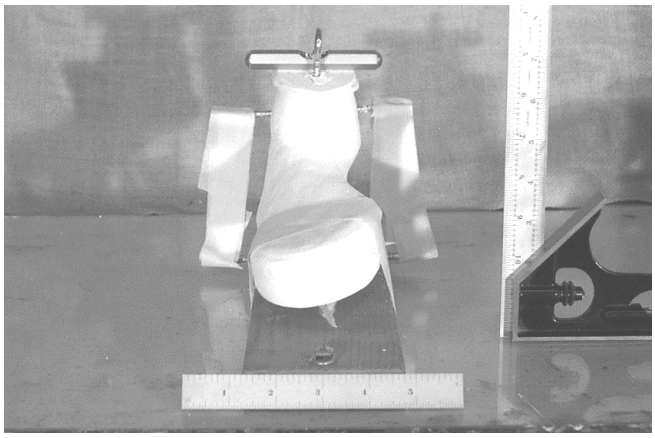
16 Notice the upturn of the ball to toe area.



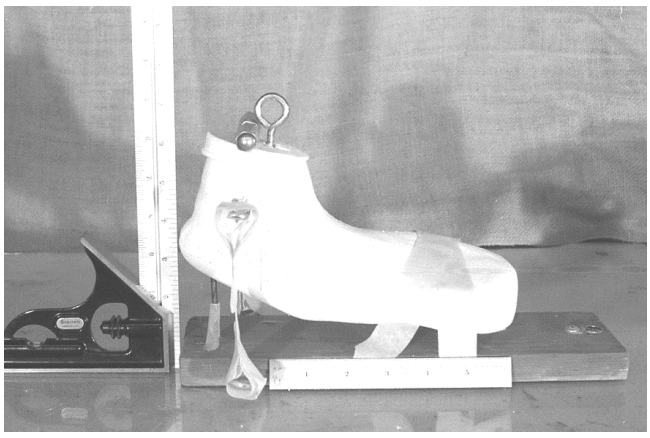
17 This was my set up for building the shoe and getting the balance and lift correct.



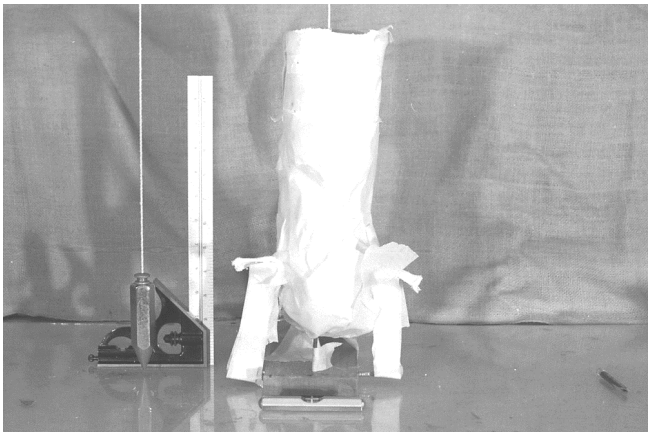
18 Ditto.



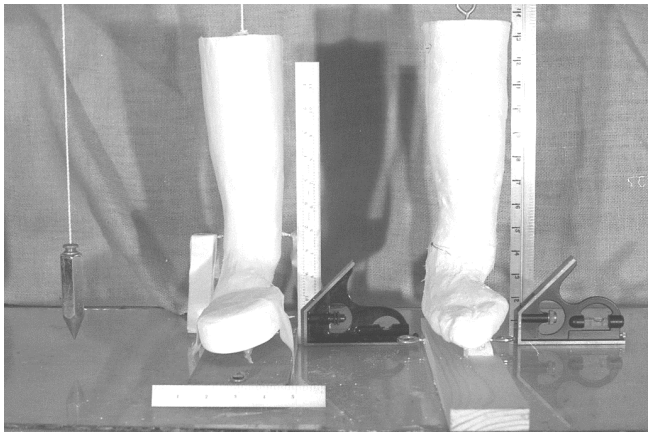
19 Ditto.



20 This time she wanted a boot for the right foot for balance and ankle stability. I wanted to save the boot cast for reference and didn't want to destroy it in any way.

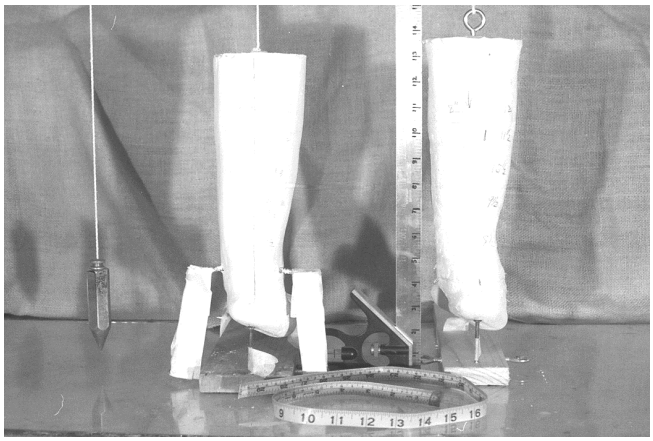


21 I therefore, built a top for the shoe cast and matched the size and shape to the boot cast. I used masking tape to build a form and poured plaster into the form. Then I removed the form.

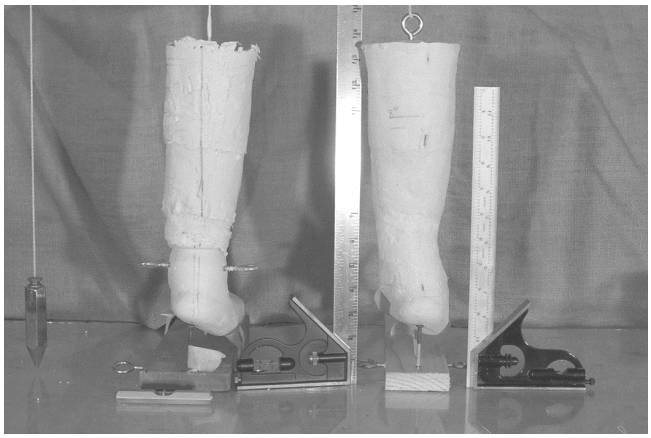


22 The extended shoe cast is on the left. The boot cast is on the right.

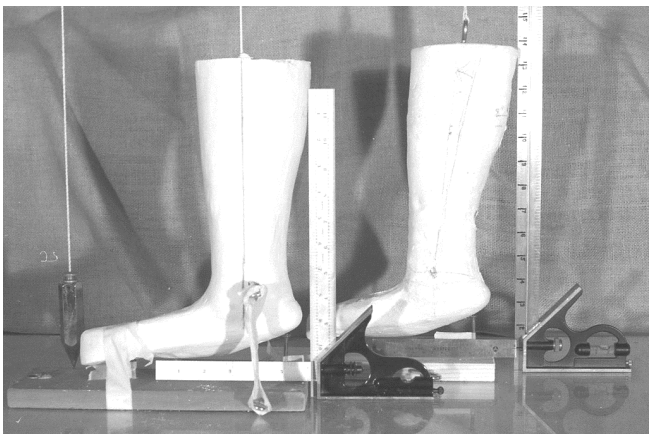
23 I improved the extended shoe cast as an artist might build a sculpture.



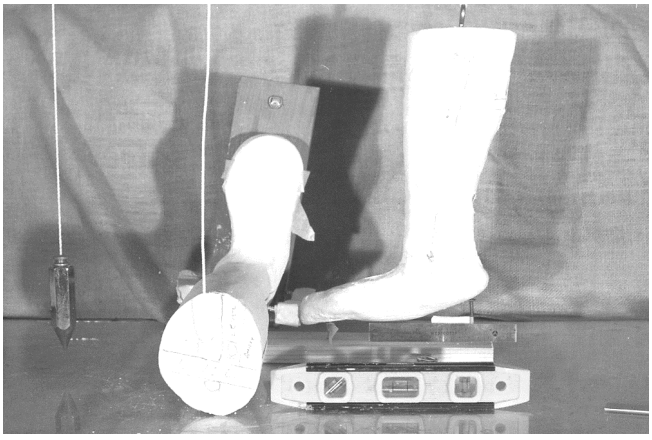
24 I spent a lot of time getting the extended shoe cast to be an improved replica of the boot cast.



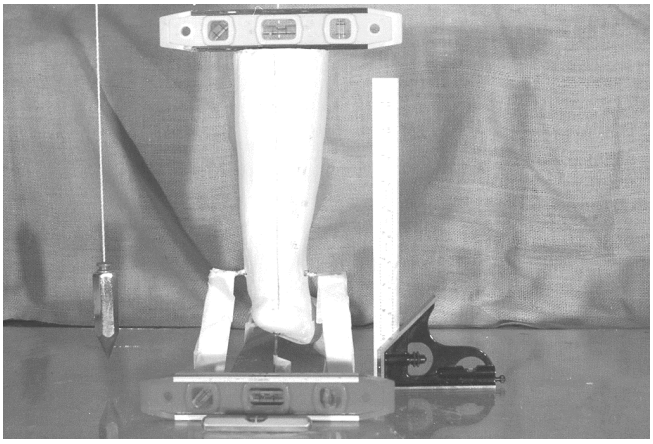
25 The extended shoe cast has now become a "good" boot last. Notice how I have achieved correctness of alignment.



26 Ditto.



27 Ditto.

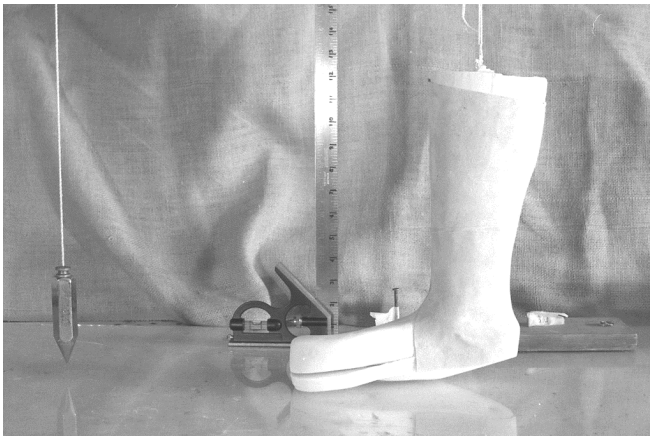


28 Ditto.

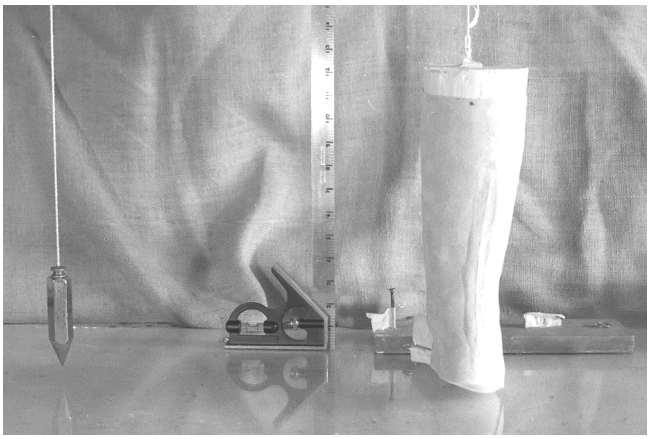
29 I have made and fitted the inserts to the lasts.

30 I am continually going back and forth to the checking and re-checking of alignment. Besides the correctness of the last form, alignment is everything in importance!

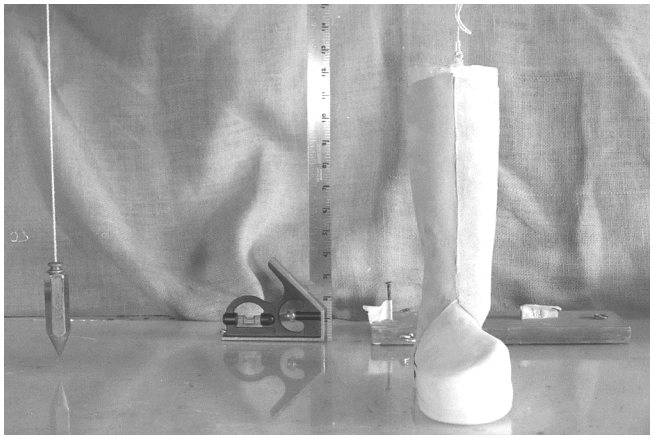
31 The back lining leather has been applied to the last.



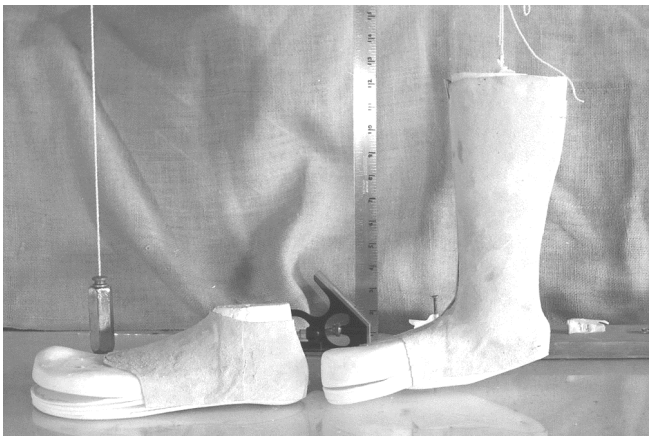
32 Ditto.



33 Ditto.

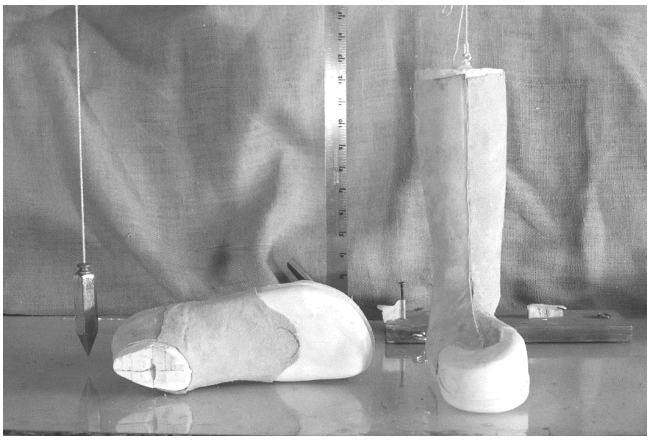


34 Ditto.



35 The front lining leather has been applied to the boot last and the shoe last has been leather lined.

36 Ditto.



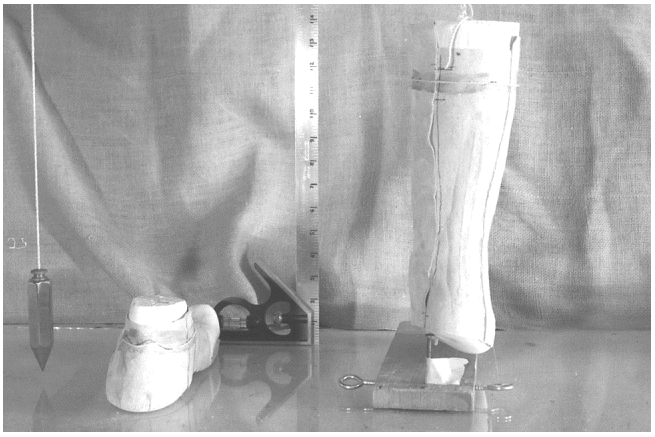
37 Ditto.

38 Ditto.

39 An additional lining leather has been applied to the boot last. The inside lining will be able to be folded back so inner padding can be repositioned at any time.

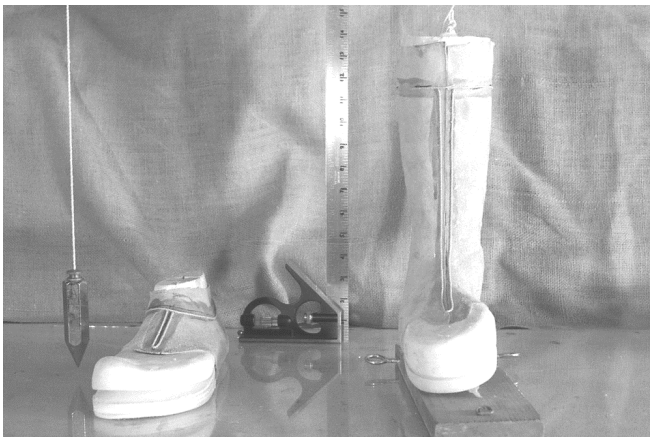
40 The padding is Kingsley Metathane®. It is the best quality material for this kind of application. It can be easily removed, adjusted and modified as required.

41 The padding is now covered by the outer lining and the outer lining is in proper position to proceed with the fabrication.



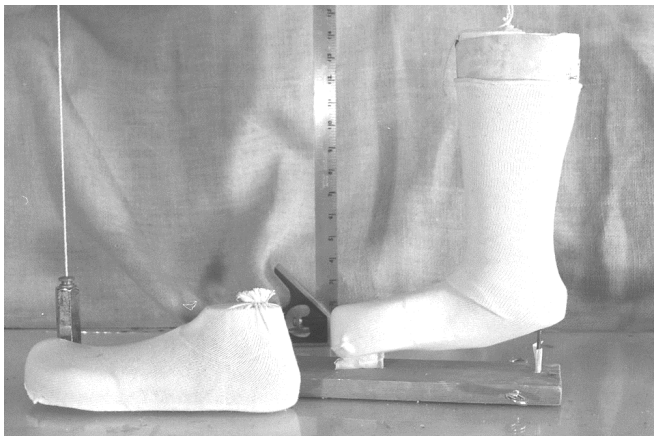
42 Back view of outer lining wrapping seam on medial side of right boot last. The alignment is re-checked and the markings for the outer edge design cords have been applied.

43 The top design cord of shoe has been applied.



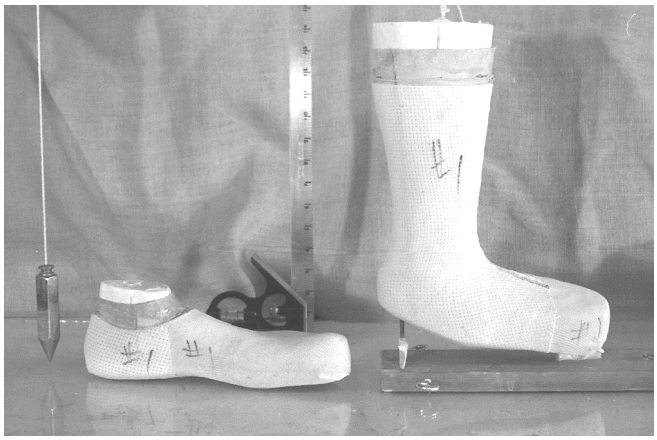
44 The front opening design cord for the boot has been applied.

45 The other side view.

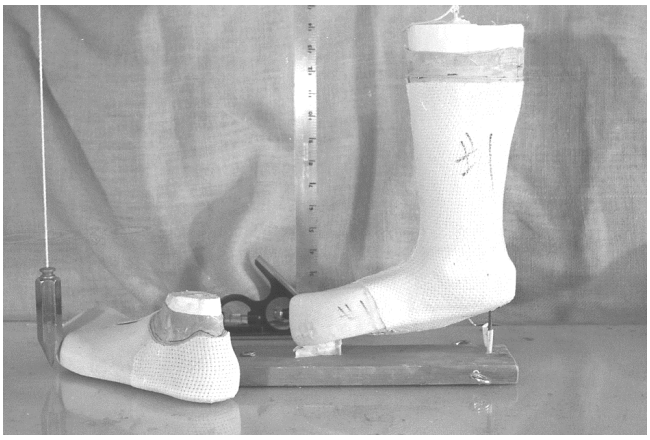


46 The lined shoe and boot have been socked.

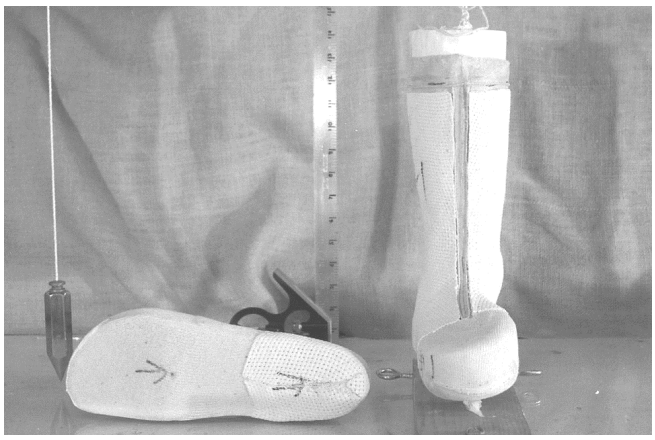
47 Ditto.



48 The socked lasts have been latexed, a heel Monks Cloth has been added and latexed.

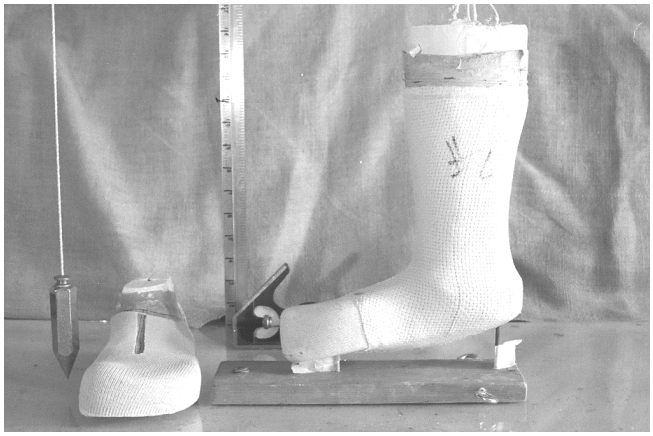


49 Another View.



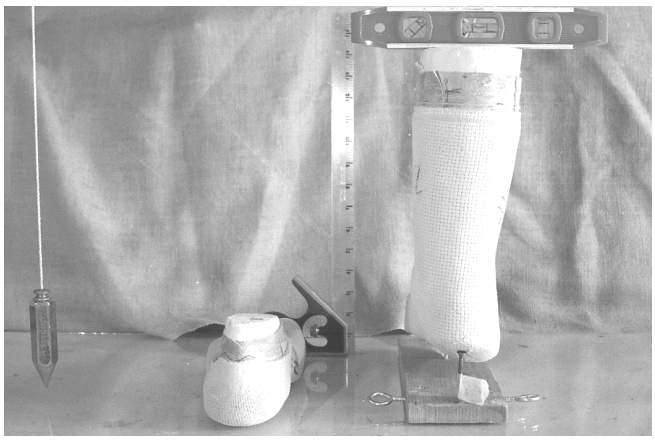
50 Notice tacks need to be removed from bottom of shoe last.

51 Another back Monks Cloth #2 has been added to boot last and latexed.

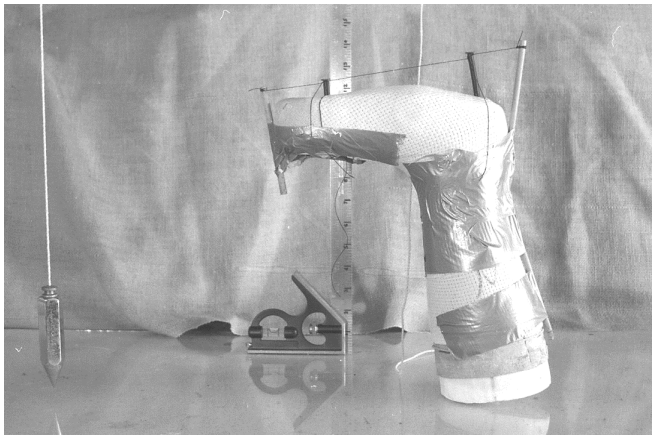


52 Another view.

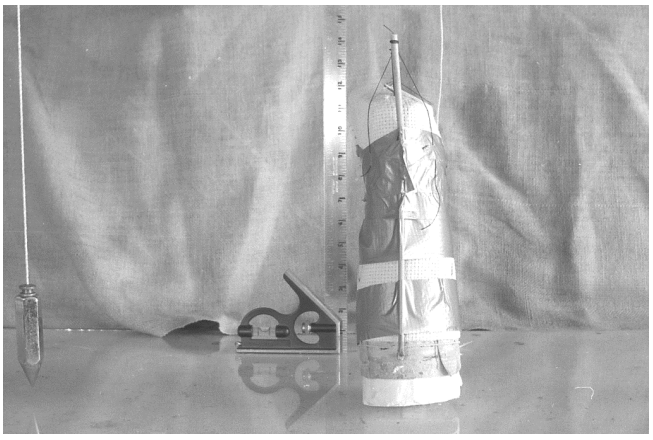
53 Ditto.



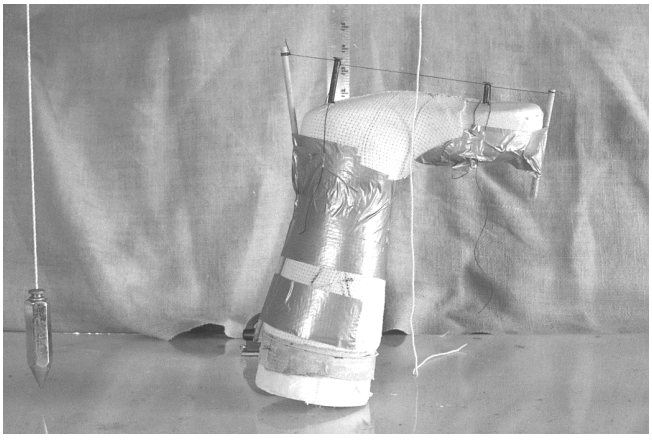
54 Notice the level on top of the boot last. The alignment looks in order. It is time to add the base.



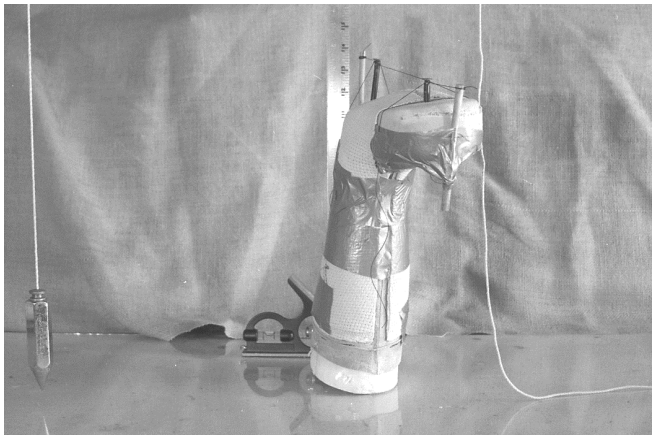
55 Notice the intricate way of measuring and positioning the necessary reference points for maintaining the base alignment.



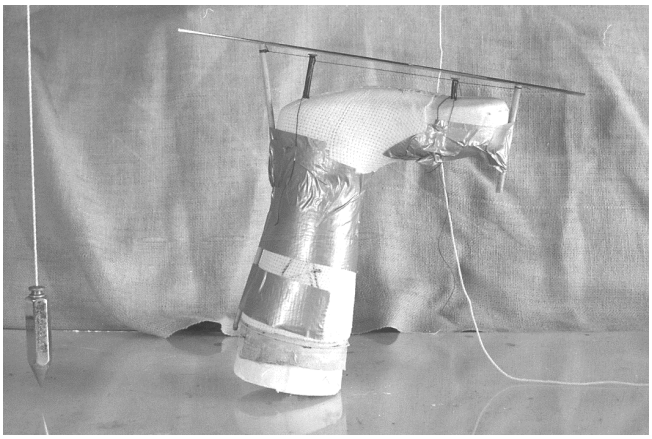
56 Ditto.



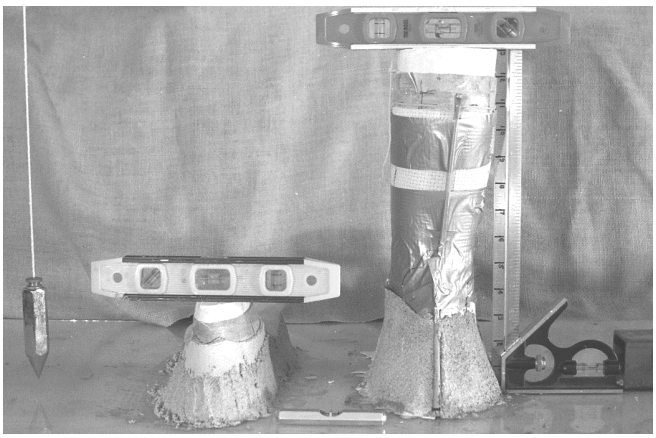
57 Ditto.



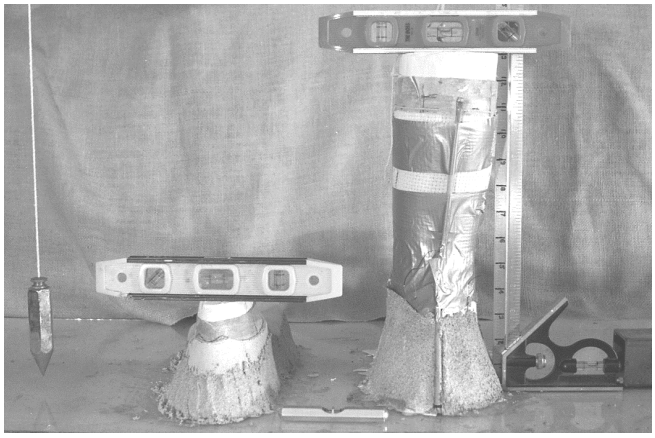
58 Ditto.



59 Notice the straight edge on bottom of last. This is the imaginary walking base.



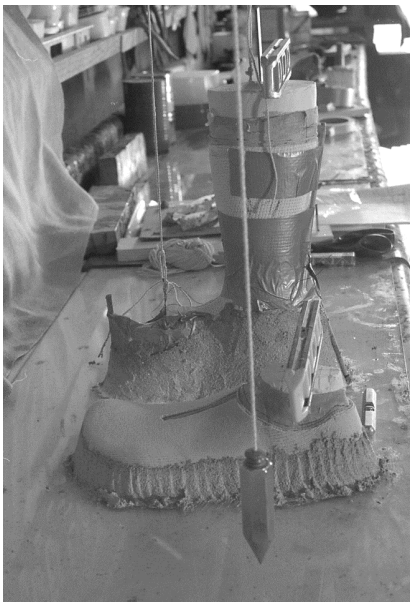
60 The "mud" base has been applied. Everything is balanced and level.



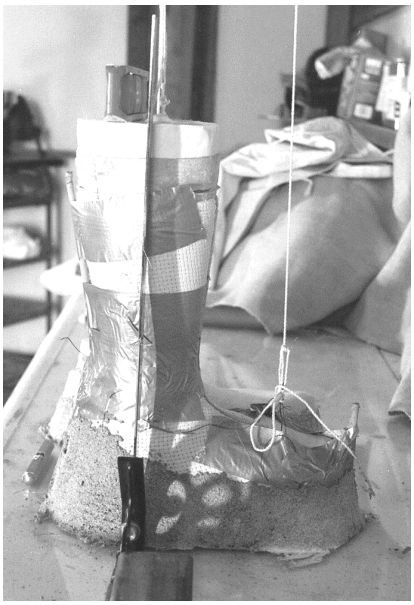
61 Ditto.

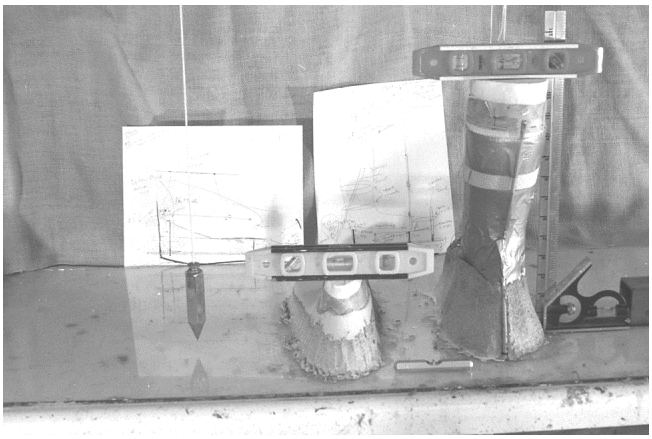
62 Ditto.

63 Ditto.

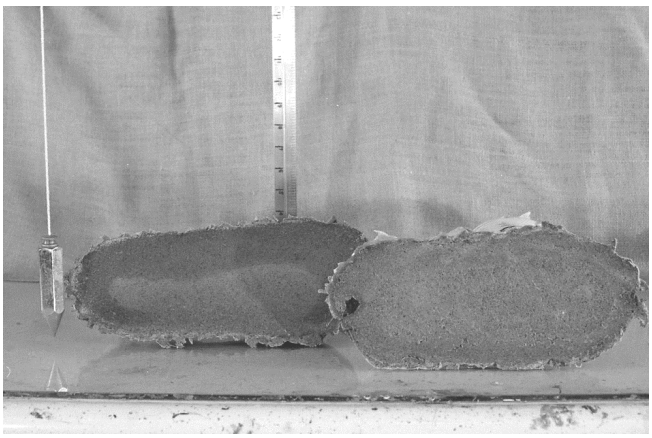


64 Ditto.



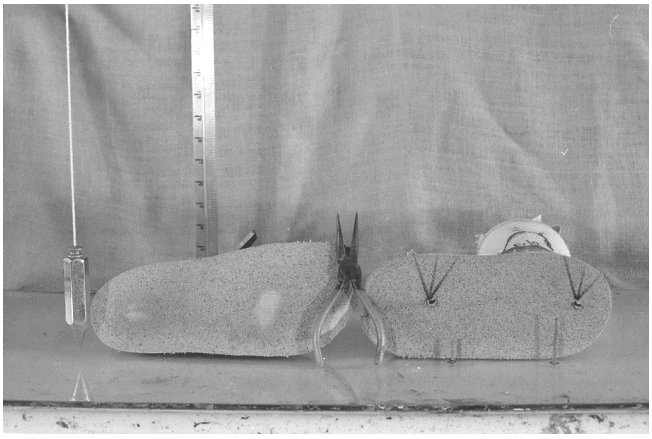


65 The "mud" is drying.

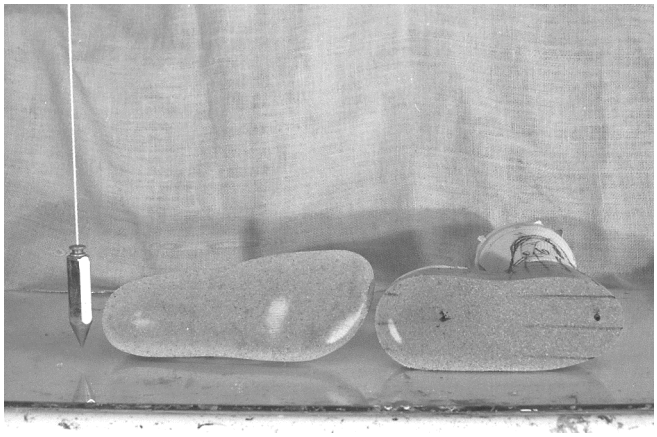


66 The "mud" has dried. The "mudded" last has been removed from glass surface.

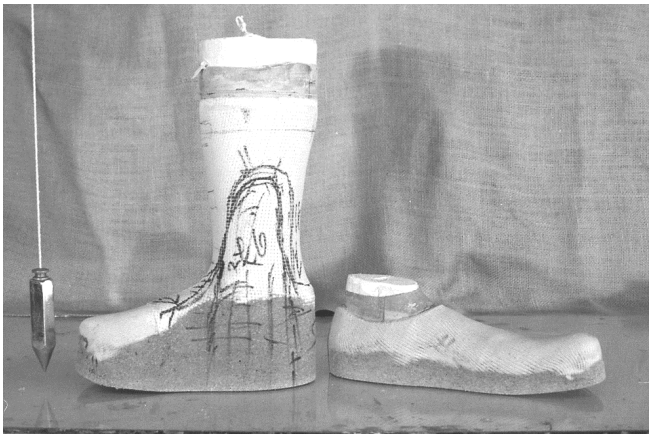
67 The "mud" base has been flat sanded to the reference points.



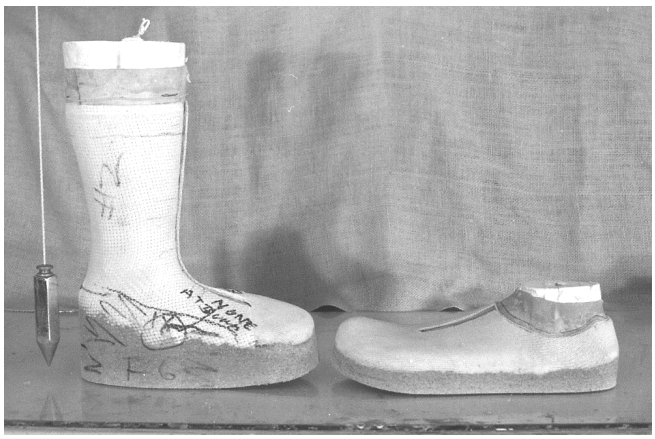
68 The reference points of boot base are removed.



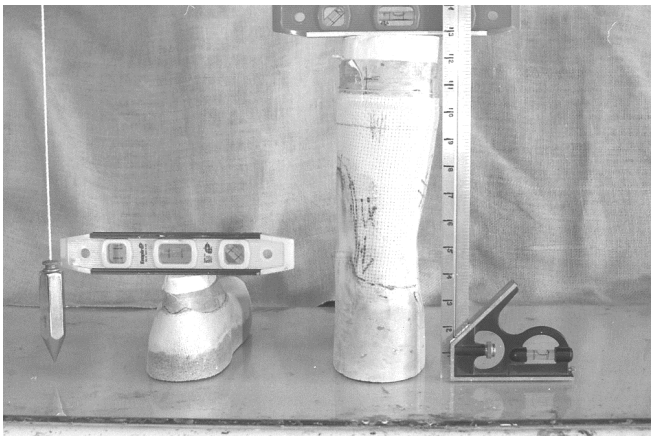
69 The base "mud" is completely dry. Final sanding of the base has been finished.



70 Now, I design the area to be strengthened with fiberglass resin and fiberglass cloth on the boot.



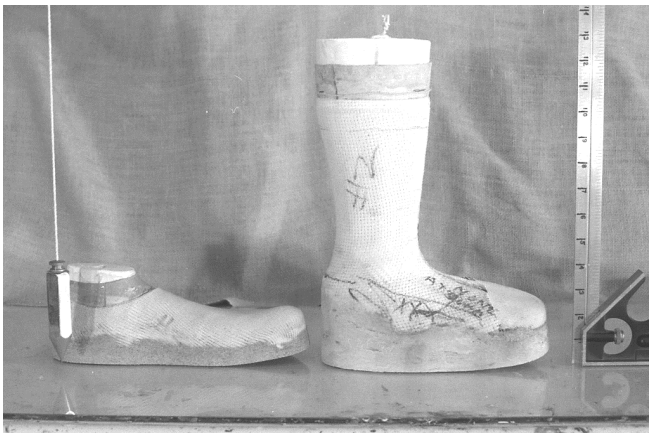
71 Ditto.



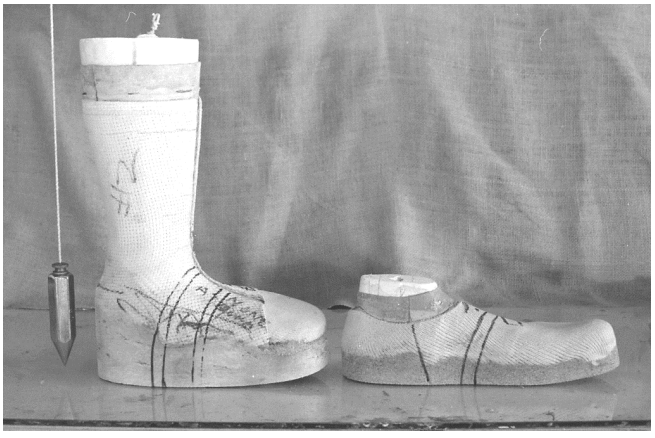
72 Ditto.

73 The fiberglass resin and cloth have been applied where needed. They have dried and were sanded as necessary.

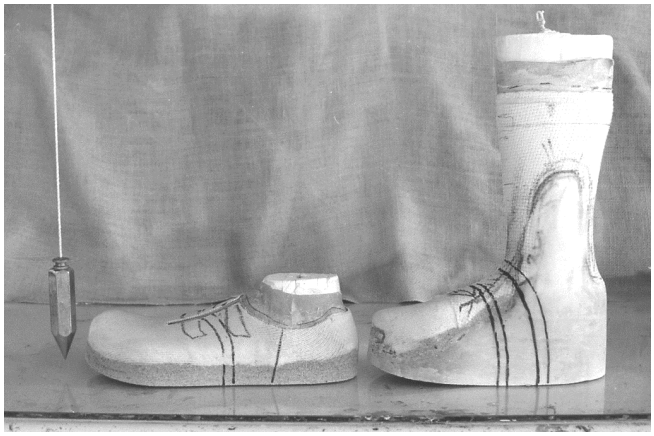
74 Ditto.



75 Ditto.



76 The leathering seams are now marked. I had a change of mind about the proper location on boot. Leather can only stretch so far. Then it becomes impossible to force it to stretch any further.



77 Lateral view.

78 The back leathers have been applied.

79 Ditto.

80 The front leathers have been applied.

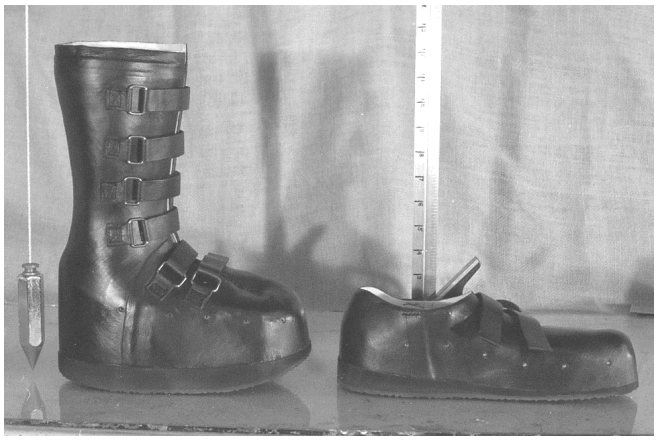
81 Ditto.

82 The soles have been added.

83 Ditto.

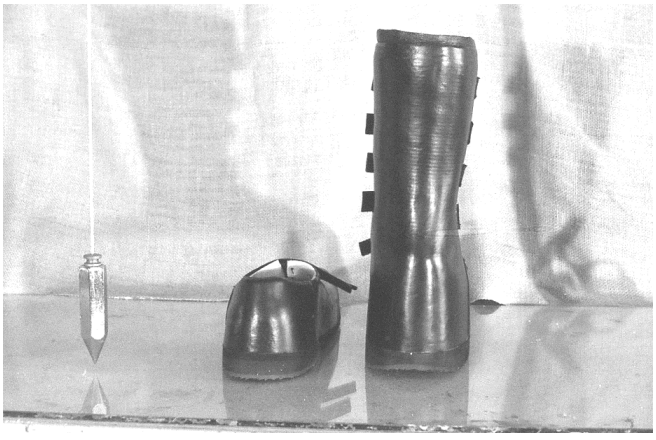
84 Ditto.

85 The lasts have been removed, the shoe and boot cleaned. The Velcro® straps have been added.



86 The pair is finished.

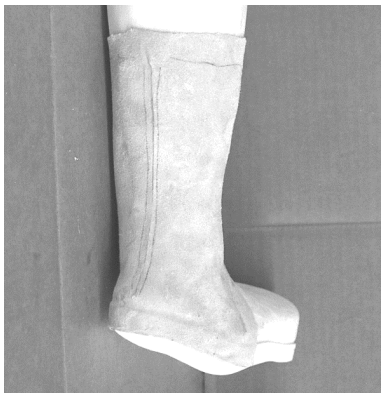
87 Ditto.



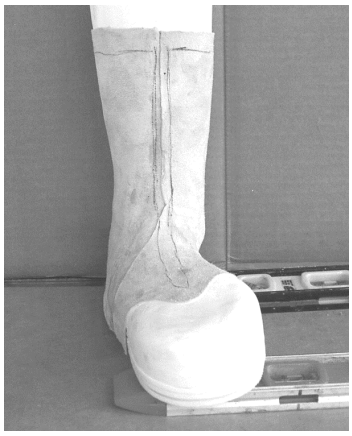
88 Ditto.

89 The customer had a complaint. The boot was too hard at the medial ankle bone. I took the leather back, removed some of the fiberglass resin, put extra padding at the ankle bone, put the leather back and re-sewed the strappings. She wears this boot about every other day. She is satisfied.

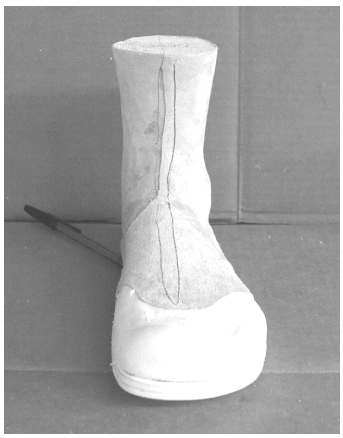
90 A year later she asked me to build another right boot the same as picture #89, but shorter and with the left boot to match. The fallowing pictures show the fabrication of the shorter boots using the same right boot cast and a new left boot cast.



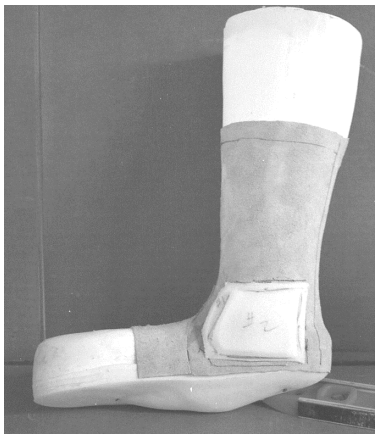
91 I fallowed the same procedures as the boot pictured previously.



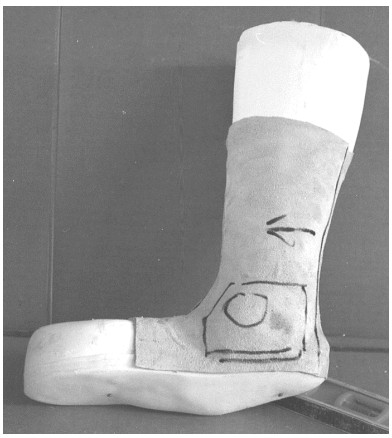
92 I, actually, followed the pictures I had taken of the first right boot as my guide to the making of this pair of boots.



93 I used all the same ideas and alignments.

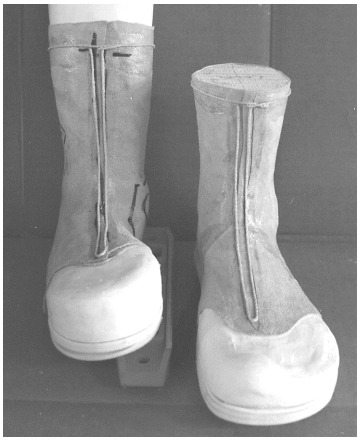


94 Again Kingsley Medathane® padding was used for the medial ankle bone area.



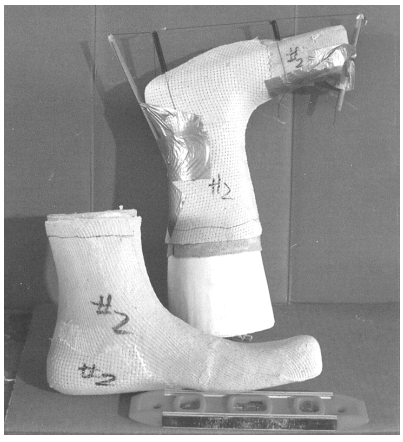
95 Notice arrow suggesting the use of extra lining layer.

96 Ditto.

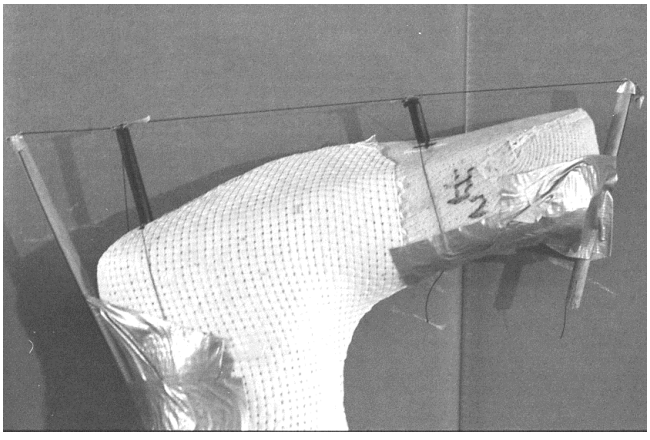


97 The design cords were added.

98 The boots were socked, latexed, Monks Cloth was added and latexed. And then a #2 Monks Cloth was latexed.

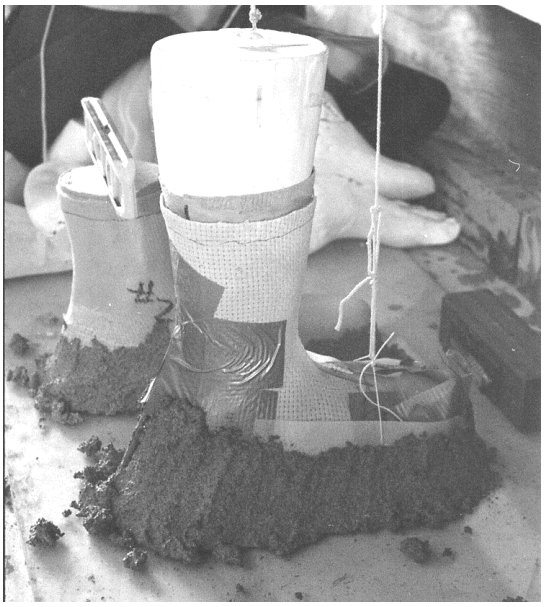


99 The base was designed.

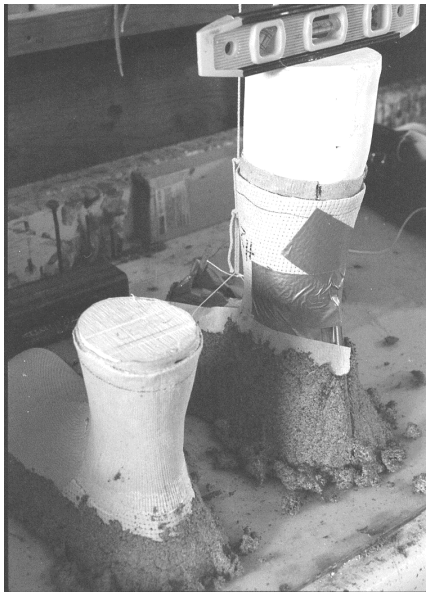


100 Ditto.

101 The boots were "mudded".

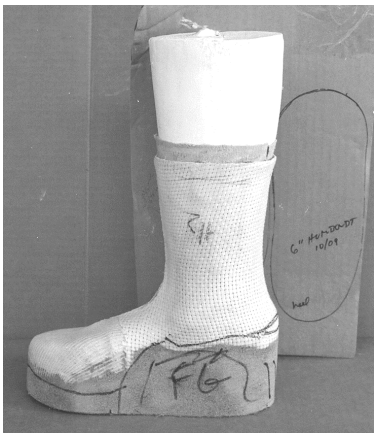


102 Alignment of the "mudded" boots is a very important key to success.

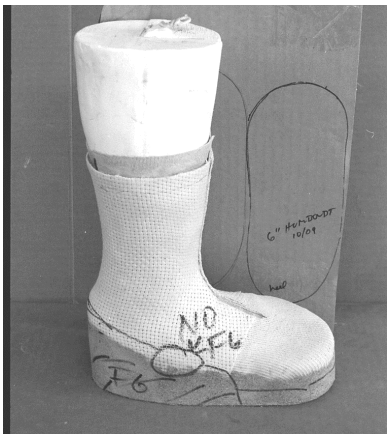


103 Ditto.

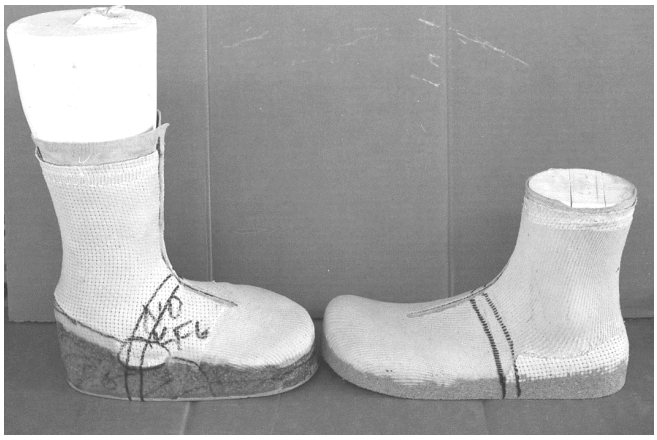
104 Ditto.



105 The base was sanded. The fiberglass resin application area was designed prior to the application.



106 Ditto.



107 The fiberglass resin has been applied. The leathering seam design has been marked.

108 Ditto.

109 The back leathering is completed.

110 Ditto.

111 The front leathering is completed.

112 The boots are finished.

113 Lateral view of finished boots.

This right boot certainly was a challenge and it will always be a challenge. The only difference is that the first try was unaided by any similar experience.

The more the artisan and/or craftsperson learns about the client through experience, the better the work can be.

I want to thank this customer for her patience, cooperation and belief that I could do this work.

She had experienced so many previous failures and only partial successes.

Her highest compliment to me is that she can walk better than she ever could before.

She really deserves a lot of credit for the successful outcome of these projects because she was able to communicate her needs and desires so well.

She had faith and she still has faith.

Life is a very precious experience to her. She is thankful for all its challenges and opportunities.

This case is going to show you a few mistakes, made by the author, which may not have been avoidable anyway. Maybe I took on a more complex job than I should have. Probably, the only salvation was that I persisted in continuing to remake the left boot. The adventure was fairly successful in the end, but it took a lot of extra work to achieve an acceptable solution.

This customer was adamant about her desire to have a pair of MURRAY SPACE SHOE®S because no other shoes were working. We had some lengthy conversations and I knew this was not going to be an easy task.

Before casting I asked her if she could stand up and walk for me without shoes and socks on her feet. She said, "No". Her podiatrist later told me she should have stood up and walked for me. A couple of steps might have been helpful to me. I should not have backed down even though I have done work for other people without requiring them to stand and walk. But, this left foot is a very severe problem. It might have been very helpful for me to see the angle at which she held the left foot in the standing position as apposed to the sitting position.

I am trying to let you know about this experience so you can understand that there is a lot more to molded footwear making for people with problems than just taking a cast of the feet. I am trying to explain that everyone needs to be cautious and that molded footwear, no matter how "good" it is, can't solve problems. Sometimes, the mechanical needs of the human body are beyond the artisan's and/or craftsperson's ability to accommodate the physical requirements. Molded footwear is not necessarily the correct answer for everyone.

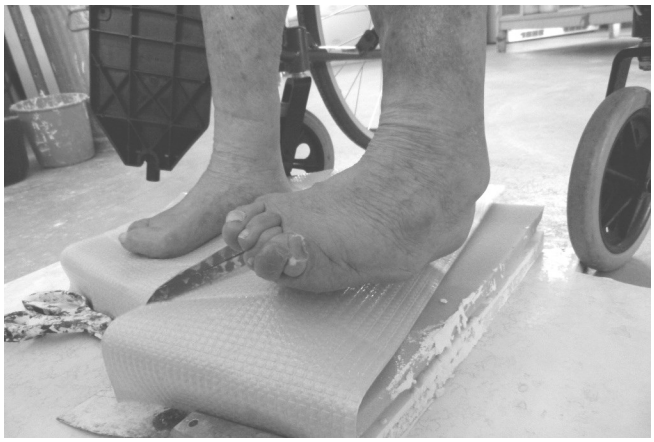
I have had to turn away customers and potential customers because the condition was too severe for me to handle properly. This case is on the edge.

I have to give this customer a lot of credit because she wanted these boots in order to walk better. Maybe in the end she got 75% of what she wanted. I think she was dreaming for a higher percentage. But, don't we all have wonderful expectations and goals.

She wears these boots because they are the best she has found and she can walk in them.

1 The big problem is the mechanical alignment of the left foot for weight bearing.

2 Look at these pictures and observe the alignment of feet, ankles and legs.



3 I rightly or wrongly assumed that this was going to be the position in which the foot would and/or should be held in the standing and walking position. Her podiatrist couldn't help me determine proper alignment. It was going to be trial and hope.

4 Continue to look and observe the alignment of feet, ankles and legs.

5 Ditto.

6 Ditto.

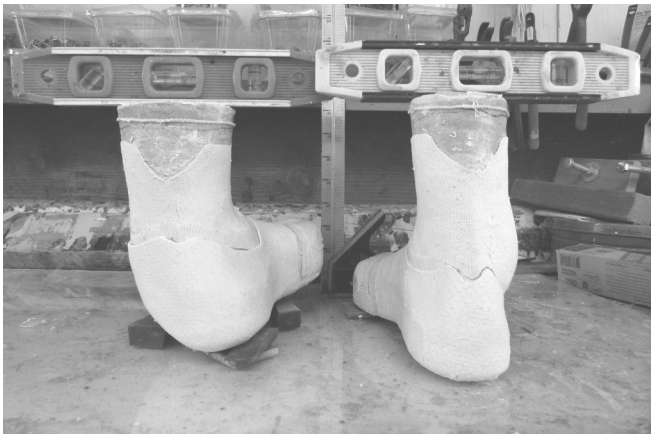
7 Ditto.

I hope these pictures tell you a story that is helpful to your understanding and making of your own molded footwear.

8 I have skipped the cast to last modification techniques because that is the subject of book 4.

9 Two Plastazote® inserts were added to the last. Then the lining leather was applied, design cords added, socks added, Monks Cloth added and the materials were latexed.

10 The most important aspect of this case is alignment.



11 Ditto.

12 Ditto.

13 Ditto.

14 Ditto.

15 Ditto.

16 Ditto.

17 Ditto.

18 Ditto.

19 Ditto.

20 "Mudding" and working with alignment.

21 Ditto.

22 Ditto.

23 Ditto.

24 Ditto.

25 Ditto.

26 Ditto.

27 Ditto.

28 Ditto.

29 Ditto.

30 The bottoms have been flat sanded.

31 Ditto.

32 Fiberglass resin has been added to the heels and to the lateral side on the left boot for strength and support.

33 Ditto.

34 The position of the circle was to mark where the fiberglass resin was to be omitted.

35 Continue to look and observe.

36 Ditto.

37 Ditto.

38 Ditto.

39 Ditto.

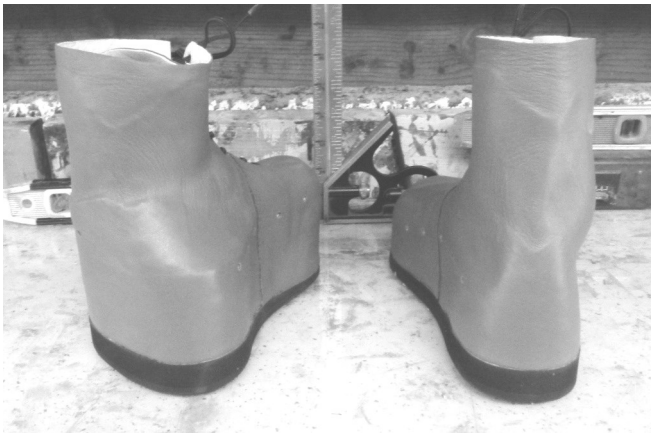
40 The customer's natural standing position is with the left front foot turned inward.

41 The finished boots. Look and observe.

42 Ditto.

43 Ditto.

44 Ditto.



45 Ditto.

46 Ditto.

47 Ditto.

48 Ditto.

49 Ditto.

50 Ditto.

51 Ditto.

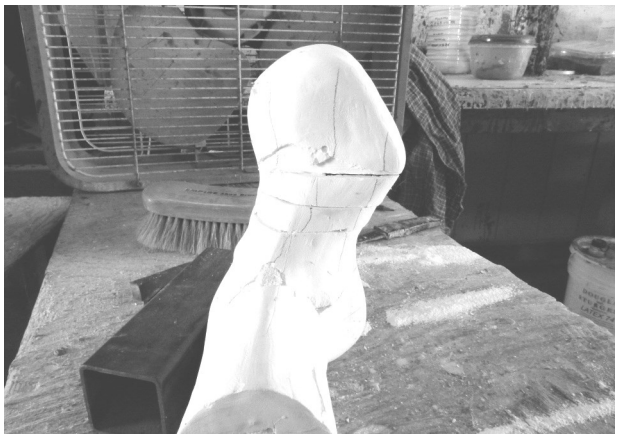
52 Ditto.

53 Ditto.

54 Ditto.

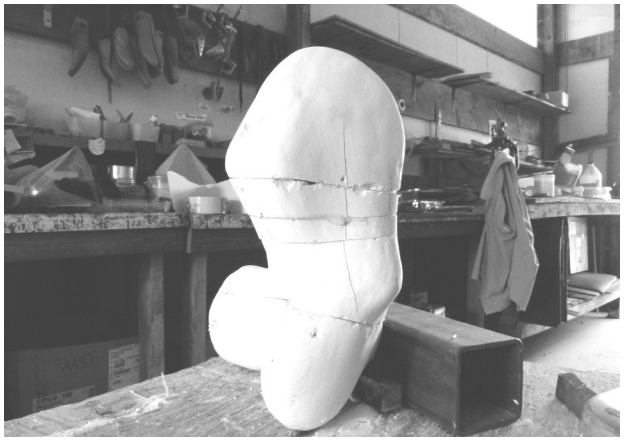
55 Ditto.

56 This first pair of boots initially required the above described adjustment.



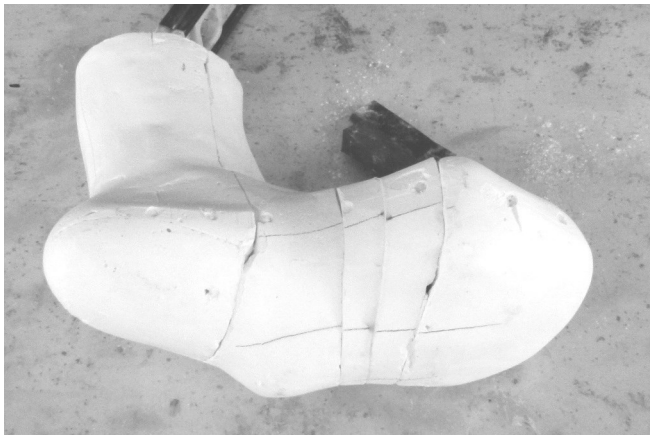
57 Based on the customer's remarks and recommendations from her podiatrist (generally described in a written Rx and a comprehensive telephone conversation) I altered the last and adjusted the alignment in order to remake the left boot.

58 Ditto.



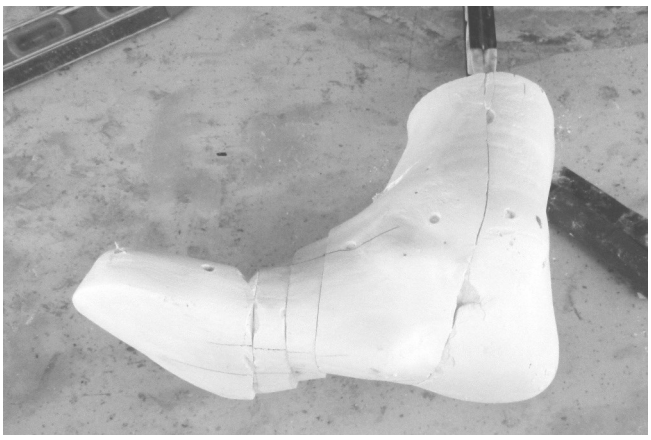
59 Ditto.

60 Ditto.



61 Ditto.

62 Ditto.



63 Ditto.

64 Ditto.

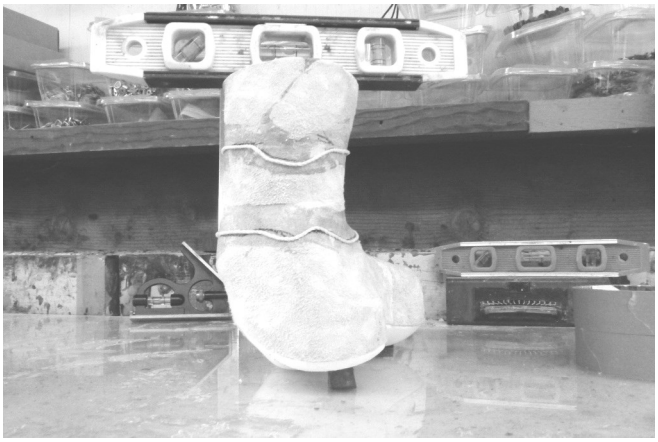
65 Ditto.

66 Ditto.

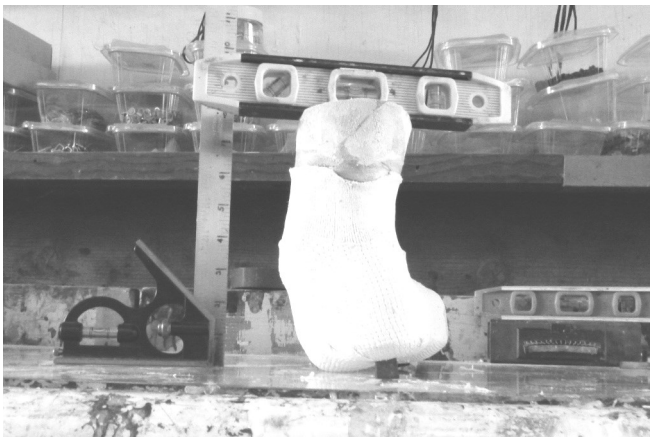
67 Ditto.

68 Ditto.

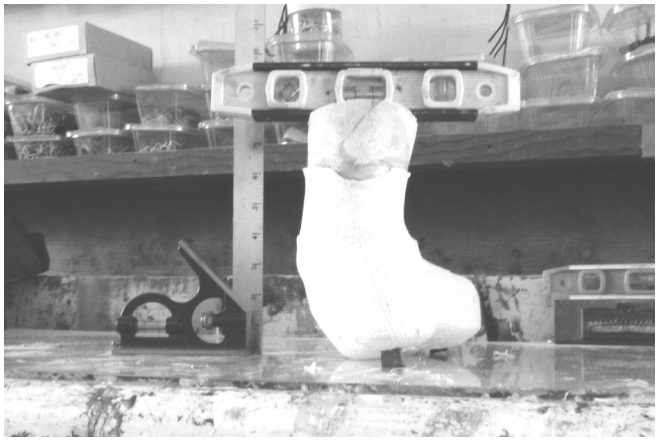
69 The modified last has been re-plastered.



70 New inserts were made and added before the leather lining was applied.



71 After the design cords were applied, the last was socked, latexed, Monks Cloth added and latexed. Now I am concerned about alignment again.



72 Ditto.

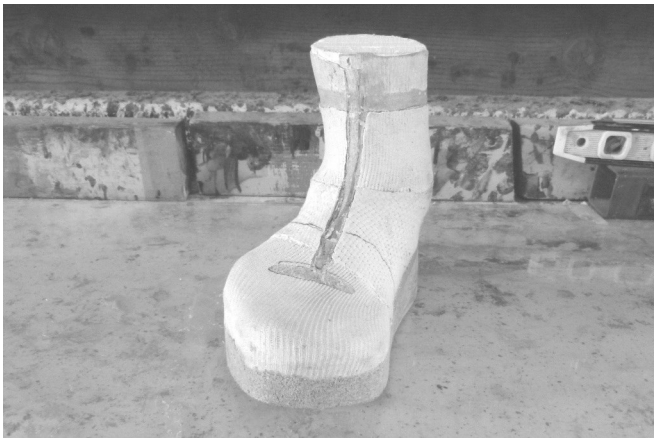
73 "Mudding".

74 After sanding, the fiberglass resin was applied.

75 Observe the finished base.

76 Ditto.

77 Ditto.



78 Ditto.

79 The re-made left boot is now finished.

80 Ditto.

81 Ditto.

82 Ditto.

83 Ditto.

84 This same adjustment was again made to the re-made left boot

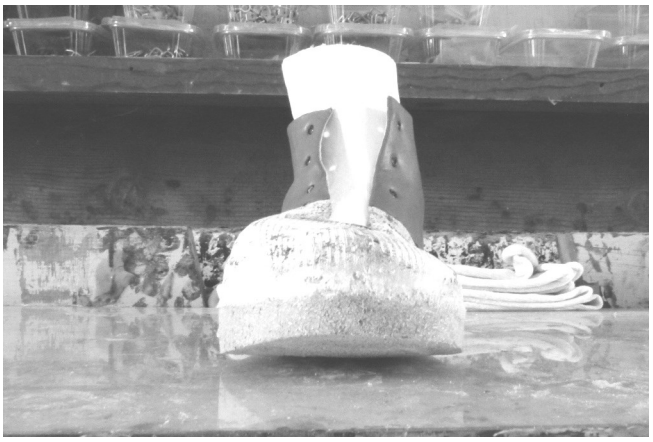
85 This time I only needed to make the front bigger again. I broke the latex bonding with thinner. Then I used a ring and ball stretcher to increase the size of the inner materials.

86 Ditto.

87 Ditto.

88 Ditto.

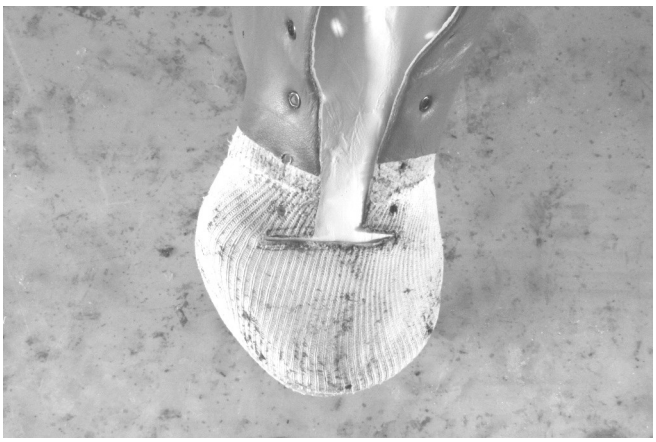
89 Ditto.



90 Not shown was the re-plastering of the front of the last to make it bigger (I was guessing again). Then the last was inserted into the stretched boot before re-"mudding" the front of the boot.

91 Ditto.

92 Ditto.



93 Ditto.

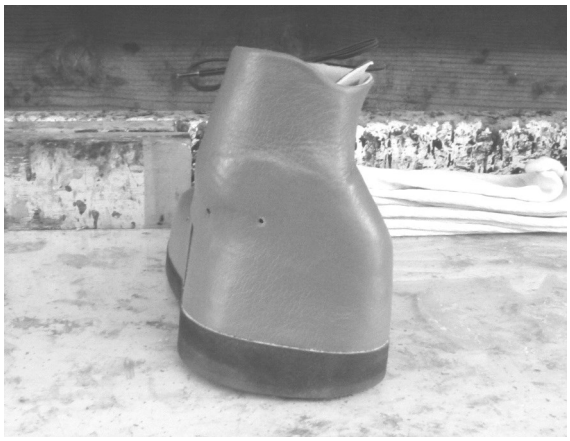
94 Ditto.

95 The boot front was re-leathered and the sole was re-attached.

96 Observe the changes.

97 Ditto.

98 Ditto.



99 Ditto.

100 The end ?

Another and final adjustment was another lateral wedge of 1/16" added to the outside of the soling.

The right boot didn't require re-making, but just a little jury rigging to snug it up a little at the top of the ankle in front.

The customer said that these boots were not perfect, but they were very acceptable. She also said these boots were the best she had ever worn. She said she could walk a lot better. And, she could walk without fear of falling.

She does use a walker.

This is another case of an individual who has a lot of spunk (a jest for living and doing her best) even though she has a tremendous physical adversity. This lady has developed a strong constitution and personal commitment. She is a qualified health care provider and professional in all respects. She has been giving so much in service to others on a daily bases for her whole life.

She is a heroine who refuses to accept the designation of handicapped. Obviously, she has her struggles, but she continues to work giving all she can to help others first.

Life is not easy for a lot of people.

"Good" MURRAY SPACE SHOE®S or custom molded footwear can offer many people a better fit and a little more comfort than mass produced footwear.

I have had the opportunity to make footwear for this lady for about 35 years. Her condition is complex and presents a challenge every time. Fortunately, I have developed a technique which overall seems to work very well. However, I never know the result until the shoe or boot is worn by the customer.

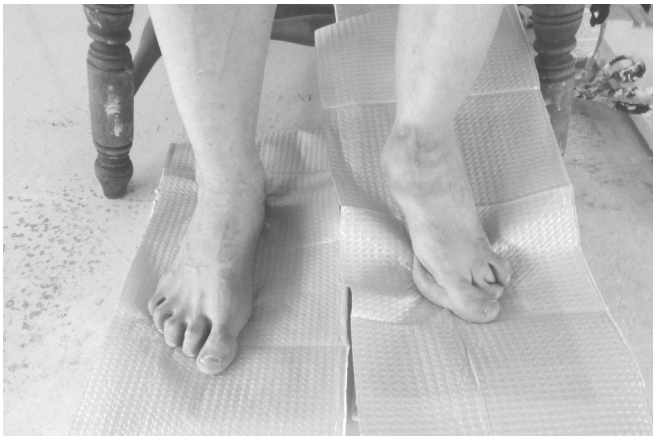
Making some specialty footwear is a very serious endeavor. It has its failures and successes.

1 The major problem is determining what alignment is best for the individual wearer.

2 The two feet and the appendages don't function the same.

3 Nothing is going to be perfect. It is a matter of finding the best compromises in every respect.

4 Just look and observe. There are no set answers or rules to follow.

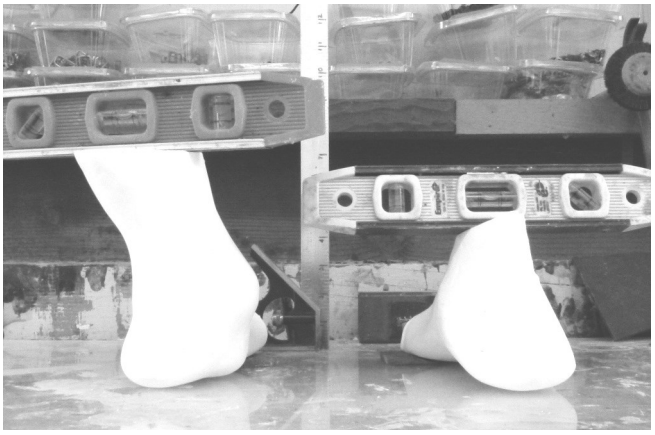


5 Ditto.

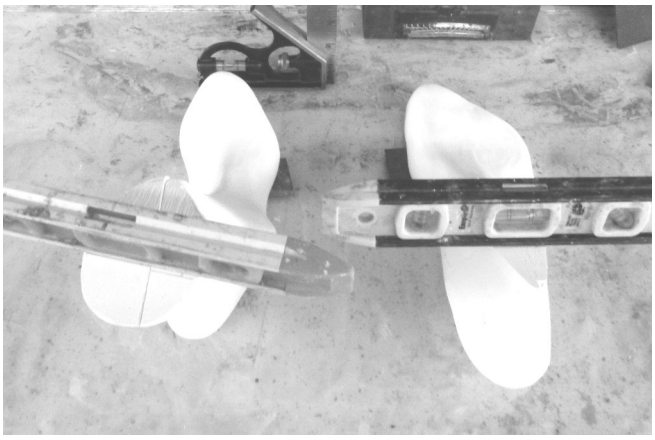
6 Ditto.

7 Ditto.

8 Ditto.



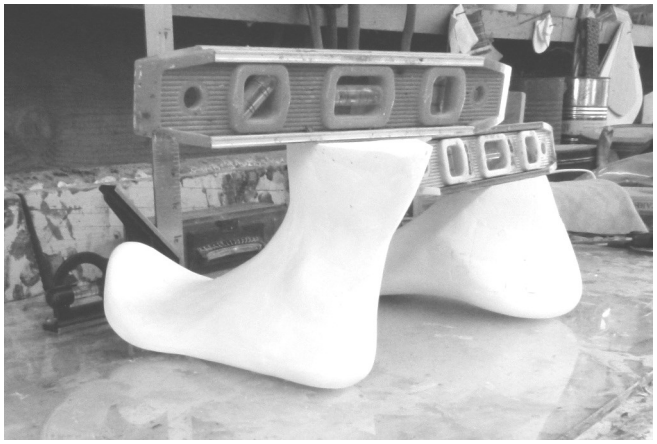
9 The casting and cast modification have not been shown. I start here with the last and try to find an acceptable alignment.



10 Ditto. Notice the use of little tapered balancing wedges on the glass surface to hold the last in a level position.

11 Side view.

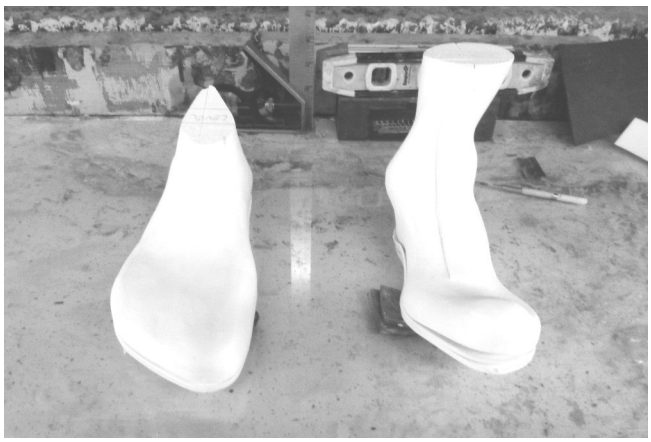
12 Ditto.



13 Ditto.

12 Bottom view.

15 I have made and fitted the inserts.



16 Another view.

17 Ditto.

18 Ditto.

19 Ditto.

20 Ditto.

21 The back leather lining has been added. Notice I use circles around tender spots and sensitive areas to keep track of their position.

22 Ditto.

23 The front leather lining has been added.

24 Ditto.

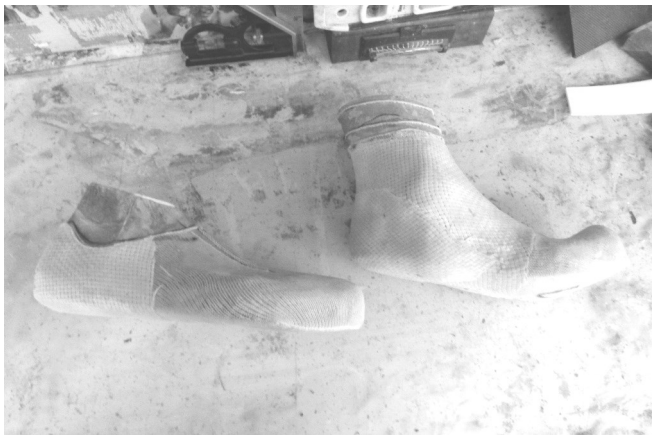
25 The design cords have been applied.

26 The leather lined last has been socked and sensitive areas marked again.

27 Ditto.

28 Ditto.

29 The socked last has been latexed.



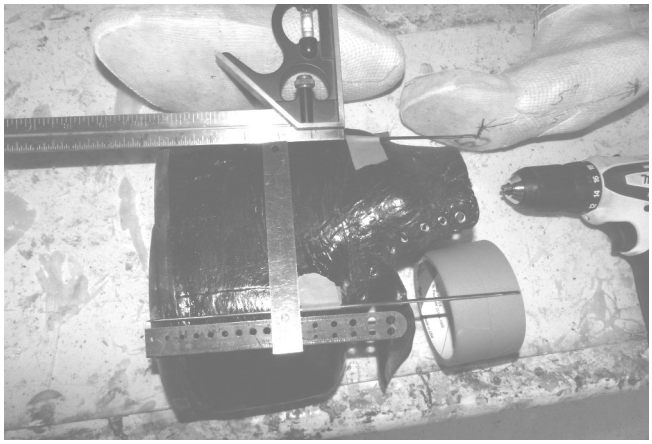
30 Ditto.

31 Ditto.

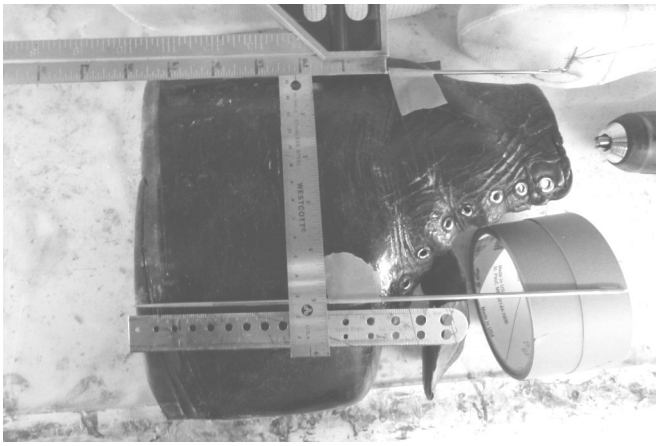
32 Certain areas are marked again.

32 I drill through a "good" boot in order to insert upholstery needles and make measurements.

33 Ditto.



34 I am measuring with the needles.



35 Ditto.

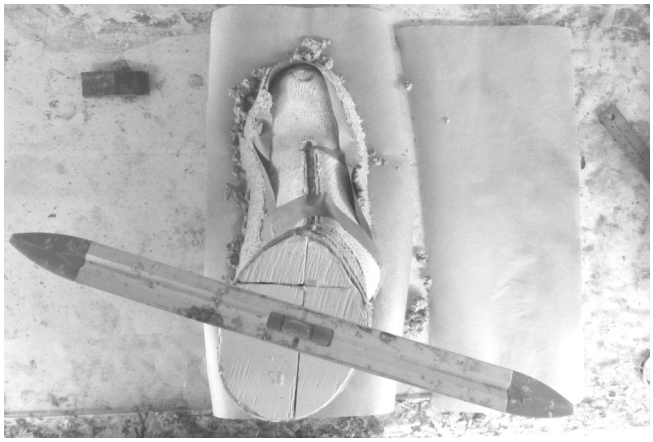
36 I have built a temporary plaster wedge to aid in the level alignment needed for "mudding".

37 Ditto.

38 "Mudding".

39 Ditto.

40 Ditto.



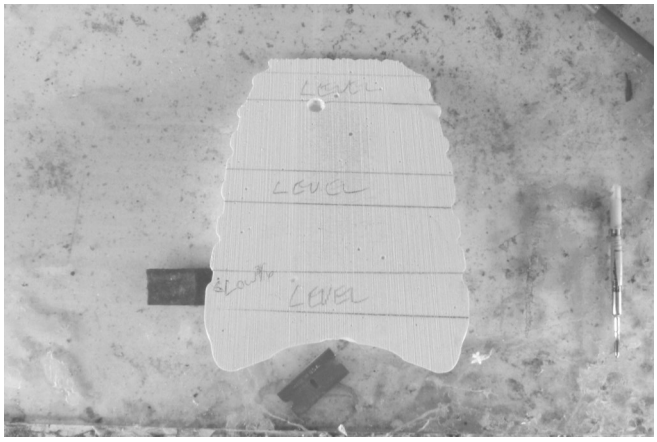
41 Ditto.

42 "Mudding" the right shoe.

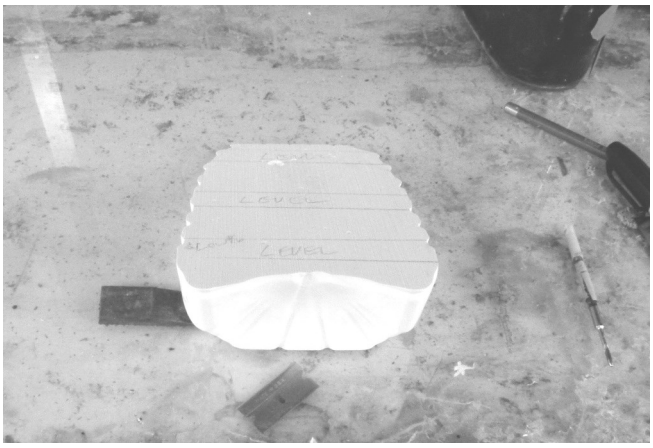
43 Ditto.

44 Ditto.

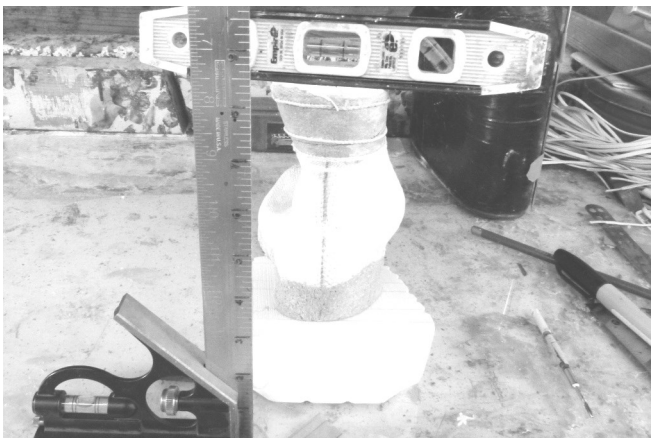
45 The "mud" has dried.



46 The plaster wedge platform.



47 Ditto.



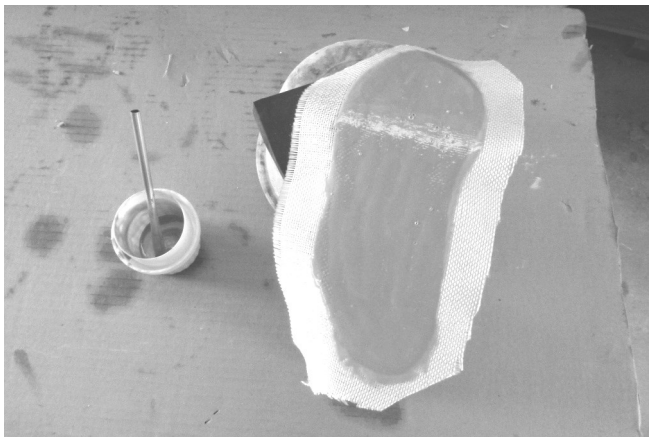
48 The left boot again on the plaster wedge platform after sanding the "mud".

49 I keep re-checking and adjusting the level and alignment until it looks as correct as possible.

50 Ditto.

51 Ditto.

51 I have marked the position of the measuring needles



52 I have fiberglassed the bottom of the "mud".

53 Ditto.

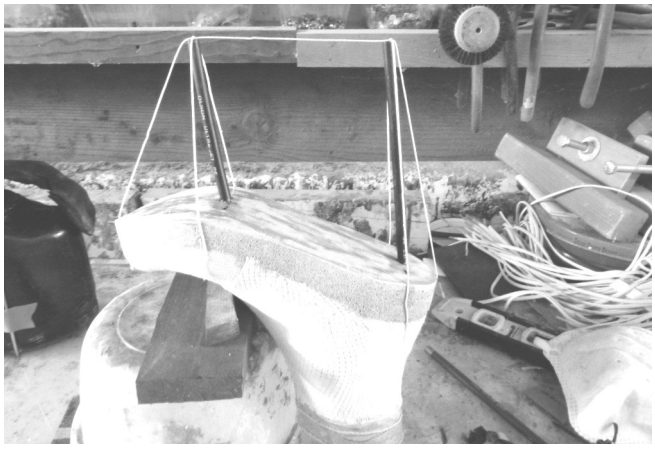
54 The fiberglass bottom gives strength and rigidity to the base. It also makes a hard and defined surface as a needle stop.

55 I used small hollow tubing to go from the fiberglass to the desired height of lift. The strings are to keep the tubing in place.

56 Ditto.

57 Ditto.

58 Ditto.



59 Ditto.

60 Ditto.

61 Ditto.

62 A shell was configured out of file folders and taped together for the purpose of holding ridgid foam.

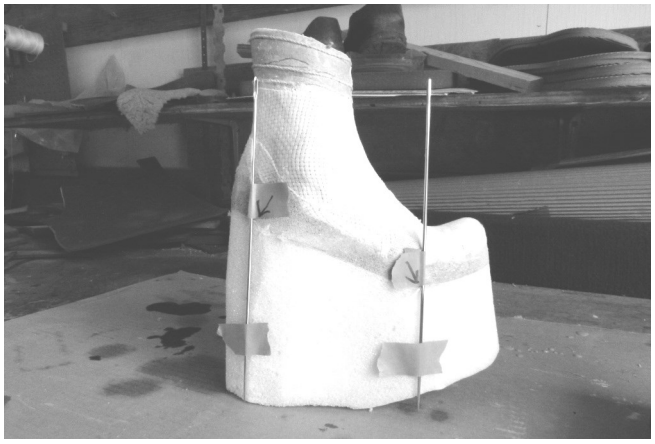
63 Ditto.

64 Ditto.

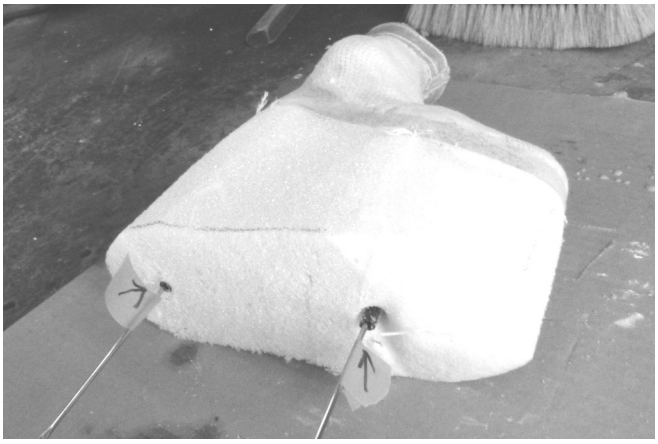
65 A two part ridgid polyurethane (3# density) foam is ready for mixing. Different weights and densities are available from Tap Plastics or Douglas and Sturgess.

66 The foam has been mixed, poured and it has risen.

67 This pour is a little short, but that can be fixed.

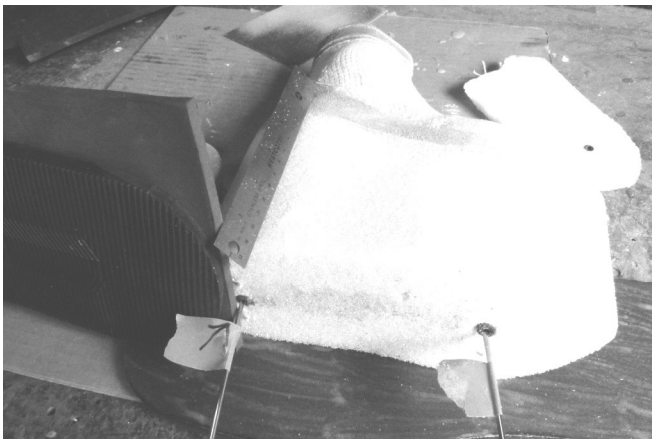


68 Now you can see the needles on the outside.

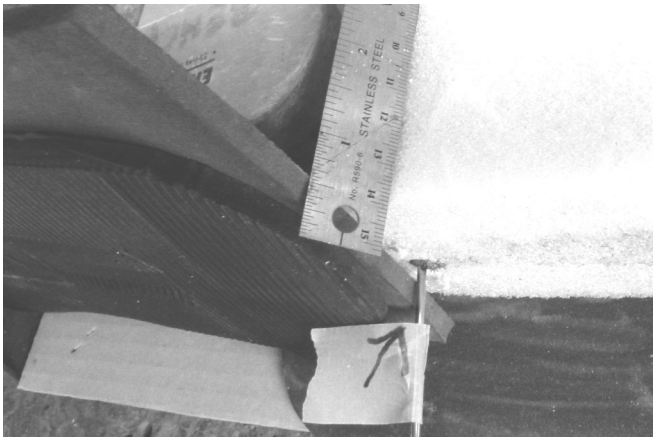


69 I also use the needles on the inside of the tubing so they stop in the exact desired place against the fiberglass.

70 The foam is sanded by machine and by hand.



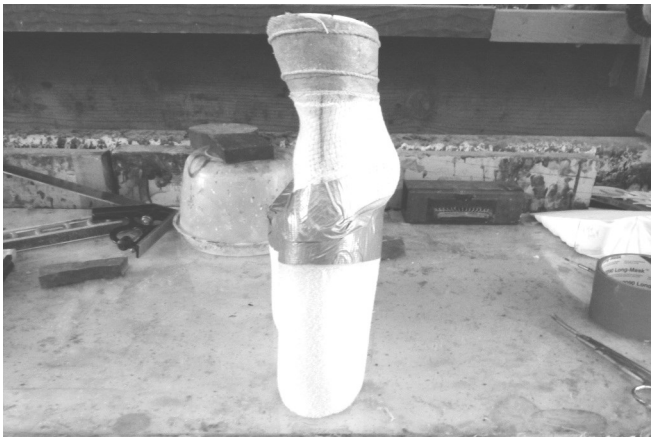
71 The thickness of the soling materials needs to be considered.



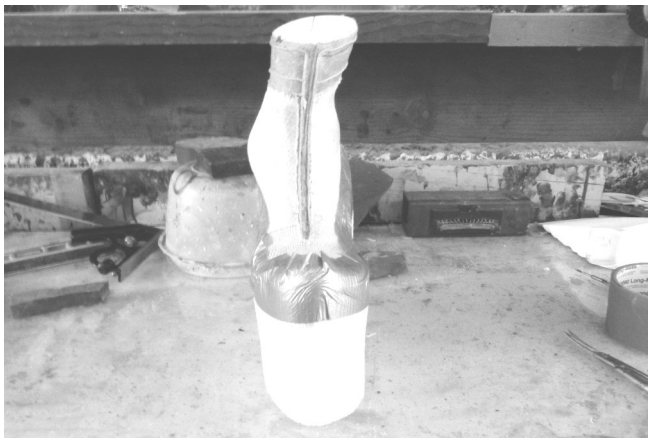
72 Ditto.

73 This lift is almost finished. Observe it from different angles.

74 Ditto.



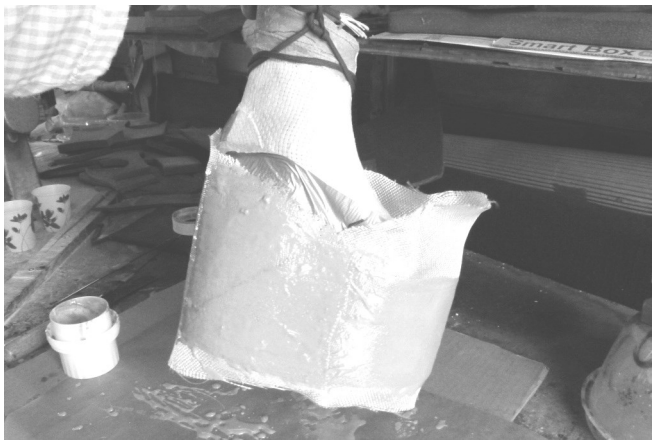
75 Ditto.



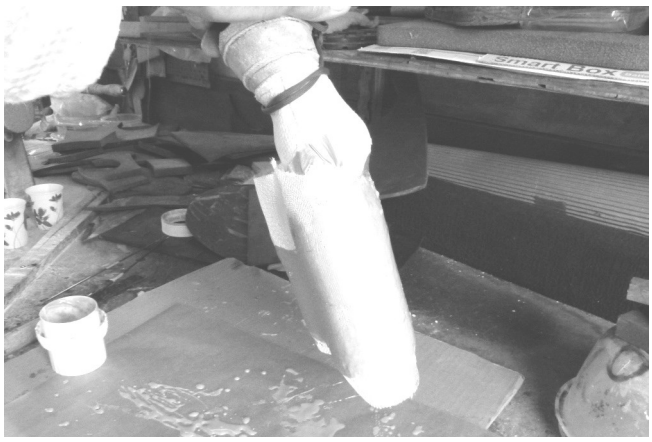
76 Ditto.

77 Ditto.

78 I apply fiberglass cloth and resin to give the outer wall of the foam strength and durability.

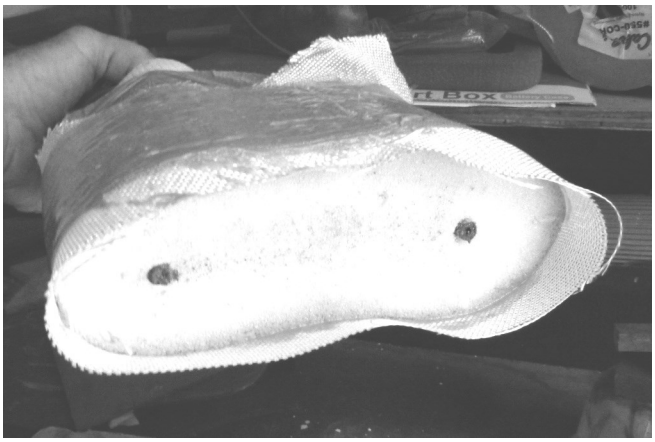


82 Ditto.

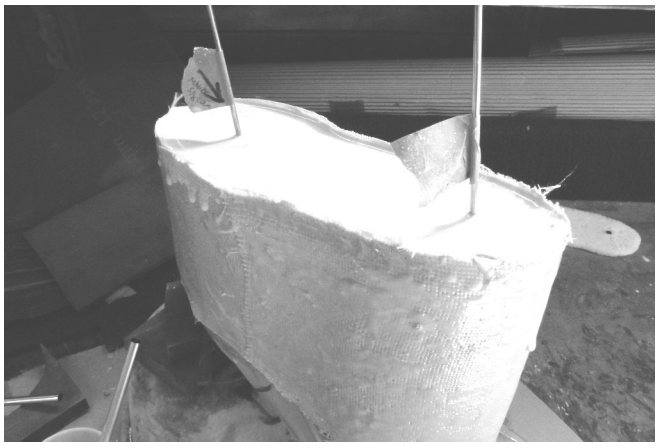


83 Ditto.

84 Ditto.



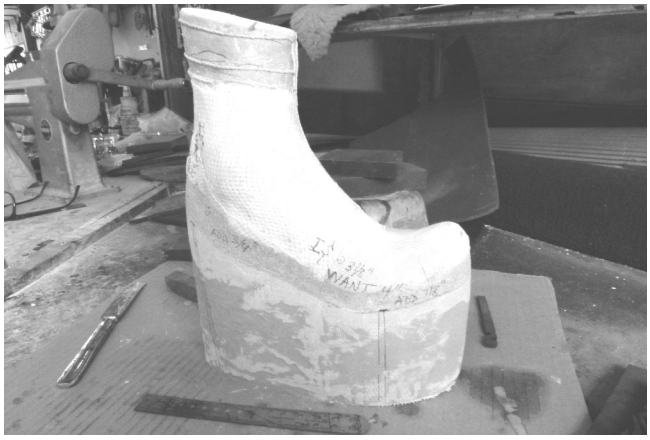
85 Ditto.



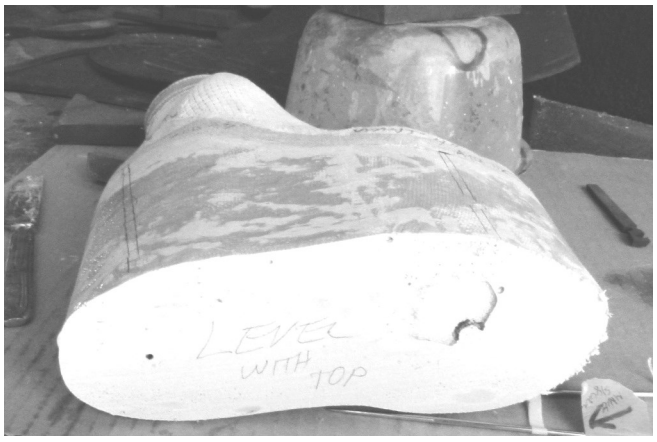
86 Checking measurements again.

87 Final preparation of the bottom and sides of lift.

88 Ditto.



89 Ditto.



90 A fiberglass resin bottom was added and sanded level with the top of last.

91 Observing the appropriateness of the lift.

92 Ditto.

93 Ditto.

94 Ditto.

95 Ditto.

96 Comparing with the older boot.

97 Adding a final bottom layer of fiberglass matting and resin.

98 Ditto.

99 Re-checking measurements.

100 Leathering.

101 Ditto.

102 Ditto.

103 The boot has been soled and finished.

104 Ditto.

105 Ditto.

106 Enjoy these pictures.

107

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115

I believe I have made 6 or 7 or 8 of these left boots. What dimensions, size, shape and materials work for this wearer probably will not be appropriate for anyone else. The wearer and I went through some refinements during the fabrication of the first few of these boots.

This case is shared with you so that you can appreciate the possibilities for helping yourself or others if you need to do so. All you have to do is think out the situation and processes before you initiate your experiments. Either change or remake as necessary until you are satisfied with the results.

You are creating functional footwear for the wearer. It might be a challenge, but, it also can be rewarding for the artisan and/or craftsperson and/or the wearer.