

# The Geometry of Asian Trousers

Penelope Woolfitt  
31 Church Crescent  
Muswell Hill  
London N10 3NA UK  
E-mail: [muswellnel@zen.co.uk](mailto:muswellnel@zen.co.uk)

## Abstract

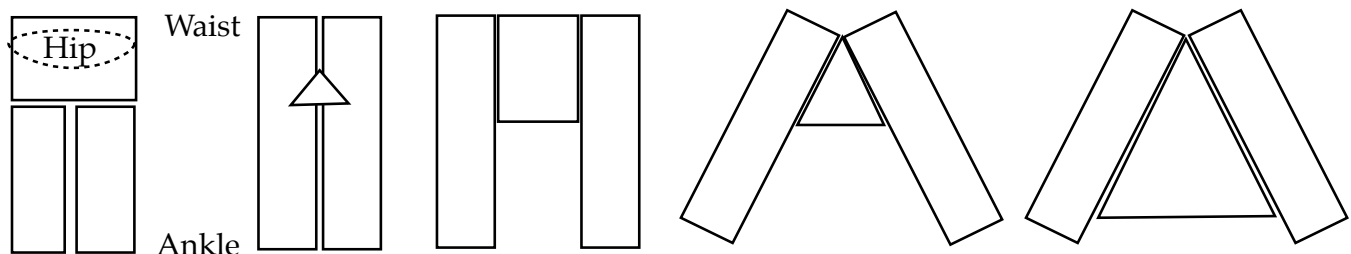
This workshop will explore the simple geometry developed over the centuries by Asian tailors to make trousers without measurements. They discovered ways of cutting and structuring fabric with extraordinary economy to achieve maximum effect with minimum waste; a valuable attribute today. The techniques are useful for the teaching of geometry and proportion without the perils of number. Actual garments will be used for reference.

## Asian Trousers

All that the tailors had for tools were a good eye, a length of fabric, and some shears. They would measure the fabric off against the body, cut it into rectangles, and sew them together. There was no need for patterns, no inches or centimetres; no tape measure even. There is no darting and fitting, no wasteful cutting, and in the end no patchwork, because there is no wastage.

Asian trousers are a joy, without the demands of fit. They are free and easy, and reversible [which extends their life, and makes them thoroughly practical]. They are unisex and unisize. They look as good on a large fat man as on a tiny slim woman. They are designed for comfort in an active life, on horse or camel back, squatting, walking, and working in the fields. Some trousers are full at the waist and narrow at the hem, some are the reverse, and some are just enormous all round.

What are trousers? How can they be defined? Maybe as three cylinders, one for the hips and one for each leg; or as two cylinders joined by a gusset.



**Figure 1:** *Primitive trouser shapes*

There are 3 simple shapes and 2 complex styles which have a particularly interesting cut.

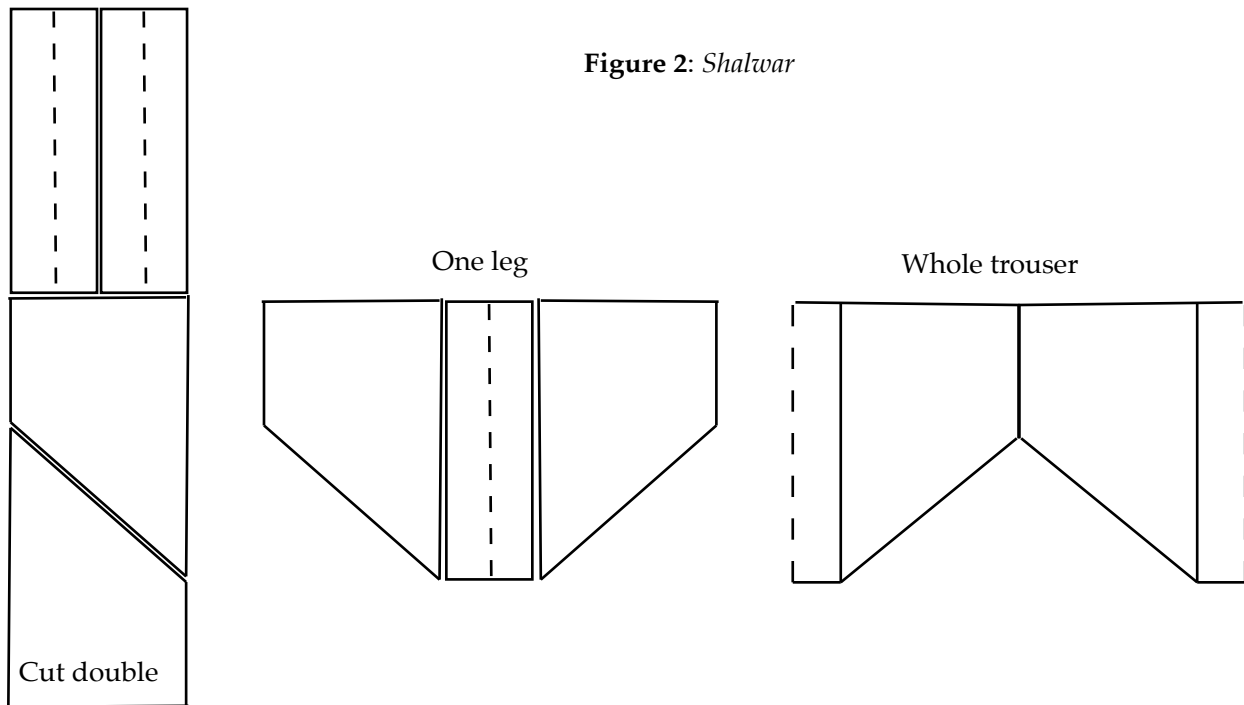
### *Salwar*

*Salwar* are the trouser part of the ubiquitous *salwar / kameez* and were worn by everyone: men, women, old, young, rich poor. These trousers can be seen as the first development from the basic two tubes with gusset.

They are cut narrow for peasants, but enormous for potentates, because, as in so many cultures before our own, fat equalled beautiful. *Salwar* were often massively wide: the largest pair in the V & A measures 306 inches, [770 cms,] round the waist.

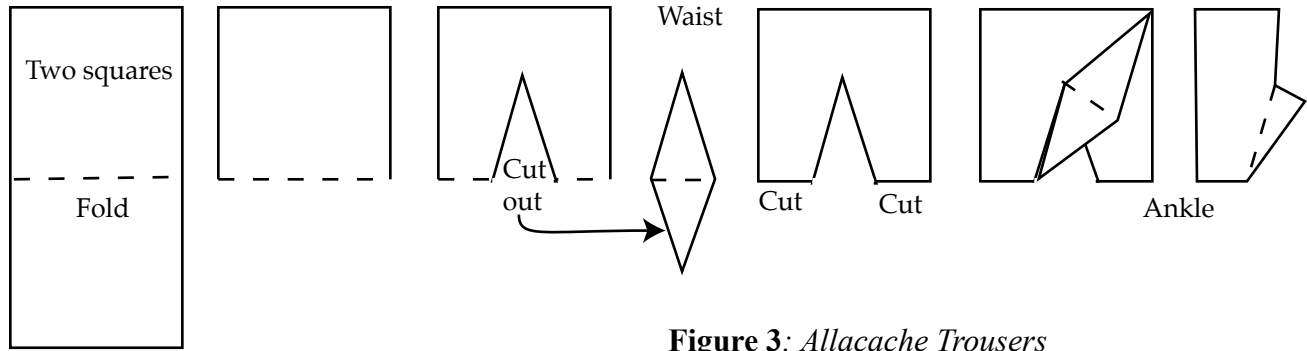
The cut is economic, clever, simple. For the basic shape the leg piece is cut to required width, and an extra panel is added.

We will explore the many subtle and elegant variations of cut and structure which use the geometry in different ways in this universal, unisex trouser.



### *Allacache* Trousers

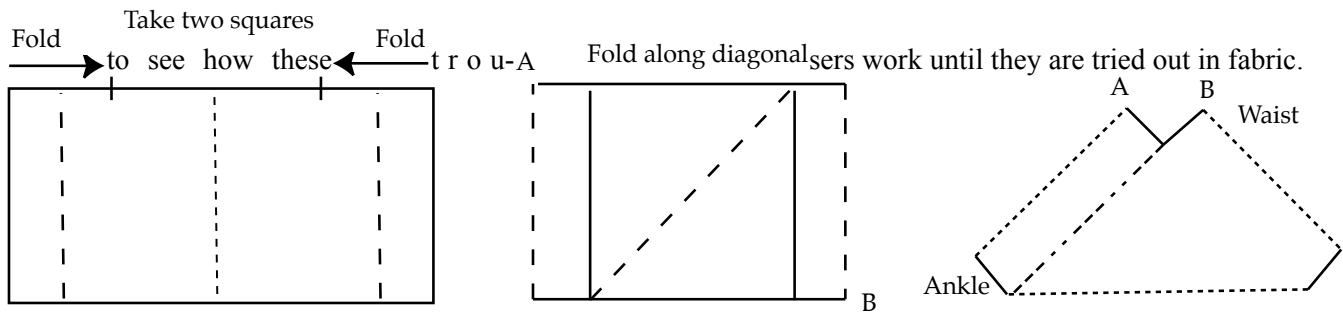
These are men's trousers, because it is said that when Allah [his name be praised] comes to earth he will be born to a man, and these trousers are sufficiently baggy to hide[*catcher*] a baby in! Like *shalwar* they are wide at the top and narrow at the ankle, and in wear they are indistinguishable. They are cut on a different principle to *shalwar*, but are equally brilliant and economic; the focal point of interest lies in the transformation of the gusset. The width of the cloth is important, because the proportions need to allow room for length of stride.



**Figure 3:** *Allacache Trousers*

### ***Afghan [or Envelope] Trousers***

These are narrow at the ankle and fairly fitted at the waist, but loose and baggy in between. Today they are often available as a fashion garment. As with the *Allah-cache* the cut is ingenious. It depends on the fabric being in the proportion of two squares; ie. that the long side equals twice the short side, which is the length from waist to ankle. The focal point of interest lies in the twist of the fabric, a bias fold which creates the fullness. It is difficult



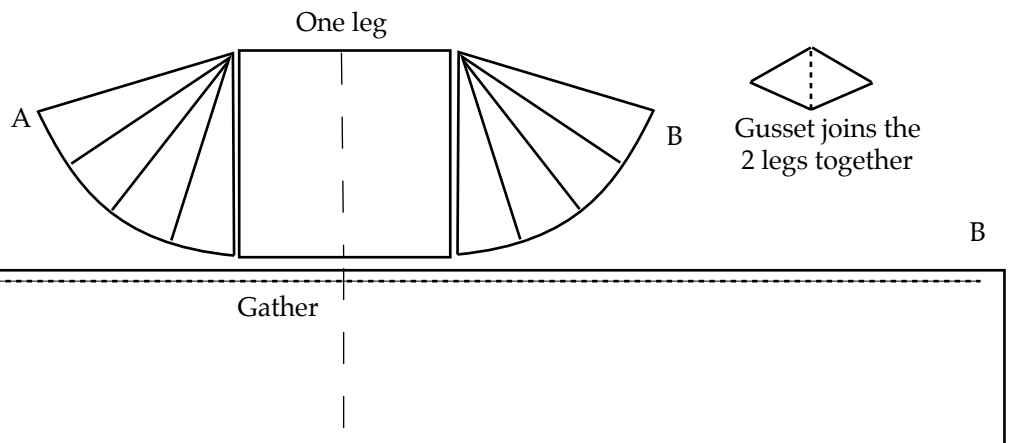
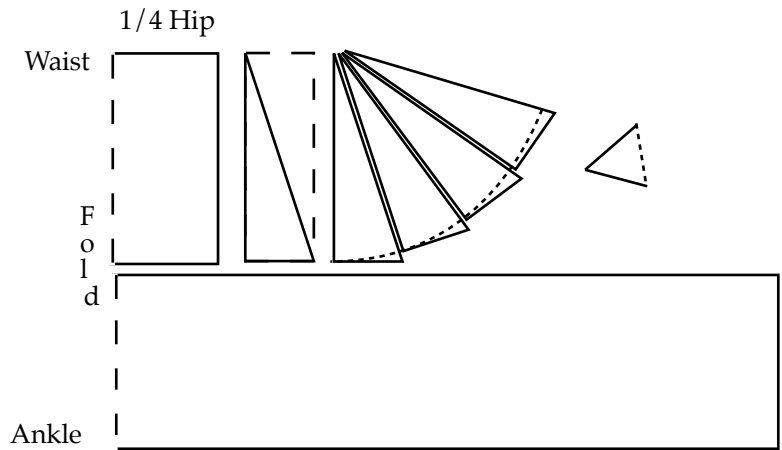
**Figure 4:** *Afghan [or Envelope] Trousers*

### ***Gharara Pajamas***

The *Gharara* developed from the divided skirt of dancing girls. There are endless variations and no two *Gararas* are the same. Like the *Afghan*, they are sleek over the hips but, unlike other trousers examined so far, they are amazingly full at ground level.

The cutting out and making up is very simple. The main skirt piece is cut to hip width and roughly knee length. The gussets are added to give fullness, and are cut out of rectangles divided diagonally which is very economical. There is no fixed number of gussets, but with 8 gussets in a leg, the hem frill is 100 inches. *Gharara* have been known with up to 20 *gussets*, and a measurement of 264 inches for each leg.

These trousers are like a divided skirt, and are always cut incredibly full. The piecing is complex but effective and efficient.



**Figure 5: Gharara Pajamas**

### **Churidar Pajama**

The *Churidar* pajama, full over the hips but very tight from the knee down, was worn equally by Maharajas and dancing girls. The geometry is particularly interesting and will be explored in the workshop. Due to the 3 dimensional nature of the structure the diagram is very complex and not reproduced here.

### **References**

There are very few books available that specifically relate to this subject, but the following are useful.

Tilke, Max. *Costume Patterns and Designs* [A. Zwemmer Ltd 1956]

Goswamy, Professor B.N. *Indian Costumes in the Calico Museum of Textiles* Historic Textiles of India Volume 5. [Ahmedabad: Sarabhai Foundation: 1993]