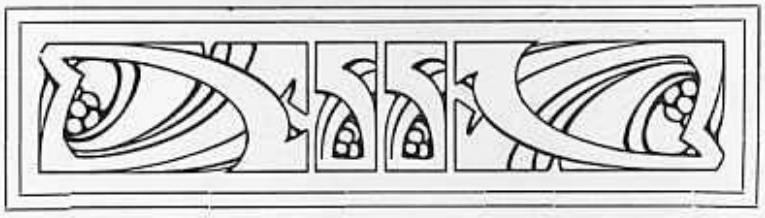


The

CUTTERS' PRACTICAL GUIDE

TO THE

Cutting and Making

ALL KINDS OF

Trousers, Breeches & Knickers,

TO WHICH IS ADDED CHAPTERS

DEALING WITH

The Cutting & Making of Highland Kilts, Leggings, Gaiters, &c.

EIGHTH EDITION.

By W. D. F. VINCENT,

Editor of the "Tailor and Cutter," Author of The Cutters' Practical Guide System, and numerous Works on the Science and Art of Cutting.

Published by

The John Williamson Company, Limited,

42, Gerrard Street, London, W.

LONDON:

PRINTED BY THE JOHN WILLIAMSON COMPANY LIMITED,

42, GERRARD STREET, W.

AUTHOR'S PREFACE.

ONCE again we have written our ideas on Trouser Cutting. The system herein described is so simple that the veriest novice may learn it and cut smart-fitting garments by it after a few hours' study; but at the same time embracing problems so difficult that many of them still remain unsolved.

We trust and believe this work will be found an advance on all our previous efforts. The Essay which won the Federation Prize was our first attempt, and of this the Secretary of the Federation wrote:—"The very exhaustive nature of the first part of this elaborate essay is in itself an excellent work upon Trouser Cutting in every shape and form; added to this, the elaborate treatment of objects with so many excellent diagrams completes a work upon cutting that has no rival."

As edition after edition was sold out, we revised and enlarged upon the principals there laid down, and now, after a lapse of fourteen years, we have remodelled the system, greatly improving it in certain directions, simplifying it where possible, and illustrating its application to a large number of styles never before treated in this way.

If the verdict of the trade on our first effort was a favourable one, we have little doubt it will be equally appreciative of this one, which not only contains the results of the research and experience of our younger years, but also the fruit of the maturer thoughts of added years and enlarged experience.

This work, whilst being complete in itself, and thoroughly exhausting its own theme, forms part of a series of books treating of every phase of a cutter's experience, by the aid of which we hope to place in the hands of the young man who aspires to a position in the cutting room, a book which will supply him with information of a practical and helpful character under every circumstance of his professional life.

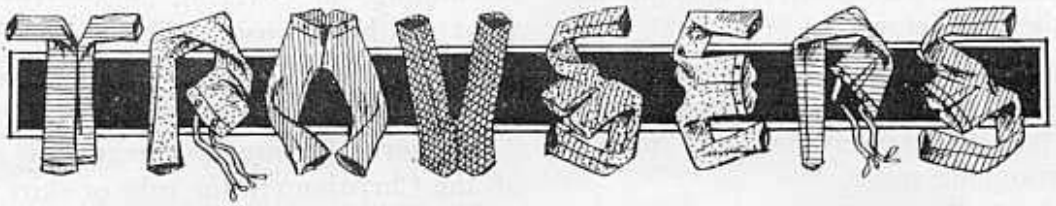
W. D. F. VINCENT.

INDEX OF CONTENTS.

BREECHES.

THE CUTTERS' PRACTICAL GUIDE

TO THE CUTTING ALL KINDS OF



BREECHES, GAITERS, &c.

INTRODUCTION.

The following treatise on the subject of Trouser Cutting is the outcome of various editions of what was originally written as an essay for competition, and which was awarded the first prize. Years have gone by since that was first offered to the trade, and with these, changes of fashion have taken place, rendering the style of the original work out of date.

The experience gained during those years has not been without profit, so that we are enabled to add much that was lacking and improve much that was weak.

The foundation of the work, however, remains essentially the same. The experience of thousands of our students, who have filled important and lucrative situations of all classes and have had for their customers all sorts and conditions of men, has been that as a system it is all that could be desired, and the man who masters the principles laid down and applies them in an intelligent manner will be able to cut Trousers to meet the most varied demands. The fact that we have had so many students under our care has helped us to realise the difficulties of the learner, and we trust we shall be able to utilise these in making this book simpler than any of its predecessors. Our aim will be to be as practical as possible, we shall keep back nothing that will be helpful, and we shall do our best to make every point as simple as possible as we proceed.

Natural History.

There is a widespread notion that Trousers are a nineteenth century innovation, and we have seen it argued that as they are mostly used for indoor wear and city life, they will sooner or later give way to the shorter garments—breeches or knickers. As far as the first statement is concerned there is ample evidence that Trousers were worn in the most remote ages of antiquity.

About Breeches and Trousers.

If one is to take literally the book of Genesis, then Adam was the inventor of Trousers. This shows their antiquity. That his first pair were of fig leaves and that he soon changed them for the skins of animals proves their fleeting fashion.

The real beginning of trousers is lost in the darkness of Oriental mysticism, and the first actual record of them in pictorial history is when the ancient—the very ancient—Persian introduced them into his dress.

Then they were long, that is, to the ankles, and short, as in knickerbockers, and both worn with a tunic, the skirt of which reached to the knees. In both of these respects they were not far different from the trousers of to-day.

Ancient Egyptians of about the same period wore a skirt to the ankles, in front of which, suspended from the belt, hung a pyramidal-

shaped form to represent a segment of the sun. This was his ceremonial dress. For less formal occasions the skirt was shorter, showing legs bare from the knees down.

Greeks, Etruscans, and Roman citizens of that time wore a skirt to the knees, while important personages, scholars, and men in authority wore long robes.

But the barbarian of Eastern Europe early discarded such feminine attributes as skirts and wore real trousers, and may be called the originators of what, not many years ago, were vulgarly called "baggy pants."

When Julius Cæsar landed in England he found the inhabitants wearing trousers, for

1st Century.

were they not known as "Gallia Bracata"?—Trousered Gaul. Tacitus mentions them in his history. The troops of Trojan's column are equipped in them. The Museum of Pompeii contains tangible evidence that when that city was overthrown the inhabitants, or, at any rate, some of them, wore trousers, and so one might go on to show that in the ancient world both Viking and Russian, Gaul and Chinaman, Persian and German, all wore trousers.

At the time of the invasion of Britain, the Romans saw and laughed at these garments, which they named braccae, from which the word breeches is derived.

The Franks had a peculiar idea of the use of breeches, and wore them in open-work style, resembling the covering housewives put over what are humorously called "cross-bar" pie. Strips of leather were wound around the legs cross-wise, from the ankles to the hips.

For several centuries during the early part of the Christian era the robe or skirt was worn by the men of the East, while those of the West and North were given to a closer and heavier leg covering necessitated by the severer climate. They were of either the skins of animals or rude cloth, according to season.

The word trousers was derived from trossers or truis, signifying to truss or tuck up, used to

16th Century.

distinguish the Barbarians from the Greeks and Romans.

It was used for all sorts of leg coverings and the name appears in the wardrobe accounts of the reign of King Henry VIII.

The Gauls were invariably distinguished in Greek sculpture as wearing leg coverings like unto those worn to-day.

In Scotland and Ireland the garment was known as truis, where its antiquity is only inferior to that of its Oriental prototype.

In the Museum of the Royal Irish Academy there is a pair of trousers of great antiquity. They are "grandly chequered."

Breeches, as an English word, broke into nomenclature during the reign of Queen Elizabeth. Previously they had been known in England as "upper-stocks" or "slops."

In an inventory taken at Barmeston, February 28, 1581, there appears among the goods and chattels of one Sir Thomas Boynton, Knight, deceased, "Item, 6 pare of velvet brytches, with three pare of lether brytches."

In 1592 breeches were so wide that it was necessary to build in the House of Parliament a separate gallery to accommodate those who wore them. They were stuffed at the hips, a process called bombasting, as a old writer expressed it, "with woods, with flaxe, with hair also, to make their brytches wyde."

18th Century.

The same writer also says: "They bombasted their brytches with cattell's tails."

A pair of breeches of the period illustrated by Planche look as if they might be the prototype of the padded breeches used on the football field. They are of heavy brown cloth, heavily padded and quilted.

During the same century the gentlemen of France and Germany went into the greatest extravagance in leg coverings.

A German swell of the sixteenth century wore silks and satins, puffs, slashings and ribbons, and rioted in colours. The right leg of his unmentionables were puffed and slashed bulbously from the hip to the knee, each row of puffs smaller than the other, terminating in a bow of ribbons. The puffs were of alternating longitudinal stripes of pink and blue.

The right leg was tightly covered with red silk. The stockings were alike, of pink and blue stripes.

Another German dandy of the same period wore his right leg in puffs to the knee, each cascade of puffs caught by a drooping sash of buff leather. The left leg was very baggy, with longitudinal stripes.

The stripes were alternately yellow and black, or any other fanciful combination of colours, and the stuff was satin.

19th Century.

In England bombasting stopped when Charles I. went to the throne. Short trousers, loose at the knee, end in a fringe or row of ribbons or lace.

Charles II. introduced the petticoat breeches, voluminous, lace trimmed, beribboned and covered with feminine fripperies.

But now also came into fashion sterner things—leather breeches, coats, boots and spurs of the swashbuckler.

While the dandies at court also wore boots of soft leather terminating where the lace began, those of the rough rider of the day were almost hip high, because of the vile condition of the

English roads, and they were very big and dashing withal, against which the sword slapped bravely as he rode or walked.

During the reign of William III. tight knee breeches were worn by all classes, and still forms a part of the English costume. At first they did not reach to the knee and the stockings were brought up over them to the middle of the thigh. Afterwards they were buttoned beneath the knee or fastened with gold, silver or jewelled buckles.

In 1700 men of quality wore tight knee breeches, the long flaps of their satin waistcoats nearly meeting the stockings. Their stockings were of silk, the heels of their shoes were of red wood, and the buckles jewelled. Middle class youths imitated the style of their betters, but instead of silks, satins, and velvets, were content with "red shag, striped with black."

George II. introduced black velvet breeches. In a satire written in 1727 appears the line, "Without black velvet breeches what is man?"

About 1760 the breeches began to get longer and tighter. The "London Chronicle" of that time says, "the leg in high taste is not longer than a common councilman's tobacco stopper."

Doe and buckskin breeches then came in and were made so tight that the most absurd means were resorted to for putting them on. A man said to his tailor: "If I can get into them I won't have them."

The beginning of the nineteenth century saw the dandy at his height, who went to most absurd lengths and eccentricities in his dress, the Incroyable of Paris. His breeches were as tight as they could be made, and fastened below the knee with loops of ribbons.

The cloth was of the most delicate texture and shade of colour. His stockings were fanciful in design, and his slippers of the most dainty pattern. His coat tails were long and narrow, and hung to the bend of his knee.

Various reasons are assigned for the trouser revival which took place at this time. Planche in his history of Costume says, "Pantaloons and Hessian boots were introduced about the end of the eighteenth century." Short boots and loose trousers.

The Result of the Visit of the Cossacks

To London, have, together with Frock coats, rendered our dress more convenient and less formal.

Some tell us that they are the result of excessive drinking. At the end of the eighteenth century it was the fashion to drink to an extent almost unknown nowadays. The direct result was gout, and the indirect result, trousers. Knee breeches and stockings were unsuitable for people with swollen legs on account both of appearance and comfort.

Another version is that with the nineteenth century came "this strange disease of modern life, with its sick hurry, its divided—aims." Men wished for garments which could be put on with the greatest possible speed, and hence long trousers were adopted.

And yet another reason given is the French Revolution. To mark their contempt for old Court usages the French substituted long trousers for the Court dress.

More than one debate took place on the subject by the representatives of the people and even Robespierre joked on the subject. The term "Sansculotte" means "without breeches" and was a term of derision used by the aristocrats in reference to the popular party, but was afterwards assumed by patriots as a title of honour. The nation remembered the garb worn before the tyrant Cæsar came, when they thought universal happiness prevailed, and as they were now inaugurating a new era, when universal happiness was once again to be enjoyed, they would wear the garb of their forefathers, and so trousers were adopted.

A writer in a recent number of *The Exchange* said: "Trousers came into use for general wear with the French revolution. The gentlemen, the supporters of royalty and sound constitutional principles, wore breeches. The "sans culottes," who denounced every one who wore breeches, finally went beyond their opponents and wore twice as much cloth around their legs —in a word, adopted the modern trousers and made them the badge of a party. Napoleon, who was too thin at one period of his life and too stout at another to look his best in small

clothes, nevertheless wore them on state occasions after he had been crowned emperor. His army was the first that wore trousers, and they kept progress step by step with the march of the French legions.

"The French trousers were seen in Egypt, in Spain, in Italy, in Germany, in Poland, and in Russia, and with them the neat gaiter. People thought that the manner in which a great conquering nation clad its legs was the correct model, and when the trousers-wearers marched over the wearers of pig-tails and knee breeches at Jena and Auerstadt a decision was given from which the world did not care to appeal."

It is well known that French fashions in clothing were eagerly copied during the early part of the last century, and that may account for their adoption by the English nation. History has strange stories to tell, and one of the lessons she would teach us is that great changes in political life bring along great changes in the dress of the people. Trousers were then handed down from the remote ages of antiquity, and what was re-introduced at the French Revolution was worn by the Persians 1,000 B.C., and possibly by races thousands of years before them.

Let the reason for their re-introduction be what it may, the fact of their popularity is beyond dispute, though it is well to note they were not accepted in all quarters without a good deal of opposition. It is related that they were not allowed at Oxford until 1810, and Cambridge prohibited them until after 1812; whilst as late as 1814 the Duke of Wellington was refused admission to Almack's because he insisted on appearing in pantaloons.

Another time the lady patronesses of the Assemblies at Almack's were much exercised. They had planned an elaborate reception and ball, and were determined that it should not be desecrated by the presence of bucks in pantaloons. Yet they knew full well that the Duke of Wellington would insist on wearing the beloved garments. They could not dare offend him. So the lady patronesses were in despair; they could not and would not yield on the subject of pantaloons, yet they could not afford to risk offending the Duke. In this juncture a bright wit suggested that the invitation contain the following clause:

"Gentlemen are expected to wear small clothes and silk stockings, but any gentleman who is conscious that his figure is not adapted to that costume may wear pantaloons."

With the exception of Wellington and two other daring beaux, all the gentlemen who attending the reception wore small clothes.

Gilray and other cartoonists of the period made savage fun of the new mode. They showed beaux with inordinately long and thin legs, and beaux with inordinately short and fat legs. They depicted men with legs like trees and with legs like compass dividers. In every respect the pantaloons were depicted as unæsthetic, vulgar and uncomfortable. Artists refused to paint their patrons in them. Women ridiculed the wearers of them.

Yet the net result of all the warfare was that by 1829 pantaloons, or, as we now call them trousers, were worn by almost everybody, except the delightful old-fashioned persons who stalk so pleasantly through the pages of Dickens and Thackeray in their knee breeches and bag wigs.

They have varied in length, they have fluctuated in width, they have been made inthe plainest style, they have been trimmed most elaborately, and theyare certainly a distinguishing feature of nineteenth century dress.

We are now, however, in the twentieth century, and, for good or evil, trousers are one of the principal garments of the gentleman's dress, and our duty is to produce them in such varied styles as will meet the requirements of our customers both as regards fit and style.

Before we proceed with the more practical portions, it may be well to call attention to one or two

Important Features

Connected with this garment, and first we will mention the fact that the vast majority of men order twice as many trousers as they do coats or vests; so much is this so that they have often been taken as the speciality upon which to build a large and successful business.

In the next place they cover more than half the body, as far as the height is concerned, reaching from just above the waist to well over the ankles, and as from the waist downwards is equivalent to about $\frac{5}{8}$ of the height it will be seen that they certainly have more than half the height to cover.

Then, again, they are a garment worn continuously, for whilst the coat and even the vest is often dispensed with when working or in hot weather, yet "decency forbids" their removal except in seclusion; indeed, they are worn as pyjamas for sleeping in, and even when bathing an abbreviation of them are put on.

The demand made upon the garment by the movements and expansions of the body are exceptionally severe, and the difficulty of making them in such a way as to retain their shape after they have been worn for a few weeks is a problem that has called forth many devices of which the best that can be said is that they alleviate rather than overcome them.

A study of the trousers portrayed on the photographs of celebrated personages, from just above the knee downwards is certainly not flattering either to the tailor who made them or the person who wears them, and we trust the remarks we shall have to make on these difficulties and defects will help our readers to avoid many of them and minimise those that are apparently irremediable.

Thus, it will be seen, the subject we start upon is by no means a trifle, but will provide scope for ingenuity as well as science. Art as well as style, application as well as genius. We will, however, lead our reader first through the simple phases of Trouser Cutting, and describe to him the system ere we bother him with discussions on openness and closeness, seat angle, fork balance, and adjustment of parts.

Chapter I.

Taking the Order.

First of all then let us describe the important process of taking the order. We will assume the material has been chosen—probably of a striped pattern—checked goods being now, as a rule, voted out of court for this garment, so we proceed to book the particulars, for it is necessary to know what you are measuring or before you apply the tape.

Most gentlemen wear them Fly-Fronts and unlined, but if any doubt exists in your mind on these points it will be well to ask, though here discretion must be used, for an inquiry in this way would be superfluous with the West End swell, whereas, with the country farmer it might be very essential. In the matter of pockets, again, the fashion of the present is side pockets, but it is always well to have your customers' view on this topic. In the following pages we describe side pockets, cross pockets, and frog pockets; then there are extra pockets frequently ordered such as hip pockets, watch pockets, cash pockets, and in country trades these are supplemented by rule pockets, &c., and all these should be carefully booked if required.

The Finish of the Seams

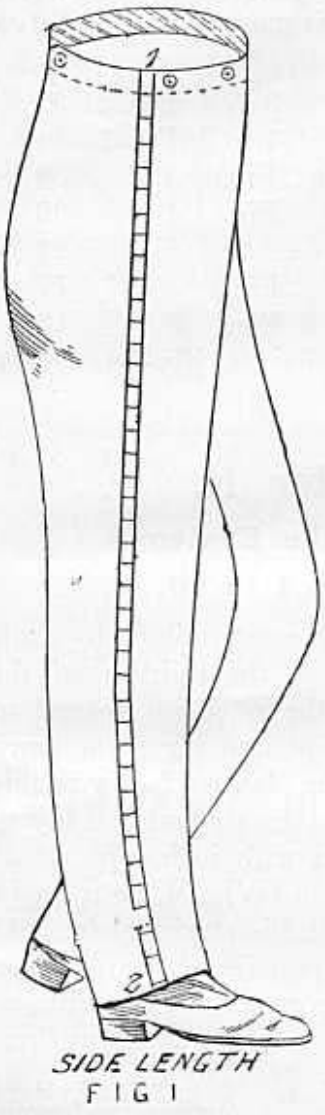
Is sometimes varied, so that whilst the style of the present period is plain seams, yet it is quite possible to have them raised, piped, braided, striped, and finished in many novel and eccentric ways. Another point upon which you should acquaint yourself is the size of the bottoms desired, as this has a marked effect on the length of the leg; large bottom trousers being required much longer than small bottom. You will also notice upon which side your customer dresses, for whilst the majority adjust their surplus underclothing and person on the left side, yet this is by no means universal and must be noted when measuring. True, most gentlemen who dress on the right side will mention the fact, yet it is the measurer's duty to note this without the help of his customer.

If there is any possibility of finding out the purpose to which the trousers will be put it will be advantageous, for then it will be possible to make provision for the demands of the figure. For instance, a literary gentleman who is always sitting needs far more room in the seat than the gentleman who is nearly always on his feet. The man who is constantly stooping or kneeling

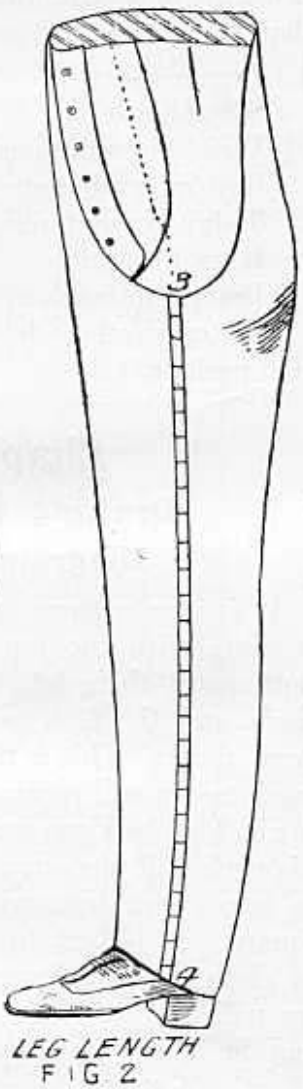
must have a very different style of cut to those intended for dress wear, and it will be found that what would be a fault in one style of trousers is positively a virtue in those required for other purposes, hence the need for knowing your customers' habits as well as the size of his body. Thus, it will be seen there is scope for the use of intelligence as well as observation before the inch tape is applied. The details being duly entered in the order book we proceed to take

The Measures.

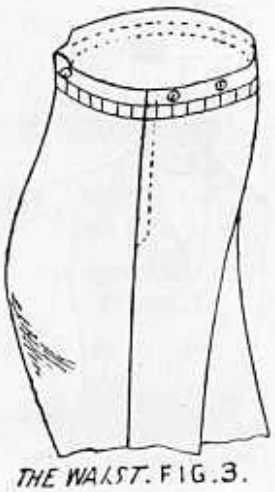
First take the lengths and then the widths. The former embrace the leg and sideseam, and the latter the waist, seat, knee, and bottom; whilst to these may be added the thigh if desired. The order in which these should be taken is worth a little thought. Many cutters take the sideseam and then ask their customers to pull their trousers up close to the fork and then take the leg measure, with the result that they sometimes get a body rise of about ten inches; now as it is seldom wise to give less than twelve inches body rise for the adult figure we prefer taking the leg measure first. Sometimes a difficulty arises in getting the tape right home to the crutch, and various devices have been introduced for this purpose. Loops have been made at the end of the tape to put the pencil through. Brass ends, three or four inches long, have been secured to one end of the tape to enable the measurer to force the end up to the

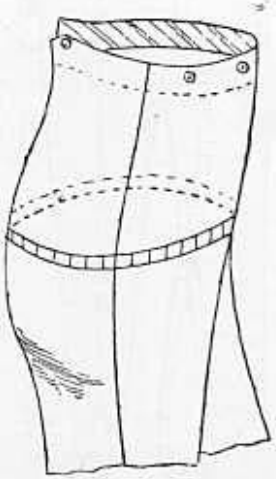


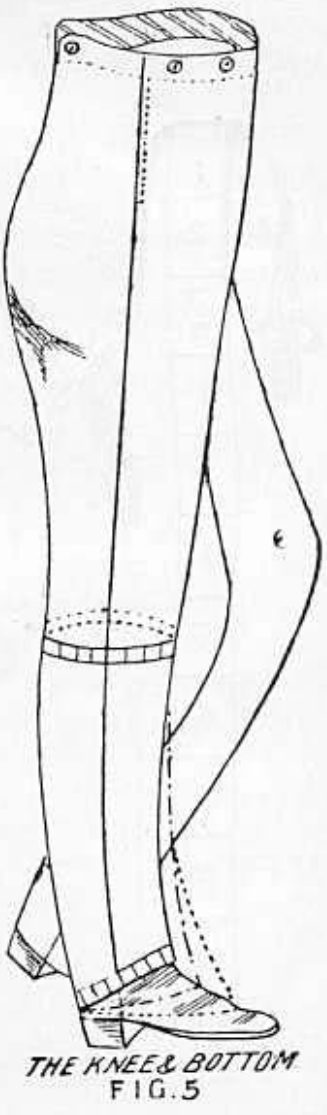
SIDE LENGTH
FIG 1



LEG LENGTH
FIG 2

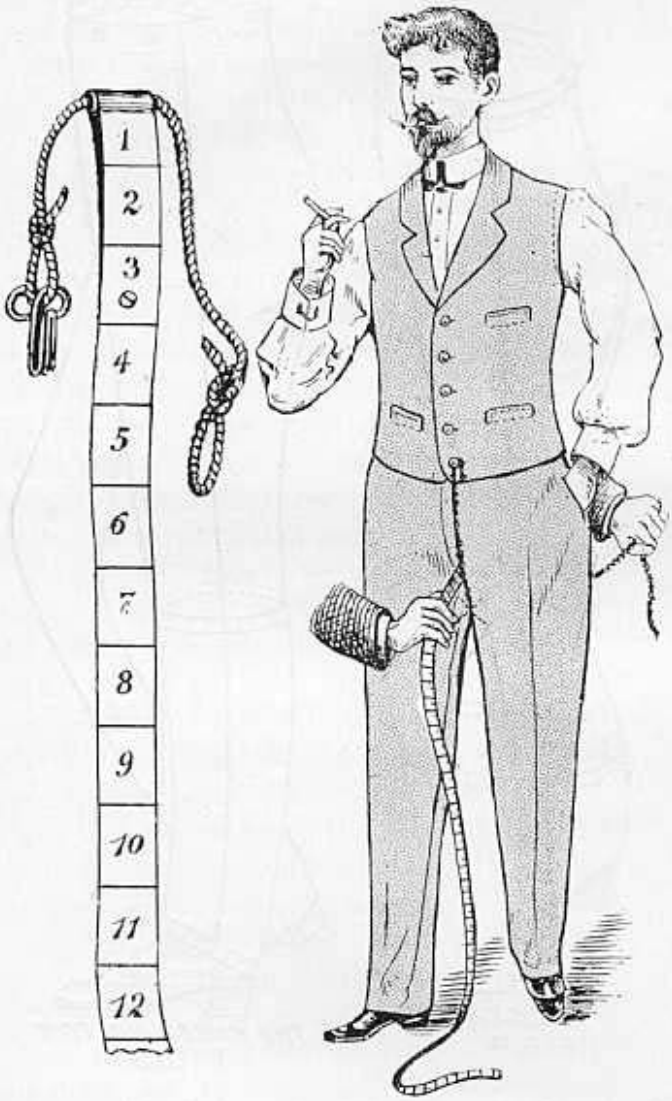

THE WAIST. FIG. 3.


THE SEAT.
FIG 4.



THE KNEE & BOTTOM
FIG. 5

fork; but the best device we have seen is a large hook upon which has been sewn a piece of cord which is passed through the loop at the end of the tape, the hook is put in the bottom button of the vest and the tape adjusted to come at the fork, the other end of the cord is carried between the legs and held in position with one hand, whilst the length of the leg is taken with



the other; this avoids all unpleasantness both to the measurer and the customer.

In taking the waist measure bear in mind that most gentlemen like ease for after dinner expansion, but in taking the seat measure it will be well to test the customer's idea of ease and adjust accordingly. In the system here laid down it will be necessary to take the seat measure fairly close if a smart fit is desired. The seat should be taken 3 or 4 inches above level of fork, say at thigh joint level. If a thigh measure is taken, it should be of the undress side and taken closely. When taking the knee measure bear in mind it is the rule for all trousers to be stretched at the knee, and in deciding the width of bottom follow your customer's idea of taste, for that after all is more a matter of style than fit.

Leg measure	3 to 4, Fig. 2	32
Side length	1 to 2, Fig. 1	44
Waist circumference	Fig. 3	30
Seat circumference	Fig. 4	36
Thigh circumference		21
Knee to fashion	Fig. 5	17
Bottom to fashion	Fig. 5	18

The only other details are Fly-Fronts and side pockets.

Chapter II.

Drafting the System.

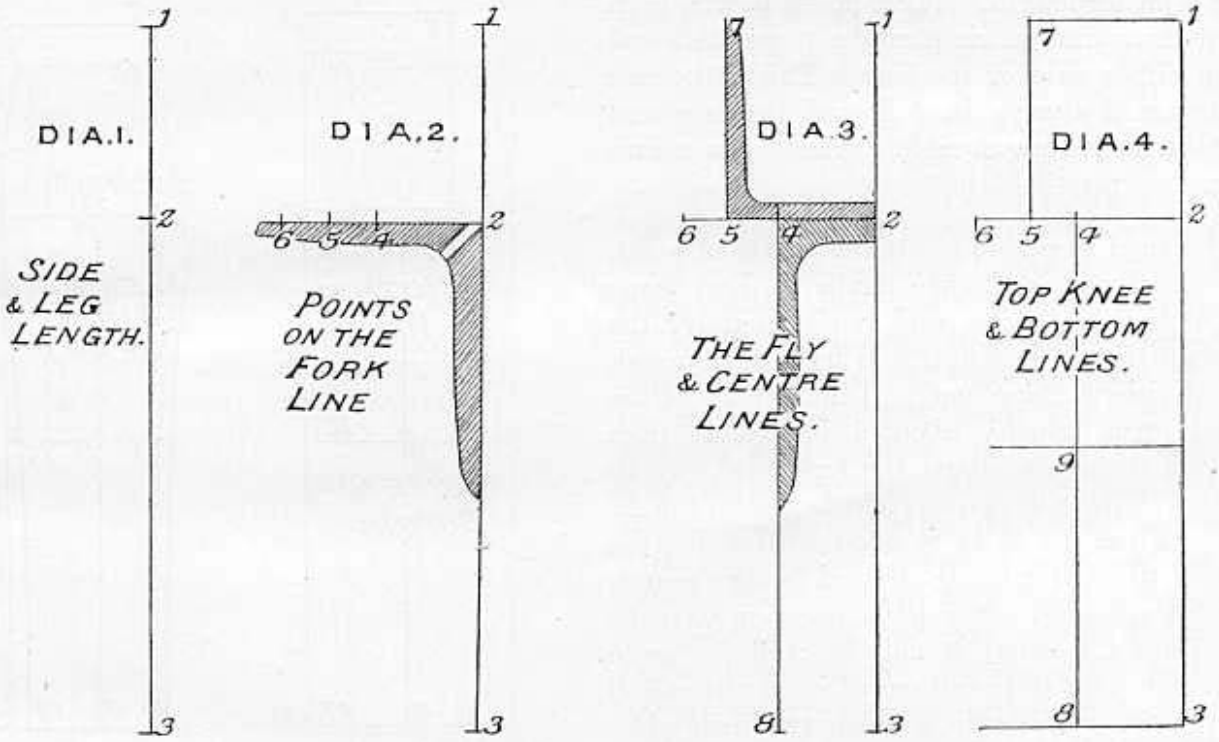
Diagrams 1 to 10.

It is the custom of most tailors to draft trousers with the top at the right hand, the bottoms at their left, the sideseam nearest to them, and the fork point and leg seam away from them. This is the plan we follow in this work, so we will assume the student is ready to begin his chalking, and with inch tape round his neck and pipe-clay in his hand, he is ready to begin operations with his straight-edge and square. It is best to practise on an old piece of cloth or some brown paper to start with, so we will assume this is spread out before him and he commences by drawing line 1, 2, 3, Diagram 1, which is simply a starting line for our further operations. On this mark off the length of side from 1 to 3 and then from 3 to 2 the length of leg. We next draw a line at right angles to point 2, or in other words we place the square with the long arm on the line first drawn and the angle at point 2, and draw a line across by the other arm of the square as shown on Diagram 2. This gives us the fork line, and on this we have to locate the positions

of the centre line 4, the fly line 5, and the fork point 6. To do this involves a little calculation. From 2 to 4 is one-sixth of seat, so that for the 36 seat the distance between points 2 and 4 would be 6 inches. From 2 to 5 is one-fourth of the seat, or taking our 36 seat example, the distance from 2 to 5 would be nine inches. The next point to fix is 6, and this is made one-third of the seat from point 2, and in the case of a 36 seat this would be 12 inches, thus, the divisions in this line are—one-sixth, one-fourth, and one-third. These are some of the most important quantities, fitting the principal points in the system, and should be located with accuracy. There are some who find it difficult to make these calculations, and, happily, there are alternate arrangements, the one is the divisional tape which can be purchased at any trimming warehouse for about threepence, and the other plan is a set of graduated tapes; in this case you select a tape agreeing with the half seat measure. Mark off on this line from 2 to 4 six units, from 2 to 5 nine units, from 2 to 6 twelve units, the length of unit varying on each tape and will be found in each case to be the one-eighteenth of the size it is marked.

Suppose we wish to cut a pair of trousers for a gentleman measuring 40 seat, we select the tape marked 20, and placing the end on point 2 of the fork line we measure across 6, 9, 12, which, if tested by the inch-tape, will be $6\frac{5}{8}$, 10, $13\frac{3}{8}$, as nearly as possible. It is well, however, for the student to accustom himself to make the necessary calculations, as he is then independent of these aids, and so much the better qualified for quickness in the discharge of his duties.

Our next step is to draw the centre line down from point 4 by placing the square on the fork line and drawing line from 4 to 8. It is important that this line should be drawn at right angles, at least, that is so for the proportionate draft, and, happily, this can be easily tested, for if this line is drawn at right angles it will be found the same distance from 3 to 8 as it is from 2 to 4, and if in the draft this does not agree it will be necessary to test the square to see whether it is true. This can be done by drawing the two lines by the two sides of the square, say exactly 12 inches long; then draw a third line at right angles to one of these and make this also 12 inches long and from



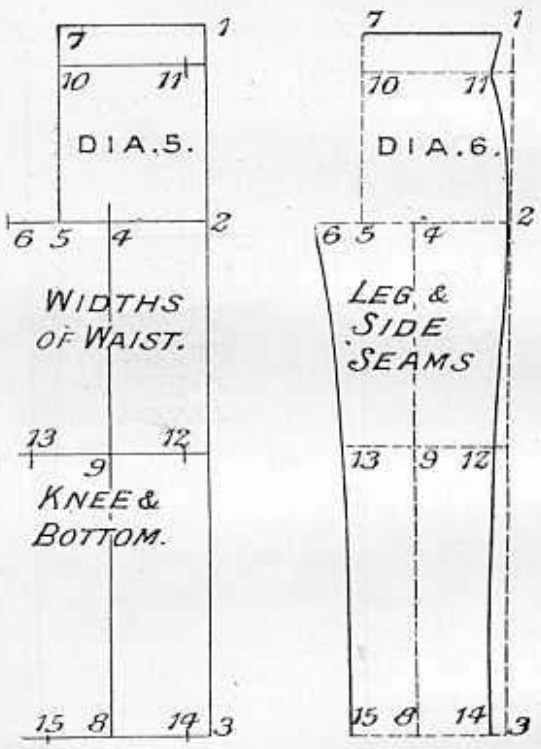
this point square another line at right angles, and if the square is accurate the fourth line will meet the first one exactly at the end, and all four sides of the square be the same length. If your square is accurate, then all you have to do is to use care and your lines will be correctly located.

Our next stage is reached by drawing a line at right angles to 5 7 to the level of point 1, which gives us the top of the trousers. We next locate the knee by measuring down from 4 to 9 the half leg measure, less 2 inches; thus, leg length 32, from 4 to 9, 14 inches. From 4 to 8 is the leg length. These points having been fixed draw lines at right angles to points 9 and 8 on either side of the line. This is the rule that should always be followed, the knee and bottom lines draw at right angles to the centre line.

Our next step is to locate the widths of waist, knee, and seat, and once again we have some calculations to make, and, unfortunately, the graduated tape does not help us much, though the divisional tape may. Line 10 11 is the waist level, usually about 1 inch more than one-fourth of seat above the fork level, say 10 units. This is drawn at right angles to the fly line. From 10 to 11 is one-fourth waist plus $\frac{1}{2}$ inch, this latter being allowed for two seams, and as we shall often have occasion to make provision for seams it may be well for us to state here that the usual size of seam recognised in the tailoring trade is a quarter inch wide, occasionally this has to be increased when garments are made from very ravelling material, but, as a rule, the quarter inch allowance will suffice, so that in the case of a waist measure of 30 the distance from 10 to 11 would be 8 inches.

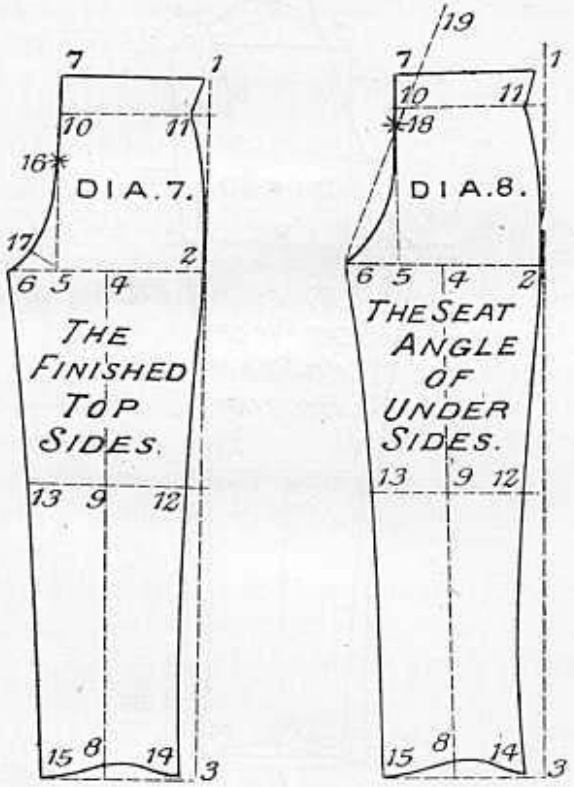
We now mark the widths of the knee, making from 9 to 12 one-fourth of the knee measure, and from 9 to 13 the same quantity, so that for a knee of 18 the distance from 9 to 12 would be $4\frac{1}{2}$, and 9 to 13 would be the same. If any one is puzzled with these calculations take the tape at 18, fold it over so that the end comes to 18, then take the double edge and fold it over again, and thus arrive at the exact width of the knee on either side of the centre line.

Coming to the bottom we proceed in the same way with the exception that 8, 15, is made $\frac{1}{2}$ inch less than from 8 to 14, but in this case the division of the bottom measure is taken from 8 to 14, being one-fourth of the bottom, and 8 to 15, one-fourth of the bottom less $\frac{1}{4}$ inch, so that for a 17 bottom the distance from 8 to 14 is $4\frac{1}{4}$ inches, and 8 to 15 4 inches. We have now completed what may be termed the scaffolding of the system for the topsides, and we proceed



to fill in the actual outlines, and for our guidance in this matter we have Diagram 6. It will be noticed the top of the sideseam sprung out above point 11, the body getting larger directly above the waist. Below point 11, the sideseam is rounded so that it meets the line drawn from 1 to 2 about 3 or 4 inches above point 2. From this point a line is drawn (either by the middle of the curved side of the trousers stick or by freehand) to 12 and this is continued to the bottom point 14, a most useful guide for this purpose being the flattened end of the curved side of the trouser stick, or it may of course be drawn

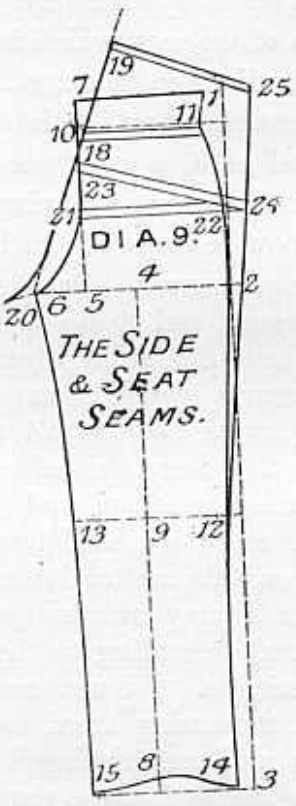
freehand. We next draw the leg seam, and this is comparatively simple, for from 13 to 15 is straight; indeed, it is well to draw a line from 15 through 13 upwards, and then use the flattest end of the curved side of the trouser stick to connect the fork point 13 with this, so that from 13 to 6 is slightly curved. Our next stage is to complete the topside by drawing the bottom curve and the fly and fork curve as shown on Dia. 7. Let us take the latter first. Until the student has acquired a fair amount of proficiency it will be well for him to mark out from 5 to 17 half the quantity from 5 to 6 plus $\frac{1}{4}$ inch. With

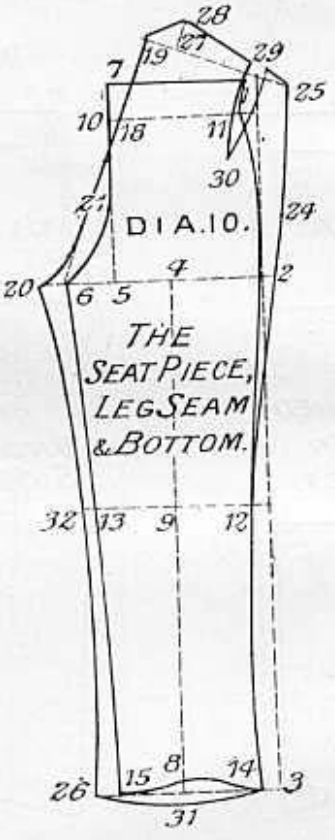


this point fixed, start the curve at about point 16 which is one-sixth of the seat above point 5, and continue by a nice curve through 17 to 6. A too hollow fork must at all times be avoided. Our last stage is the shaping of the curve of the bottom, and here it is difficult to lay down hard and fast rules. For the present size of bottom they should be hollowed from $\frac{3}{4}$ to 1 inch, making the hollowest part one inch to the side of the centre line. For owing to the outward turn of the feet the point that comes over the instep is for the proportionate figure 1 inch to the side of the centre line. This finishes the topsides, and the pattern is cut out exactly in these marks. We shall refer to the matter of inlays when dealing with cutting from the cloth. At this initial stage we are describing how to cut the pattern so that our readers may know exactly the shape of the trousers themselves. Having cut out the topsides we use them as the basis for drafting the undersides, and our first action is to mark up from 5 to 18 one-fourth of the seat, and to draw the seat line from 6 through 18 to 19, we are then ready to mark the fork points, which we do by measuring out from 5 to 20 one-eighth of the seat, which for the 36 seat is $4\frac{1}{2}$, the entire distance from 2 to 20 being equal to $\frac{3}{8}$ of the seat measure. Point 20 is slightly below the level of 6, a very good plan being to sweep, using the knee as a pivot. The seat line 18 may now be curved in such a way as to form a continuous curve. Our next step is to draft the sideseam, and to do this we measure the width of the topside from point 21 to 22, and what this measures we place on point 23, and we measure across to point 24 the half seat measure plus 2 inches, this allowance being made one inch for seams and one inch as allowance for ease; we shall have something more to say on this matter later, but for the present the reader may take this quantity as the amount required according to the dictates of practical experience. We next measure up the size of waist, measuring from 10 to 11, and whatever that indicates placing it on point 19, and measuring across to 25 as shown on Dia. 9 the half waist measure plus $2\frac{1}{2}$ inches, this amount being allowed 1 inch for a fish and $1\frac{1}{2}$ inches for seams, there being four seams consumed in sewing the top and undersides and two for the fish. The side seam is now drawn from 25 through 24 to 12 and on to 14. This leads us to Diagram 10, and the completion of the undersides, and first we get the length of the top by using the knee point 12 as a pivot and sweeping from 1 to 25; then place the square with one arm on the seatline and square across to point 25 as indicated by line 27. From 19

measure in to point 27 two inches, and mark up from 27 to 28 $1\frac{1}{2}$ inches, the outline of the top of the seat piece may now be drawn. Our next step is to draft the fish, this should be located about 3 or 4 inches from the sideseam and made to point backwards, it should terminate about 6 or 7 inches above the fork line and should have a distinctly fish shape, the largest amount being taken out on the waist line, the bottom part being nicely graduated off so as to avoid bubble or blister of material forming at the side when they are finished. We next draft to the size of bottoms. Thus the topsides are completed with the exception of taking out the dress. This, however, we shall defer describing till we come to the larger scale drafts, and we will conclude this elementary chapter by exhorting our readers to master the various divisions so that the difficult points may be located with ease. In order to do this draft patterns to each of the following measures:

30 leg,	42 side,	34 wt.,	39 st.,	19 knee,	$17\frac{1}{2}$ bt.
33 ,,	45 ,,	31 ,,	37 ,,	18 ,,	17 ,,
35 ,,	47 ,,	30 ,,	36 ,,	20 ,,	18 ,,





the legseam. From 13 to 32 is 1 inch, being the allowance for the four seams at knee, from 15 to 26 is $1\frac{1}{2}$ inches, thus there is a little more hollow produced to the legseam of the undersides than there is on the legseam of the topsides, but this will facilitate the ease and fit if skilfully worked up. The legseam is thus drawn from point 20 through 32 to 26, and we only have the bottom of the undersides to complete, which is done by rounding the bottom below line 3 15 about $\frac{3}{8}$ inch, more or less according

These, in addition to the measures already given, will form a good series for the practice of the proportionate draft.

Thoroughly master each section before the next is proceeded with, and strive to make the draft as neat and clean as possible. Let your pipeclay have a nice thin edge; if you are not satisfied with a draft brush it out, or at least that part of it that is faulty, and draw again. Compare the outline of your draft with that given to the larger scale in succeeding pages,

and never be satisfied with anything short of the very best possible for you to do. If you patiently and persistently follow this course, success will as surely follow your efforts as night follows day.

The System in Brief.

Diagrams 1 and 2. Plate 2.

Having described the working of the system in detail in the previous pages, it may be well to give a brief summary of the same, so that the reader may check his knowledge of its working by reading the same instructions put in other words.

1 to 3 is the length of side seam.

3 to 2 is the length of leg.

2 to 4 is one-sixth of seat.

2 to 5 is one-fourth of seat.

2 to 6 is one-third of seat. If an easy fit is desired, make this one-third seat plus $\frac{1}{4}$ inch.

Line 2 to 6 is straight, and from it the centre line of leg and the fly line are drawn at right angles. When drafting direct from the cloth, the centre may be drawn first and the fork line drawn at right angles to it. In this case the centre line must be drawn first.

3 to 8 is one-fourth of bottom.

2 to 4 is one-sixth of seat.

Draw line from 4 to 8 and square lines across to 2 and 3 as shown.

It is really of no importance which of these lines is drawn first.

Line 5 7 is drawn at right angles to 2 6 from point 5.

The top of trousers is squared across from 7 to 1.

5 to 10 is one-fourth seat plus 1 inch.

Waist line is drawn from 10 to 11, which is made one-fourth waist plus 2 seams ($\frac{1}{2}$ inch).

From 9 to 12 is one-fourth of the knee, and from 9 to 13 is the same quantity.

8 to 15 is one-fourth bottom, less $\frac{1}{4}$ inch.

The various points are now found, and should be connected as follows :—

Give a little spring from 11 up to 1.

From 11 to 2 is rounded.

From 2 to 12 is slightly hollowed.

From 12 to 14 is rather more hollowed.

The bottom is curved to go over the boot.

The legseam from 15 to 13 is straight.

From 13 to 6 forms a hollow.

The fly is a nicely graded curve.

From 5 to 1 being $\frac{1}{4}$ inch more than half 5 6.

From 7 to 1 across the top is straight.

The Undersides. Diagram 2.

The topsides when cut out are made the basis of the undersides.

Continue curve of fork from 6 to 20.

From 5 to 20 is one-eighth seat, or if the measure is taken from 2 to 20 it is three-eighths of seat.

13 to 32 is 1 inch always (for 4 seams).

15 to 26 is $1\frac{1}{2}$ inches always.

Draw leg seam from 20 through 32 to 26.

From 5 to 18 is one-fourth seat.

Draw line from 6 through 18 and nicely curve this out to 20 as shown.

Give a little spring to the top of seat seam above 19.

Next measure up seat.

Place the tape at 21 on topsides and measure across to 22.

Take it back to 23 and measure across to 24, and mark off half seat, plus 2 inches; 1 inch for seams and 1 inch for increase in size owing to the expansion of the body.

Measure from 10 to 11 and 19 to 25 the half waist plus $2\frac{1}{2}$ inches. 1 inch for fish and $1\frac{1}{2}$ inches for seams.

Get length of top of sideseam of undersides by sweeping from knee, then place the square on the seat seam, and square across. Point 27 is 2 inches away from the seat seam, and point 28 is $1\frac{1}{2}$ inches always above 27. Draw the top of seat piece and the sideseam of undersides from 25 through 24 to 12 and 14.

The Fish and the Dress. Diagram 2.

The fish is taken out of the undersides about 3 inches from the sideseam; as a rule it may be placed under the topsides sideseam, and

should point backwards. J should be quite one-sixth of the seat above the fork line. The widest part of the fish should be exactly in the waist, and should curve in at the top so as to provide spring on the top edge.

The dress is taken from the right topside only (as a rule). From 6 to G is from 1 to 1½ inches. The former quantity is a safe guide. Grade this off to nothing about 10 inches down the legseam, avoiding anything in the shape of a bump. Start the dress at about 6 inches up from 5, and make it a shapely curve. Avoid anything in the form of a point or dig; let the top of leg seam come a little above the fork line. It will be understood this is taken from the right side only, which is the top of the two foreparts when cut from the cloth, when drafted with the tops to the right hand and the sideseam nearest you with the wrong side of the cloth uppermost. When gentlemen dress on the right side, by which we mean adjust their person and their surplus underclothing on the right side, then the dress must be taken from the left side; this, however, is exceptional.

Some cutters think a better result is obtained by taking out half the dress from the topside and half from the underside. We have no objection to that method being followed if desired, but, for all practical purposes, we have found the method here shown sufficient, and it has the advantage of speed and simplicity, two important recommendations in this age of bustle and drive.

The Fly. Diagram 3.

The small diagram shown at the bottom of this plate illustrates the cutting of the fly, which though not strictly a part of the cutter's duty, yet often has an influence on the fit. The fly should extend to within 2 inches of the fork; it should be cut a trifle hollower than the topside, as this throws more spring on the outside. Each fly should be cut by its respective side, that is, the fly by the left side and the catch by the right side. They should follow the outline of the fronts to the top and in width cut from 2 to 2½ inches wide.

A Study in Outline.

Large Size Draft.

Plate 3.

Our experience during the many years we have been teachers of cutting is that when the learner has mastered the location of the points and knows the various divisions for each section, he has need for further instruction, so that the outline of the various parts may be formed in harmony with the requirements of the body and in keeping with good taste and the most approved style. What emphasis and expression are to a recitation may be compared to what form and style are to cutting, hence the need for a study in outline.

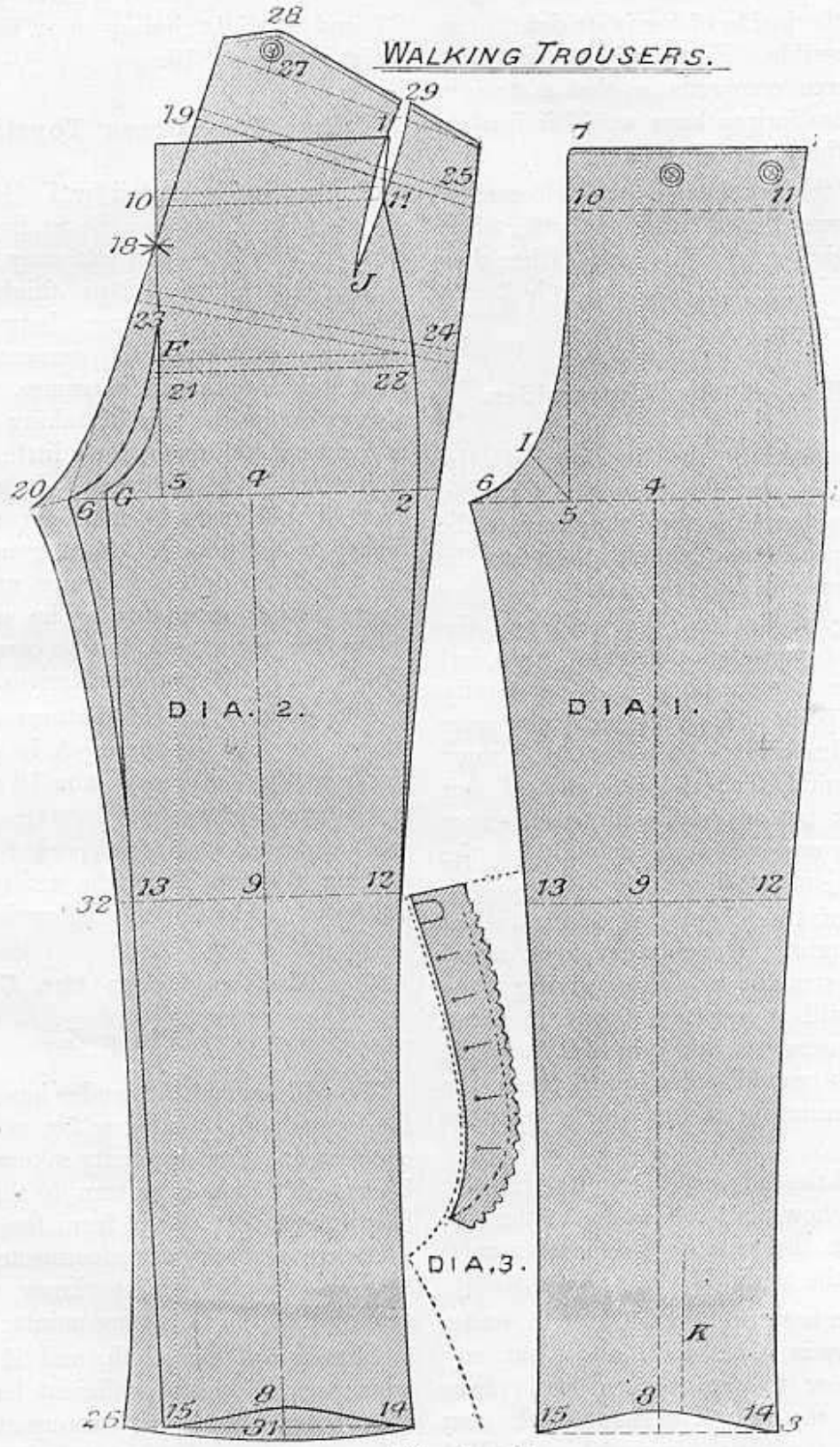
To begin with let us state there should be no corners or sharp angles in the outline, for the beautiful in lines is the curve and the ugly is angle, so as we desire to produce garments of beauty, as well as clothes that fit, it will be necessary for us to embody the beautiful in the outline of our drafts.

In the foregoing lessons we have described the shape of the various seams as we have proceeded, but we will briefly go over these again in connection with the large size draft, for after all the illustration is of more value than the description, and the larger size draft will convey more to the student than the smaller ones.

Outline of Topsides.

The top is drafted straight for the proportionate figure, so that no difficulty need be found with that.

The sideseam from 1 to 11 curves in, and then proceeds with a nice curve out to E, from which point it falls away down to 12. The outline from E to 12 being slightly rounded, below that it curves outward to the bottom, so that if the straight-edge was placed at knee, and a straight line drawn to bottom, the actual outline would be found hollow.


WALKING TROUSERS.
28
27
29
19
1
25
10
11
18
J
23
24
F
21
22
20
6
G
5
4
2
DIA. 2.
32
13
9
12
26
15
8
31
14
7
10
11
1
6
5
4
DIA. 1.
13
9
12
D
DIA. 3.
K
15
8
14
3

Plate, 2

The legseam from bottom to knee is straight, for whatever shaping is found in the leg it will be found that the inside of leg is straight, or as nearly so as possible. From knee to fork there is a slight curve outwards, so that a straight line drawn from fork to knee would indicate a hollowness to the legseam.

The curve of the fork should start high enough, certainly not lower than F, and it is better to err on the side of giving too little curve rather than too much, it being a great mistake to hollow it out too much at I.

The Outline of the Undersides.

Generally speaking the outline of the undersides is less shapely than the topsides, but it must be borne in mind they have to be sewn to the topsides and should therefore be made to harmonise as far as possible.

Commencing at the top, the outline of the top of the seat piece is a matter of taste, but the shape here shown is what is generally adopted. The point at C should never be more than 2 inches from the seat seam, for it must be borne in mind that the position of this locates the back buttons, and as braces are now made, the ends are only long enough for the buttons to be $3\frac{1}{2}$ inches apart.

The shape of the fish may also be gathered from this draught. The student must avoid making it too straight as well as giving it too much shape, still it must be borne in mind that when trousers are high in the body the top of the fish would come quite close, the upper end terminating in the same way as the lower.

The shape of the side seam is pretty straight, a little round showing itself opposite the hip. Below the knee the same outline is (as a rule) given them as the topsides.

The leg seam is sprung out at bottom, and a little more curve is given to the top, but any excess of hollow to the legseam will prove detrimental to the fit. The shape of the seat seam starts at the fork point with a decided hollow, for it must be borne in mind it has to form one continuous curve with the fork of the topsides, a little round is given to it just below 23, and a slight hollow may be given to the waist just below 19.

The Dress Topside.

The outline indicated by F G H shows the shape to be given to the undress side. The exact amount to take out may be decided by measuring the size of both thighs close up to the fork, the difference between the two measures indicating the amount to take out. As a guide to avoid extremes, our advice is always err on the side of taking out too little rather than too much, for a little surplus room is preferable to tightness. It will seldom, if ever, be necessary to take out more than $1\frac{1}{2}$ inches or less than $\frac{3}{4}$. As a general rule take out 1 inch for ordinary figures, and $1\frac{1}{4}$ for very smart fitting garments. The usual side for this is the right side, but be careful to note on which side your customer dresses.

The position of the buttons A and B are shown on this diagram. A is $\frac{1}{2}$ inch nearer the front than half way from 10 and 11, and B is $3\frac{1}{2}$ inches from it.

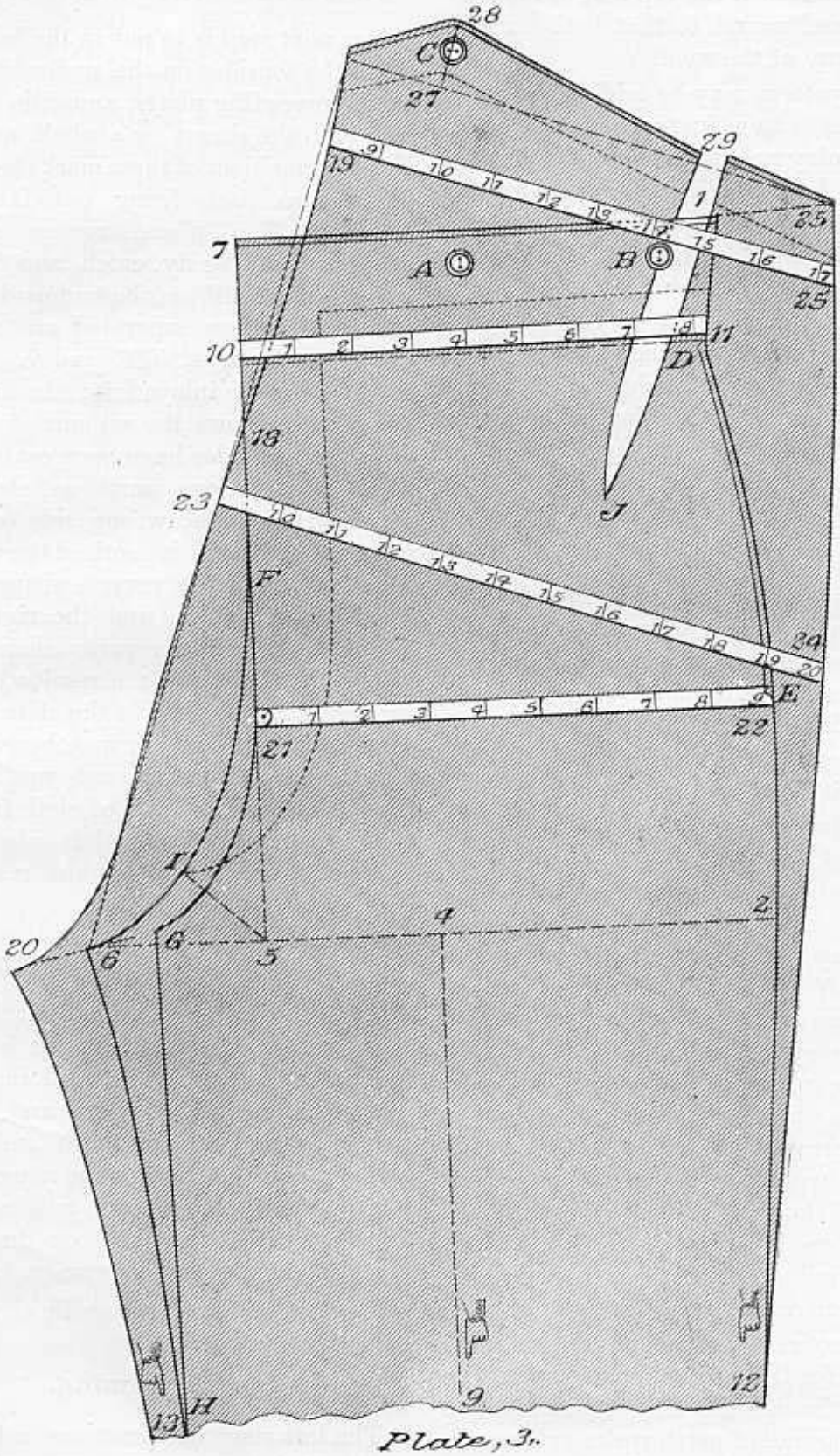
The position of side pocket is found by making the top D at the waist point 11, and the bottom E at 6 inches below it.

Cutting from the Cloth.

Plate 4.

We will assume the reader has now mastered the systematic points as far as the theory is concerned. For simplicity sake we will assume he has cut a paper pattern to the size, and he has now to cut them from the cloth, and as there are several points connected with this it is necessary for him to know, we direct his attention to the following points:

First unroll the cloth, and if it is narrow width turn it back of sufficient length to allow for the topsides plus a turn-up at bottom to be taken from it. At this stage it will be well to find out if there is any way of the wool to the



Plate, 3.

cloth and if there is then the top length must be cut off and turned round so that both lengths run the same way of the wool.

Usually the pattern may be laid on the cloth with the hip and bottom just up to the selvedge, and the only inlay necessary is at the bottom which should be from 1 to 1½ inches, or sufficient to form a satisfactory turn-up and provide the means of lengthening the leg or re-shaping the bottom, if necessary.

We think it a good plan to leave on the facing for the pockets as shown at A, and should be not less than 6 inches long. This, however, is not important, as the facing can be sewn on, if necessary; the pocket mouth, however, is not so thin in that case.

The Undersides.

The undersides have many more inlays to provide for; indeed, it would not be far wrong to say they had inlays at sideseam, inlays at legseam, inlays at seatseam, and inlays at bottoms, rounded and hollowed.

In more prosaic language an inlay of not less than one inch is left down the seatseam, from ½ to ¾ is left through the legseam, 1 to 1½ at the bottom, and 1 inch all up the sideseam.

For medium sizes the lay here shown will answer satisfactorily, but in the larger sizes it will be necessary to either reverse the undersides or insert crutch pieces, and needless to say this latter course is only adopted when there is a way of the wool to the cloth, and should be avoided wherever possible. For instance, when cutting a suit from the same material it is possible to arrange the parts so that crutch pieces may be avoided, but when a single pair of trousers of large size has to be cut from faced cloth then it is customary to sew on crutch pieces, unless the customer is willing to pay a greatly increased price.

It will be noticed the top of undersides is cut separately for the sake of economy. The fish is not cut through this as it would give too much the appearance of patchwork; two seams, however, are provided for sewing it on to the underside.

Balance Marks. Dias. 2, 3, 4 and 5.

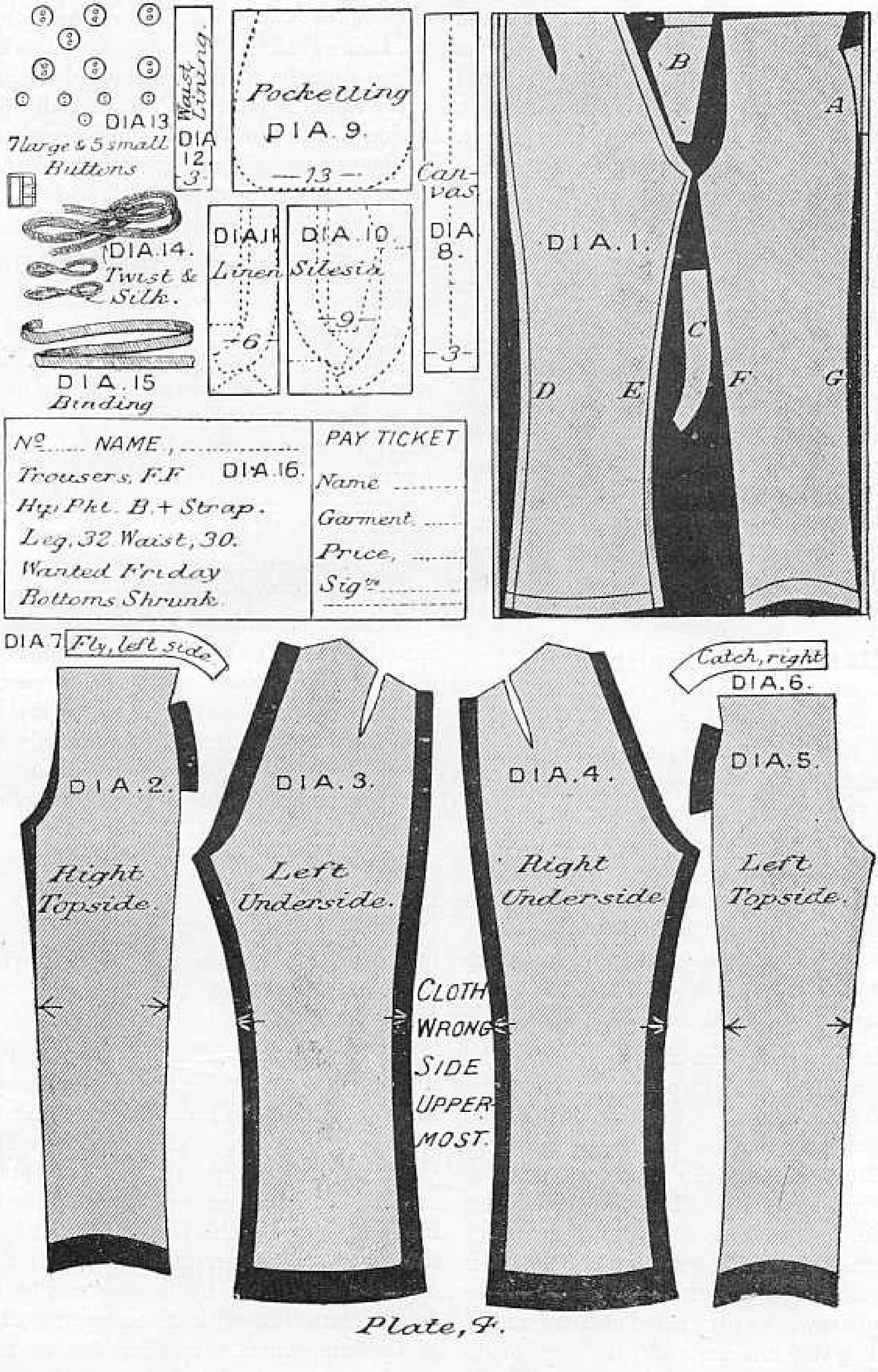
Our next step is to put in the balance marks. Place the topsides on the undersides as shown on the preceding plates, and either put a little snip with the shears or a chalk mark at D, E, F, G; the object of these marks being to ensure the various parts being put fairly together. Now cut off a piece large enough and long enough to cut the fly, catch, and the facing for the pocket mouth on the undersides. The cut out trousers now separated are as shown on Diagrams 2, 3, 4, 5, 6, and 7. The shaded marks show the inlays left; the shaded part on Diagram 2 shows the amount of dress cut off after the two sides have been cut out the same size. The various parts as shown are all arranged with the wrong side of the cloth uppermost. It will be noticed the right topside, Diagram 2, is the reverse shape to the left topside, Diagram 5, and the right underside, Diagram 4, is the reverse shape to the left underside, Diagram 3; a result which has been brought about by laying the cloth face to face. If this was not done, or in other words, if one length of cloth face upwards was laid down on top of the other length of cloth face upwards, then we should have two left sides or two right sides, and needless to say the result would be disastrous.

The Ticket. Diagram 16.

After the trousers are cut out the ticket has to be written, and on this must be written the length of customer's leg, and the size of his waist, particulars of pockets and other details required, the time for finish, and a number or name to correspond with the name in the order book. Many firms have tickets of this sort arranged with pay tickets on the end, in that case the larger part is sewn on to the trousers and the smaller part is kept by the workmen for payment.

Trimming.

The last stage of operations in the trimming and here let us express our opinion on the importance of using intelligence in the matter


DIA 13
7 large & 5 small Buttons
Waist Lining.
DIA 12
3
Pockelling
DIA. 9.
13
Canvas
DIA 8.
3
DIA 14.
Twist & Silk.
DIA 11
Linen
6
DIA. 10.
Silesia
9
DIA. 15
Binding
DIA. 1.
A
B
C
D
E
F
G
Nº ...... NAME, ...
Trousers, F.F DIA 16.
Hip Pkt. B. + Strap.
Leg, 32 Waist, 30.
Wanted Friday
Bottoms Shrunk.
PAY TICKET
Name ....
Garment ....
Price, ...
Sigᵗ ....
DIA 7 Fly, left side
Catch, right
DIA. 6.
DIA. 2.
Right Topside.
DIA. 3.
Left Underside.
DIA. 4.
Right Underside
DIA. 5.
Left Topside.
CLOTH
WRONG
SIDE
UPPER
MOST.

Plate, F.

of trimming. That the various items should match will be agreed, but that they should harmonise in quality and weight may not have suggested itself to all minds, but this is what makes or mars a garment, for if it is to be a success there must be harmony throughout. The various items required for a pair of trousers, fly-fronts with side pockets are 13 inches pocketing, Diagram 13; 3 to 4 inches of canvas, Diagram 10; 6 inches of linen, Diagram 11; 9 inches of silesia, Diagram, 10; 3 to 4 inches striped silesia, Diagram 12; seven large and five small buttons, Diagram 13; the bone or ivory buttons are better than the metal ones. Buckle, if required; twist; silk, and a length of galoon for the top binding equal to rather more than the waist measure. Thread, machine silk, and baisting cotton are generally supplied separately. These trimmings are tied up with the trousers, and the ticket put on the outside, and they are then ready to give to the workman.

Making and Finishing.

Plate 5.

The making must necessarily go hand in hand with the cutting, and it is one advantage of the system laid down in this work that no special manipulation is necessary; still, as there are some well known principles of manipulation to be imparted, if the best result is to be achieved, we will devote this page to their consideration.

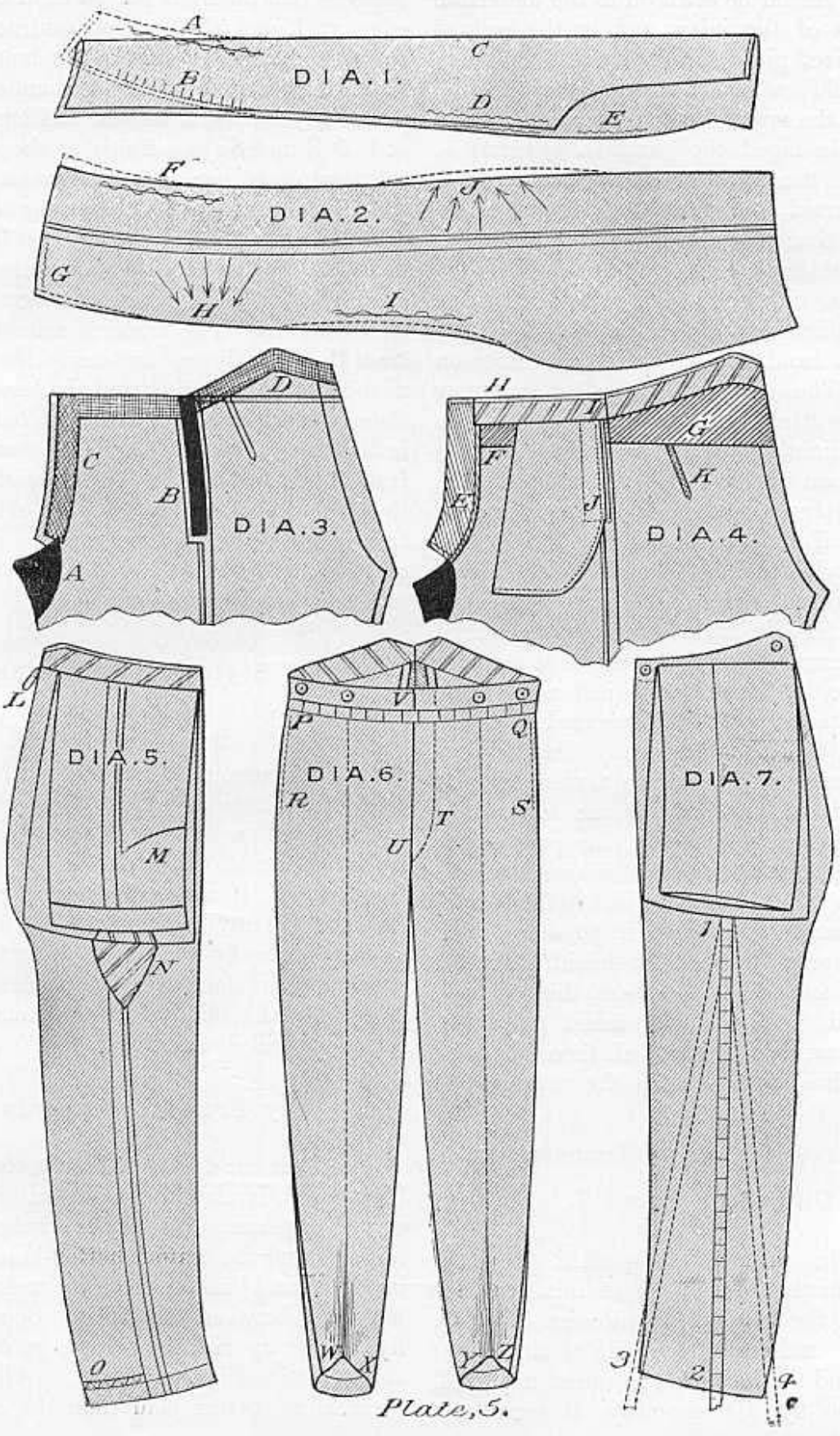
The workman on receiving the garment to make reads his ticket of instructions, so that he may have a thorough grasp of the ideal the cutter sets before him. He next unrolls the garment and proceeds to put in the marking threads. Next he cuts the necessary fittings, such as fly, pocket facings, &c. He then either shrinks the bottoms, or sews the seams and tacks on the stays. It is a matter of discussion whether it is best to shrink the bottoms before the seams are sewn, as illustrated on Diagram 1, or after the seams are sewn and the tops made up, as illustrated on Diagram 2. The principal objection to Diagram 1 method is that it destroys the run of the seams and necessitates a little trimming before they are sewn, whilst it is urged that the shrinking being done at such an early stage is liable to be partially destroyed owing to the tumbling it must necessarily have in the process of making, so that the advantages seem to lie on the side of Diagram 2.

The Process of Shrinking

Is done as follows:—Take a good wide board and lay the trousers on it as shown by Diagram 2, wet them with a sponge or damp cloth, form them into a curve at F, and then with a good sharp iron work the fulness away at F. This having been done, turn over and repeat the operation, for it must be remembered that the underside of two layers treated in this way shrinks the most, it being the nature of wool to stretch or shrink under the influence of heat and moisture, and by a judicious use of that knowledge the tailor is able to impart his best effects. The same operation is repeated at other parts and a careful study of the shape of the body and its requirements will help the tailor to infuse the necessary form; a slight round at top of thigh, J; a little hollow at I; a little round over calf, H; a little hollow over instep at H and a curving inwards at bottom, C. This is for the normal trousers. Having discussed this matter let us now treat of

Sewing the Seams.

The pocket mouth having been made up and properly stayed on the topsides and a piece of linen basted on the fork, the seams are basted, and though, as a rule, plain sewing will suffice, yet it will be an improvement if the undersides are slightly fulled on over the seat, the topsides fulled on between the fork level and knee, and the length of undersides so gained fulled on over the calf. The seams may now be sewn by hand or machine with the exception of the top of legseam, where for about twelve inches it should be sewn by hand.


A
B
C
D
E
DIA.1.
F
G
H
I
J
DIA.2.
A
B
C
D
DIA.3.
E
F
G
H
J
K
DIA.4.
L
M
N
O
DIA.5.
P
Q
R
S
T
U
V
W
X
Y
Z
DIA.6.
1
2
3
4
DIA.7.

Plate, 5.

A facing should be sewn on to the underside independent of the inlay, and on the back of this a fair sized piece of linen should be placed; canvas should be placed rather over 1 inch wide across the top and down the catch. The cuts should be taped, the blind G, Diagram 4, basted on; the pocket mouth tacked; the pockets inserted, and the fly and catch made up. A and B of Diagram 3 are of linen. E F and G of Diagram 4 are of silesia. H is the top binding, either binding made for this purpose, Italian cloth, or silesia to match. I is the waist band being cut by preference on the bias. The shaping of the bottoms now claims our attention. Sometimes these are drawn in slightly by staytape over the heel as at O, Diagram 5, and to put on bottom facings as at M, but these are exceptional arrangements. The facing, if used, is cut in two halves and shaped to style desired. The pieces are stoated together down the centre of the front and the bottoms are felled to it, and the sides are secured to the sideseam. Sometimes canvas is used for this purpose, but, as we said just now, these arrangements are not often resorted to in the better class trades at present. The bottoms should be basted once close up to the edge and then a second row put along the top of the turn-up when it is seen what is its proper lay. In the case of very hollow bottoms it is sometimes necessary to snip the turn-up just in the centre, but this should be avoided if possible. The crutch lining, as shown at N, should be a fair size but not too large. Neatness, thinness and form should be the ideals aimed at. The workmen having carried out all these ideals he brings the finished garment to the cutter.

How to Examine Trousers.

Diagrams 6 and 7.

Before the garment is packed up it is necessary for the foreman to examine it. He should take them up by the sideseams at P Q, Diagram 6, and notice the hang of the legs at W X Y Z, and the form that has been imparted. Note if the fly fits smoothly, it sometimes happens that the fly is put on tight on the outer edge at I, and this causes contraction. The fly buttons may not match the holes and this should be checked; then the hands should be placed in the pockets and the tackings examined at P Q R and S; the finish at the crutch and the sewing of leg and seat seams should be tested, the neatness of the felling at waistband and the turn-up of bottom. This having been done the waist should be measured as shown by tape at P Q, which should agree with half size of figure. The trousers should be folded from the front brace buttons to the crease line as shown on Diagram 7, and the legseam should then be measured from 1 to 2 on both legs, and in the case of special shaped bottoms measure from 1 to 3 and 1 to 4. If satisfactory fold them up as shown by the top leg of Diagram 7, turn in top of seat, pack them in a neat parcel, and send home in the hopes that your customer will be pleased with them.

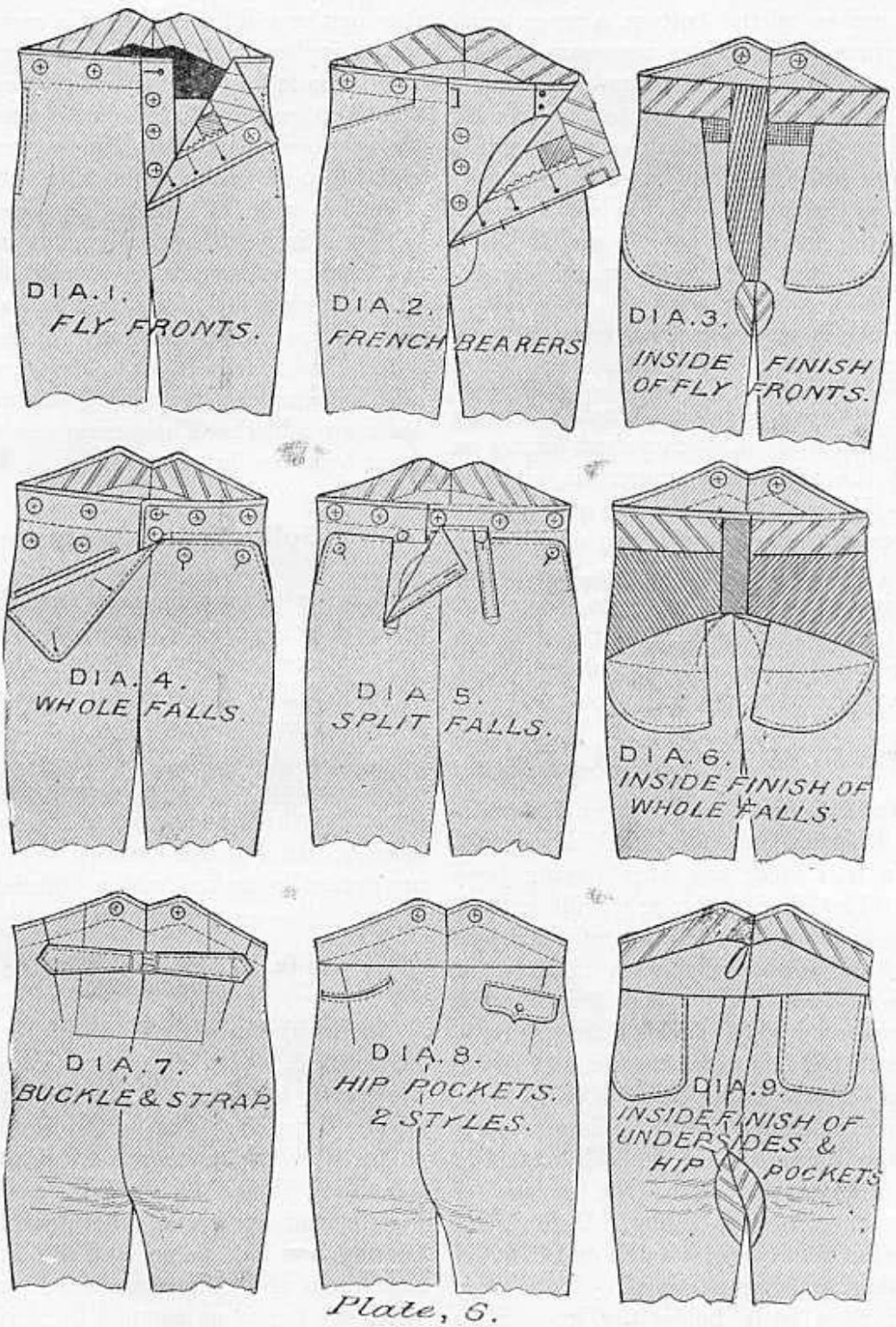
Different Styles of Fronts and Backs.

Plate 6.

Having completed our instructions for the measuring, cutting, and making a pair of plain trousers, we pass on to describe some various styles of finish, and we will begin with the fronts first. It is hardly necessary for us to describe the style used for little boys, which consists of the fly-seam sewn up to the top with a simple slit left about 2 inches from the legseam, with a blind of the same material sewn on, so we will describe first

Fly Fronts. Diagram 1.

The fly is cut slightly hollower than the front it has to fit, it should come to within 2 inches of the legseam. The fly is stitched on to the left side and the bottom button-hole should not be less than $1\frac{1}{2}$ inches from the tack. It should be sewn between the holes. Sometimes the fly is made up with the cloth to go on the inside and sometimes it is made up as blind fly, but there is no better plan than the cloth on the


DIA. 1.
FLY FRONTS.
DIA. 2.
FRENCH BEARERS
DIA. 3.
INSIDE FINISH OF FLY FRONTS.
DIA. 4.
WHOLE FALLS.
DIA. 5.
SPLIT FALLS.
DIA. 6.
INSIDE FINISH OF WHOLE FALLS.
DIA. 7.
BUCKLE & STRAP
DIA. 8.
HIP POCKETS.
2 STYLES.
DIA. 9.
INSIDE FINISH OF UNDERSIDES & HIP POCKETS

Plate, 6.

outside and stitched between each hole. The catch is sewn to the right side, although sometimes it is grown on the front to within a couple of inches of the bottom, a piece being joined on there to give the necessary spring. There are usually 5 fly buttons and care should be taken for them to be put on to exactly correspond to the holes and in such a position that the edge of the fly when finished just comes to the seam of the catch. The top button should be put on the inside of the fly and the hole worked through the catch as shown on Dia. 1.

French Bearers. Diagram 2.

A variation of the fly-front finish is shown on Diagram 2, which illustrates French bearers, a style which is favoured by corpulent figures on account of the additional support it gives at that part. This consists of the top of the catch being extended to meet a wide tab sewn to the sideseam. The width of the end of this bearer is about 2 inches, and a reference to Diagram 2 will serve to make this clear. On this diagram we show the trouser hook and eye placed at top of fly in lieu of button and hole.

Inside Finish of Fly Fronts. Dia. 3.

The method of finishing fly-front trousers is shown on Diagram 3. The catch is covered with silesia to match, the edge having been turned in. The silesia is brought wide enough to cover the seam and should be neatly finished. The front blind is placed between the front of the pockets and catch, and a neat striped waist lining is sewn on. The pockets are made to stand towards the front and are securely sewn. A good size crutch lining is sewn on to cover the linen and the seams at fork. When trousers are lined, the lining should be flash basted to the seams, and either brought to the top binding or to go under the waist lining. Care should be taken to cut them large enough and to avoid twisting when putting them in. When they only reach to a little below the knee, it is customary to snip out the bottoms. A good twill calico is the best for this purpose, but some prefer swan's down or the ordinary calico.

Whole Falls. Diagram 4.

The Whole Fall style is mostly worn by working men and old men. In this case the tops are cut 2 inches shorter than for fly fronts, and this is made up by means of a bearer, which is cut deep enough to go under the top not less than 4 inches, so that the bearer should be about 6 inches deep at the side and from $3\frac{1}{2}$ to 4 inches wide at front. In this bearer the pocket is inserted, generally it is jeated, but, as the bearer is sometimes pieced out, the mode of making up the pocket mouth is adapted to it. The fall is either faced with cloth or silesia to match, and four holes are placed across the top, and in the case of very stout men an extra 1 or 2 holes are added. The bearers are fastened in front by three buttons.

Split Falls. Diagram 5.

This is a style very popular for riding breeches, and are sometimes referred to as narrow falls. The tops are cut 1 inch shorter than fly fronts and the fall is then cut down, starting about 2 inches wide at the top to about $2\frac{1}{2}$ at bottom; the length of the slit being about 6 inches; the top pieced up with a waistband, and a bearer is fitted into this as shown on Diagram 5. The sides of the fall are finished with welts which are generally tacked with a D finish.

Inside Finish of Whole Falls.

The inside finish of Whole Falls is shown on Diagram 6, which illustrates the bearers lined, the end of the bearer being faced with cloth or silesia to match. The dotted line indicates the shape of what are known as Bilton's bearers. These are practically the same as Whole Falls, but instead of having the pockets loose, the bearers are cut deeper and the lining is felled over them up to the front of the pocket, so that when the flap is unfastened there is only a very small opening. Those who wear this style say they are much more comfortable than the ordinary whole Falls.

Buckle and Strap. Diagram 7.

The buckle and strap is put on in the hollow of waist about 6 or 7 inches long, the buckle is sewn on the leg side. Sometimes these are continued to the sideseam on the inside, an opening being made about 3 inches from the seatseam for the ends to come through. On this diagram we show the angle seat piece.

Hip Pockets. Diagram 8.

These are either put in with a flap with a hole and button as shown on right side, or jeated as illustrated on left side, or with a welt; the flap, however, is the best finish. For trousers of ordinary height of body the front of the pocket should be $3\frac{1}{2}$ inches down from top and the back $4\frac{1}{2}$ inches down from top. This diagram shows the usual seat piece, the fish terminating at the seam. The inside finish of these pockets is shown on Diagram 9. The pockets should not be too deep or they will prove uncomfortable when the wearer is seated. The blind is brought low enough to cover the stays and the tacking. A hanger up should be placed at seatseam under the waist lining.

The Principles of Scientific Trouser Cutting. Plate 7.

It will be readily understood that whatever lines are placed on a pattern for the purpose of drafting out a system have no effect on the fit. The relation that one point bears to the others and the garment as a whole is what decides the fit, and as we deem it essential that the student should have an intelligent grasp of those principles that govern the fit, we will describe these, knowing that unless these are embodied in every system the result can only be right by accident rather than design.

Fork.

One of the most important is the fork quantity, by which provision is made for covering the inside of leg from back to front. For instance, suppose a sack cut straight with just sufficient room to go round body from waist to ankle—this is cut up through the centre to allow of the one leg being advanced as in walking, or extended sideways as in standing. Now to provide a covering for the inside of the leg from back to front a piece must be joined in, that piece would constitute the fork of that garment. Let us take another illustration, when a road divides into two it is said to fork. A braid dividing into two parts is said to be forked, and so on.

Seat Angle.

This is the angle or bias given to the seat to allow of certain actions, such as stooping, bending, &c., and to follow up our previous illustration of the sack it would be found that when provision was made for the inside covering of leg, there would not be any provision made for the increase of length over the seat when stooping. In order to do this it would be necessary to cut the back parts across from side to side and insert a double wedged piece, starting from nothing at the sides and widening out to 3 or 4 inches in the centre. That piece would provide the seat angle. Now in a cut out garment fork and seat angle merges together, and loss of one may be compensated for in the other, and they can only be estimated as a total; and although there is a difference, yet for practical purposes they are best tested as a combination. Fork is shown on Diagram 5 where the width is increased at crutch point. Seat angle is shown on Diagram 7, where there is no increase width at thigh but extra length given to the seatseam, as if a wedge had been inserted from A to B. Now notice the effects. The diagonal length from fork point to top of sideseam, 1 to 2, Diagram 5. C to D, Dia. 6, has been increased in both cases. If a line is drawn from 3 to 5, Diagram 5, and from E to F, Diagram 6, the distance across to 1 or C will be increased in both cases. The length of the seatseam is lengthened in both cases, but there the agreement ends. For the increase of fork, Diagram 5, has increased the width of the thigh, has given a greater curve to the legseam, and has increased the angular quantity from 1 to 6. On the other hand the alteration at the seat

angle gives more round to the seatseam, it increases the length of seatseam at a greater rate than the alteration at fork, and it also effects the sideseam by making it more hollow, so that the fork deals more with the width of the thighs and particularly with that part which goes between the legs, and seat angle deals with length and particularly that part known as the seatseam. In other words the fork provides for going between the legs, as from 1 to 2 or from 5 to 6 of Diagram 2, where seat angle is shown from 3 to 4.

To Decide the Fork Quantity.

To decide the actual fork quantity of a pair of trousers, draw a line from the top of fly seam to the bottom of legseam (see Diagram 1), and from the top of seatseam to the bottom of legseam of undersides as from C to D, and the quantity of fork and seat angle in that garment will be the combined quantities for the inside of that line from E to F, Diagram 1. Now it must be borne in mind that the surplus width given to the legs is placed partly on the inside and partly on the outside of the leg, so that in a wide leg trousers less fork would exist than in a narrow leg, and *vice versa*. Again, an increase in the height of the body would result in an increase of seat angle, but this is easily overcome by taking the level of natural waist as the guide in each case. An increase in this quantity gives more capacity for stooping, striding, and generally increase the ease of the garment.

Height of Seat Piece. Diagram 7.

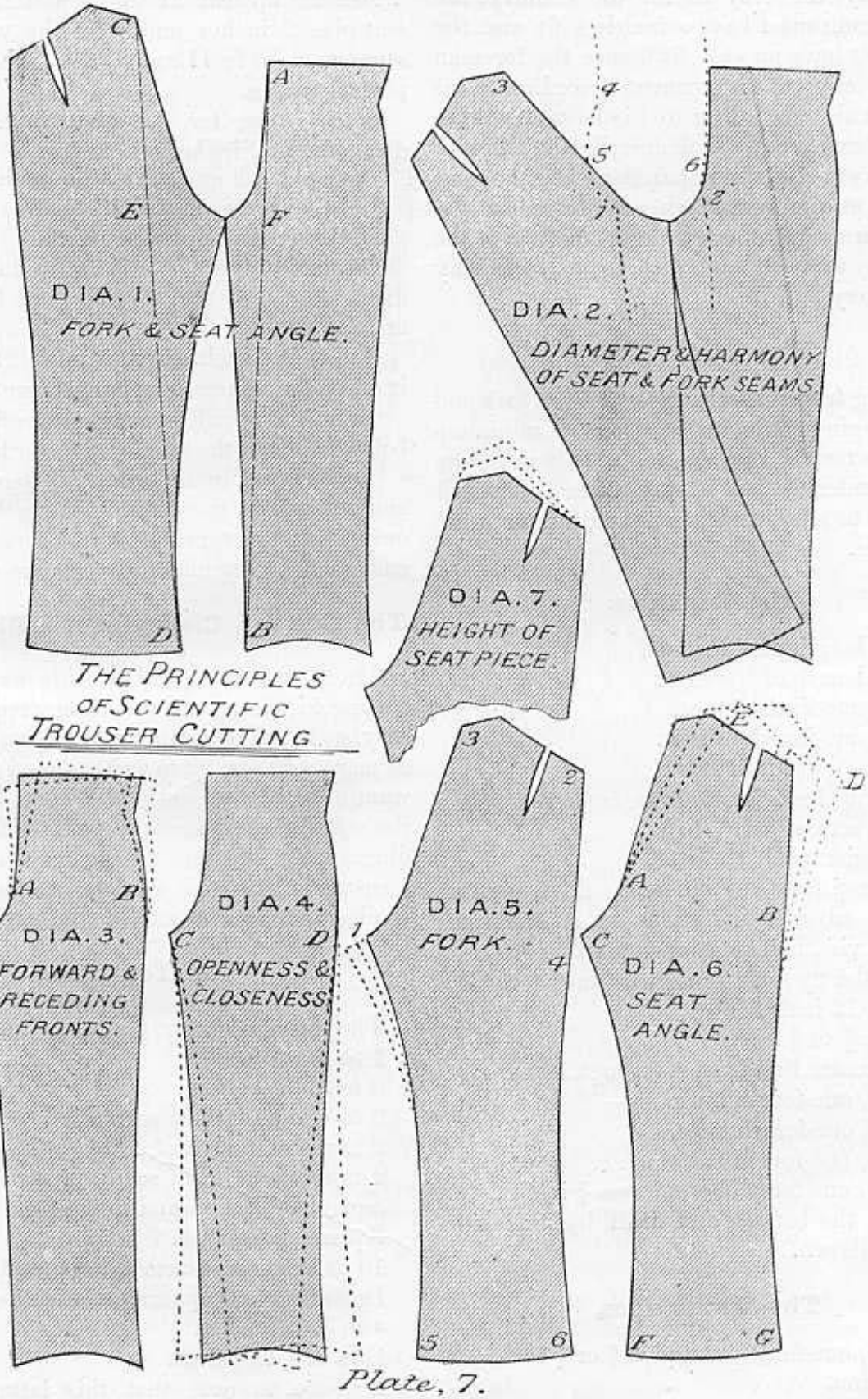
The effect of an increase of the height of the seat piece, as shown on Diagram 7, has no other effect on the fit than to come higher or lower on the body. The same applies to height of the trousers in front, that is, providing they are of the right shape. Working men generally like plenty of height given to the seat piece, and corpulent figures require an increase of length to the front, while equestrians prefer a shortness at front.

Diagrams 3 and 4.

Forward fronts are produced by cutting a topside pattern across from A to B and overlapping it at A. Receding fronts are produced by inserting a wedge. The former produces a very close clean fit at the fly seam and lap; the latter gives ease and loose material in lap. Forward fronts relatively short in the fly seam and receding fronts are long. Close legs are produced by cutting the pattern through from C to D and overlapping at C; whilst opening at C results in opening the legs. The former are cleaner fitting at fork, but cling to the ankle at bottom of sideseams and brings all the surplus width to the inside of the leg, thus reducing the capacity for striding. Forward fronts and close legs reduce the fork quantity. Receding fronts and open legs increase it. The difference between Diagram 3 and Diagram 4 is that though the sideseams remain the same length, Diagram 3 affects the length of the fly-seam as well as its shape, and Diagram 4 alters the length of the legseam; and although the results when placed on top of each other are very similar, yet points of difference do exist, as may be easily tested, whilst it should also be borne in mind that when the fronts are altered the undersides are usually left the same shape, whilst it is customary to alter the undersides in the same way as the topsides when the legs are opened or closed. Other discussions of these subjects will be found in our chapter dealing with anatomy and the movements of the body.

Different Styles of Cut. Plate 8.

It is generally acknowledged that different districts require different styles of cut, and the cutter who has been successful in one district may have to vary his system when he goes to another. It has been our privilege to meet many of our students who have tested results of our instructions in different cities, counties, and countries, and these, together with our own observation and experience, prove that the man who would succeed must know how to produce different styles of cut. The smart fit is required


C
A
E
F
D
B
DIA. 1.
FORK & SEAT ANGLE.
3
4
5
6
1
2
DIA. 2.
DIAMETER & HARMONY OF SEAT & FORK SEAMS.
DIA. 7.
HEIGHT OF SEAT PIECE.
THE PRINCIPLES OF SCIENTIFIC TROUSER CUTTING.
A
B
DIA. 3.
FORWARD & RECEDING FRONTS.
C
D
DIA. 4.
OPENNESS & CLOSENESS.
3
2
1
4
5
6
DIA. 5.
FORK.
E
D
A
B
C
DIA. 6.
SEAT ANGLE.
F
G

Plate, 7.

for the city, the easy fit for the country, the business man must have a faultless fit and the cleric must have an easy fit, hence the foreman must not only cut his garment according to his cloth, but also according to his customer. On the next few pages we shall describe the different styles of cut generally required, and as they are all based on the system already described, yet as there are variations we shall briefly give the system, so that any one wishing to learn any method may find it complete.

The Smart Fit.

Leading features—clearness of fit at fork and smart hanging on the inside of legs. A minimum of surplus material in lap, and only a moderate amount under the ball of seat, rather contracted from seat to knee, and are not suited for working classes.

The Topsides.

1 to 3, length of sideseam.
3 to 2, length of legseam.
2 to 4, one-sixth of seat.
2 to 5, one-fourth of seat.
2 to 6, one-third of seat.
Square up from 5 and down from 4.
Square across from 7 to 1.
Find waist level, 10 to 11.
Lower top fronts at one-half to three-quarters inch, and advance the fronts at 10 the same quantity, viz., half to three-quarters inch.
Shape the fly-seam as shown from 10 to G.
4 to L, 12 inches.
L to M, $\frac{1}{2}$ to $\frac{3}{4}$ inch.
Draw centre line from 4 through 9 to 8.
4 to 12, one-fourth knee.
4 to 13, one-fourth knee.
8 to 14, one-fourth bottom.
8 to 15, one-fourth bottom less $\frac{1}{4}$ inch.
Hollow the bottom and draft leg and sideseams as shown.

The Undersides.

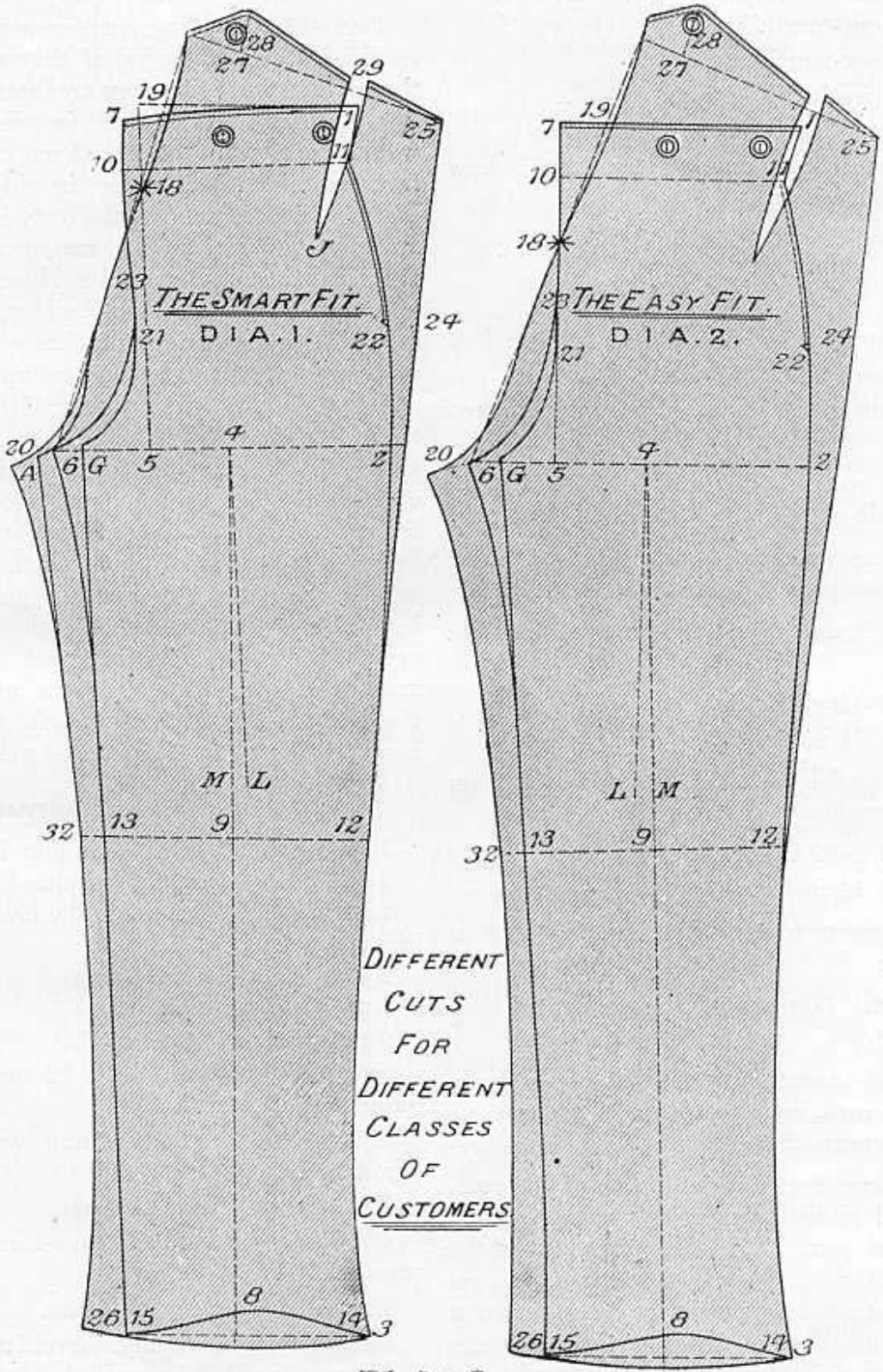
5 to 18, one-fourth seat plus $\frac{1}{2}$ or $\frac{3}{4}$ inch.
Draw line.
Curve out to 20 one-eighth of seat from 5.
Measure up seat 21 to 22 and 23 to 24 half seat plus 2 inches and treat the waist in the same way, 10 to 11 and 19 to 25 the half-waist plus $2\frac{1}{2}$ inches.
Square across for seat piece from seat seam and come in 2 inches and up $1\frac{1}{2}$.
Take out fish and draw side seam.
13 to 32 is 1 inch and 15 to 26 is $1\frac{1}{2}$ inches.
Draft legseam by these points.
On this draft we show how to take out the dress, half on the topside and half on the undersides.
6 to G is $\frac{3}{4}$ inch, curve it up to 21 and grade it off to the leg seam as here shown.
20 to A is $\frac{3}{4}$ inch and curve this off above and below in much the same way as for the topsides.
Trousers cut in this way go together fairer and easier than those which have the dress cut only from the topside, but the result on the customer is very much the same in either case.

The Cut for Clergymen. Diagram 2.

Those who have had a wide experience in cutting for clergymen tell us they require a very easy style. They want more room in the seat as many of them sit to write a good deal. They want a fairly open cut and plenty of angle to the seat for they kneel a good deal. On this diagram we illustrate the cut required for such a customer and from what we have here written the leading features may be gathered.

The Topsides.

The topsides are drafted as follows :
1 to 3, sideseam.
3 to 2, legseam.
2 to 4, one-sixth of seat.
2 to 5, one-fourth of seat.
2 to 6, one-third of seat.
Square up from 5 and down from 4.
Square across from 7 to 1.
10 to 11 is one-fourth waist plus $\frac{1}{2}$ inch.
Draft fork and upper part of sideseam.
4 to L 12 inches.
L to M $\frac{1}{2}$ to $\frac{3}{4}$ inch.
Be sure to note that this latter point is towards the side.


28
27
29
19
7
25
10
18
J
THE SMART FIT.
DIA. 1.
23
21
22
24
20
A
6
G
5
4
2
M
L
32
13
9
12
26
15
8
14
3
THE EASY FIT.
DIA. 2.
L
M
DIFFERENT
CUTS
FOR
DIFFERENT
CLASSES
OF
CUSTOMERS.

Plate, 8.

Draw centre from 4 through M to bottom.

4 to 9, half leg length less 2 inches.

9 to 12, one-fourth knee.

9 to 13, one-fourth knee.

8 to 14, one-fourth bottom.

8 to 15, one fourth bottom less $\frac{1}{4}$ inch.

Now complete side and leg seams and hollow bottom at 8 as shown.

The Undersides.

5 to 18, one-fourth of seat less 1 or $1\frac{1}{2}$ inches.

Draw line from 6 through 18.

Curve out to 20 making 20 one-eighth seat from 5.

Measure up size of seat from 21 to 22 and 23 to 24 half size of seat plus 2 inches.

Measure up waist from 10 to 11 and 19 to 25 the half waist plus $2\frac{1}{2}$ inches.

Square across from seatseam to top of sideseam.

Make 27 2 inches from seatseam.

27 to 28, $7\frac{1}{2}$ inches.

Take out a fish of 1 inch and curve sideseam from 25 through 24 and 12 to bottom.

From 13 to 32 is 1 inch.

15 to 26, $1\frac{1}{2}$ inches.

Draft legseam from 20 through 32 to 26 as here shown.

Round the bottoms of undersides and they are complete.

The final operation is taking out the dress. 6 to G is 1 inch, and from this point curve up to 23 and grade off legseam.

If more ease is required for sitting purposes, cut the undersides $\frac{1}{2}$ inch longer at the top and full on the seat. This will prove one of the best preventatives of baggy knees as far as cut is concerned; but it must not be overlooked that the extra length thus given to the undersides will not appear sightly; but then most gentlemen who sit much wear a coat long enough to cover the seat of their trousers.

Riding Trousers. Diagrams 1 and 2. Plate 9.

Trousers for riding purposes require several special features embodied if they are to serve the purpose for which they are intended. In the first place it must be borne in mind that what would be a point of excellence in ordinary trousers might be a defect in riding trousers. The position occupied by the body is so different and the movements so varied that special provision must be made. Imagine the thickness of a horse placed between the legs, the body in a semi-sitting position, the knee bent, and a movement forcing the trousers up in the fork, and some idea may be gathered of the difficulties that have to be overcome. The lap must be kept free from excess of material and the undersides below the knee must be kept clean fitting. They must be cut to keep their position over the foot, so that there shall not be any undue strain on the foot straps put under the foot. To meet these demands the legs are cut open, the seat angle is increased, the topsides are cut longer in the legs, the undersides in the body being generally made small in the legs, and the bottoms should be well hollowed.

The System. Diagram 1.

1 to 3 is the length of side plus 1 inch.

2 to 3 is the length of leg plus 1 inch.

Line 2, 4, 5, 6 is made the basis of all the other lines.

2 to 4 is one-sixth seat.

2 to 9 is one-fourth seat.

2 to 6 is one-third seat.

Square down from 4 to L 12 inches at right angles to this fork line.

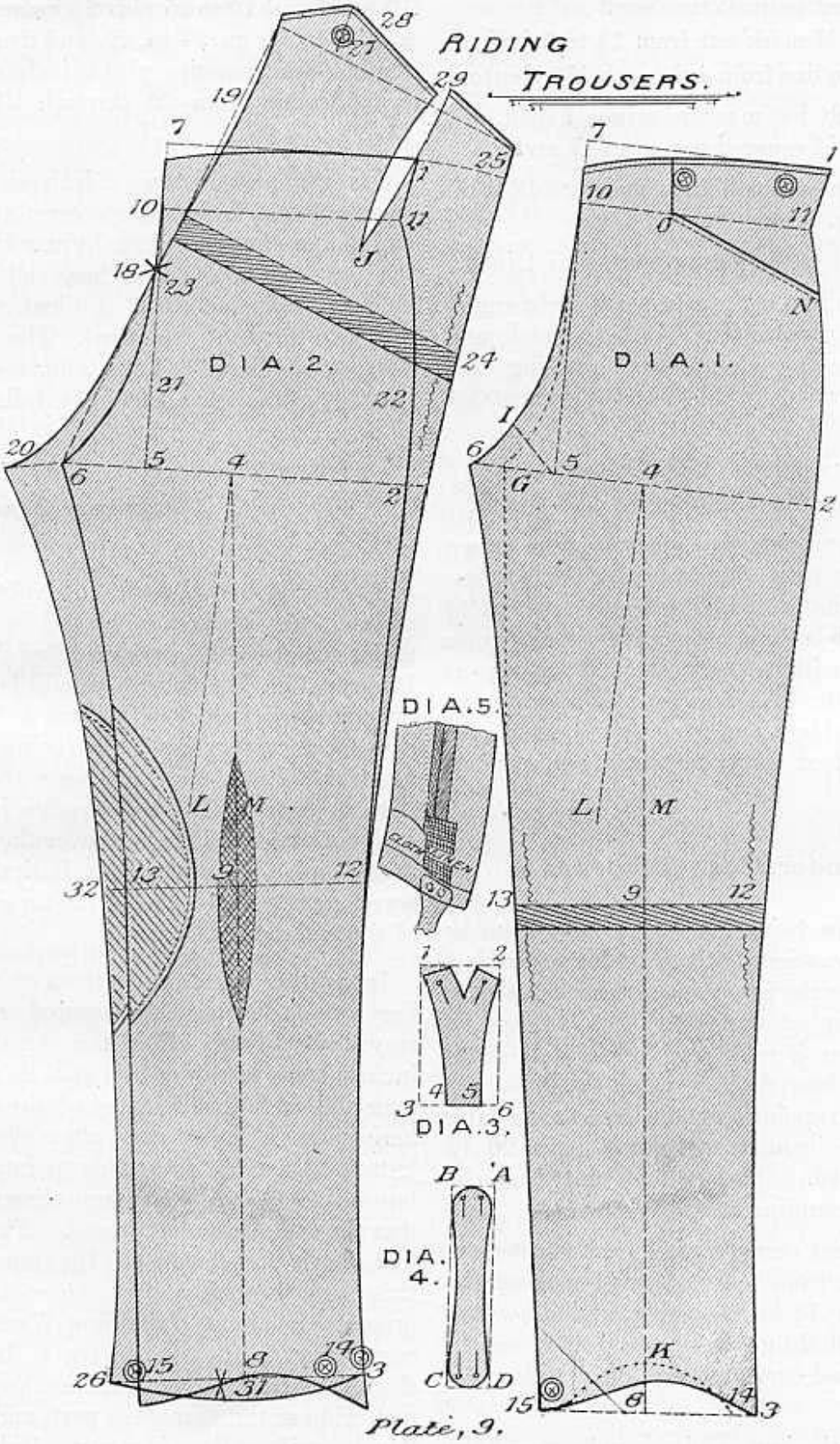
Square up to from 5 to 7 and by this square across to 1.

Find the waist line as usual.

Mark off from 10 to 11 one-fourth of waist plus $\frac{1}{2}$ inch.

Drop the top of fly $1\frac{1}{2}$ inches.

Draw the fork carefully. Avoid making it too hollow at I; indeed, it will be better to give an extra $\frac{1}{4}$ inch at that part, making 5 to I half inch more than 5, 6.



Plate, 9.

Now proceed to draft the legs.

From L to M mark out from $1\frac{1}{2}$ to 2 inches.

Draw centre line from 4 through M to bottom.

4 to 9 is half leg measure minus 1 inch, and the knee line is squared across to 12 and 13.

9 to 12 is one-fourth knee, and 9 to 13 is the same quantity.

From 4 to 8 is the leg measure plus 1 inch.

The bottom line is then drawn at right angles to centre line, thus making the leg much longer than the measure taken when standing, but that is in harmony with the requirements of the legs.

8 to 14 is one-fourth of the bottom.

8 to 15 is one-fourth of bottom less $\frac{1}{4}$ inch.

The side and leg seams may now be drawn by the points thus obtained and the bottoms shaped over the boot, hollowing them about $1\frac{1}{4}$ inches for a 16 bottom. Sometimes the bottoms are shaped with a very decided curve, as indicated by the dotted lines, and there is no doubt this enables them to sit very cleanly over the boot, the foot straps keeping them in place at the sides.

The Undersides. Diagram 2.

The topsides being cut out, we use them as the basis of operations for cutting the undersides. First fold over the pattern at the knee as shown by the shading at that part, then proceed to mark out from 5 to 20 one-eighth of the seat sweeping out from 6 to 20, using the knee as a pivot, from this point mark the legseam making point 32 one inch from 13, and point 26 $1\frac{1}{2}$ inches from 15. The bottom may then be drawn, well-rounding it at 31.

We next turn our attention to the seatseam, and we mark from 5 to 23 one-fourth of the seat less from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches, and draw line from 6 through 23 up to 19. Curve it out to 20 by a gradual curve and slightly hollow the back at 19.

Now make the knee a pivot, and sweep from 1 to 25, and measure off the size of waist from 10 to 11 and 19 to 25 plus $2\frac{1}{2}$ inches. Measure up the seat from 21 to 22, and from 23 to 24 the half-seat measure plus 2 inches, and shape the sideseam from 25 through 24 to 12 and 14.

Continue the sideseam 1 inch above 25, and square across from the seatseam to this point and shape the seat piece by marking in from the seatseam to 27 2 inches, and up to 28 $1\frac{1}{2}$ inches. Take out a fish of 1 inch at 29, J, and complete the draft as shown. The shaded part across the undersides to 24 indicates the surplus length given at that part to be fulled on.

Making. Diagrams 3 and 4.

There are several points to be observed when making, the undersides should be well shrunk under the knee as indicated by shaded parts, Diagram 2. The fulness should be nicely and evenly distributed over the knee at both leg and side seams, a very good plan being to put in a drawing thread, and then baste the seams, so that the fullness of topsides comes just over the knee of the topsides, and over the seat of the undersides. This we have indicated by the wavy marks at 12, 13 of the topsides, and 24 of the undersides.

In putting the strap buttons on the bottoms they should be carefully located and properly stayed with linen. Find the shrinking line 1 inch in front of centre line at 8, then fold them over and so find the centre of the undersides, here make a mark and place the first strap button $3\frac{1}{2}$ inches from this point, the other button being placed the same distance from it that the holes in the strap are. Two styles of foot straps are shown on Diagrams 3 and 4, these are generally of Leather and may be procured from any Trimming Warehouse. In case, however, they may have to be cut, they should be from 7 to 8 inches long, about 1 inch wide at the narrowest part, and from $1\frac{1}{2}$ to 2 inches wide at the wider part. Riding trousers should have either cross or frog pockets.

Bell Bottoms and Working Men's Trousers. Plate 10.

The history of fashion in trouser bottoms is almost as varied as that of the sleeves of ladies' jackets. They have passed through all the stages of large and small, square and round, hollowed and curved, and now it would almost seem they had resolved themselves into two sections, those for the classes and those for the masses. The former invariably have them cut fairly small, and the latter vie with each other in enlarging them. The Saville Row cut is 18 knee, 17 bottom. The Petticoat Lane style is 15 knee, 22 bottom. The pearlies and bell bottoms of the coster have proved the more striking style of the two, for whilst the garment of the English aristocracy escapes comment, those of the inhabitants of the Lambeth New Cut have been referred to in the press, portrayed in pictures and presented on the stage by Chevalier and his many imitators in their illustration of coster characters. It cannot possibly fall to the lot of all cutters to be engaged at high-class firms in the West End, even should they prefer it, and so it is necessary for the cutter to know how to cut all shapes and all styles.

Requirements of Working Men.

The working man requires a pair of trousers with stride enough in them to allow of his bending, straddling, stooping, &c., without contraction. He requires smartness of style about the legs, and often demands a showy finish to the sideseams. He generally has his trousers lined, and not infrequently has them finished with whole falls. The pockets must be strongly stayed and firmly tacked. The seams must be sewn in such a way as to stand the strain of hard wear and tear. He expects double sets of buttons on the top, so that if one should come off in wear he has one in rsserve. Let us study then how to cut garments of this class.

The System. Diagram 1.

1 to 3, length of sideseam.
3 to 2, length of legseam.
2 to 4, one-sixth seat.
2 to 5, one-fourth seat.
2 to 6, one-third seat.
Square up from 5 and down from 4.
Square across from 7 to 1 and find 10, 11 at the natural waist level, usually about 1 inch more than one-fourth seat above 2 5.
10 to 11 one fourth waist plus $\frac{1}{2}$ inch.
Shape sideseam by springing out at top to 1 and rounding over hips.
Then shape the fly seam, carefully avoiding any excess of hollow at I.
From 4 to L is 12 inches.
L to M is $\frac{1}{2}$, $\frac{3}{4}$, or 1 inch, more or less, as they are wanted to fit easily.
Draw centre line from 4 through M to 8.
4 to 9 is 2 inches less than half length of leg.
9 to 12 is one-fourth knee.
9 to 13 is one-fourth knee.
The size of the bottoms of the topsides of these trousers are found by a division of knee.
8 to 14 being one-fourth knee.
8 to 15 is one-fourth knee.
The side and leg seams are now drawn, and the topsides are complete by rounding the bottom at 8 as shown.
It is hard to lay down hard and fast lines for the shape of the bottoms, for there is great variety of taste in this particular. Those tailors who make a speciality of this style have block patterns of bottoms in the same way that the West End tailor has block patterns of lapels.

Whole Falls

Are here illustrated, and the only special provision in cut necessary for this style is to cut off 2 or $2\frac{1}{2}$ inches from the top. In the ordinary way 2 inches is enough, but this class of customer frequently require their trousers cut so high in the body that a deeper bearer has to be prepared. There is one thing that must be carefully avoided and that is producing a dip or hollow at the fall-seam. To avoid the

possibility of this a quarter inch of round is added at the front at top of fall seam (see point 10). The bearer is cut to the same shape as the top of the trousers, but allowed to overlap the fall 2 inches or more at front and not less than 4 or 5 at the side. The tack being placed about $3\frac{1}{2}$ inches from the top of the fall, 11.

The Undersides.

Lay down cut out topsides.

Measure up from 5 to 18 one-fourth seat less $1\frac{1}{2}$ or two inches. Draw line from 6 through 18.

Measure up waist 10 to 11 and 19 to 25, allowing one inch for seams and not making provision for a fish, as customers of this class are not often very delicate about the waist, so that it is unnecessary.

Sweep from 1 to top of sideseam of undersides using the knee as a pivot.

Square across from the seatseam to the top of sideseam.

Make 27 2 inches from seatseam and go up $1\frac{1}{2}$ or 2.

Measure up seat from 21 to 22, and from 23 to 24 one-half the seat plus 2 inches; in case extra ease is desired an extra $\frac{1}{2}$ inch will be no detriment.

Make 5 to 20 one-eighth seat, and draft seatseam from 19 to 20 as shown.

From 13 to 32 is one inch.

Locate the size of bottom desired by locating half the size on the inside of centre line, thus if the bottom wanted is 22, and the width of topside from 8 to 15 is 14, the distance from 8 to 26 would be 8, thus providing 11 for the half size and 1 inch for seams. The allocation of width at sideseam is done in the same way, making 8 to 14 and 8 to E equal to half the bottom, and this in the case of the above measures would be 11.

The side and leg seams may now be drawn, and the bottoms shaped by hollowing them at heel and giving a little round at either side, so as to form one continuous curve with the topsides; but, as we wrote above, the shape of the bottom allows ample scope for variety and taste.

Military Trousers. Plate 11.

Military trousers are known as overalls and may be divided into two classes—dress and undress. The former are mostly made from blue cloth and trimmed with gold lace of regimental pattern, and the latter are mostly made from blue cloth and trimmed with red cloth stripes. On foreign service white trousers are used, and there is also a khaki pattern. Full details of each of these will be found in the Dress Regulations of the Army.

There are two styles of cut, those shown on Diagram 1 and Diagram 2, and the official regulations state that for dress they may be cut straight in the leg, but for undress special emphasis is laid on need for room at "thigh and knee so as to allow ease when marching."

For the mounted officer it states they are to be cut straight, and from $1\frac{1}{2}$ to 2 inches longer than for ordinary trousers and to fit closely at the bottom.

Infantry Trousers. Diagram 1.

These are cut on much the same lines as ordinary, with the exception of a little more seat angle and body rise.

1 to 3, side length.
2 to 3, leg length.
2 to 4, one-sixth seat.
2 to 5, one-fourth seat.
2 to 6, one-third seat.
4 to 9, half-leg less 2 inches.
9 to 12, one-fourth knee.
9 to 13, one-fourth knee.
8 to 14, same as 9 to 12.
8 to 15, $\frac{1}{4}$ inch less.
10 to 11, one-fourth waist plus $\frac{1}{2}$ inch.
Complete topsides as shown.

The Undersides.

5 to 8, one-fourth seat less 1 inch.
5 to 20, one-eighth seat.
13 to 32, 1 inch.
8 to 15 and 8 to 26 half bottom plus 1 inch.
Draft leg seam.
From 8 to 14 and 8 to 3, half-bottom.

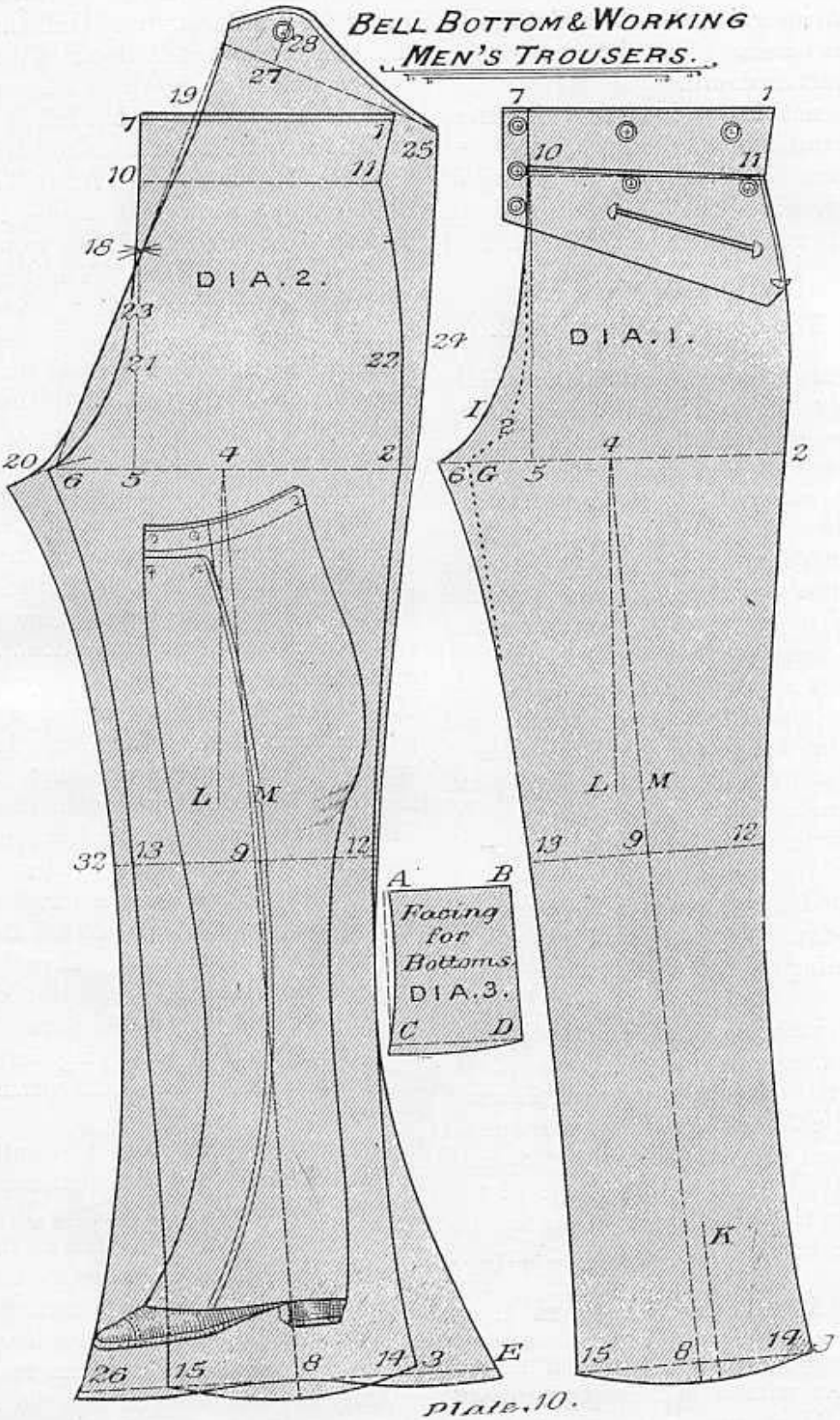

BELL BOTTOM & WORKING MEN'S TROUSERS.
DIA. 2.
DIA. 1.
Facing for Bottoms.
DIA. 3.
28
27
19
7
1
25
10
11
18
23
21
22
24
20
6
5
4
2
L
M
32
13
9
12
A
B
C
D
26
15
8
14
3
E
K
J

Plate. 10.

Measure up seat 21 to 22 and 23 to 24 half seat plus $1\frac{1}{2}$ inches.

Now measure up waist 10 to 11 and 19 to 25 half waist, plus 1 inch.

Complete draft as shown.

Pockets are not inserted as they interfere with the fit of the tunic.

These trousers are finished with piping of red cloth $\frac{1}{4}$ inch wide, which should run down the side so as to come just in front of the heel at bottom.

Cavalry Trousers. Diagram 2.

When these are required for use in the saddle they must have the special provisions for riding trousers as previously described infused in them, such as openness of legs and increased seat angle. If not required for use in the saddle principally, then they may be cut as here illustrated, which are to all intents and purposes the same as the preceding diagram with the exception that the topsides are cut wider and the undersides narrower than for Diagram 1.

The plan most approved for this purpose is to make the topside 1 inch more at waist and seat, $1\frac{1}{4}$ wider at knee and 2 inches wider at bottom, so that from 10 to 11 is one-fourth waist plus $1\frac{1}{2}$ inches.

2 to 4, one-sixth seat plus 1 inch, and so on, on fork line.

9 to 12 is one-fourth knee plus $1\frac{1}{4}$ inches.

8 to 13, one-fourth bottom plus 2 inches.

A corresponding reduction being made at the underside.

The broad stripe being stitched on the topside, turned over and sewn in with the sideseam.

The stripe must never appear to run forward at foot, indeed, although it follows the shape of the leg it must appear straight. Special attention must be paid to the shape of the bottoms of these trousers, the side of the topside having to come below 3 to meet the underside.

Infantry Trousers. Diagram 1.

The figure on Diagram 1 illustrates the Infantry trousers with a narrow piping down the sideseam. The figure on Diagram 2 shows the trousers with broad stripes, such as are worn by the Royal Artillery, Royal Engineers, Army Service Corps, Army Ordnance Corps, and the Army Pay Corps. Some of these have two narrow stripes, as shown on Diagram 4, instead of the one broad stripe, but full details of these variations will be found below where we give the Dress Regulations for Army Trousers.

Diagram 3 shows the inside finish of the bottoms of a pair of military trousers as made up in good class firms. The linen stays for the strap buttons are carried some 3 inches up the side seam. The fronts are faced with cloth to impart firmness and shape at that part. The strap buttons are put on in the usual way, the first one $3\frac{1}{2}$ inches from the centre of the undersides when folded or say about $2\frac{1}{2}$ inches from the construction line.

Rumours have so frequently reached us of impending change in some of these, that it is impossible to say how long these will hold good. We have, however, done our best to ensure accuracy; but if any doubt should exist in the minds of our readers, they will easily be able to check them by paying a visit to the pattern room of the War Office in Pall Mall, where sealed patterns are kept, and may be inspected free of charge by all who may desire. This is very convenient for London tailors, and the only plan for country tradesmen to adopt will be for them to get some representative to call on their behalf. We do not know whether the War Office authorities will reply by post to enquiries of this kind; but we think not, though we do not think they would have any objection to their attendant supplying information in this way, if the tailor could persuade him to do so.

Let us now pass from the cutting to the details of finish—and with that end in view we give a Summary of the Dress Regulations of His Majesty's Army, as far as they refer to trousers, &c. And in order to make these as useful as possible, we have arranged them in tabular form, so that all the reader will have to do will be to find the regiment and rank he is making for, and then follow the instructions placed opposite to these in the other columns.

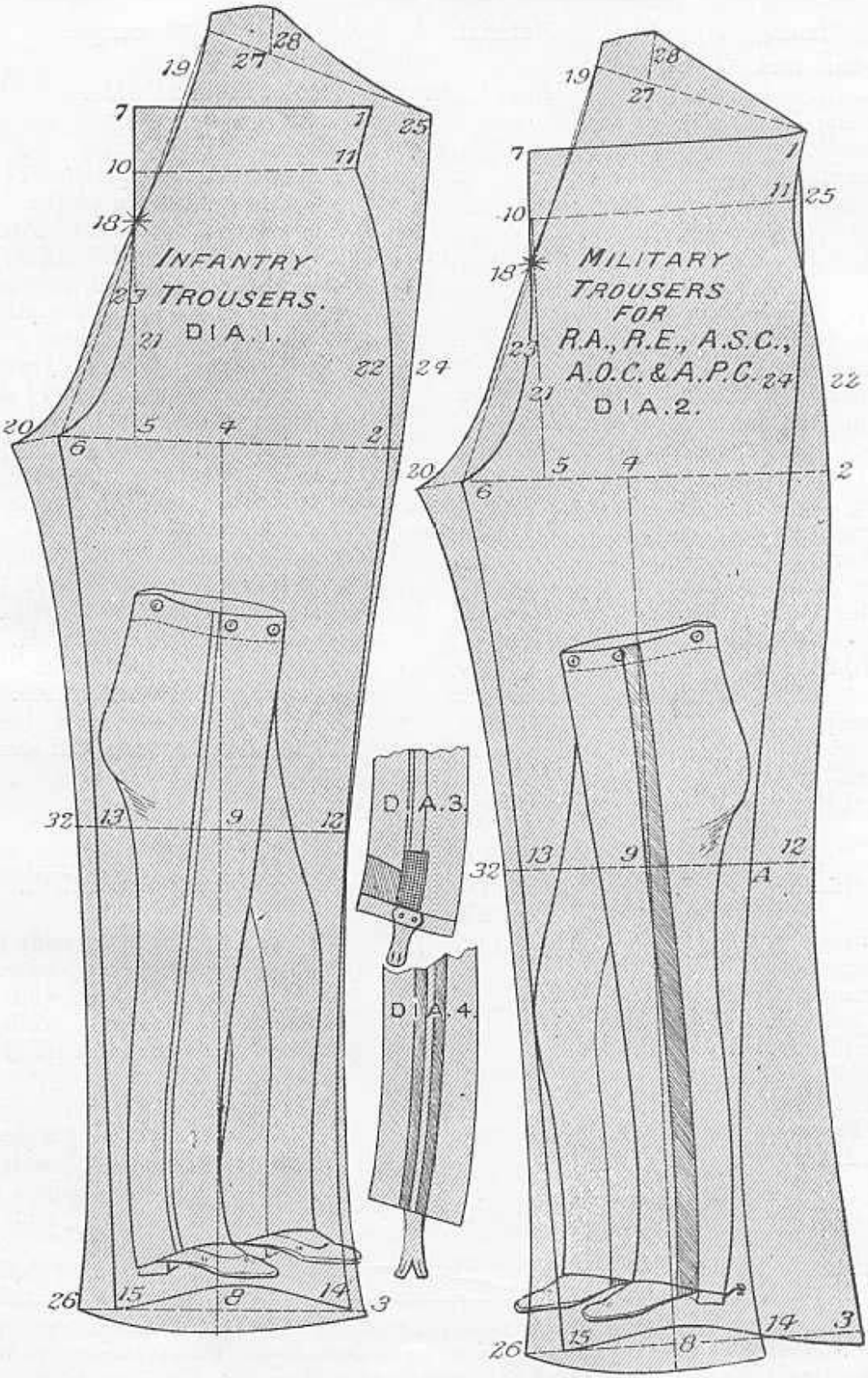

INFANTRY TROUSERS.
D I A. 1.
MILITARY TROUSERS FOR R.A., R.E., A.S.C., A.O.C. & A.P.C.
D I A. 2.
D I A. 3.
D I A. 4.

Plate 11.

SUMMARY OF DRESS REGULATIONS.

Rank.	Material.	Stripe.
Field Marshal and General Officers	Blue Cloth	Scarlet Cloth $2\frac{1}{2}$ wide.
Head Quarters, Personal and General Staff	,, ,,	Scarlet Cloth $1\frac{3}{4}$ wide.
1st Life Guards	,, ,,	Dress, Gold lace, 2 stripes $1\frac{1}{4}$ wide with scarlet welt down centre.
2nd Life Guards	,, ,,	Undress, Scarlet cloth 2 stripes $1\frac{1}{2}$ wide. Dress, Gold lace, blue centre $2\frac{1}{2}$ wide.
Royal Horse Guards ...	,, ,,	Undress, Scarlet cloth, 2 stripes $1\frac{1}{4}$ wide, $\frac{1}{2}$ in. apart with scarlet piping between. Dress, Gold lace $2\frac{1}{4}$ wide.
Dragoon Guards	,, ,,	Undress, Scarlet cloth, $2\frac{1}{2}$ wide.
2nd Dragoon Guards ...	,, ,,	Cloth same color as men $1\frac{3}{4}$ wide.
6th ,, ,, ...	,, ,,	1 stripe white cloth $1\frac{3}{4}$ wide.
Hussars	,, ,,	2 stripes white cloth $\frac{3}{4}$ wide $\frac{1}{4}$ apart.
11th Hussars	Crimson Cloth	2 stripes yellow cloth $\frac{3}{4}$ wide $\frac{1}{8}$ apart.
13th Hussars	Blue Cloth	2 stripes yellow cloth $\frac{3}{4}$ wide $\frac{1}{8}$ apart.
Lancers, all except 17th ...	,, ,,	2 stripes white cloth $\frac{3}{4}$ wide $\frac{1}{8}$ apart.
17th Lancers	,, ,,	2 stripes yellow cloth $\frac{3}{4}$ wide $\frac{1}{8}$ apart.
Royal Artillery	,, ,,	2 stripes white cloth $\frac{3}{4}$ wide $\frac{1}{8}$ apart.
Royal Engineers	,, ,,	1 stripe scarlet cloth $1\frac{3}{4}$ wide.
Foot Guards, for levees, &c....	,, ,,	1 stripe scarlet cloth 2 wide.
,, ,, other occasions	,, ,,	1 stripe gold lace $1\frac{1}{2}$ wide.
Infantry, except Highland and Scottish	Authorised Tartan	1 stripe scarlet cloth 2 wide.
Highland and Scottish Regts.	Rifle Green Cloth	Piping down sideseam of scarlet cloth.
King's Royal Rifles	Rifle Green Tartan	2 inch black braid.
,, ,, ,, summer wear	White Material	
West India Regiments ...	Oxford Grey	
Chinese Regiments	Khaki	Narrow piping of red cloth.
,, ,, hot weather	Blue Cloth	
Army Service Corps	,, ,,	2 stripes white cloth $\frac{3}{4}$ wide $\frac{1}{8}$ apart.
Army Medical Corps	,, ,,	1 stripe scarlet cloth $2\frac{1}{2}$ wide.
Army Ordnance	,, ,,	2 stripes scarlet cloth $\frac{11}{16}$ wide $\frac{1}{8}$ apart.
Army Pay Department ...	,, ,,	2 stripes yellow cloth $\frac{5}{8}$ wide $\frac{1}{8}$ apart.
Army Veterinary Department	,, ,,	1 stripe maroon cloth $1\frac{1}{2}$ wide.
Provost Marshal, Military and Mounted Police, Governor Military Prison	,, ,,	1 stripe scarlet cloth $1\frac{3}{4}$ wide.
Instructor of Army Schools ..	,, ,,	2 stripes scarlet cloth $\frac{3}{4}$ wide with light blue cloth between $\frac{1}{4}$ inch wide.
Military Knights of Windsor	Black Cloth	1 stripe scarlet cloth $1\frac{3}{4}$ wide.
Royal Hospital, Chelsea and Kilmainham	Blue Cloth	Dress, as for Infantry. Undress, 1 stripe scarlet cloth $1\frac{3}{4}$ wide.

Service Abroad—For all service, except Canada, Trousers are made of Khaki Drill, foot-straps of black leather. Mess Trousers of White Drill, black foot straps of black leather for mounted officers. What is known as the White Uniform have Trousers made of plain Drill, black leather foot-straps for mounted officers. For officers of the Army Post Office Corp Trousers are made of blue cloth with scarlet welts $\frac{1}{4}$ inch wide down each sideseam.

Court Trousers.

The trousers worn by Lieutenants of Counties are made of blue cloth with silver lace $2\frac{1}{2}$ inches wide down each side. For Deputy Lieutenant, the lace is $1\frac{3}{4}$ inches wide.

For Ministers, Diplomatic and Civil Service, trousers are worn on occasions of Semi-State, Levèes, &c. They are made of blue cloth, with $2\frac{1}{2}$ inch lace down each side.

The British Consul-General wears trousers on ordinary occasions of blue cloth, trimmed with silver lace $2\frac{1}{2}$ inches wide. The Consul has lace $1\frac{3}{4}$ inches wide. The Vice-Consul's trousers are made of blue cloth, but have no lace down the side seams.

Gentlemen attending H.M. Courts, and not holding an appointment for which an uniform is prescribed, wear, on semi-state occasions, such as levees and dinners, trousers of mulberry or claret cloth with gold lace down the sideseams.

Volunteer Officers.

The trousers worn by officers of Light Horse Artillery and Engineer Volunteers on State occasions or at balls are of the same description as those for the corresponding rank in the standing army, with the exception that silver lace takes the place of the gold lace. The stripe for Rifle Volunteers is $1\frac{1}{8}$ inches wide, with a crimson silk stripe an eighth of an inch wide in the centre. Officers of Mounted Rifle Volunteers wear two stripes $\frac{3}{4}$ inch wide and $\frac{1}{4}$ inch apart.

Naval Trousers.

There are three kinds of trousers worn by Naval Officers :—

(1) Full dress trousers made of blue cloth and trimmed with gold lace down the side seams. These are worn for full dress, ball dress and mess dress. The width of lace varies according to rank—viz., $1\frac{3}{4}$ inches wide for officers of Flag Rank, $1\frac{1}{2}$ inches for Captains, Commanders and Officers of corresponding standing, $1\frac{1}{4}$ wide for Lieutenants.

(2) Blue cloth made up plain. These are worn with the Frock Coat, the Undress and the Mess Undress.

(3) White trousers made from duck or drill. These are sometimes worn with the Frock Coat, the Undress Coat and the White Undress.

There are no special qualifications necessary as far as the cut is concerned, a good fitting pair of trousers as cut for the ordinary gentleman will suffice. In putting on the lace it should be kept at the side, and, of course, be of the Naval pattern.

The trousers worn by Bandsmen in the Navy have two narrow stripes arranged up the sides. The Bandsmen having stripes of white and the Bandmaster a stripe of distinguishing colour, but of the same style.

Livery Trousers.

Trousers for Livery Servants are of three kinds :—

(1) Coachmen's and Grooms' trousers are cut as riding trousers, with perhaps a little less openness of the leg—say, 1 inch instead of $1\frac{1}{2}$ as shown on Dias. 1 and 2, Plate 12. They are made moderately close-fitting in the legs, and generally required to stand the test of the saddle if occasion arises. These, of course, are for undress wear, and are generally made of livery tweed and have cross pockets.

(2) Footmen's trousers are cut in moderately easy style, with provision for stooping, somewhat after the cut shown by Diagram 2, Plate 8. They are medium width of leg and are often finished with a piping down the sideseam, though this is by no means the rule, quite as many being made plain. Side or cross pockets according to taste.

(3) Pages' Trousers. Cut to fit very smartly, and especially at the seat, so that special care must be taken to avoid surplus length and width at that part. There must not be any seat pieces or fish taken out of the undersides, and the pockets must be placed at top on the cross. The sideseam is sometimes piped, at others it

is left plain. The leading characteristics are smartness of style and neatness of fit. Butlers' trousers have no distinguishing features, being cut in the ordinary style.

Sporting Trousers.

Trousers are used for Tennis, Cricket and Boating purposes, and are made of striped or white flannel. The principal features to be observed when cutting are (1) extra width to the legs and plenty of inlays, (2) extra length to the legs, for however carefully they may be cleaned, the nature of wool to feed or grow thicker at the expense of length will assert itself, and so each time they pass through the cleaners' hands they will become smaller and shorter; hence it is necessary to provide against this when cutting. They are generally made up with loops at the back and sides, and if buttons are put on they are sewn on the inside; and, instead of the usual metal they are made of bone the object being to avoid any occasion of rust'

Drill is sometimes used for this purpose, but as this does not shrink in the water, it is not necessary to cut them so long and full; still, as they are substitutes for the long and full flannels they must not be cut too skimpy.

Fishing trousers are made from waterproof material and cut with feet. They are made fairly roomy, but must not be cut too large. The diagram given for pyjamas on Plate 13 will show how to cut the feet; indeed, this diagram may be followed in its general principles. The adjustment of the width of the leg being done at the legseam, and so leaving the side intact.

Trousers for Motor Carists are made rather small in the leg, moderately open in the style of cut, and have ample seat angle given to them to provide plenty of room for sitting. Sometimes they are made to button to the side, the fronts being both arranged after the style of French bearer so that the catch side is finished exactly as the French bearer style, and the fly side has the front extending from the crutch to the sideseam, where it is about 2 inches wide.

The additional warmth and protection thus given is very acceptable for this kind of sport, and although they present a somewhat novel appearance, yet the entire drift of the material is new, and so this, taken as a part of the entire dress. Another feature sometimes embodied in these trousers is wind turnings to the bottoms. These are short linings made about 6 inches deep, secured to the trousers on the inside, and drawn in with elastic to prevent the wind blowing up.

Dress Trousers.

The nether garments worn for dress are made of black material, either the same as the coat and vest or slightly heavier. They are cut to fit smartly, and being usually made from thin material only require about $1\frac{1}{2}$ over the seat for ease, &c. Side pockets are inserted, and the sideseams are, as a rule, left plain. Occasionally they have military or fancy braid down the sideseam; this, however, is the exception rather than the rule.

Eton trousers, as we may term those garments worn with an Eton jacket are cut to fit moderately close. Deep seat pieces and fishes must both be avoided, as must also be side pockets. They are made from black cloth for evening wear, and a neat hairline for school wear.

Club Uniform Trousers.

The trousers worn with club uniforms are generally made of blue cloth and trimmed with gold lace down the side. No definite instructions can be laid down, as the different clubs and hotels make their own regulations. Those worn by the servants at the Hotel Metropole and similar institutions are of the above description.

Some of the porters engaged by the large banks and business houses are either trimmed with lace or piped with cloth of a contrasting colour. Those worn by Fuller's porters, the well-known confectioners, have trousers made of cream-coloured cloth, piped with red cloth.

Legging Trousers. Plate 12.

Among the many novelties put forward from time to time we find the legging trousers, so called from the fact that the bottom of the legs are finished as leggings. The idea of making trousers as a combination of breeches and leggings is one that has been made much of during recent years, but we do not think they have met with much favour with the riding public. Some have made them with three *holes and buttons at knee, only when they have been made to fit closely; others have finished* them with a fly from knee to bottom; whilst a third style is shown on our diagram and in this they are made to button through.

The System. Plate 12.

1 to 12, length from top to knee plus 1 inch.
12 to 2, fork to knee plus 1 inch.
2 to 4, one-sixth seat plus 1 inch.
4 to 5 and 5 to 6 each one-twelfth seat.
Square 5 10 and 4 L by 4 5.
10 to 11, one-fourth waist plus $\frac{1}{2}$ inch.
7 to A 1 to $1\frac{1}{2}$ inches.
L to M, $1\frac{1}{2}$ inches.
Draw centre line.
4 to 9, B, H and 8, the lengths of leg to knee, small, calf, and bottom plus 1 inch.
9 to 13, one-fourth knee.
B to C, one-fourth of small.
H to I, one-fourth of calf.
8 to 15, one-fourth of bottom.
9 to 12, B to F, H to K, and 8 to 3 are each about 2 inches, more or less, according to taste.

The arrangement here shown will bring the buttons well to the front.

For the undersides make 5 to 18 one-sixth seat, and 5 to 20 one-eighth seat.

Make undersides 1 inch longer at top, and square across for seatseam by 19 18.

Mark in to 27 2 inches and make 28 $1\frac{1}{2}$ inches above it.

Allow $2\frac{1}{2}$ inches over the half-waist measure and take out a fish.

Measure up seat and allow $3\frac{1}{2}$ inches, more or less, according to style desired.

Make up undersides to half measures of knee, small, calf, and bottom on the outside of centre line, allowing for the topsides thus, H to K and H to I combined make half the calf, and so on.

Add on 1 inch to the undersides at 32, 11, J, and 26.

Shape the legseam from 20 through these points.

Take out a fish under the knee of undersides as per dotted line, and allow on sufficient to form a button stand at the side seam of topsides.

In making, full on topsides carefully at knee and the undersides at calf. Endeavour to produce a garment that when held up will assume the shape of the figure.

Equestrienne Trousers. Diagram 2.

The measures taken are the same as for gents, with the exception of the leg, which may either be estimated according to the height, or calculated by measuring from waist to the seat of a chair on which the lady is sitting, and deducting it from length of sideseam. The exact length of leg is not of very great importance, as ladies do not ride astride. Here are a sample set of measures: 40, 28, 24, 40, 16, 16.

The System.

1 to 2, side length plus 1 inch.
2 to 3, leg length plus 1 inch.
2 to 4, one-sixth seat.
2 to 5, one-fourth seat.
2 to 6, one-third seat.
Square up from 5 and down from 4.
4 to 9, half leg length less 1 inch.
9 to 13, one-fourth knee.
9 to 12, the same.
8 to 3, and 8 to 15, one-fourth bottom.
7 to 1, one-fourth waist plus 2 inches.
7 to 10, $1\frac{1}{2}$ inches.
Reduce waist to size by the aid of V's, and complete topsides.

For the undersides, 5 to 18, one-sixth of seat, plus 1 inch.

5 to 20, one-eighth seat.

Complete seatseam by hollowing slightly at 19, and rounding at 23.

Allow 1 inch extra length at 25, and measure up 27 to 25, half waist plus $2\frac{1}{2}$, thus providing for the two cuts at 24 and 28.

Measure up seat from 21 to 22, and 23 to 24, half seat plus 2 inches.

Allow 1 inch for making up legs at 32 and 26, and complete the draft as shown. The topsides being 1 inch longer in the legs, and the undersides 1 inch longer in the body.

Hints on Making.

In sewing the seams, the extra length of topsides should be distributed over the knee, and extra length of undersides arranged over the seat. The fronts are generally made to button through, the opening extending to fork, and the buttons being flat and neat. The old style of opening at the sides is not often used now. A vent is left at the top of seat seam, and four eyelet holes worked, in which is inserted a silk lace, so that the waist may be varied in size to suit the customer's wishes. An elastic footstrap is sewn to the bottoms, and tops are made up with a neat binding. These garments are now made from stockinette cloth, and are partly lined with chamois leather. Diagram 3 shows the shape of this chamois leather lining that is put in on the right side. The diagram is marked in plain figures, and will be useful as a block pattern when trimming these garments. Sometimes the upper part of these trousers is made from chamois leather and only the lower parts of cloth. In any case the waist is made up as thin as possible, the V's are neatly taped, and the tops lined with a silk waistband. Trousers are not so much worn for equestrienne purposes as they were some years ago, breeches and gaiters have taken their place, especially in the hunting field. Still there are many ladies who prefer the longer garment, so that a considerable number of them are still made in the best ladies' trades, and they form a very necessary part of every trouser-cutter's knowledge.

Some Eccentric Styles. Plate 13.

We recollect walking down Regent Street some twenty years ago in company with some of the leading lights of the tailoring world, and in the course of our conversation, we were asked if we could cut trousers without a side or a leg-seam, we had not seen the style shown on Diagram 1 at that time, so our reply was in the negative. At one time we looked on all arrangements of this sort as fanciful ideas that were of no practical value, but with increasing years we have had a wider outlook, and coming in contact with men of different nationalities, we have altered our opinion, and we now believe that in many instances there is money to be made out of these specialities, and a name to be made which will do much to make success easy for any firm. We shall, therefore, briefly describe the working of the systems as applied to these eccentricities.

Trousers with no Side or Legseam.

Of course there is a seam, but if the trousers are strongly creased, and the pattern is not too marked, the seam down the centre of back may be hidden.

1 to 3, side length.

3 to 2, length of leg.

2 to 4, one-sixth.

2 to 5, one-fourth.

2 to 6, one-third.

9 to 10, one-fourth waist plus $\frac{1}{2}$ inch.

4 to 12, half leg length minus 2 inches.

12 to 14, and 12 to 18, each half width of knee, plus $\frac{1}{4}$ inch.

13 to 16, and 13 to 17, half bottom, plus $\frac{1}{4}$ inch.

6 to 7, one-twelfth seat plus $\frac{1}{2}$ inch.

7 to 8, one-eighth seat.

7 to 21, 2 inches.

Square line 23 by 21, 8, 23, 22, one-twelfth waist.

Add $1\frac{1}{2}$ inches to top of seat at 25, and make length from 8 to 22 agree with corresponding seam from 18 to 19.

2 to 18, one-sixth seat, plus $1\frac{1}{2}$ inches.

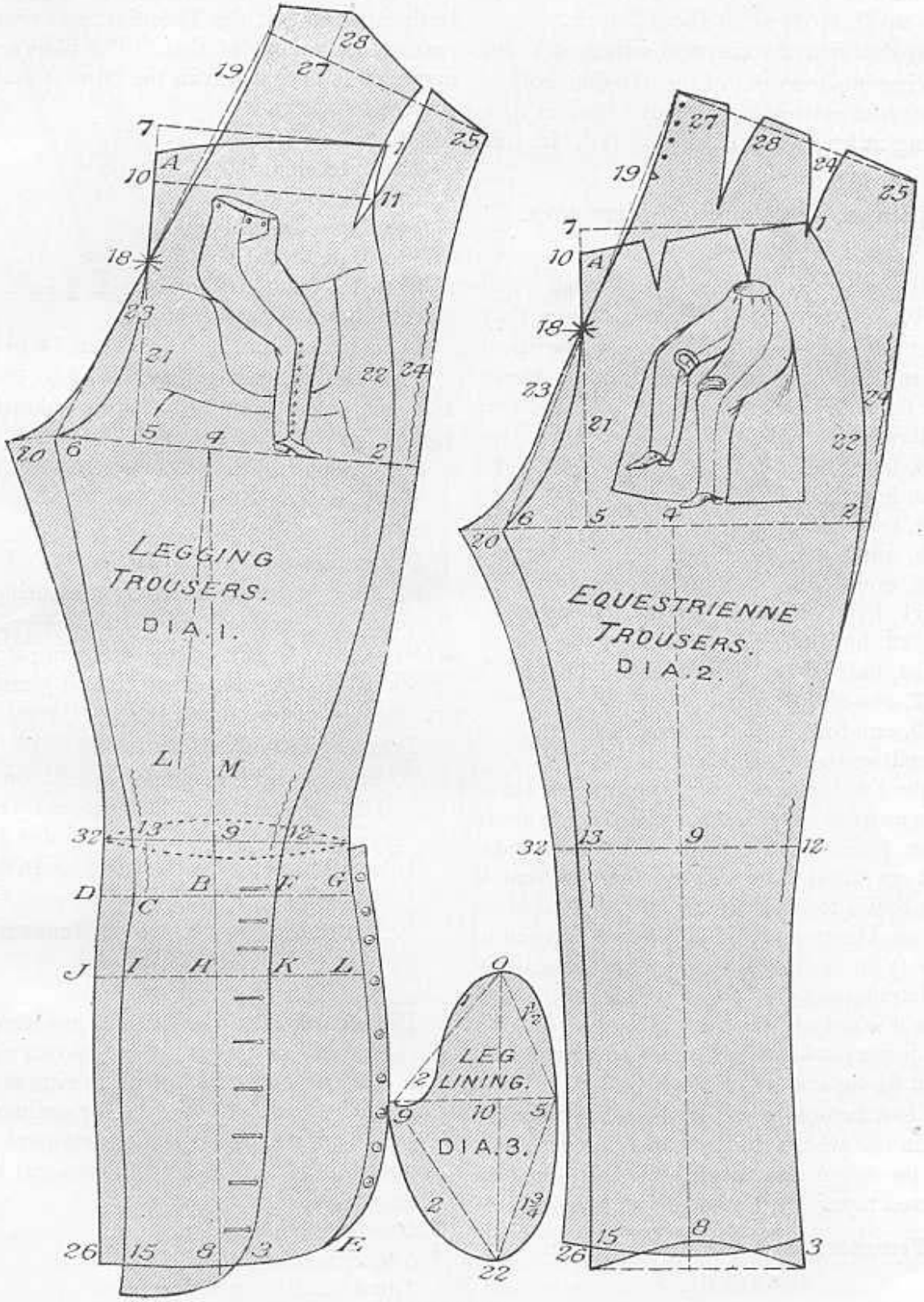

LEGGING TROUSERS.
DIA. 1.
EQUESTRIENNE TROUSERS.
DIA. 2.
LEG LINING.
DIA. 3.

Plate 12.

Square up to 19.

Curve up from 20 to 19 about 1 inch.

Measure up size of waist, and adjust at V 20.

In taking the dress out of the left side, hollow front and fold pattern over about 1 inch at fork to nothing at knee, and cut by pattern in this way.

Pyjamas or Sleeping Trousers. Diagram 2.

These are now extensively used, and especially for wear in hot climates, where they have feet added to them. They are cut without a sideseam, and large in the waist, being drawn into the figure by a girdle or tape. The system is as follows:

1 to 3, length of side.
3 to 2, length of leg.
2 to 4, one-sixth.
2 to 5, one-fourth seat.
2 to 6, one-third
2 to 11, half leg length less 2
11 to 12, half knee plus $\frac{1}{4}$ inch.
3 to 13, half bottom plus 1 inch.
5 to 7, one-eighth seat.
5 to 9, one-fourth seat; and the outline is completed by these points.

For the English trade they are finished at the bottoms as solid line, but for the foreign trade they are finished with feet. The undersides are cut as usual, but the topsides are cut V shaped, and a tongue is put into these, cut as shown on Diagram 6. The figures there indicated may be used as inches, and varied slightly for different sizes.

$3\frac{1}{2}$ to 9 is cut on the crease.

O is joined to 8 and 13, and $3\frac{1}{2}$ is sewn to 15.

From $3\frac{1}{2}$ to 9 is cut on the crease.

The foot or sole part for these is shown on Diagram 5, where the various figures may again be taken as inches or units of the graduated tape.

Trousers with no Legseam. Diagram 3.

A gentleman called to see us once, and asked us to arrange a trouser system for him without a legseam. He had found many gentlemen object to the legseam, and he was starting business in one of the Colonies, and wished to make a speciality of this. The plan we then arranged is here given in the hope it may be of service to others.

1 to 3, side length.
3 to 2, leg length.
2 to 4, one-sixth.
2 to 5, one-fourth.
2 to 6, one-third.
10 to 12, one-fourth waist plus $\frac{1}{2}$ inch.
14 to 3, one-fourth bottom.
14 to 15, half an inch less than 14 to 3.

Find the difference between 14 to 15 and 4 to 6, and mark from 15 to X this quantity, and square line 6 9 at right angles to 6 X.

6 to 8, one-eighth.
8 to 7, one-twelfth.
8 to 19, one-fourth.

Draw seatseam by 7 to 19.

Find length of sideseam by measuring from 9 to top, the same as 2 to 1.

Measure up seat as usual, allowing 2 inches, and measure up waist from 10 to 12, and 20 to 22, the half breast plus $2\frac{1}{2}$

Take out fish of one inch.

Divide the width of knee equally on either side of 16, and make up the bottom by measuring from 3 to 18, the size desired plus $\frac{1}{2}$ inch.

Take out the dress as described for Diagram 1.

Trousers with no Sideseam. Diagram 4.

Trousers with no sideseam are frequently made for sailors when they are known as "jack tars," for soldiers in Scotch regiments when they are known as trews, and for ordinary wear when they are made from prominent stripes or checks, and it is desired not to cut through them.

1 to 3, side length.
3 to 2, leg length.
3 to 4, half leg plus 2 inches.
4 to 17, half knee.
4 to 16, half knee plus $\frac{1}{2}$ inch.
3 to 18, 1 inch more than 4 to 17.

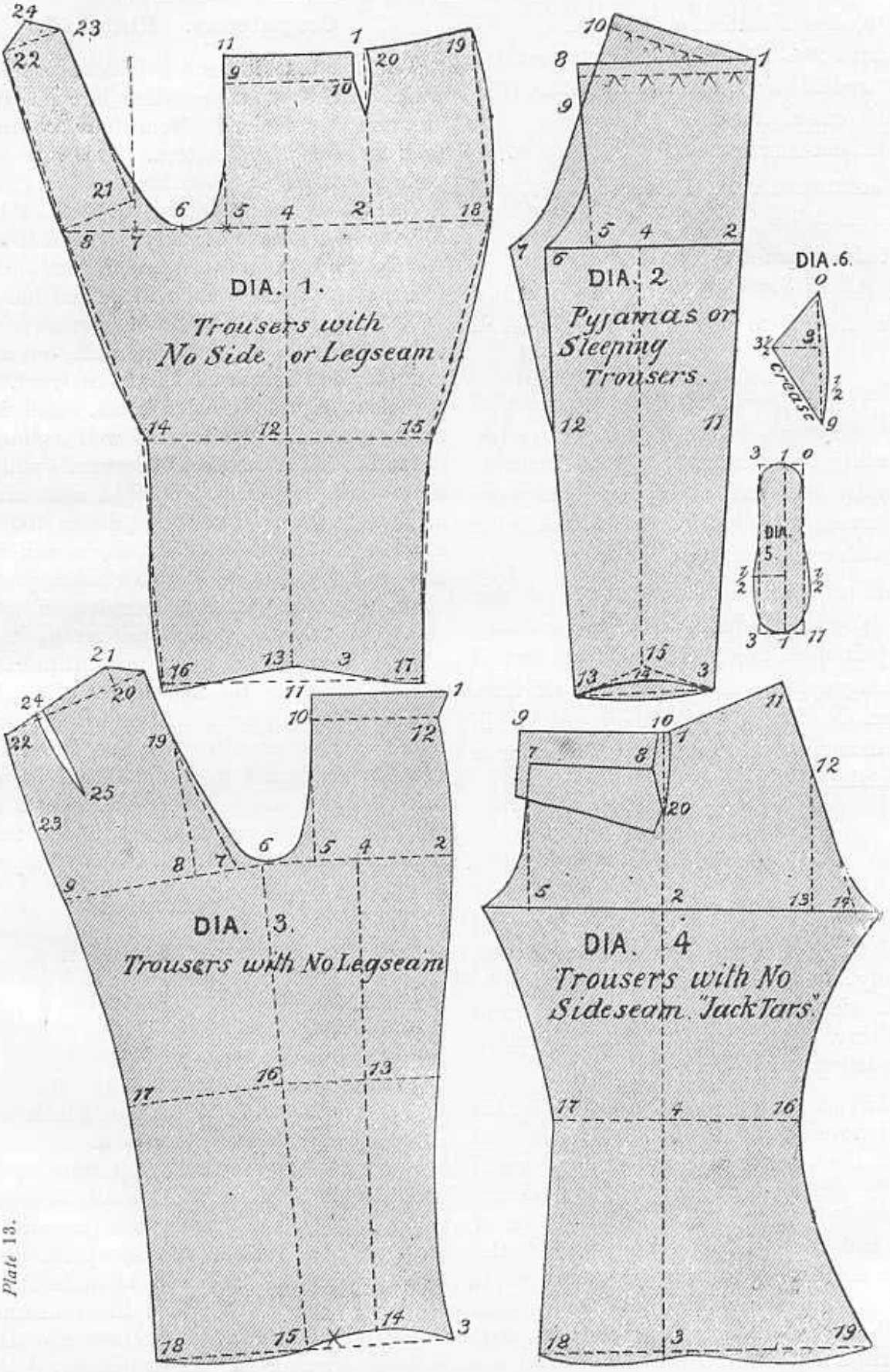

DIA. 1.
Trousers with No Side or Legseam
DIA. 2
Pyjamas or Sleeping Trousers.
DIA. 6.
Cross
DIA. 5.
DIA. 3.
Trousers with No Legseam
DIA. 4
Trousers with No Sideseam. "Jack Tars."

Plate 13.

18 to 19, size of bottom plus $\frac{1}{2}$ inch.
2 to 5, and 2 to 13, each one-fourth seat.
5 to 6, and 13 to 14, one-twelfth seat.
13 to 15, one-eighth seat.
13 to 12, one-fourth seat.

Draw seat seam from 14 through 12, and square across to 10.

Adjust size of waist by V at sideseam.

Check the size of seat from fly to seat line, making it from 1 to $1\frac{1}{2}$ inches more than half seat.

Complete as per diagram, shaping the bearer as here illustrated.

Such are jack trousers. They are made to fit the waist and seat closely, and are worn without braces, the top of the seat seam being finished with eyelet holes and lace.

For military and civilian trousers of this type, it is, perhaps, best to cut an ordinary pattern, join them together at sideseam, and if any opening appears at knee, take it off from the legseam. These styles may not be in constant demand, but every cutter should know how to produce them.

Disproportion.

We now pass to a study of disproportion, and when we consider the many malformations of the body and legs from the waist downwards, we find a wide scope for our skill, if we are to make fitting coverings for the misshapen limbs we are called upon to clothe.

The skill of the tailor is best proved by his hiding deformity rather than fitting it, and whilst the shape of the body must be provided for, yet the skilful cutter will be able to detect the points of beauty as well as the feature of ugliness, and whilst he endeavours to hide the latter, he emphasizes the former, and so sends his customers out as well dressed men, not living clothes screens. The most frequent disproportion met with is

Corpulency. Plate 14.

When a man measures 6 inches smaller at waist than seat, we consider him proportionate, and any variation from these relations we look upon as disproportion. It is very seldom we meet with disproportion in the shape of too small waists, except in the case of ladies, for whom we have already given a diagram. As far as men are concerned, the ordinary working of the system will suffice, but when we have to provide for corpulency, we have not only to provide for increased bulk, but altered attitude, and increased length of front. The corpulent figure is extra erect, small in the thigh, short in the legs as well as large in the waist. A reference to Diagram 4 will show these variations. At first sight, some may be disposed to think we have shown too much increase at the back D, it being a well-known fact that the increment takes place two-thirds at front, and one-third at the sides, but we may point out that the body must retain its equilibrium, and so assumes an erect attitude.

E to A shows the shortening of the leg, a peculiar development of growth invariably found in the corpulent figure. The increase in the angle from C to A and D to A, is another feature which must not be overlooked, whilst the smallness of thigh in relation to the seat is another notable feature, whilst the openness of the legs is generally apparent.

The System. Diagram 1.

1 to 3, length of side.
3 to 2, length of leg.
2 to 4, one-sixth seat.
2 to 5, one-fourth seat.
2 to 6, one-third seat less $\frac{1}{4}$ or $\frac{1}{2}$ inch.
Square up to 7 and down to L.
Raise front one-sixth disproportion.

This draft is drawn to 53 waist, 50 seat, and as the waist should be 44 to be proportionate, we have here 9 inches of disproportion, so the front in this case is raised $1\frac{1}{2}$ inches. There are some cutters who take a direct measure for this length, and there are others who take the measure by applying an instrument shaped as

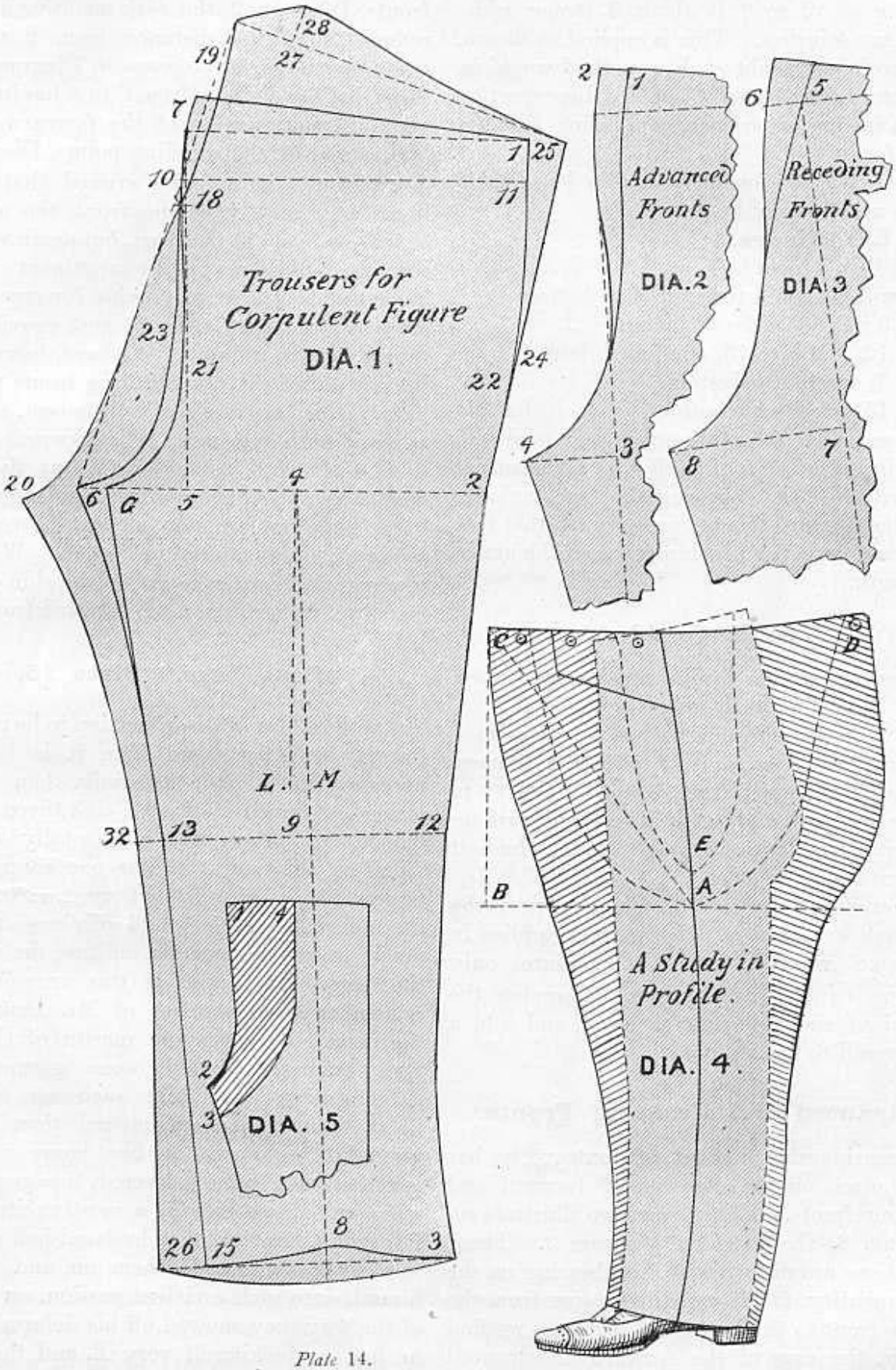

28
19
27
7
1
25
10
18
11
Trousers for
Corpulent Figure
DIA. 1.
23
21
22
24
20
6
G
5
4
2
L.
M
32
13
9
12
2
3
4
DIA. 5
26
15
8
3
2
1
Advanced
Fronts
DIA. 2
4
3
6
5
Receding
Fronts
DIA. 3
8
7
C
D
E
B
A
A Study in
Profile.
DIA. 4.

Plate 14.

Diagram 5. 2 to 3 is about 2 inches wide, 1 to 4 say 4 inches. This is applied as shown.

There is no doubt such a method would be satisfactory, but one-sixth of the disproportion suffices in our experience, and being simpler, we prefer it.

10 to 11 is one-fourth waist plus $\frac{1}{2}$ inch, and the top and fly may be drawn.

4 to L is 12 inches.

L to M is $\frac{1}{2}$ inch.

Draw line from 4 through M to bottom.

4 to 9 is half leg less 2 inches.

9 to 12, and 9 to 13, one-fourth knee.

8 to 3, one-fourth bottom.

8 to 15, one-fourth bottom less $\frac{1}{2}$ inch; and by these points the outline may be completed, hollowing over the foot as shown. It must not be overlooked that opening the legs increases their length, and this is necessary, so that 6 to 15 should be half an inch more than the actual leg length.

The Undersides.

These are drawn by the topsides as before.

5 to 18 is one-fourth seat.

5 to 20 is one-eighth seat, less $\frac{1}{4}$ or $\frac{1}{2}$ inch.

13 to 32 is 1 inch, and 15 to 26 is $1\frac{1}{2}$ inches.

Measure up waist from 10 to 11, and 19 to 25, the half waist plus 1 inch; and measure up the seat from 21 to 22, and 23 to 24, the half seat plus 2 inches.

Sometimes a measure is taken between the waist and seat, and in that case it is applied in the same way as the waist measure, only allowing 1 inch for making up. Complete the seat piece and sideseam as usual, and add a little round to the bottom.

Advanced and Receding Fronts.

A considerable amount of controversy has taken place on the question of forward and receding fronts. The former we illustrate on Diagram 2, the latter on Diagram 3. These alterations are not without their bearing on the fork quantity, for if we draw a line from the top of front to the bottom of legseam, we find that in the case of the forward or advanced fronts, Diagram 2, the fork quantity has been reduced, and the distance from 2 to 4 is made shorter. A reference to Diagram 4 will show that the distance from C to A has increased and the requirements of the figure would be best served by the receding points, Diagram 3.

Of course it may be argued that as the increase is mostly at the front, the addition should be made at that part, but again we reply that in addition to the argument already advanced, we have to provide for erectness of carriage, and that again is best provided for by the receding front. We have, however, to bear in mind that the receding fronts produce loose material in the lap, so it is best, perhaps, to avoid both extremes. The forward, because it is tight and uncomfortable at fly seam, emphasizes the disproportion, and aggravates horse shoe folds, and the latter because it produces loose material in the lap. We think, however, it is safer to err on the side of a too receding, rather than a too forward front.

Bent Legs. Plate 15.

Another form of disproportion to be provided for is bent legs, and here it is far more necessary to hide the deformity than to fit it. Indeed, so much is this so, that there are two schools of cutters who hold totally different views on this matter. The one contend that figures of this sort do not want a garment to fit, indeed, nothing would displease them so much as one that exactly outlines the shape of the legs. In proof of this argument, we remember an experience of Mr. Drummond, the respected cutter and master of Glasgow, who, having to make some garments for a deformity, gave him such an excellent fit, that it rather emphasized than hid his points of ugliness. A few hours after the garments had been delivered, this good man's wife waited on him in a most excited state, informing him that her husband had received the clothes and tried them on, and had put himself into such a violent passion, on account of the way they showed off his deformity, that he had made himself very ill, and the doctor

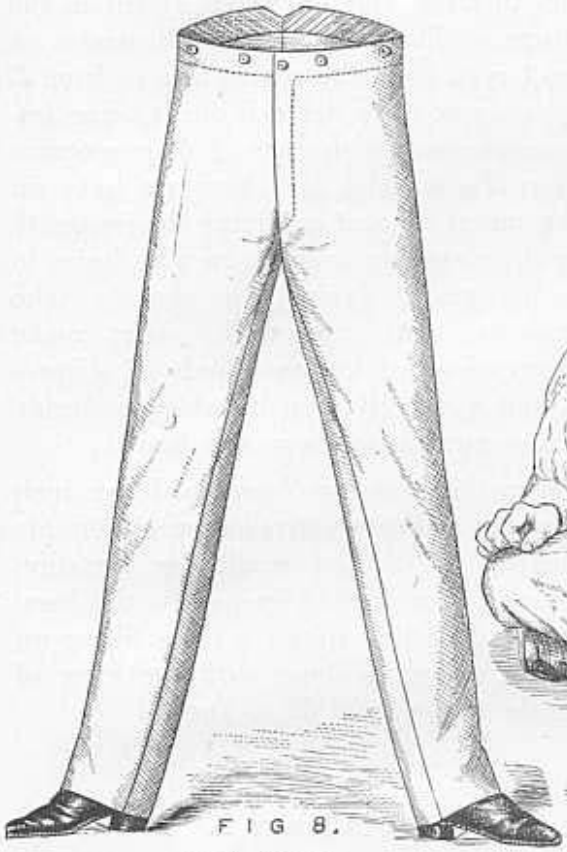


FIG 8.
Open Legs.

FIG. 9.
Sitting. Cross Legs.

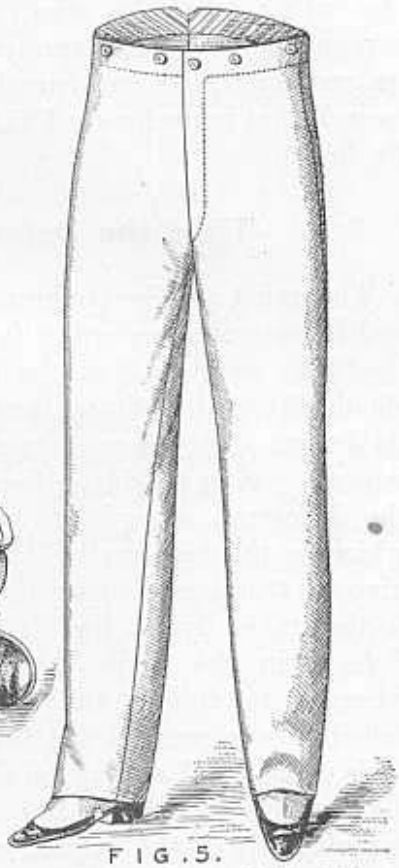


FIG. 5.
Standing. Natural Position.

THE VARIED RELATIONS OF BODY & LEGS.

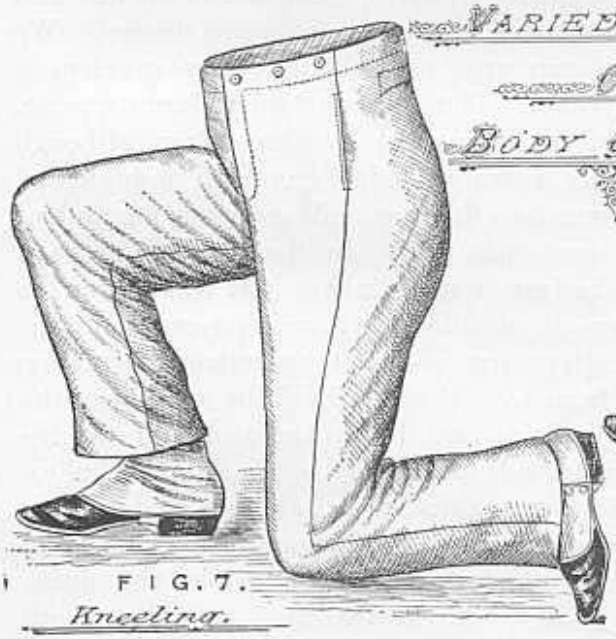


FIG. 7.
Kneeling.

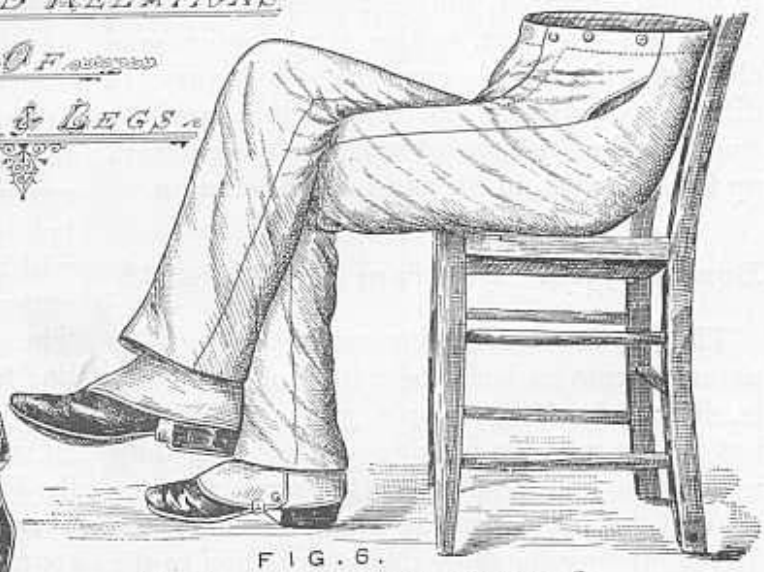


FIG. 6.
Sitting with Legs Crossed.

The above illustrations supply some interesting studies in what is required of Trousers in different attitudes of the body.

being called in despaired of his life; and, said the wife: "If he dies, I shall hold you responsible for it." Happily for all concerned he recovered, but our friend learnt his lesson so well that henceforward his aim was not to fit, but to

Hide the Deformity.

This must ever be the aim of the artist tailor, and it matters not whether it is a hump upon the back, or a bend in the legs, the garment should be made to drape the figure and so hide its defects. So far we agree with the school who say "alter to hide, rather than alter to fit," the difference of opinion comes in deciding which is the best method of doing this. To give the trousers an opposite bend of the legs to that taken by the legs is bound to produce defects in the shape of folds and creases, whereas to follow the shape of the legs sufficiently to prevent the formation of surplus folds of material, and at the same time to locate the surplus width of the trousers on the opposite side of the objectionable bend, seems to us to be the more artistic method.

To avoid one defect it is not always necessary to produce another, the best plan is to avoid all defects—in short, to aim at perfection, and although the ideal garment may vary in different minds, yet it is worth while carefully studying the features of such, and then work up to it in style, in fit, and in manipulation.

Bow Legged. Diagram 1. Plate 15.

This is the figure who seems designed by nature to ride on horseback, it would certainly be difficult for him to stop a pig in a passage, but of that we have nothing to do. Our duty is to clothe him, and we first observe that the bend of the leg forms an outward curve, the feet occupying the same relative position to the trunk that is the case in the ideal figure, and although occasionally the feet may be found closer together, yet, as a rule, they are normal. The bend of the leg increases the distance from fork to sideseam at knee, and unless provision is made to avoid it, there will be a nasty drag from fork to knee, and an undue strain on the fly buttons. The method we illustrate on Diagram 1 is to bend the centre line as from L to M an amount to be decided on, it being impossible to decide the degree of disproportion except by observation, and here we have an excellent opportunity of enforcing the necessity of using their eyes on young men who desire to become cutters. Train the eye to take measurements. As you walk about make your observations of various kinds of disproportion, and you will soon be able to decide what is the extent it exists in any figure.

L to M in this case we have made an inch and the width of knee is divided on either side of M instead of L, that would be variation enough for a figure bent 2 inches in the legs. The dot and dash line shows a little filling up at the fork, which is done with the view of relieving the strain from fly to knee.

Knock Knees. Diagram 2. Plate 15.

This is the opposite deformity to the last, and is sometimes found in a far worse degree. We have seen men whose knees have overlapped each other. The degree of the deformity must, as before, be decided by observation, although to place a straight edge from hip to ankle and measure into the knee will give the amount of hollow at that part. In the normal figure it will be from 1 to $1\frac{1}{2}$ inches. It will be for the cutter to decide whether this is desirable. The alternative is—bend the centre construction line from L to M about half the amount of the disproportion and divide the width of the leg on either side as shown by Diagram 2, hollow the fork as per dot and dash line, and so clear away surplus material from fork. This is, of course, in addition to taking out the dress. Sometimes figures are met with legs both bending one way, and in that case one leg must be altered as Diagram 1, and the other as Diagram 2, but in all cases try to hide the defect.

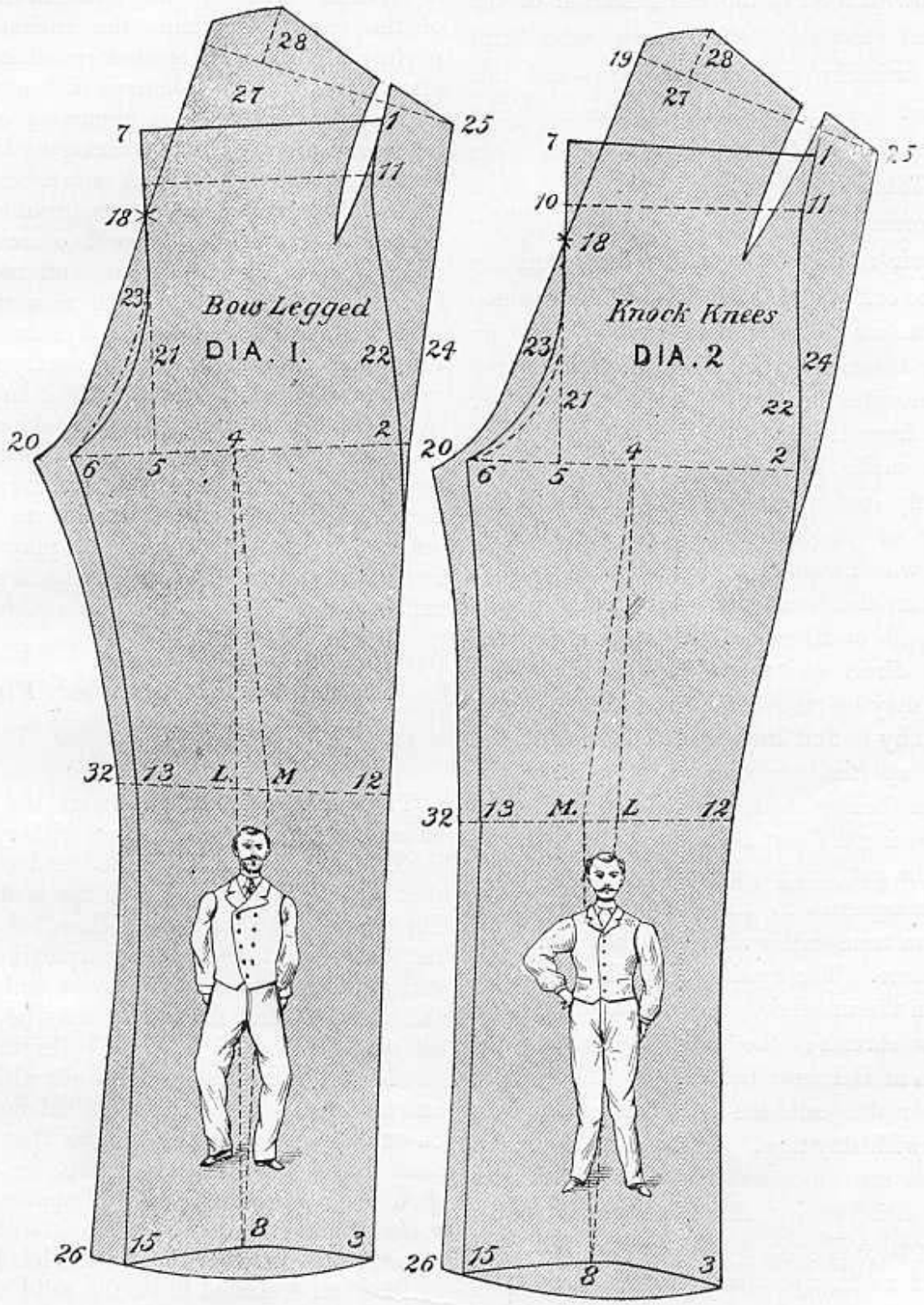

28
27
7
1
25
11
18
23
Bow Legged
DIA. I.
21
22
24
20
4
2
6
5
32
13
L.
M
12
8
15
3
26
19
28
27
7
1
25
10
11
18
Knock Knees
DIA. 2
23
24
21
22
20
4
2
6
5
32
13
M.
L
12
15
8
3
26

Plate 15.

Erect and Stooping Figures. Plate 16.

We now pass on to the consideration of the erect and stooping figures—men who bend forward or backward from the hips—and this must not be confused with the stooping shoulders. In the erect figure there is more bend or bias to the leg from 1 to 2, Fig. A, than in the normal, and unless provision is made for them their trousers will show a drag from top of fork to calf, and this will most likely develop into horseshoe folds at back of thighs. If an ordinary trouser pattern is taken, and the top and undersides are cut through about 6 or 7 inches from the top, the necessary provision may be made by inserting a wedge in the front at fly seam for the erect figure and taking one out of the undersides at seatseam, a process which results in lengthening the fly, shortening the seatseam, but retaining the same length of sideseam. When drafting the trousers direct on the cloth, the necessary position may be produced by receding the front as shown by dotted line at A, Diagram 1, and making up the necessary size at B. The alteration being made to the underside by strengthening the seat as shown at C and D. So far for the cut, but in our opinion it is of far more consequence to bring manipulative skill to bear on trousers for this class than to depend on cut alone. The topside at K L should be pulled on the undersides at E G and the hams carefully shrunk; the undersides should be fulled on at H I, and the fulness well worked back over the calf, the heel being drawn in slightly with stay tape. Trousers for figures of this class are amongst the most difficult to produce satisfactorily, and unless you can enlist the sympathy of your workmen you will find trouble, for although much may be done with cut, more may be done by manipulation, and figures of this class invariably demand a smart garment.

The Stooping Figure.

To describe the stooping figure as the reverse of the erect is perhaps the easiest way of portraying him. He bends forward at the hips, often walks with a stick, pays little attention to appearance, but demands plenty of ease. He is more often found amongst the older customers, and, provided room enough is given, does not cause much trouble. The necessary provision for such a customer is made by advancing the fronts and receding or crookening the seatseam, such as would result from a wedge taken out of flyseam and one inserted in seatseam, or the necessary provision may be made when drafting direct on the cloth by advancing the top of fly and taking a corresponding amount from top of sideseam. The seat is altered to correspond, taking some off from top of seatseam and adding to the sideseam. Manipulation does not play such an important part in fit of these, as will generally suffice to have them made up in a plain style.

Trousers for a Cripple. Fig. B. Plate 16.

There is a class of customers the tailor is called upon to clothe who have either lost one leg or it has been so deformed and contracted that special provision has to be made for it. Happily this is a very small class, but this very fact renders it the more perplexing to the cutter when it arises, and so we embody it in this work, so that the reader may be equal to all emergencies. The cripple, Figure B, has one leg contracted, so has to walk with one leg and a crutch. Now, in order to balance himself on one foot, it naturally follows that that foot must have an inward position, or what we should term closed, and this applies also to those who have had one leg amputated. But to return to the cripple, Fig. B, the left leg is cut as Diagram 4, dotted lines, the solid lines indicating the normal pattern. The alteration thus shown consists of closing the legs, and, if that is the dress side, taking out the dress in

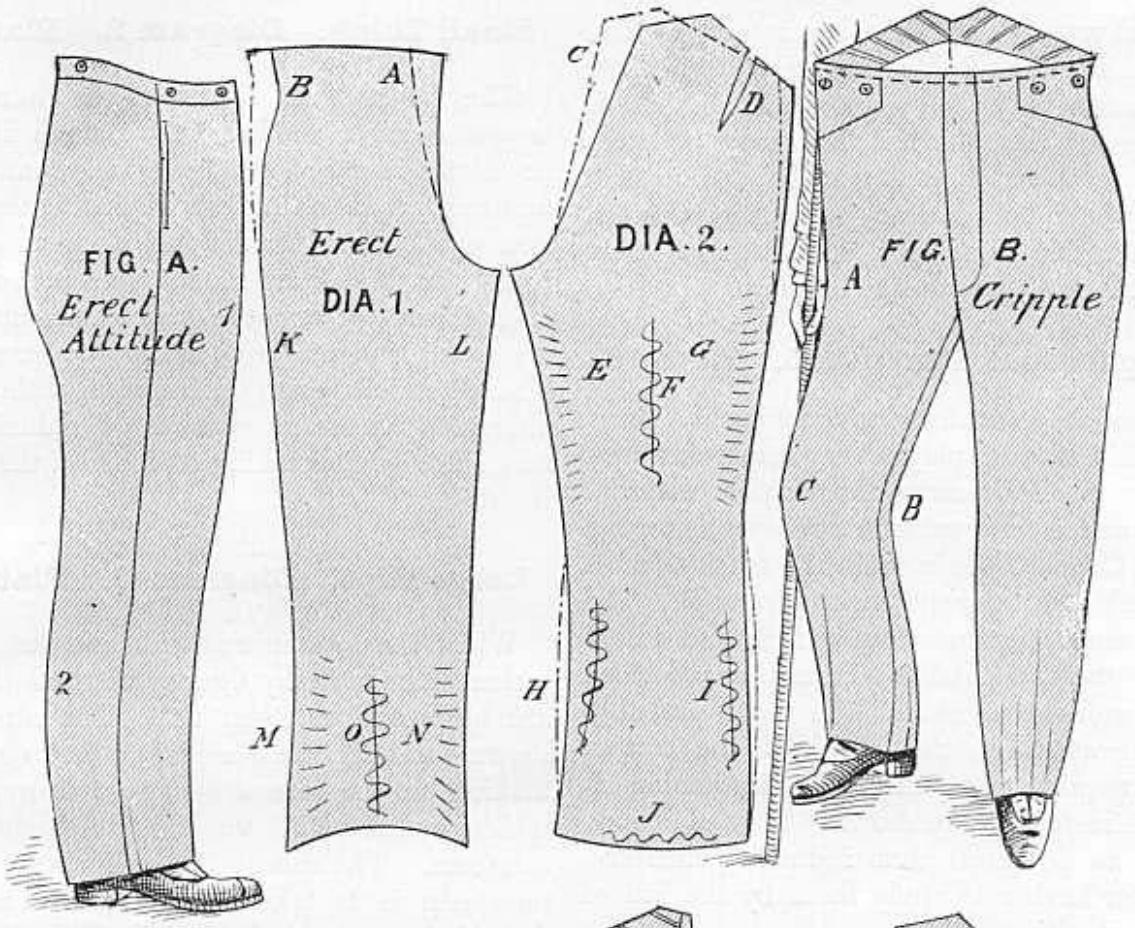


FIG. A.
Erect Attitude
1
2
B
A
Erect
DIA. 1.
K
L
M
O
N
C
D
DIA. 2.
E
F
G
H
I
J
FIG. B.
Cripple
A
C
B

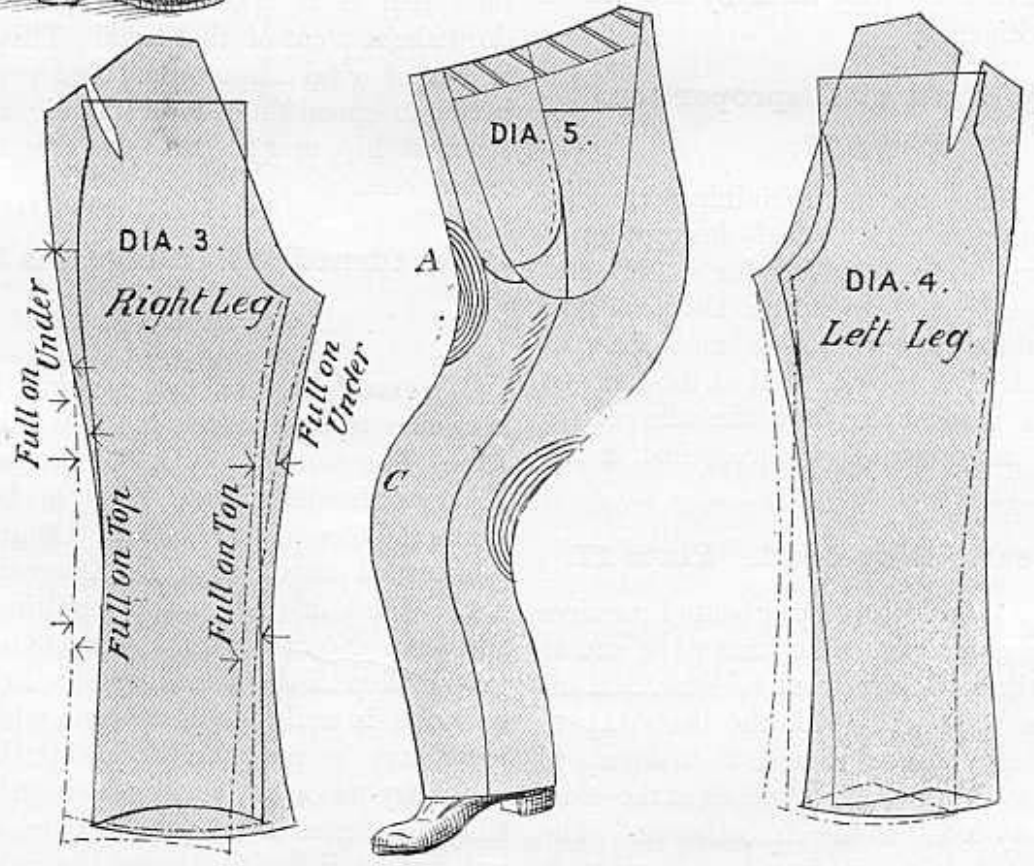

DIA. 3.
Right Leg
Full on Under
Full on Top
Full on Top
Full on Under
DIA. 5.
A
C
DIA. 4.
Left Leg.

Plate 16.

the usual way. The right leg is cut open in the legs, and the topside long enough to allow of its being pulled on over the knee. It is also possible that the left hip may be more largely developed than the right, and in that case it would be necessary to enlarge the left hip and reduce the right, so that here again we see the need for careful observation.

Manipulation. Diagram 5. Plate 16.

To produce a satisfactory fit for such a figure, manipulation must play a very important part in order to clear away the surplus material from A and B, and provide a receptacle for the knee at C; so to begin with, the topsides must be shrunk at A, and the undersides at B. The topside must be strained up at fork and fulled on over the knee, and the form thus produced nicely worked away. The foot probably drooping at front, the shape of the bottom would require readjustment, lengthening it over the instep as here shown. It is, of course, difficult to do more than indicate principles, the cutter having to apply them by the aid of his own intelligence.

Sundry Kinds of Disproportion. Plate 17.

We now gather up the remaining kinds of disproportion, and give a brief description of how they are to be provided for in cut and make. To detect these minor abnormalities requires careful observation—a measuring of the man with the eyes as well as the tape—a habit which does more to make the cutter excel, than any amount of theoretical knowledge which he does not apply.

Large Seat. Diagram 1. Plate 17.

The figure largely developed behind requires the surplus room located at that part, and as he is thick through from front to back, and his posterior is well developed, the best way to give him the necessary room is to make up to measure, plus the ordinary 2 inches at the side, and reduce by a fish to the size of waist. The method here advocated is shown on Diagram 1.

Small Thigh. Diagram 2. Plate 17.

The figure with the small thigh requires trousers with a smaller fork, though it has to be borne in mind the coccyxial quantity, or archway between the legs widens as the thigh gets small. The peculiar adjustment of flesh round the thigh bone produces a wider opening or archway between the legs when the thighs are small, and *vice versa* when they are large. The alteration shown on Diagram 2 shows the alteration necessary consists of reducing the fork slightly, and taking a piece off the top of the thigh.

Large Hips. Diagram 3. Plate 17.

When the customer is wide and flat, a bony rather than a fleshy figure, we find the hips are large and the seat flat. The alterations shown on Diagram 3 are best; they consist of making up the size of seat to measure, plus 2 inches, and reducing the waist to size at top of sideseam. The rule to follow in a very prominent seat is to take out a fish; for a flat seat, do without a cut of that sort. This, however, is not of vital importance, and perhaps it is better to err on the side of a straight flat sideseam at hip, and reduce by a fish, than a too round one.

Toes turned out. Diagrams 4 and 7. Plate 17.

To exactly locate the creasing line, it is necessary to observe the position taken by the feet. The normal position shown on Diagram 10, very frequently varied from Diagram 9, shows the toes turned inward; Diagram 11, the toes turned outward; whilst Diagram 12 shows a one-sided attitude often resulting from an accident. Now to be quite accurate in obtaining the position of the shrinking line, in each case a try-on is well-nigh necessary, when a chalk mark may be put over the instep; but as it is necessary to make some provision in cut for this, the cutter must use his eyes, and then it will not be difficult to detect the awkward gait

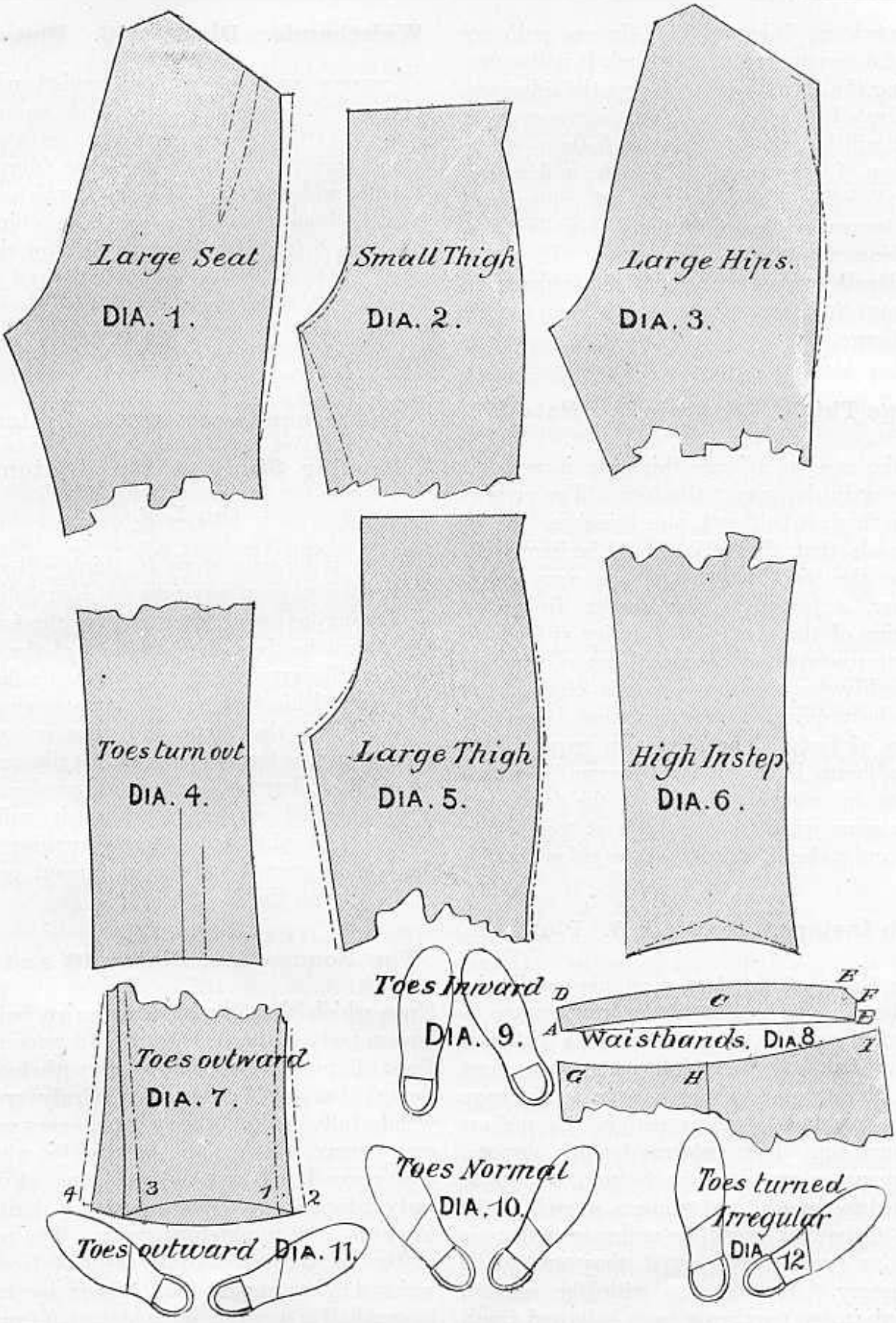

Large Seat
DIA. 1.
Small Thigh
DIA. 2.
Large Hips.
DIA. 3.
Toes turn out
DIA. 4.
Large Thigh
DIA. 5.
High Instep
DIA. 6.
Toes Inward
DIA. 9.
D
E
F
C
B
A
Waistbands. DIA. 8.
I
G
H
Toes outward
DIA. 7.
4
3
1
2
Toes outward DIA. 11.
Toes Normal
DIA. 10.
Toes turned
Irregular
DIA
12

Plate 17.

illustrated on Diagram 11. In an ordinary case of disproportion of this kind, it will suffice to bring the shrinking line nearer the sideseam, as indicated by Diagram 4, but in an extreme case it will be well to add to the bottom of the sideseam of topsides and add to the undersides, thus take off at 3 add on at 2 of topsides, and make corresponding alterations at undersides, by taking off at 1 and adding to 4. These are not difficult adjustments, but they require an observant thinking cutter to make them for the right figure.

Large Thigh. Diagram 5. Plate 17.

In the case of a large thigh, an increase is necessary in the size of the fork. The proportionate thigh is half seat, plus 3 inches. When it exceeds that, the fork should be increased, despite the fact that legs are very close together, a feature which results from the reduction of the coccyxial quantity at fork, so the cutter must be on his guard not to conclude too readily that because a man is close at the thighs he requires a close cut, that being the reverse of facts. The alteration required for such a figure is shown on Diagram 5, which consists in adding slightly to the fork, and giving more width to the thigh at top of leg-seam, and a slight addition at the sideseam.

High Insteps. Diagram 6. Plate 17.

The shape of the foot must necessarily be considered if the bottom of the trousers are to fit, and as we have many variations between the flat foot and the high instep, we must adapt the trouser to the wearer. We have known celebrated trouser cutters and makers who have kept block patterns for this purpose, and when we recollect the bottom has to be adjusted to the width of trousers as well as the shape of the foot, it will be understood there is room for considerable art if they are to be satisfactory. As compared with the normal, the high instep requires a more hollowed front, whilst the flat foot requires less hollow.

Waistbands. Diagram 8. Plate 17.

Trousers are cut without waistbands by reducing the height of top and undersides shown at G H I which generally comes at the natural waist. The band being cut from $1\frac{1}{2}$ to 2 inches wide, A to B the half waist. C is about 1 inch above the line, the object of hollowing being to produce spring on the top edge. A to D width of band desired plus 2 seams. B to F the same, if a front is desired at E then raise at top, and complete as here shown.

The Groundwork of the System.

A Popular Study of the Anatomy of the Leg.

Every tailor who stops to think will realise the necessity, or at any rate the desirability, of his having a sound knowledge of the form of the figure he is called upon to clothe. We should all agree in condemning the builder who erected his house without first taking into consideration the shape and substance of the ground he was building upon. In like manner we ought to have a thorough knowledge of at least external anatomy, whilst it will also prove beneficial to us to know something about the laws of growth and the movement possible to the various limbs.

The Foundation, Plates 18 and 19,

Upon which the all-wise Creator has built the human body is the skeleton, and a reference to Figs. 1 to 7 will provide us with food for thought as well as praise. Truly we are wonderfully made. Every bone, every muscle, every nerve, answers the purpose for which it was created. It serves the being of whose body it forms a part, and in so doing glorifies its Creator. But to practical study. The portion of the body covered by trousers is from the waist downwards, and as this is by far the longer half it deserves some attention from that standpoint. On the eight-heads total height

theory we have to cover from the third head downwards. Head 1: crown of head to chin. Head 2: chin to nipples. Head 3: nipple to navel. Head 4: navel to pubic organs. Head 5: pubic organs to end of middle finger with arm resting at side. Head 6: to small of leg. Head 7: to small of leg below calf. 8th: Head to toes. The upper portion of the body rests on the spine, and this is supported on the two haunch bones, which are in turn supported by the leg bones. These bones are the largest there are in the body and have a somewhat peculiar adjustment of flesh around them, but of this more anon. These bones are designed for movement, hence the joints are each adapted to a particular kind of movement. The first joint of each limb is a ball-and-socket arrangement, which thus provides an universal movement. The hip joint, Fig. 3, is of this kind and is consequently very free. Any sideway movement of the legs has to come from this joint, and the effect this has on the body is peculiar. The bones being of a very inelastic material always keep practically the same length so that the length of the skeleton from the hip joint, say to ankle, would always be the same. The muscles and other outer coverings of the body are of a more elastic nature, so that we find the length of the leg ranging according to the position assumed. The closer the legs are together the shorter they are, the more the figure straddles the longer the legs. The reason of this lies in the fact that the movement starts from the hip joint, and as the circle is some distance from the centre all the way round, so we find the leg length from hip joint (which is the centre) to the ankle (which describes the circle) is always the same, but the length of leg from fork to ankle is a very variable quantity.

The Knee

has been designed for quite another purpose and is only a hinge joint swinging backwards and forwards to starting point. It has a dual bearing and a covering, as will be seen by Fig. 4. It is like the hinge of a door, it permits it to move open and back to the door post again; so the knee joint only moves backwards and up to straight again, beyond which it does not move forward. Neither does it move sideways, the hip joint being quite sufficient for that purpose. The knee joint has only a very spare covering of flesh and muscle, and in this sense differs somewhat from the hip joint. The ankle joint is of the sliding character, but this has very little effect on trousers, so we may dismiss it from the discussion, Fig. 5 illustrating its very parts, which are somewhat numerous and complicated. In addition to the peculiarity of a varying length of leg we must not overlook some other

Variations in Length

which take place at other parts of the body. If the student looks at his hand he will observe surplus flesh at the knuckles; if he closes his hand so as to form a scoop he will see surplus flesh form itself in folds in the palm. In like manner we find surplus length of skin showing itself under the ball of the seat on the knee when the body assumes certain positions. Now to know what takes place in the body will help us to provide for it in the trousers, hence the value of a knowledge such as we are endeavouring to make plain now. Observation has taught us that when the body bends forward it increases in length over the seat to the extent of 5 or 6 inches. This may easily be proved by a very simple experiment. Make a mark on the body, as at 1, Fig. 7; now make another at 3, and increase the distance between them when the figure is standing erect, as right leg, Fig. 6. Now lift the foot on a stool as shown by Fig. 7, and measure the distance from 1 to 3, and it will be found to have increased by 5 or 6 inches. The same principle operates at the knee the distance between 6 and 7. Fig 7 is longer by 2 or 3 inches when the knee is bent than while it is straight. Now this is in each case accompanied by

A Contraction

or shortening of the body at the opposite parts, so that whilst the length over the seat is increased, the lap is much shorter, and so in like manner with the knee, the underpart shortening in the same proportion as the knee increases. These are some of the causes of the difficulties which exist in producing smart clean fitting trousers. It is idle to ignore them, the wisest plan is to study them intelligently, and put yourself in possession of those principles which will enable you to provide for them in a satisfactory way. We have not yet exhausted these

Peculiar Physical Developments

for we have another extraordinary effect yet to learn, and that is the way the body expands and contracts in different positions. Test this for yourself. Put the measure round the seat when you are standing up, and then keeping the tape in the same position, sit down, and you will find an expansion taken place to the tune of at least 2 inches, so that if the measure of the seat is taken when standing, and is say, 36, if taken when sitting it is 38. This is produced by a peculiar movement at the hip joint. If the hand is placed a little below the hip and the leg is raised, as shown on Fig. 7, a peculiar pumping-out movement will be felt as if the joint left the socket; this is accompanied by an increase of size in that part, thus giving us an indication where the increment takes place. It is for this reason we advocate the taking a fish out of the undersides as shown in most of the preceding diagrams, as by that means the surplus room is located just over the place where it is required by the body. Now the next study we make of these figures is to find out the

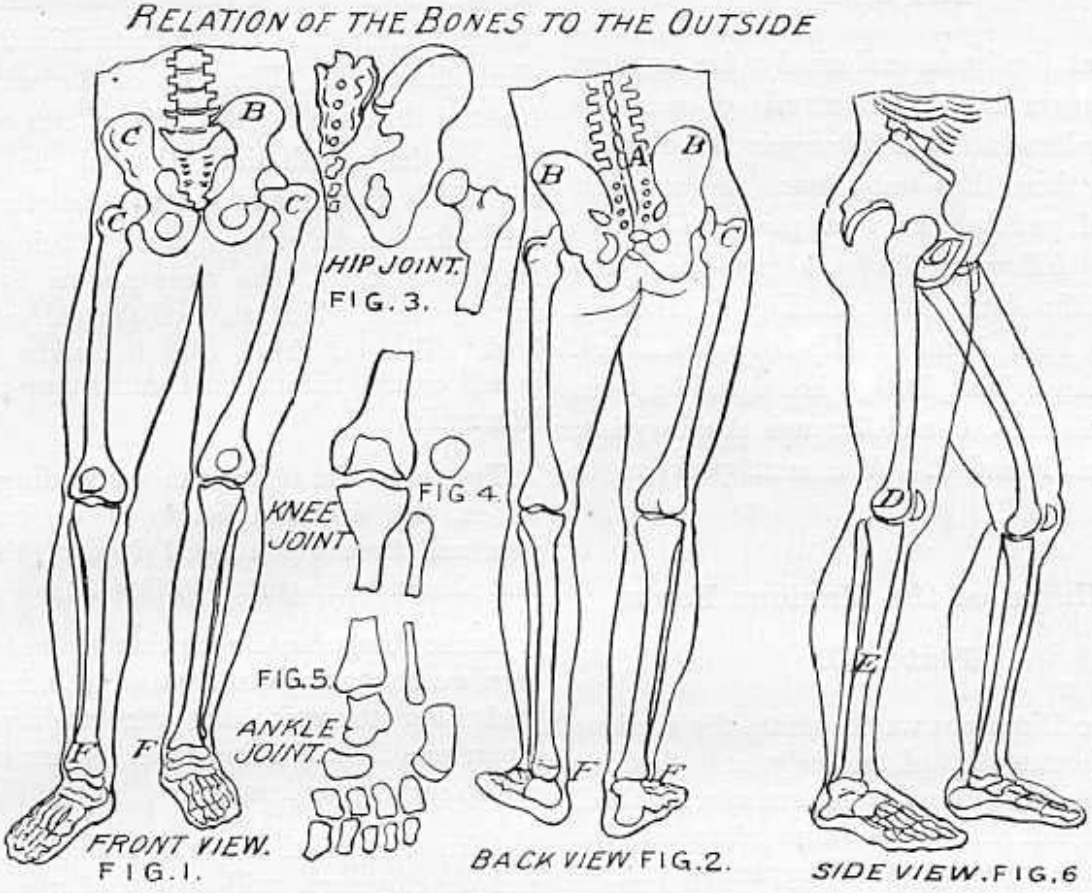
Laws of Growth,

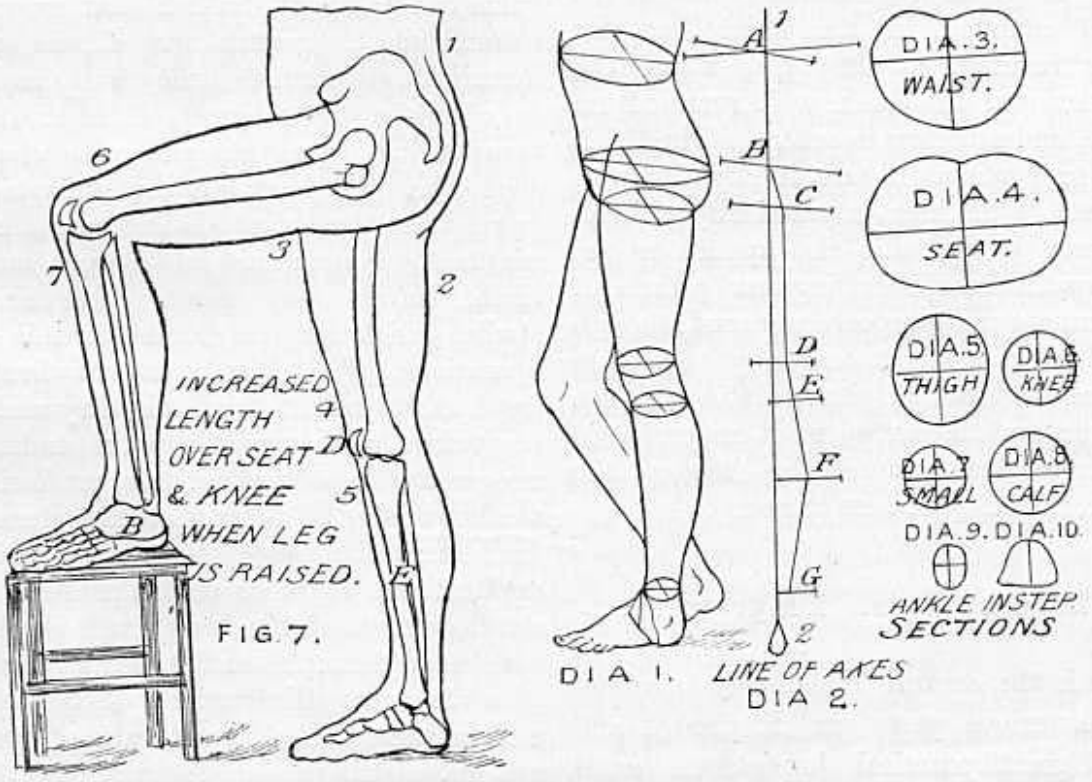
for here again definite laws exist, and are as implicitly obeyed, as are those which regulate the course of the Sun, the Moon, and the Stars.

It will be noticed that the bones by no means run through the centre of the limbs. The spine is located at the back, the thigh bone at the side, and the shin bone at the front. The flesh and muscle being adjusted on them in an eccentric manner as the waist increases in size, the enlargement takes place at front and sides, the proportion being about two-thirds at front and one-third at side, with only the smallest possible addition to the back. Coming to the seat a little lower down, we have quite a different order of development, for by far the greater increase at the seat takes place at the back on what we know as the ball of the seat, and in order to adjust the balance of the body it assumes an erect attitude, an illustration of which will be found on Plate 14.

The Development of the Thigh

takes place principally on the inside of the leg. A reference to the accompanying figures will show the thigh bone to be quite at the side, so that the shape of the sides of the leg varies but little, the small thigh is hollow and flat at the inside and top. This has a most important effect on trousers, and there is no doubt a measure taken over the thigh is very advantageous is determining the size of fork, and deciding on the coccyxial quantity. This latter is the archway or opening that exists between the legs, which in the normal figure amounts to 1 inch. If the thigh measure is taken, it is used as follows: from fly line to centre line is one-eighth thigh, plus half of coccyxial quantity, which as we have already pointed out, is greater when the thigh is smaller, and less when the thigh is larger in relation to the seat. The fork of topside and underside combined, is one-third thigh, plus $\frac{1}{2}$ an inch, the thigh for a 36 seat being 21, or 3 inches more than half seat. This gives us $7\frac{1}{2}$ inches divided to taste, or as we portray on diagrams on preceding pages, as 3 for the topsides, and $4\frac{1}{2}$ for the undersides. We believe this is the more correct method for all sizes and shapes, but as the seat measure is simpler, and answers as satisfactorily in at least ninety-five cases out of every 100, we have used it as the basis of our system.





Plates 18, 19 *and* 20.

The Calf

Develops at the back exclusively, for as most of our readers will have proved on occasions when they have accidentally received a blow on the shin, there has only been the smallest amount of padding at that part. Thus we have the following bones always near the surface of the skin: Spine, A, Fig. 2; Haunch bone, B B, Figs. 1 and 2; Hip bone, C C, Figs. 1 and 2; knee joint, D D, Figs. 6 and 7; Shin bone, E E, Figs. 6 and 7; and Ankle joint, F F, Figs. 1 and 2. We next pass on to consider

The Shape of the Various Parts.

Plate 20.

On these Diagrams we illustrate the sections of the different parts of the body, and first we observe the sections of trunk are symmetrical, that is, the left side is the same shape as the right; but a reverse, see Diagrams 3 and 4. The waist, Diagram 3, is flat and hollow at the back, and rounded in the front, but this practically reversed at the hips, where the front is flat and the back well rounded on either side, and a hollow in centre. The thigh of a well-proportioned figure is slightly oval, see Diagram 5; the knee is practically a circle, see Diagram 6; and this also applies to the small below the knee, see Diagram 7; the calf is to all intents and purposes a round, though perhaps there is a slight tendency to ovalate at back, see Diagram 8; the ankle is oval, see Diagram 9; and the instep is of an eccentric form. Having briefly noted the shape of the legs at the various parts, let us note

The Line of Axis. Diagram 2.

An axis is the central line or pivot around which the various parts are distributed and this is of great practical importance, as it shows us how the legs of the trousers should be balanced to produce good and smart fitting trousers. A reference to Dia. 2 shows a plumb line 1, 2. The axis of the waist is in front of this, see A; the axis of the seat B is put on the plumb line; that of the thigh C slightly behind it, and this continue throughout the centre length of the figure; D being slightly further back at C, the male shown by E, still further back, whilst that of the calf is further back still; but from calf to ankle the line goes forward, till at C it is almost up to plumb line again.

Try to realise this is the scaffolding around which the trousers have to be built, and you will then get a good idea of the shape that should be imparted to them.

In the foregoing description of the body and legs, we have refrained from all technical terms, preferring to write for our readers in the language of the cutting-room, rather than that of the surgery or hospital.

A knowledge of the body and its formation and development will prove of the greatest value to intelligent students, and we earnestly exhort all to master the details we have described, very satisfied they will enable them to obtain a better grasp of what a pair of trousers has to cover, and what shape they should be. We have left the study to the end as we know that most students are anxious to master the system, and set to work cutting the cloth, before they master those anatomical studies which form a sound scientific basis of operations. We only hope that though they come at the end of the book, they will not be neglected, for they will help the student to get nearer the front rank of his profession than the knowledge of a dozen other systems. It is far better to be master of one system in all its applications, together with the anatomy and developments of the body, and although we give a few examples of famous systems, yet we give these as illustrations of how different authors have used different basis of operations, and have still produced practically the same result. We now give a

Scale of Proportionate Measures

For all ages, which will serve the dual purpose of a study of the development of growth, and a set of measures by which to cut a set of model patterns.

Side.	Leg.	Waist.	Seat.	Knee.	Bottom.	Age.
28	20	24	24	14	13½	4
31½	23	25	26	15	14½	6
36	25	26½	28	16	15	8
38	27	28	30	16½	16	10
40	28	29	32	16½	16	12
41	29	30	34	17	16½	14
43	31	31	36	17	16½	16
44	32	32½	38	17½	17	Adult
44	32	35	40	18	17½	,,
44	32	38½	42	18½	18	,,
44½	31½	41	44	19	18	,,
45	31½	44	46	19½	18½	,,
45	31	48	48	20	19	,,
45	31	52	50	21	20	,,

This gives fourteen sizes, but these may be added to if it is intended to make a range of garments for stock; thus a size or two might be drafted between the measures given for the 24 and the 26, or between the 26 and 28 seat, whilst odd sizes might also be prepared in the men's, making them suitable for tall and thin people without varying the size of waist and seat. Such sizes find a ready sale in ready-made trades, and it may be of service to have such patterns cut.

Trouser Grading. Plate 21.

There are various methods followed for preparing a set of Model Patterns. Some draft a set cut by a scale of measures such as that given on the preceding page. Others take a set of graduated tapes and draft one pattern by each tape. Others produce them by a process known as grading. The first of these methods is very successful when a good set of measures has been obtained; but as these are not always forthcoming, and as there is a strong likelihood that even with the most careful drafting a little variation in style may creep in, the balance seems to be in favour of grading, and so this is the process adopted by the large manufacturing houses when preparing a set of models for their ready-made garments.

Grading and Graduation

Are two distinct methods; the former may be made to follow the peculiar evolutions of human growth, whereas the latter is often quite at variance with the laws of physical development. In graduation, the man who gets larger is expected to get taller; but if such a man has arrived at maturity his height remains practically the same, but his waist and seat will enlarge, and the man of 40 will measure several more inches round the waist than he did at 30, whilst at the same time the length of his leg will have decreased; so whilst graduation has its legitimate and practical uses, it can only be applied to certain parts of the garment, and even then with limitations.

The Best Method of Grading

Is to cut two patterns of different sizes, such as, say, 36 seat and 50 seat, or the principle may be applied equally well by preparing models for the 38 and 44 seat, or any other two sizes selected. These are then placed with two of the principal points together. In the draft, Diagram 1, the top of fly seam and the bottom of legseam (A and B) have been placed together. Lines are then drawn through the different points, as from B to E, F to G, C to I, H to L, and J to K. This having been done, decide how many sizes are wanted between the two patterns. In the illustration we have assumed a set of seven patterns have been desired, from 36 to 50 seat, consequently the intervening spaces between the various points have been divided into six parts. First the middle has been found, and then each half has been divided into thirds, and the connections have been drawn as illustrated on Diagram 1 for the topside, and Diagram 2 for the underside.

By this method the leading features of style have been kept the same throughout the entire set, and the progress from normal to corpulent has been gradual.

Another Method

Is to draft out one good pattern, and then to increase at the various points as follows, taking the seat as a guide. Add to the fork one-sixth inch for every 2 inches of seat. Add $\frac{1}{2}$-inch at the side for every 2 inches. Shorten the leg one-sixth inch for every 2 inches seat. Add $\frac{3}{4}$-inch to the waist for every 2 inch increase at seat, and add one-sixth inch to the knee for every 2 inch increase of seat.

Such a plan is very useful when a single pattern has been obtained, and it is desired to construct a set of models from it, but we must confess to a liking for the former method, and even if a single model only was forthcoming, we should prefer drafting one to a larger size from it, paying attention to the well-known peculiarities of growth, and then use these two as the basis of operations, in which case we think the result would be better, and more in harmony with the peculiarities of the different sizes than would be the case when grading from a single pattern. By this method of preparing a set of models

The Style of Noted Firms

May be retained, and the cutter may be able to have a set of models *a la* Hill, or Hammond, or Tautz; and when we remember that style often plays a more important part in building up a trade than fit, we see the advantages of this system.

Many a time have we been called upon to take the pattern of a garment made by a well-known firm; and we do not think we should be wrong in stating that scores of tailors have ripped garments apart in order to obtain a pattern of a garment that has been admired for its qualities of fit or style, or both. The advantage of grading is that once having obtained such a model a whole set may be prepared from it. Here we may offer a word of instruction on

How to Take a Pattern

Of a made-up garment. The tools required are a few weights and a fine awl. Take the trousers and lay them flat on a piece of paper, keeping them in position with the weights, then prick the outline through by the awl. If the outline of the seam at any point folds over, follow the outline as laid down, and continue beyond by measures easily taken. Draft the outline by the marks so obtained, and add $\frac{1}{4}$-inch seams at all parts, except top and bottom. By the exercise of a little care and patience the outline of any garment may be taken in this way.

Novel Ideas in Trouser Cutting.

Plate 22.

The following systems, gathered from the writings of those who have studied the subject of Trouser Cutting most attentively, will provide food for thought, and in the hands of those of an experimental turn of mind will prove a hotbed for system making. They illustrate the various modes of trouser cutting now followed, and show the practical working of the side, centre and front construction lines as well as others of a more complex character.

Jansen's System. Diagram 1.

The measures taken were side, leg, waist, seat, double thigh, double knee, single thigh, single knee, and fashion widths of knee and bottom.

1 to 4 side length.

4 to 2 leg length.

2 to 6 one-fourth double thigh, and this gives the construction line 9, 18, 21.

18 to 3 one-fourth double knee.

2 to 7 half single thigh.

3 to 19 half single knee.

5 is midway between 2 and 7, and 17 is midway between 19 and 3, and by these points draw line 15, 20. Usually the front and centre line are parallel, but this varies when the knees are very close or very open. 10 is $\frac{3}{4}$ inch in front of 9, and 10 to 1 is half

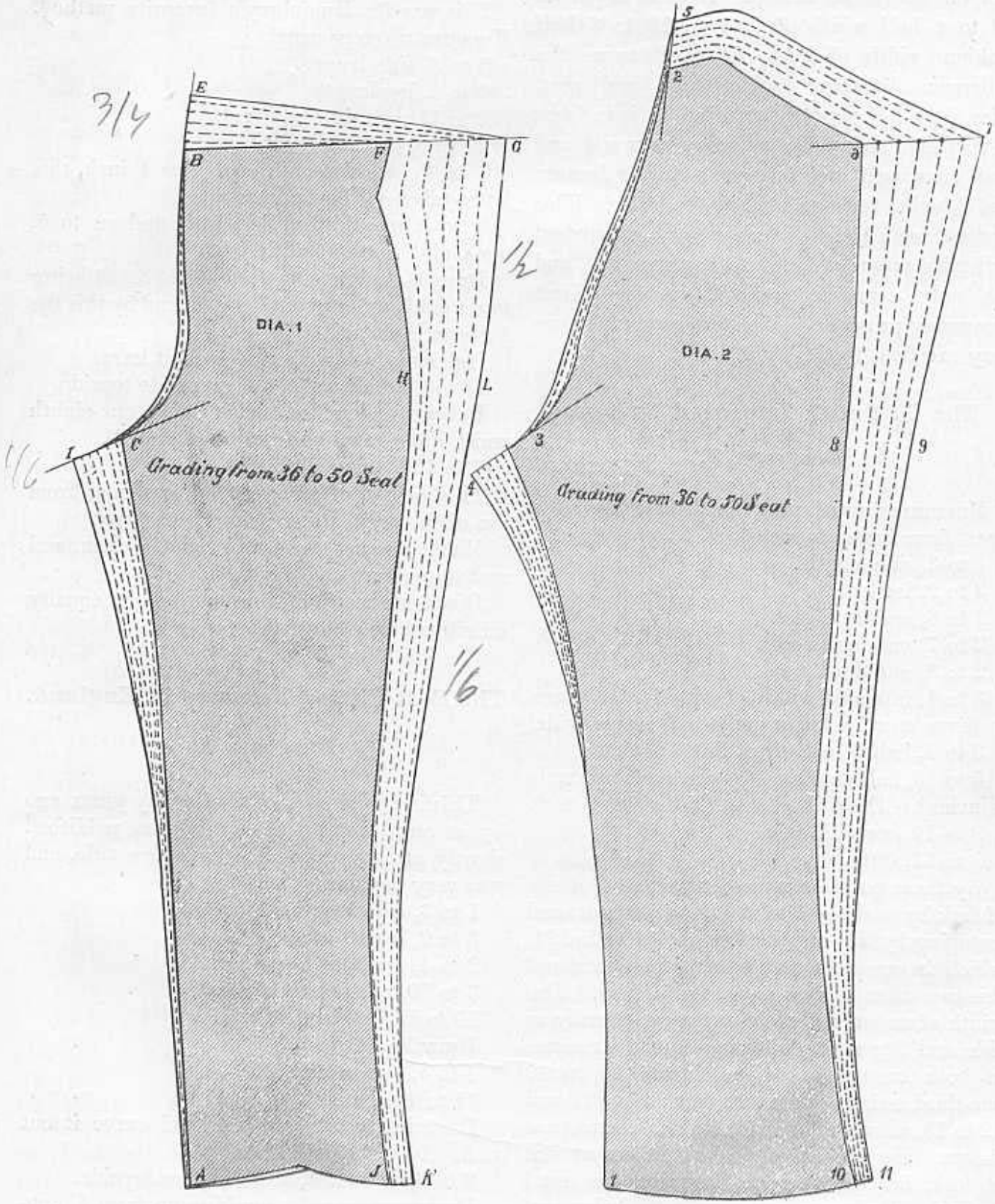

3/4
E
B
F
G
1/2
DIA. 1
H
L
1/6
I
C
Grading from 36 to 50 Seat
A
J
K
1/6
5
2
7
3
8
9
4
DIA. 2
Grading from 36 to 50 Seat
1
10
11

Plate 21.

waists. Our readers will see it is intended to sew on waistbands at top. 21 to 22 is 1 inch, 22 to 4 half width of bottom, 19 to 3 half fashion width of knee, 6 to 8 twice the difference between double thigh and seat. Rise back 15, same distance as 10 is in front of seat line, and make up same as waist and seat, allowing 1 inch for seams at the former, and 2 inches for ease, etc., in the latter. This system has been described by a competent authority as one of the best ever arranged, and the only complete method on the direct measuring principle. We have produced some very excellent results by it.

The G. Smith Improved System.

Diagram 2.

Measure as usual plus the distance feet are apart from instep to instep.

1 to 3, side length.

3 to 2, leg length.

2 to 6, one-sixth seat.

2 to 7, one-fourth seat.

2 to 8, one-third seat.

3 to 4, intended width of topside, for which he gives no rule, his example is 7 inches wide.

3 to 5, half 3 to 4, draw line 5 to 6.

5 to 13, half distance legs are apart (example 4 inches). Draw line from 13 through 6 to 9.

9 to 10, one-eighth waist.

9 to 11, ditto.

By these points complete topside. Get size of fork by making 7 to 20 one-sixth seat, and sweeping by this and the fork point 8 to find 21, which is one-sixth seat from both points, and this is used as a pivot to sweep fork by. The width of underside leg he makes up equally as side and leg seams, allowing 1 inch for seams at both knee and bottom. From 10 to 12 one-third waist, measure up waist 10 to 11 and 12 to 19, allowing 1 inch for seams. Complete as shown. He sometimes filled up hollow of seat at fork, but the diagram illustrates his usual method. He leaves many points to judgment, but it contains ideas worth thinking over.

The Gem System. Diagram 3.

This was Dr. Humphrey's favourite method. Measures taken as usual.

1 to 3, side length.

3 to 2, leg length.

2 to 11, one-sixteenth seat.

11 to 8, one-sixth seat.

7 to 9, one-sixteenth seat plus 1 inch, this latter taken off for undress side.

3 to 4, one-third style width, and on to 5, one-eighth bottom width.

Draw a straight line from 5 to 8. 8 being found midway between 7 and 9, and by this the legseam is shaped.

Hollow sideseam about $\frac{1}{2}$ inch at knee.

13 to 15, half waist, and complete topside.

For the undersides, make 12, 16 one-eighth waist, and draw line from 8 through 16.

7 to 10 is one-eighth seat.

Find height of seatpiece by sweeping from top of sideseam, using point 7 as a pivot.

Make up waist to measure and 1 inch, and seat to measure and 2 inches.

Distribute width of knee and bottom equally on either side of topsides.

The Best Fitting Trousers in England.

Diagram 4.

This is a method shown us many years ago by a very smart cutter. It was published shortly afterwards under the above title, and was very popular.

1 to 3, side length.

3 to 2, leg length.

2 to 4, one-fourth seat.

3 to 10, one-fourth bottom.

10 to 11, one-twelfth seat.

Draw line 11 to 7.

4 to 5, one-twelfth seat.

11 to 12, 1 inch.

Draw leg by straight line, and curve it out to 5. 14 to 17, half knee.

6 to 8, half waist, and complete topside.

Draw seat seam by marking up from 4, one-fourth seat.

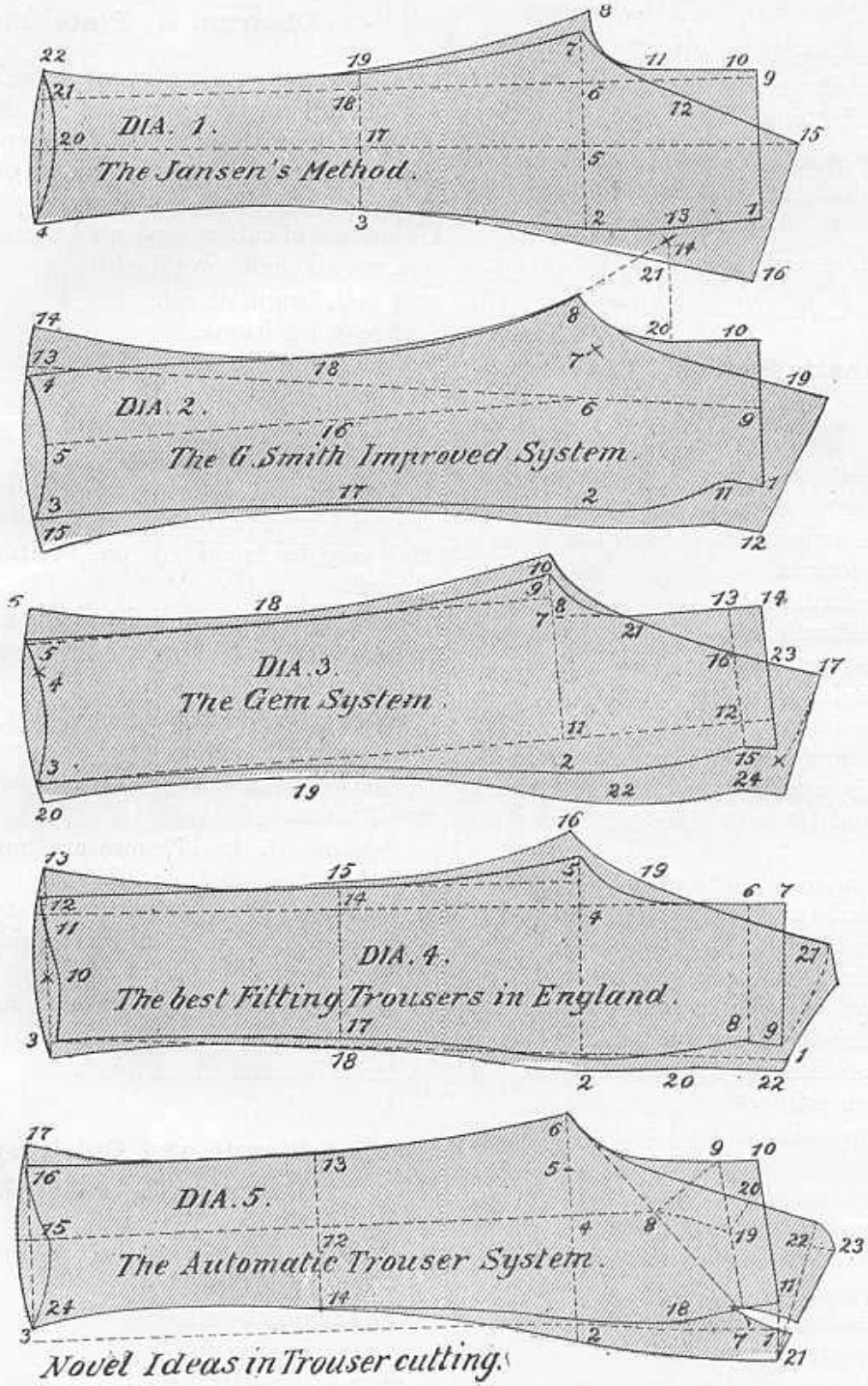

DIA. 1.
The Jansen's Method.
DIA. 2.
The G. Smith Improved System.
DIA. 3.
The Gem System.
DIA. 4.
The best Fitting Trousers in England.
DIA. 5.
The Automatic Trouser System.
Novel Ideas in Trouser cutting.

Plate 22.

Spring out to 16, which is one-eighth seat from 4.

Make up knee width equally at side and leg, allowing 1 inch for seams, and follow the same course for the bottoms.

Measure up waist to measure at 22, plus 1 inch, and do the same with seat at 20, allowing 2 inches for ease, making up, &c.

Find length of seat piece at 17, by sweeping by point 4.

The Automatic System. Diagram 5. Plate 22.

This is a method arranged by us, in which we have endeavoured to work on anatomical lines.

1 to 3, side length.

3 to 2, leg length.

2 to 4, one-sixth seat.

2 to 5, one-fourth seat.

2 to 6, one-third seat, plus $\frac{1}{4}$ inch.

7 is the height of natural waist, say, $\frac{1}{4}$ seat plus 1 from point 2.

Draw line from 6 to 7, 8, midway from 6 to 7, and by this, square up to 9 one-sixth waist.

12 to 13, and 12 to 14, one-fourth knee, plus $\frac{1}{4}$ inch.

15 to 24, one-fourth bottom, plus $\frac{1}{4}$ inch.

15 to 16, same as 15 to 24, less $\frac{1}{2}$ an inch.

Underside, 18 is at side, opposite 8.

Sweep from 8 to 19, and mark up 5 or 6 inches to allow for stooping, say one-sixth seat.

19 to 20, one-twelfth waist.

Find top of sideseam by sweeping from 11 to 21, by knee point 14.

Measure up waist, plus $2\frac{1}{2}$ inches, and take out fish.

Measure up seat plus 2 inches.

Square across from seatseam to 21, and make 22 two inches from seatseam, and 23 $1\frac{1}{2}$ inches above 22.

Make up bottom to measure, plus 1 inch at 17, and complete as shown.

This was one of the first systems that provided for corpulency in its ordinary workings.

The Federation Prize System. Diagram 1. Plate 23.

This was the system awarded the First Prize by the adjudicators appointed by the National Federation in 1887; it was afterwards incorporated in our C.P.G. Series, and is the original of the system given in this work. Thousands of successful cutters have used it, and the book has run through several editions.

1 to 2, length of side.

2 to 3, leg length.

3 to 4, half-leg less 2 inch.

3 to 5, one-sixth seat.

5 to 6, one-twelfth seat, or one-eighth thigh plus half coccyxial quantity.

6 to 7, half diameter thigh, obtained thus: deduct 1 from tight-thigh and divide it by 6, or this may be found by one-twelfth seat plus $\frac{1}{4}$ inch.

8 to 10, one-fourth waist plus $\frac{1}{2}$ inch.

11 to 12 and 11 to 4, each one-fourth knee plus $\frac{1}{4}$ inch.

13 to 2, one-fourth bottom plus $\frac{1}{4}$, and 13 to 14, one-fourth bottom less $\frac{1}{4}$.

For the undersides 6 to 16, 3 inches or one-twelfth seat.

Square, 16 to 17, measure up seat plus 2 inches, and waist plus $2\frac{1}{2}$.

17 to 18, 2 inch, and 18 to 19, $1\frac{1}{2}$ inch.

Fork of underside same as topsides.

Take out fish 1 inch at 21.

Make up bottom to measure plus 1 inch at 15, and complete as diagram.

Dress is taken out as usual.

The Simple and Quick System. Diagram 2. Plate 23.

The special features of this method are simplicity and speed.

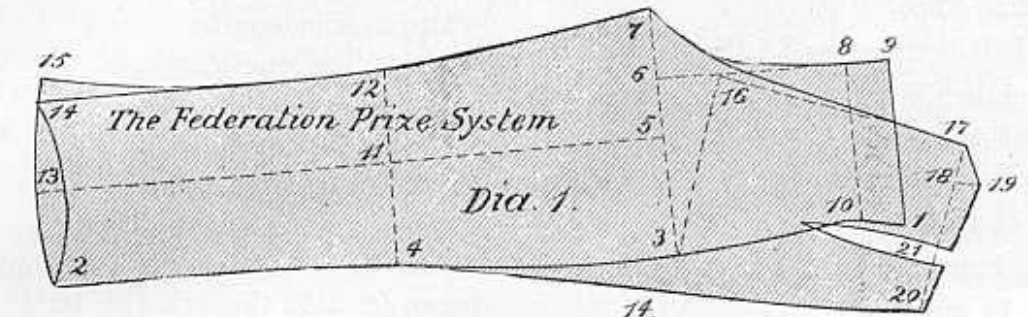
1 to 2, side length.

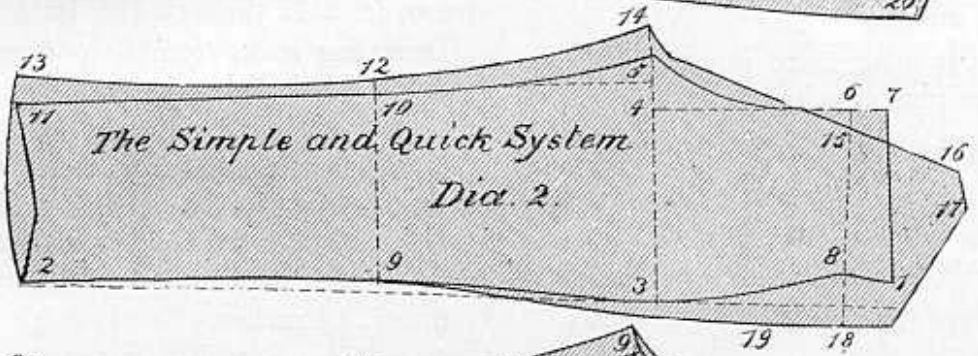
2 to 3, leg length.

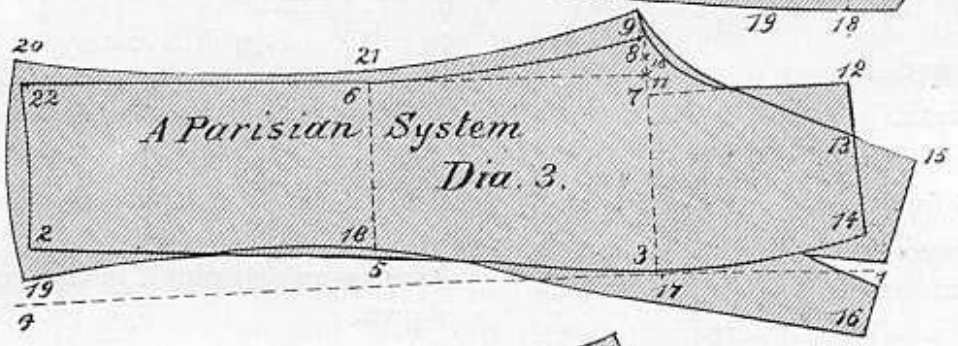
3 to 4, one-fourth seat.

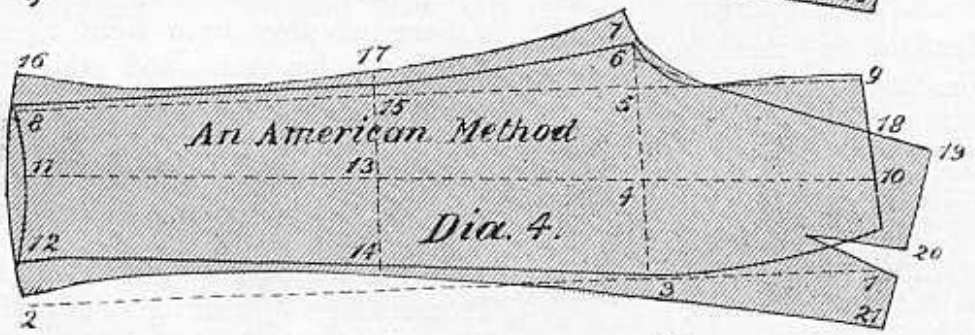
1 to 7, one-fourth seat plus 1 inch.

6 to 8, one-fourth waist plus $\frac{1}{2}$ inch.


The Federation Prize System
Dia. 1.


The Simple and Quick System
Dia. 2.


A Parisian System
Dia. 3.


An American Method
Dia. 4.

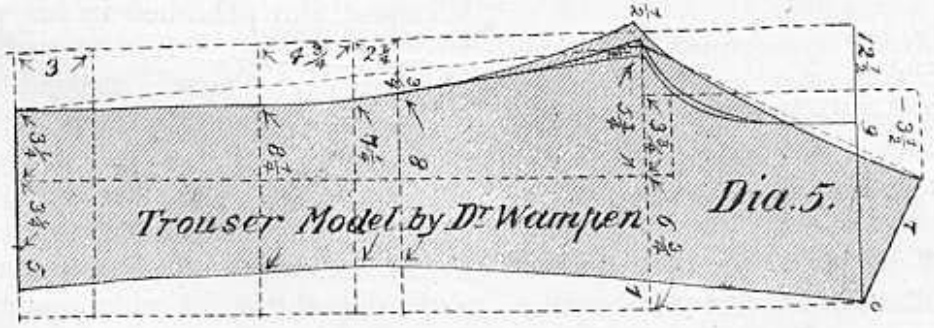

Trouser Model by Dr Wampen
Dia. 5.

Plate 23.

3 to 5, one-third seat, hollow-side seam $\frac{3}{4}$ at knee.

9 to 10, half-knee.

2 to 11, half bottom less $\frac{1}{2}$ inch.

For the undersides, 6 to 15 1 inch, draw seat line from 5 through 15.

17 is $3\frac{1}{2}$ inches above topsides.

5 to 14, $1\frac{1}{2}$ inch.

10 to 12, 1 inch.

11 to 13, $1\frac{1}{2}$ inches.

Make up waist to measure plus 1 inch, and seat to measure plus 2 inches.

Take dress out of right topside, and complete as per draft.

A Parisian System. Diagram 3. Plate 23.

1 to 2, side length.

2 to 3, leg length.

2 to 4, one-twelfth seat.

Square 3 to 8 by 3 to 4.

3 to 7, one-fourth seat.

7 to 8, one-sixteenth seat plus $\frac{5}{8}$.

Divide 7 to 8 into 3 equal parts as 10 to 11.

2 to 22 half bottom less $\frac{3}{4}$ inch.

Draw line from 22 to 11, and curve out to 8 from knee.

12 to 14, half waist.

For the undersides, 12 to 13, one-twelfth seat.

13 to 15, one-twelfth seat, add on $\frac{1}{2}$ or $\frac{3}{4}$ inch at fork.

6 to 21, $\frac{1}{2}$ inch.

22 to 20, 1 inch.

Measure up waist and $2\frac{1}{2}$ inches, and seat plus 2 inches.

Measure up knee plus 1 inch, and this will generally result in a hollow sideseam to undersides at that part.

Measure up bottom to measure plus 1 inch.

Take out dress to 10, and complete as shown.

An American System. Diagram 4. Plate 23.

1 to 2, side length.

2 to 3, leg length.

3 to 4, one-eighth seat.

3 to 5, one-fourth seat.

5 to 6, one-sixteenth seat.

Line 5 to 6 is squared down.

8 to 11 is one-twelfth seat, and centre line drawn from 11 through 4 to 10.

Draw leg seam from 8 to 6 and mark off towards side half knee.

11 to 12 is one-fourth bottom.

Mark off half waist from 9 towards side, and complete as shown.

For the undersides 18 is half-way between 10 to 9, or 10 to 18 one-twelfth seat.

6 to 7, $1\frac{1}{2}$ inches.

18 to 19, one-twelfth seat.

Mark out to 17 $\frac{1}{2}$ inch, and make up knee to measure plus 1 inch at side.

Make up bottom equally on either side of 11.

Measure up waist plus $2\frac{1}{2}$, and take out 1 inch V at 20.

Measure up seat plus 2 inches, and complete as shown.

Take out dress from right topside and add waistband for top, and the trousers are complete.

Dr. Wampen's Model for Trousers. Diagram 5. Plate 23.

On this Diagram we give a reduced model of Trousers for a 36 seat figure as outlined by Dr. Wampen, and published in his work. These models he prepared from a study of the form of the figure. The various points are indicated by figures representing inches for the 36 seat, or units for other sizes. These may be serviceable as a basis, but would require considerable adaptation for present day style. They can hardly be said to embody a system, but as this author has obtained a wide reputation, we give his model a place with the others, and doubtless, many will study it with interest.

Novel Ideas.

On Plates 22 and 23 we have illustrated all the most novel and practical ideas that have been utilised during the past century for the purpose of trouser cutting, and our object in giving them is not to encourage a spirit of constant experiment, but rather to provide food for thought, by showing how the leading authors of various countries have arranged a system for trouser cutting. We all know that many men have many minds, and each man must work by the method which suits him the best, but beneath all methods there lie principles which have to be obeyed, if success is to be achieved.

Our advice to the student is, thoroughly master one method for all styles and all shapes, make it the basis of your cutting-room practice, if it produces good results be content, and only vary from it when fully satisfied that good results will follow. To alter a good system for the mere sake of making an alteration is reverse of wisdom, it being far more likely to lead astray than otherwise. Still it is as well to be acquainted with the methods others follow of achieving success, for it sometimes happens that we find an idea that may be grown on to our own method, and so make it more complete.

Examining the Finished Garment.

Plate 24.

The following description of a method of examining a pair of trousers after they are finished by the workman is worthy of consideration, and is adapted from "The American Tailor and Cutter":—

"If a cutter to whom a journeyman brings a completed garment examines it in a half-hearted way, and practically accepts the journeyman's word that it is properly made, instead of seeing that it is, the journeyman is quick to conclude that the cutter knows but little about good tailoring or cares less, and that it is a waste of time and skill to do any better work than will just pass. Then he will 'snob' everything he does and his employer's business will pay for it the penalty of loss of caste, or trade, or both."

Having shown the necessity and importance of carefully examining the finished work of the journeyman before accepting it, we shall now give a few hints of about how this should be done.

The Examining of Trousers.

Spread the trousers out on the cutting table with the fronts from you, and with the left leg on top.

Place your right hand on the centre of the body, and with the left give the bottoms a gentle pull, so as to make sure that they are lying smoothly.

Throw back the left leg, and run your left hand gently down the right leg from the crutch to the bottom, to make doubly sure that the leg lies smoothly.

Measure the bottom and the knee widths to see that they correspond with the measures.

Measure the inside seam from the crutch downward with the inch tape, following the seam to a point about 6 inches above the bottom, thence to a point about $1\frac{1}{4}$ inch back of the seam on the underside, and compare the length with that required.

Swing the tape to the extreme front, the instep, then to the extreme back, the heel. If the bottom size of the trousers is from 15 to $16\frac{1}{2}$ inches, the front length should be $1\frac{1}{4}$ inch less and the back length the same amount more than the seam length; but if the bottom width is more than $16\frac{1}{2}$ inches, the difference should be only 1 inch each or less in the large bottoms.

See whether or not there is a cut in the turnup of the forepart. There should not be, except in very small bottoms made from stout material.

While the trousers are in this position, examine the shrinking carefully at the ham, and at the shin, making some allowance for less shaping in worsteds than in wool goods.

If the trousers are creased, see to it that they are not creased over the turnup, or above a point opposite the crutch either front or back.

Examine the heel stays. If the client wears lace shoes, or if the material is of a light colour, there should invariably be both front and back heel protectors, as the blacking from shoes easily soils light coloured goods, and the shoe-catches wear the fronts out in short order if the material is of summer or thin weight. The same material as the trousers should be used for heel stays, as it is more durable than silesia.

Examine the inside seams. They should be smooth and free from any appearance of stretching or pulling.

If the material is ravelly, examine the seams to see if they have been properly serged.

Place the two legs together, one on top of the other, and examine the outside seam. By rubbing the hand lightly over the seam so as to take out of it any possible tightness, it can be easily seen whether or not either the backparts above or the foreparts below the knee have been properly stretched, and whether or not there is any unnecessary fulness in either.

Examine both seams from the bottom up. If the sideseams are welted see if the tension of the machine has distorted them, and if the welt is sewn evenly; also see if the silk matches the material, and if the stitches are of the right length.

Turn the trousers partly inside out and examine the notches to see if they have been kept opposite each other at the knee and at the hip. If they are not opposite each other at the hip, see whether or not the fault is yours. Very few cutters notch the forepart and underpart correctly at this point. They fail to make proper allowance for the stretching of the underside from the knee up.

Examine the parts shrunk on the underside to see whether or not they have been scorched.

If the trousers are made from a striped or a checked material, see whether or not the seam on part of the button catch makes the forepart as it should; that is, if the stripes or the checks run parallel with those of the forepart. See that the fly buttons are sewn on strong, within a fraction less than $\frac{1}{4}$ inch from the seam, with the threads not crossing each other, and if they have a good shank, and whether or not the bottom button and buttonhole are at the right distance from the tack—the distance should be $1\frac{3}{4}$ inch. When the threads cross in the buttonholes the movement of the body causes friction on them, and they saw themselves apart.

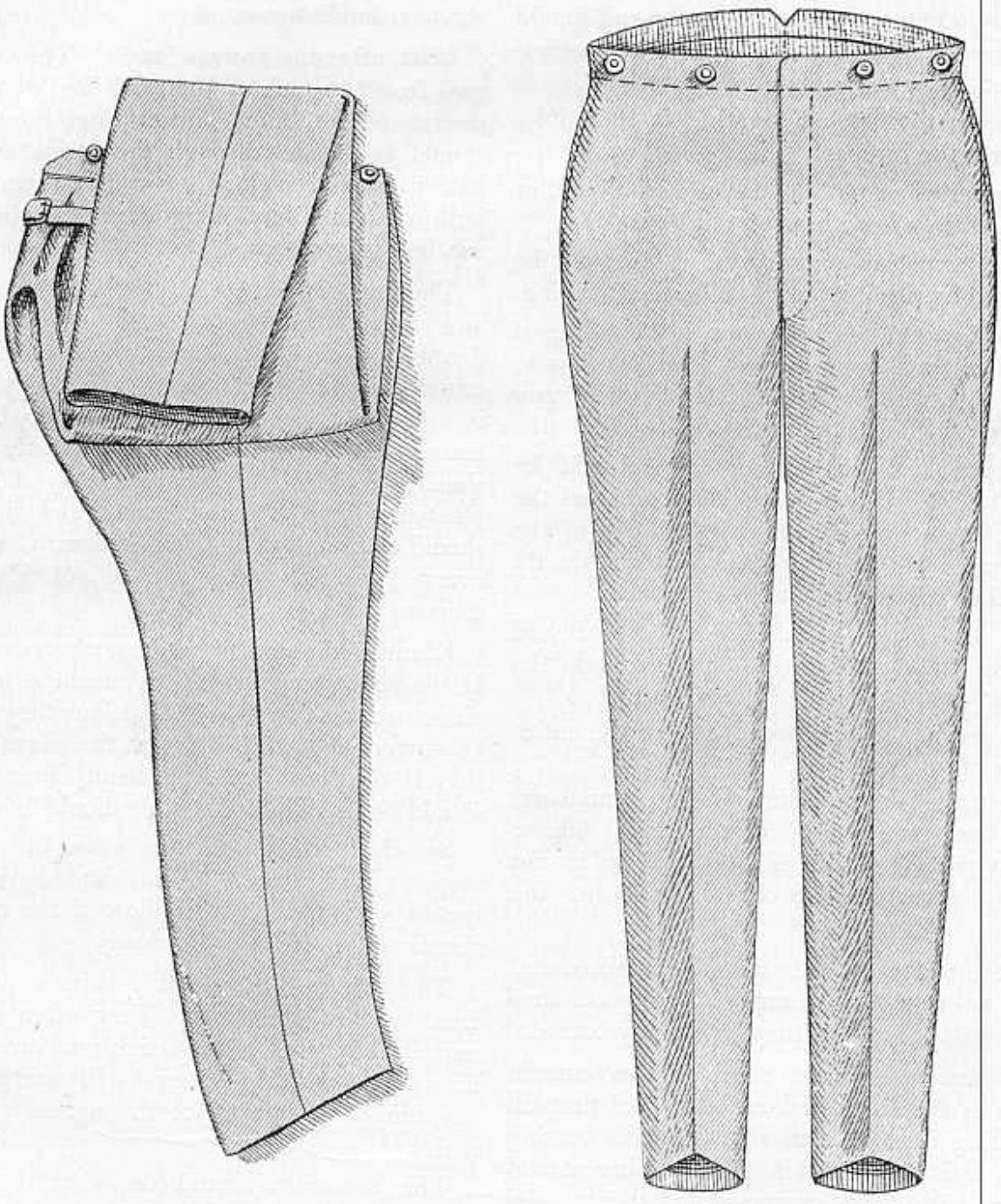
See whether or not the catch lining is cut, as it should be, on the bias; if the lower end is left free with sufficient room to play, and if, from the last button to the tack, it is stretched enough to insure sufficient length. It should also be observed whether or not there is a double canvas placed under the lining of the button catch, as there should be, and if the buttons are sewn through the catch lining, with not too much thread showing on the lining side. The catch seam should have a single row of stitching one-sixteenth inch on the forepart side passing through the lining.

Examine the button fly. It should be placed a fraction less than $\frac{1}{4}$ inch from the turned in edge of the forepart and should have a strong, small, neat tack alternating with each buttonhole. If the trousers have a high rise, there should be five buttonholes in the fly and another near the top of the waistband.

See that the inside edge of the fly is serged with silk to match the material, as it should be, and if the fly has been properly lined.

Pass the fly buttons through the fly buttonholes to see whether or not the buttonholes are of the right length for the buttons. Turn the trousers so that the buttons and buttonholes can be seen together in a buttoned condition. They should be directly opposite each other; if they are not the fact will be readily detected.

The top of each waistband should be rounded off at the front end. This is important. If the corners are square they will turn very easily and cause annoyance.



Examining the finished Trousers.

Plate 24.

See if the pocket bearers, whether for top or for side pockets, are cut with the stripes, the checks, or the nap of the forepart, as they should be. The fob pocket facing should be cut in the same way. The selvedge end should not be used for facings, as it gives the impression that there was a scarcity of material.

Examine the pocket mouth. It should lie flush with the forepart.

See whether or not the pockets are piped, or welted, if they have been so ordered.

A gaping pocket mouth can, by the way, be prevented by placing a stay under the stitching.

If the material is ravelly, see if the edges of the facings and the bearer are serged with silk, as they should be. If the material is very thin the edges should be turned in.

If there are back pieces, they should be stitched close on each side of the seam, and the pattern should match that of the body of the trousers. The "Vs" in the backparts should be stitched in the same way.

The waistband should be single-stitched close on the forepart side and through the waistband canvas.

The canvas should extend through the entire waistband.

The turned-in top edge of the waistband should be sewn to the canvas with silk to prevent ripping, as it is liable to rip if not strongly sewn, because of the strain of the braces.

All the tacks should be closely examined and tested as to their strength by a good firm steady pull. See that they are neatly barred.

See that the lower edge of the curtain linings is turned in and fastened, and that all the felling is done with silk, not with basting cotton, as it sometimes is. The felling should be done with white sewing-silk if the material is white or light-coloured. These linings should be strongly tacked at the back centre and at both ends of the hip pockets, allowing sufficient room for movement.

See if the brace buttons have good shanks and are rightly placed. If they are too far forward the braces will draw the fronts too close to the body; if too far back, the opposite effect will be produced. The front ones should be more than $3\frac{1}{2}$ inches apart. The button threads should not cross.

Look after the canvas stays. They should pass from the tack of the front and of the hip pockets to the brace buttons, and the tacking should be made through the stays and the buttons should be sewn through them. The buttons should have long shanks so that they can be easily fastened.

The forepart crutch lining should be of linen and narrow, with the outer edge free and double, and should be cut on the bias. If small crutch linings are wanted in the backparts, as is often the case for stout men, and when the material is a loosely woven wool, the edges should be cut on the bias, and they should be pleated both down and across, and the edge should be turned in and fastened with a tacking every $\frac{3}{4}$ inch to allow for all possible stride movement.

Examine the sewing on the pockets carefully. If the pockets are sewn by machine and are either white or very light in colour they should be sewn double with silk, with the edges turned in. If they are sewn by hand, linen thread should be used and the edges should be serged.

See if the front pockets have the correct angle. They should be so slanted that the contents will fall to the hollow of the thigh in the direction of the fly-tacking.

The curtain linings should have plaits in front and in the back. Very often a tight curtain lining will cause a tightness around the hips, as the woollen material will stretch while the lining will not, hence the necessity of the plaits.

The seatseam should be sewn by hand always, so also should the legseam from fork to knee.

For stout men, see that the top edge of the waistband is drawn in.

If the material is dark see that it has no gloss.

This method of examining the finished garment may seem very elaborate; but even this does not include some details, among which are the correct width and finish of the bottom turn-up, the correct location of the crease, and special effects for fat men and for men who either toe in or toe out.

An Interesting Study.

Some years ago at one of the Society meetings several pairs of Trousers were shown on which various alterations had been made. The report of the effects produced was published. It was found that a pair of Trousers cut 2 inches straighter in the seat than the normal pattern was very clean fitting at fork and seat when the wearer was standing erect, but a tightness from seat to knee was felt as soon as he began to walk; when seated there was an excess of material in the lap, together with considerable tightness over the seat. Another pair was tried on, cut 2 inches more crooked in the seat than the proportionate pattern, and the defects apparent in this case were, when standing, loose material in the fork of underside, and a great tendency to form horseshoe folds at the back of thigh. It was found that there was more ease for walking, and that when wearer was seated, they were very clean fitting in the lap.

The problem of Openness and Closeness was also studied in the same way, a pair of Trousers cut 2 inches more open in the legs at both top and undersides was tried on; they exhibited the following defects:—There was too much length in the leg seam from fork to knee, a tendency to form in folds of a semi-horseshoe character at the inside back of thigh. There was also an excess of cloth at the fork of both front and back. The reverse of the above was next tried on, in the form of a pair of Trousers cut 2 inches closer in the legs at both top and undersides, when standing, the hang of Trousers was very fair, the back of the thigh at top did not fit clean, and there was a dragging from fork to knee when walking, and a tendency to form into folds at the side seams. When sitting the bottoms showed a tendency to rise from the boots, and there was also an excess of material in the lap.

Some complex alterations were then tried on, a pair of Trousers were cut 2 inches closer in the legs and undersides crookened in the seat to the same extent; in this case horseshoe folds manifested themselves in a very marked manner, together with numerous creases just below the seat at the back. The last experiment was a pair of Trousers cut 2 inches more open in the legs and 2 inches straighter in the seat; this produced anything but a clean fitting pair to the back when standing, and when sitting they were most uncomfortable and most unsightly.

Some Defects and their Remedies. Plate 25.

The requirements of the body and leg are of such a complex character that it is not surprising that defects should arise in the fit of trousers. A defect may have its origin in the customer's mind, and it is our duty to supply their wants. It may arise from the cutter's incompetence, though we venture to think the man who has studied the foregoing pages will have very few arise from that source. They may arise from his own or his workmen's carelessness, but whatever the cause, they have to be removed. In our former works we have pointed out that a crease indicates a shortness between its two extreme parts, a fold indicates excess of material in the opposite direction to that which it runs. Defects which show themselves in one part may be caused by erroneous cutting at another part. Defective manipulation is quite as responsible for defects in fit as incorrect cutting. In short, the defective garment is out of harmony with the requirements of the customer's body, or mind.

The Cause of the Defect.

The first thing to be done is to find out what is wrong, to make a diagnosis of the case. Is it cut? If so, is it length, or width, or both wrong? Is it make? If so, is it sewing, shrinking, or joining the seams? Is it only wrong in the customer's mind? If so, find

out in which direction his fancy turns. Then you will be ready to apply a suitable remedy as described in the following pages.

1. Tightness at top button at front of waist. This may arise either from a too small waist circumference, brace buttons too near the front, or too receding in front. If it is too small in waist, let out at sideseam, and this will generally suffice. If the brace button is too far forward move it back as from A to B, Diagram 1. If it is too receding in the front, which may be decided by noting whether the fork fits clean, or otherwise—the receding front always shows fulness at fork—then alter by reducing as shown at C, D, E, and letting out undersides at F, G.

2. Looseness at Front. This may arise from a waist made up too large, and the brace buttons put too far back, and at the same time cut with too forward a front. The general plan when reducing size at the waist is to take in at seat seam, but it may be desirable in the case of tightness at L, Diagram 3, to take off a piece as from K to L. Shift the buttons forward from H to I, or the waist may be reduced by means of a fish taken out as at J. The seat-seam is, of course, the easiest alteration, but it is not always the best.

Loose material at top of fly in a corpulent figure may be got rid of by a V taken out vertically, about 3 inches from the fly, or the front may be rounded away, and the round drawn in and pressed back over the prominence of the stomach.

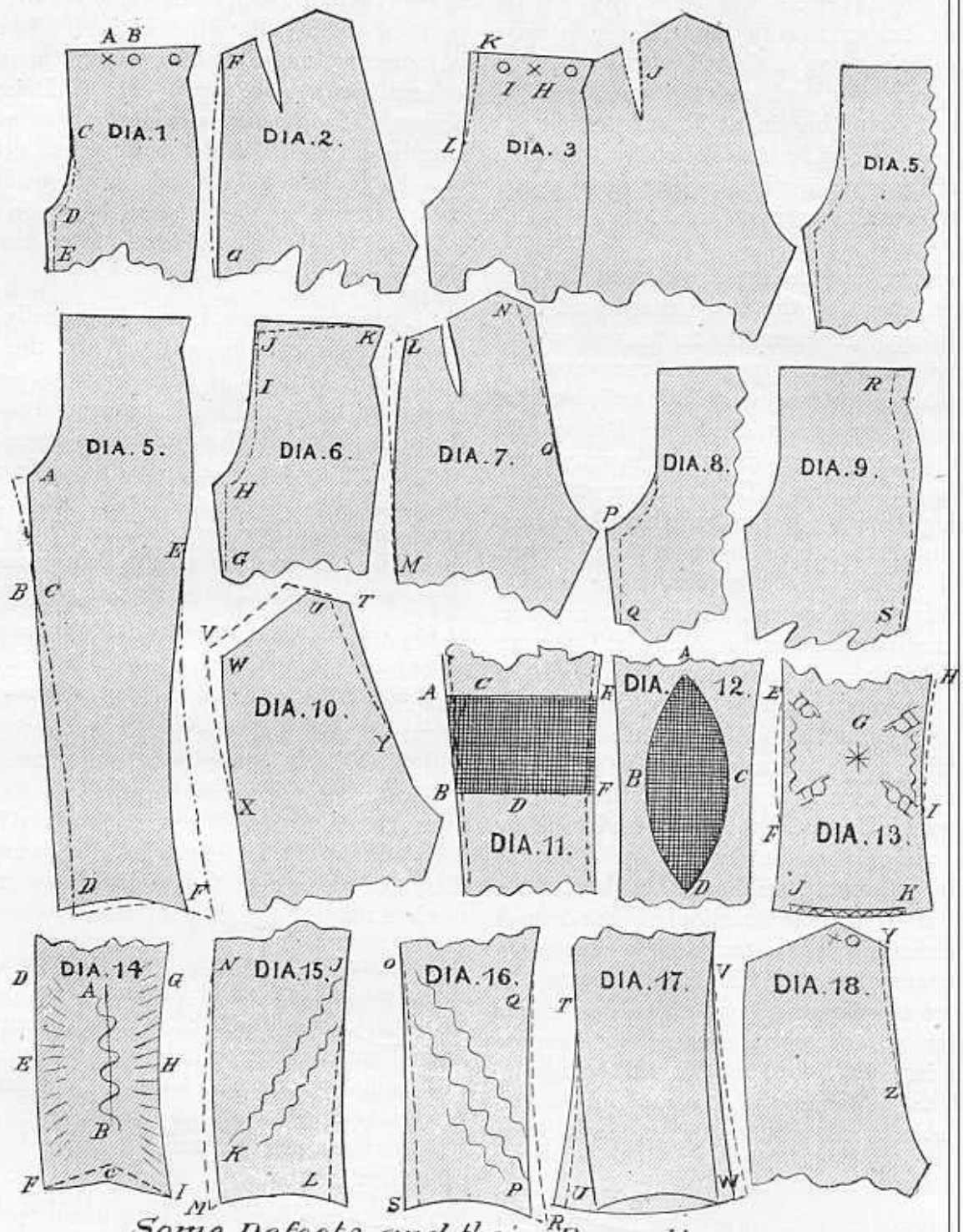
3. Fulness at fork. Evidently produced by an excess of material, and the obvious remedy is to take it away. The alteration shown on Diagram 3 will serve to illustrate how. When cutting a new pair for this customer, either reduce the amount of fork provided, or advance the front. A receding front invariably produces fulness at fork. It may be well to observe whether this defect exists on both sides, as it is quite possible this arises from the dress not being taken out from the right side.

4. Creases at fork. These indicate tightness at that part. The fork must either be increased as shown at A, or the legs opened as shown at B, C, D, E, F. The former will probably be the easiest to do in the made up garment, utilising the inlay left on the undersides at fork. If, however, the latter alteration is preferred, let out all you can at sideseams, grading it off nicely up to E, and take in a corresponding amount at legseam.

5. Loose material in lap. Caused by the decrease in the length of the figure when in a sitting attitude, aggravated by a too receding front and a too straight seatseam. Some think height or fall seam is responsible for this, but our opinion is that this has no effect on it whatever. The remedy is shown on Diagrams 6 and 7. Hollow out fork between I to H, and crook the seat as shown at N, O, Diagram 7, making up total size of waist at L, M. The best plan is to take your pattern (paper), cut it across from flyseam to sideseam, and overlap it in front, and then lay the altered pattern on the garment, and the remedy will be seen. As already stated, we do not think alterations as from J to K will have any other effect than to vary the height in the body at front. It is a good plan to provide plenty of seat room, fulling on the undersides, and giving ample seat angle to avoid this defect.

6. Vertical folds at fork. The cause is too much width, and the remedy is to reduce as indicated at P, Q, of Diagram 8.

7. Vertical folds from waist downwards. This defect could only show itself in garments cut too large in width. It may, however, be aggravated by the buttons being put too wide apart. We have heard of customers who wished their trousers cut large enough at waist to allow of them being pulled over the hips without undoing the fly buttons, and we should expect this defect to show itself in these trousers. The remedy is, take in at R, S, Diagram 9, and to carefully note that the two brace buttons on the topsides are not more than $3\frac{1}{2}$ inches apart.



Some Defects and their Remedies.

Plate 25.

8. Tightness at knee. Caused by an insufficient angle in the trousers, or tightness at seat. If the latter is the cause, let out at seatseam; but as it is far more likely to arise from insufficient angle, the remedy is as shown on Diagram 10, where the seatseam is lengthened by taking in at T, and letting out at V. To let out at fork as shown by alteration A to B of Diagram 5, will also give more angle, and so relieve the strain on the knee.

9. Bagging at the knee. Caused by the increased length of the body at seat and knee when sitting. See remarks on movements of the body on a former page. Aggravated by tightness and shortness of seat, insufficiency of fork, or a too close cut in the legs. Diagram 11 shows the lining sewn in with the seams, and felled top and bottom at C D, as a preventative. If A E is placed about 4 inches above knee, and A to B and F to E is made about 6 or 7 inches, this will suffice. Such a plan is as good a preventative as is known. It is not, however, an unmixed blessing, as the felling at C is very likely to break, and then the wearer finds his foot in a pocket when he is putting on his trousers. Another plan is to put on some thin rubber with a solution used for tyre mending. The shape shown at A, B, C, D, Diagram 12, is a suggested form for this, the idea being that provision is made for the knee by the stretching of the material, and the bagging is got rid of by the contraction of the rubber when released from the strain. We cannot say we are enamoured with either plan, and prefer the use of trouser stretchers or pressers, which are, after all, the best method of keeping trousers in good form, and should be recommended to customers who complain of this defect, as a good profit may be made from them.

Corrections in cut must take the form of increased seat angle, more room in seat or more open cut in the legs; remedies that take away from the smartness of fit, and must be used with great caution, especially for customers who wish smart fitting garments.

10. Rising from bottom. This is a defect which is associated with the smart cut, and arises from an insufficient angle for the altered position of the body when sitting. The remedy is more seat angle as Diagram 10, more width at seat, or a more open cut, as Diagram 5. Unless due provision is made for the increased length and width of the body when sitting, it will be useless to put foot straps to hold the bottoms down, as in that case the strain on seat and knee would be so great as to split material that was not fairly strong.

11. Standing away at heel. Generally caused by tightness on the calf. When the calf is prominent, let out at side and leg seams, as shown by E, F, and H, I, Diagram 13—full on the undersides at that part, and press fulness over G. Stay tape held slightly tight may be put on at the bottom, as from J to K; but this must not be overdone. This defect may generally be cured by a little skilful manipulation on the part of the workman.

12. Fulness over the Instep. The indication of fulness evidently points to an excess of material. Remove by straining the topsides down at side and leg seams, as from D to F and G to I, the centre being shrunk as shown by A, B. Attention must be paid to the shaping over the foot, for when it is insufficiently hollowed at C, this defect will be aggravated. The use of bottom facings will also tend to obviate this fulness showing itself.

13. Diagonal Creases from Sideseam below Knee to bottom of Legseam. The cause of this is too open a leg, there being a contraction from J to K. The remedy is to let out all that is possible at bottom of legseam, and take in a corresponding amount at bottom of sideseam; the inlay at legseam will of course be on the underside, and it must be utilised. To let out at J will relieve the strain, so that if there is not much to let out at K let out at J, always keeping a nice run to the seams.

14. Diagonal Creases from Leg to Sideseam, Diagram 16. The cause of this is a too hollow legseam, and the remedy is too take in at

bottom of legseam as at S, L, let out from nothing at Q to the full amount possible at R. The bottom of trousers will often break into unsightly folds just above instep from a want of manipulation, &c., when the material is very thin. In such cases facing the bottoms is a great assistance.

15. Loose Material at Back of Waist. This in the first place must arise from the waist being too large, but the prime source of the difficulty is the width the brace buttons are put apart. These should never have more than $3\frac{1}{2}$ inches between them. If the trousers are required easy fitting in the waist, but not to show itself in folds at back, then the alteration may be effected by shifting the brace buttons nearer the seatseam, as from X to O, Diagram 20. If the waist is not desired easy fitting, take in at top of seatseam, as from Y to Z. Diagram 18.

16. Horse-shoe Folds at Back of Thighs, The cause of this unsightly defect is an excess of length in the undersides, and a deficiency of length over the thigh. It is not the product of any particular or type of system, but rather the product of the ordinary system on a figure prominent in the thighs and calf, thus requiring trousers with more bias given them, so that if taken up by the waist they have a backward hang. It has been attributed to a too forward cut front and a too crooked seat, and there is no doubt these are aggravating causes; but to alter by receding the front and straightening the seat, as shown on A, B, Diagram 19, and L, M, Diagram 20, will not remedy the cost. The most effective method of removing these folds is to rip side and leg seams, to full on topside from C to D, and from E to F. Diagram 19, and to shrink the middle of under, sides at part shown on Diagram 20. Then full on the undersides at leg seam between T and U, and sideseam between R and S, pressing the fulness in direction of *, and so provide a receptacle for the calf. The result of this manipulation is strained down from N to O, and P to Q, and the topsides strained down from G to H, and I to J, thus making provision for the prominence on top of thigh, and the prominence of calf at back of lower leg. This method of treatment we have never known to fail, and it should always be resorted to in erect figures and men of prominent thighs and calves.

17. Twisting of Sideseam. This generally exists in the right sideseam only, and is one of those problems which provide plenty of food for thought and experiment. What is there about the right side to cause this defect? The first answer that comes is the dress, and there are those who contend that the way the dress is taken out is responsible for this. We do not quite follow them, but we are prepared to admit that the method of taking out the dress shown on Diagrams 23 and 24 will obviate it. The plan is rather a complicated one, but it is worth understanding, so we will describe it.

Both the topsides are cut $\frac{3}{4}$ inch wider all down the sideseams, the dress is then taken out, as illustrated on Diagram 23, starting from nothing at A to 1 inch at B, and grading off to $\frac{3}{4}$ inch at C and D. The right topside is then shifted forward so that the leg seams run together, and a piece is taken off the sideseam of the left topside, as shown on Diagram 24, thus making both the topsides the same width at knee and bottom. Now every thinking cutter will see that this amounts to adding on $\frac{3}{4}$ to the side of the topside of the right side, as compared to the ordinary method of taking out the dress, and is worthy of careful consideration, especially by those who are much troubled with this defect.

The principal cause of this defect, according to our idea, is careless sewing of the seams, the result being that the topside is driven down at the sideseam and up on the legseam, thus producing a shortness from A to B, Diagram 21; for wherever this defect has been met with in our own experience we have found that the balance marks at C, D, and E, F, of Diagrams 22 and 23 have not been kept together, but have presented the appearance shown on the

diagrams. Our remedy has been to rip side and leg seams, adjust the balance marks, which, by-the-bye, we believe should always be snipped, and the defect has disappeared. This alteration has meant passing the topsides up at the sideseams, so that C is brought level with D and down at the legseam, and F is brought opposite to E. We are strengthened in our conviction that driving down or up of the seams is the cause of this defect, because we have found twisted seams in other garments arise from the same cause; and though the method of taking out the dress, shown on Diagram 23 and 24, would have the result of rectifying this evil to a moderate extent, yet we do not think this complex mode is necessary, as it is only in exceptional cases this defect is met with, and if it was caused by the taking out the dress it would show in all trousers. We, however, pay all deference to the opinion of those cutters who attribute this defect to the way the dress is taken out, and we record their view for the benefit of our readers; but we are of opinion that the source of the trouble is bad or careless workmanship, and we confidently prescribe the alteration illustrated on Diagrams 22 and 23 as providing an effective remedy.

18. Pocket Mouth Gaping. Caused by insufficient room round hip, or sideseam cut too flat. The remedy is let out at H, I, and take fish at J, K; in the other case let out at sideseam from L, M, and draw in the pocket mouth of topside so that it sits closely to the undersides.

19. Inability to Stoop. This is caused by an insufficiency of length at the seatseam, or angle from fork to top of sideseam. What is wanted is the equivalent to a wedge let in from seatseam to nothing at side, the result being illustrated by dotted lines O, P, R, S, Diagrams 26, which means taking in at seatseam and letting out at side seams, at the same time giving extra length to the seat piece. In our younger days we altered for this defect by letting out at seatseam, but found this only aggravated the defect, and so would warn the inexperienced from falling into the same error, the proper remedy being that shown on Diagram 26.

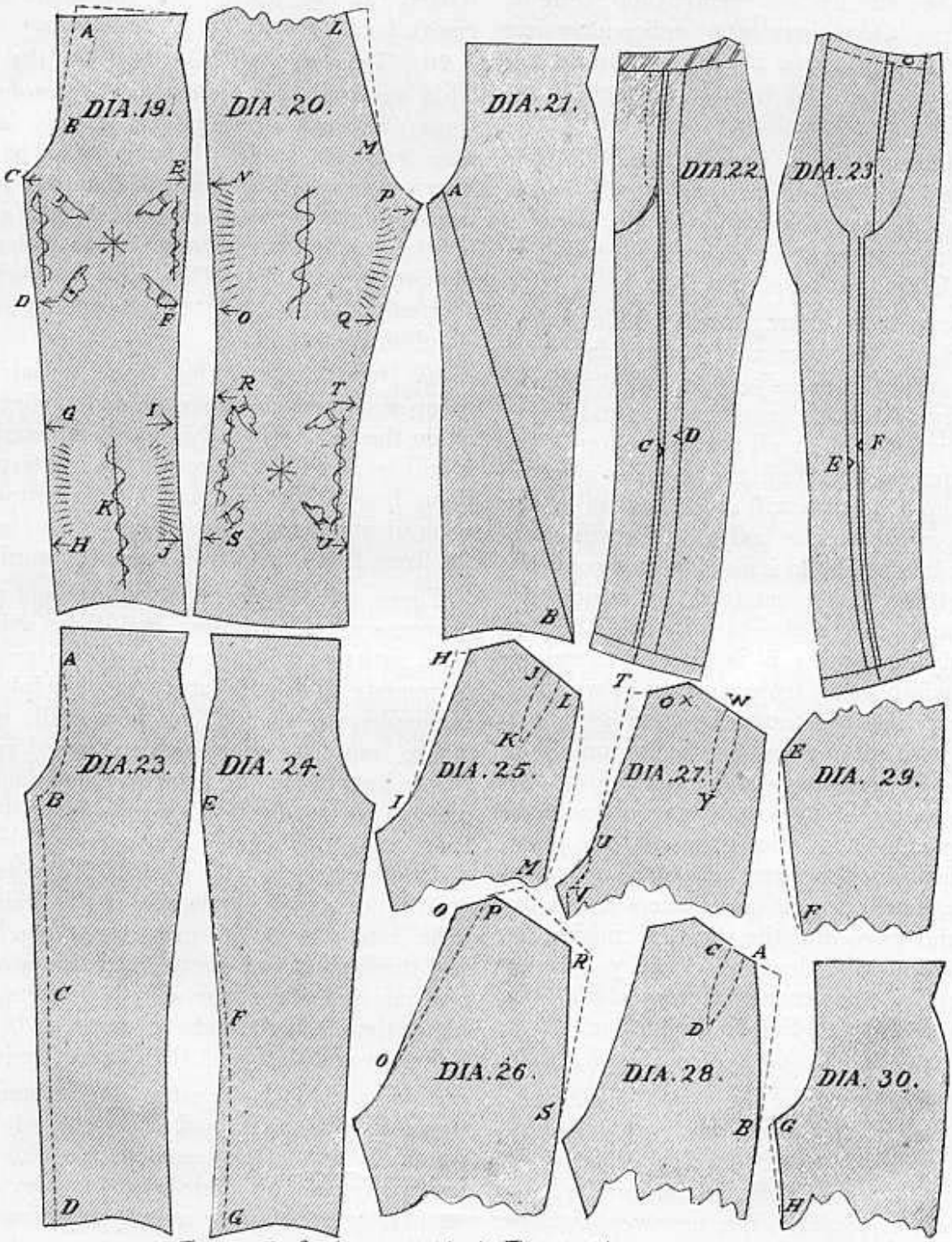
20. Trousers Riding up Leg when on Horseback. This is caused by an insufficiency of stride, or, in other words, they are cut too close in the legs; the remedy is shown on Diagram 5, Plate 25. Trousers intended for riding purposes should always be cut more open in the legs and with more seat angle, then if footstraps are used (or even without them) they will keep in their place. Trousers cut open in the legs always ought to be cut longer than measure.

21. Fulness under Ball of Seat showing itself in Vertical Folds. These are necessary to a certain extent in order to provide ease for stooping and bending. When, however, they are in excess, the remedy is to alter as per dotted line of Diagram 27. The seatseam is let out at top, hollowed at U, V, and the waist is reduced to size by the aid of a fish at W, Y. The brace buttons at the top should be moved back from X to O.

22. Loose Material at Hip showing itself when Standing This is caused by the sideseam being cut too round, and the remedy is to let out A to nothing at B, and reducing the waist to size by means of a fish shown at C. As a general rule the sideseam of undersides should be kept fairly straight, and the size of waist adjusted by a fish as here shown.

23. Dress Showing too Prominently. In the product of some trouser systems the dress shows very prominently. When the underside is stretched a good deal at fork this result is produced, but often it is caused by a too hollow leg seam. It may be rectified by letting out from nothing at the fork E to nothing at the knee F, as shown on Diagram 29.

24. One Leg Longer than the Other. This often results from careless measuring up by the workmen, although many people contend that the dress side should be a $\frac{1}{4}$ inch longer than the undress side; this alteration, when necessary, is easily effected by turning them up at the bottom.



Some Defects and their Remedies.

Plate 26.

25. Dragging on the Outer Edge of Fly. This is a defect that is far more common than it should be; the fly has been cut too straight, with the result that there is not sufficient spring over the outer edge, or it may be put in too tight; in any case the remedy is to rip it out and provide more length over the outer edge.

26. Fulness Between the Buttons. This is caused by the buttons and holes not corresponding with each other, the remedy being to cut off such buttons as are wrong and sew them on in their proper places.

27. Trousers too Short in Body. This defect is caused by the measurer taking incorrect measures, and the remedy is somewhat difficult and costly. It may be done in two ways: 1. Put a waistband on all round the top to the depth required. 2. Sink the fork as much as the turn up of bottom will allow, and so let the trousers pass up on the body. This will generally admit of quite an inch of adjustment, the length of leg being retained by casing the bottoms and passing the turn-up into the leg. In remedying defects it is always as well to bear in mind there are two ways of working, which may be illustrated by telling how a builder rectified a room on the ground floor which the owner complained was too low. To raise the ceiling of this bottom room he would have required to practically rebuild the place, so in order to get over the difficulty he lowered the floor, much to the amusement of many people who gave him the credit of raising the ceiling by lowering the floor. So if you cannot lengthen the trousers by adding to the top, lengthen them by adding to the bottom.

28. Too Short in the Legs. This may usually be rectified by utilising the turn-up at bottom; but we remember a case where we mistook a leg measure of $35\frac{1}{2}$ for $33\frac{1}{2}$, and cut accordingly. The inlay at bottom provided for one inch, but the other was a poser. We, however, got over the difficulty by seaming and rantering a half-moon shape piece to the top of the leg seam. It was a risky experiment, but it succeeded, and was perhaps the best way out of the difficulty; and as the seam was covered by the crutch lining, we very much question if the customer ever knew of its existence, and "what the eye doesn't see the heart doesn't grieve for."

29. Trousers Cutting Between the Legs. This is caused by a too close cut, a too forward front, or a lack of fork; the remedy in each case suggests itself. It sometimes happens, however, that this may be caused by the trousers being braced up too high, and all that is necessary is to get the customer to lengthen his braces a trifle. This may necessitate a shortening of the legs, but that is one of the simplest alterations.

30. Dress Taken Out from Wrong Side. Some customers dress on the right side instead of on the left; when this has been overlooked it will be necessary to re-cut the fronts, passing them loosely forward, and letting out at side-seam of undersides, care being used to take out the dress from the correct side afterwards.

These are the principal defects met with in connection with trousers, and they will need care, patience, and thought both to avoid and to remedy; but without these principles it is impossible to succeed in any walk of life. There may be some defects we have not touched upon, but the principles here laid down will put the reader in possession of that knowledge which will enable him to reason the cause and the remedy out for himself. The cutter is one of those individuals who needs brains, and if he is to succeed he must use them. Work and think is a good motto, but perhaps a better is think and work; for a little forethought is better than a deal of afterthought, it being far better to avoid a defect than to rectify it.

The cutter who masters the systems laid down in this book, and uses it carefully and intelligently, and is blessed with workmen who are willing to do their best to carry out his wishes, will not have much experience with this latter section. Still as every good general prepares a plan of retreat in case it is necessary, so we have indicated here how failure may be turned into success, and a misfit altered into a good fit.

The Cutter's Practical Guide

TO CUTTING AND MAKING

BREECHES, KNICKERS and GAITERS.

INTRODUCTION.

Breeches and kindred garments are very much sturdier in their character than trousers, and then, history is quite in keeping with that idea. For centuries, one might almost say milleniums, they quite displaced trousers, and even in this present trouser age they still hold the field in all outdoor sports and pastimes. They are almost universally worn for riding and cycling, for shooting and golf, and if they have not yet invaded the tennis court and the cricket field, the probability is that they will do so in the future, for in batting, leggings are worn which practically turn the trousers into breeches.

The Transvaal war gave breeches additional popularity, so that even infantry adopted them for general use. It naturally follows then, that a garment used so widely by the energetic portion of the English-speaking race, is worthy of the careful attention of those who cut and make them, seeing that it is admitted on all hands that there is considerable art in producing them. The study of the

Evolution of Breeches

Would form a most interesting subject; indeed, their whole natural history is full of fascination to those who care for such subjects. The luxurious and fantastic breeches of the 15th and 16th centuries, with their paddings and puffings, their trimmings and turnings stand out in marked contrast to the sturdy style of the early Puritans, such as the leather breeches worn by George Fox, and which will probably remain famous in history for ages. Still, that is a phase of our subject upon which it is hardly necessary to dwell on in a work of this sort, it being fully portrayed in such books as Cassell's "History of England," &c.

Our part is to instruct the rising race of tailors how to cut, and make, and finish the breeches that are worn to-day, and so we turn our thoughts into this utilitarian channel.

The Requirements of Breeches

Shall be our first study. In our book on trouser cutting we have dealt with the form and outline of the body, as well as the movements of the joints, &c., so we will not go over that part of our subject again.

Breeches are used for so many different purposes that it is impossible to lay down more than a few general rules that apply to them all. They all, however, fit the wearer at the waist and at the knee, but between those two parts the widest latitude is allowed. Livery

breeches are made to fit quite closely. Riding breeches are nothing if not baggy. Dress breeches are the medium style, and those worn for cycling are a stage between them and riding breeches. The fit about the fork is equally varied. Dress breeches are made to fit as clean as a pair of dress trousers, but in riding breeches, fulness at the fork is a virtue, hence the style of cut must be varied to the kind of garment desired, and the manipulation modified on the same principle. To provide the extra length on the seat of riding breeches, and retain a clean lap, to give sufficient room for the knee cap, and obtain a clean fit under the knee, are problems that can only be solved by the cutter's skill and workman's ability, and yet this is what has to be faced; so that we have before us a subject that will provide food for thought, and offer exercises for the ingenious, of a most practical and profitable nature.

Taking the Order.

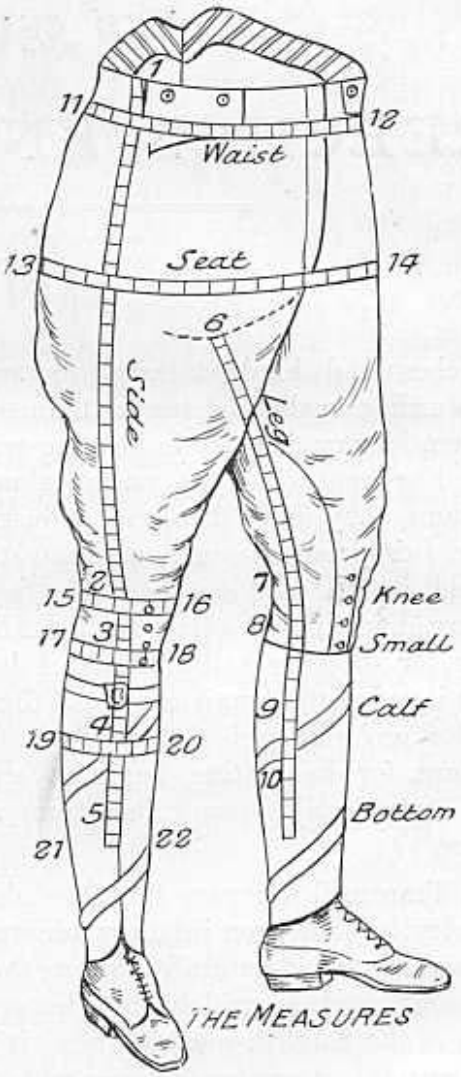
In taking the order it will be necessary to clearly understand what kind of garment your customer desires. Wide, medium or close-fitting seats; pear-shaped or balloon sides; forward or medium fastening at knee; buttons or lacings at knee; fly fronts or split falls; cross or frog pockets; strappings or plain finish to the inside of the legs; continuations of Melton or the same material; raised or plain sideseams, and so on. Of course many of these points would be decided by the kind of material chosen, it being assumed that the cutter knows his business, and will not unduly pester his customer with questions, still it is important that the cutter should know what he is measuring for, ere he starts, so that he may act accordingly.

The Measures.

Side length from top of breeches, 1.
To knee direct by opposite top of knee cap, 2.
Continue to small of leg, 3.
Continue to calf of leg, 4.
Continue to full length of breeches required, 5.

Fork to knee on inside of leg, 6 to 7.

The other lengths of leg to small, calf, and full length, would be in harmony with the side; but there are some cutters who prefer to take them on the inside. We think it is immaterial which method is followed; either will do, but it is not necessary to take both, so that if the



lengths are taken as above described for the side, then the length from fork to knee will suffice.

Waist round the body at 11, 12.
Seat round 13, 14.
Knee round 15, 16.
Small round 17, 18.
Calf round 19, 20.
Bottom round 21, 22.

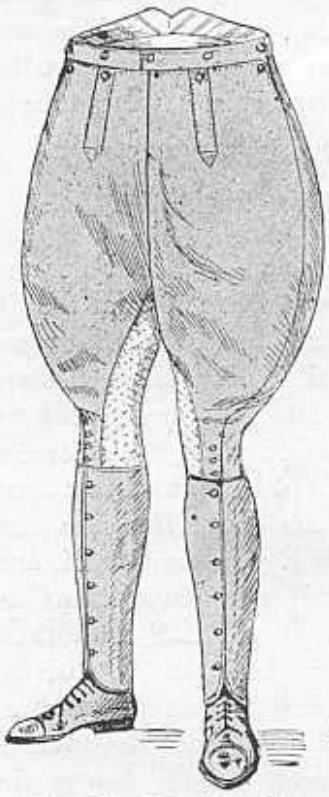
In taking these four last measures it will be well to take them over the bare leg if possible, it being very difficult to exactly estimate the exact amount taken up by the cloth of the trousers or breeches. If these measures are taken over the trousers, deduct from $\frac{1}{2}$ to 1 inch from the measures taken.

These measures must be supplemented by a thigh measure in the case of close-fitting breeches.

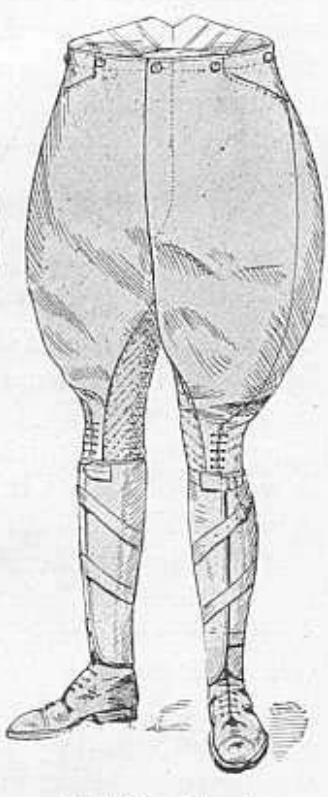
Scale of Relative Measures.

Waist	..	29	29½	30½	31	33	36	39½	41	45
Seat	..	31	33	35	37	39	41	43	45	47
Knee	..	12	12½	13½	14½	15½	16	16½	16¾	17½
Small	..	10¾	11¼	11¾	12¾	13¼	13¾	14¼	14¾	15¼
Calf	..	12	13	14	15	15½	16	16½	17	17½
Ankle	..	8	8½	9	9½	10	10½	11	11½	12
Leg length	..	28	29½	30½	31½	32	32¾	33½	31	33½

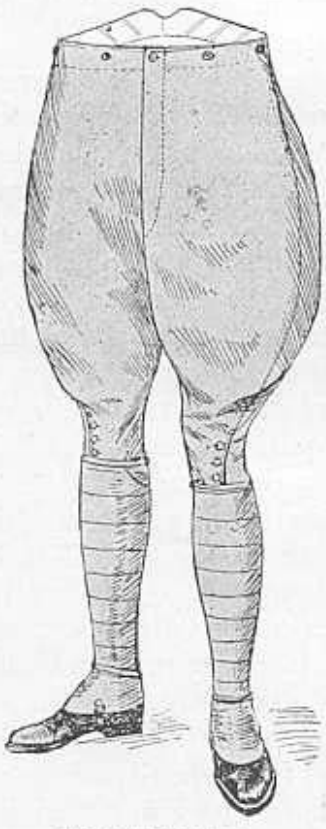
Body rise usually about 12 inches for the medium sizes.



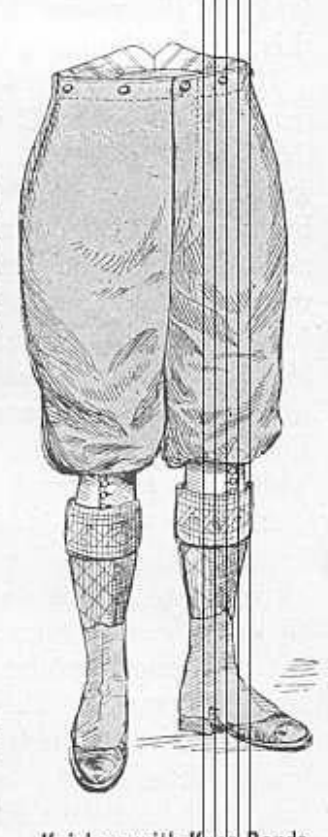
Split Fall Riding Breeches.



F.F. Riding Breeches.



Knicker Breeches.



Knickers with Knee Bands.

Relative Lengths of Leg.

It may sometimes happen that the cutter has to cut breeches from trouser measures, and in that case the following proportions will prove helpful:

Half the length of leg will give length from the fork to small.

The knee is one-sixteenth of the length of the leg above the small.

The calf is one-tenth of the length of the leg below the small.

Tight thigh is 3 inches more than half seat.

Dress breeches extend to the small.

Knickers fasten round the small and bag over.

Livery breeches come to the calf and are sometimes lengthened by thin material to just above the ankle.

Riding breeches are usually cut to just cover the calf, and lengthened by continuations.

Bishop's breeches reach to just over the calf.

Riding Breeches. Figures 2 and 3. Plate 27.

Before describing the system for Riding Breeches, a little study of the position occupied by these garments in the saddle will prove of interest.

Figure 2 illustrates the front view of a pair of breeches in the saddle. The horse measures from 16 to 20 inches through between the knees of the wearer, and in order to sit astride this, the legs must be opened.

If a line is drawn from D to E, the distance from this line to C would be much greater than in the case of a walking figure, and this would seem to indicate more fork as necessary, but if measures were taken from D to C and A to C it would be found that these quantities were unaltered, so that the increased angle from C to E is best provided for by opening the leg, and not by increasing the amount allowed for fork. It is granted that the result is very similar, but it is not quite the same, and it is best for us to proceed on right lines.

Another lesson to be gathered from this figure is that the length of leg from C to E increases as the legs are opened. The length of the sideseam remains practically unaltered, but the length of leg increases rapidly as the legs are opened. This may easily be tested by the reader. If the trousers he is wearing are braced close up to the fork when standing at ease, and he then assumes a striding attitude, he will find the fork of the trousers some inch or inch-and-half away from his body, thus showing that the actual length of his leg from fork to knee has increased by that amount.

Side View. Figure 3.

Our next figure illustrates a side view of a pair of breeches in wear, and the first thing observable is the semi-sitting position occupied. There is a bend in the seat at F, G, H, which increases the length over H and reduces the length at F, and this is accompanied by a slightly advanced front at I, and seat at K. In order to provide for the increase at H the undersides are cut with more angle on the seat, and in order to produce the shortness at F the topsides are put on very short to the undersides at C, or, in other words, the undersides are fulled on to the topsides at G.

It will be seen there is also a decided bend at the knee, producing an increased length at L, and decrease at N. Now the decrease at N may be provided for by taking out a fish from the undersides, as we shall illustrate later on; but the increased length over the knee cap is only obtained by working up the topsides and fulling them on to the undersides. These are the leading principles of Breeches cutting taught by these two figures, but they also suggest

A Study in Style.

Figure 2 is an illustration of Split Falls and Frog Pockets, both of which are popular details of fashionable riding Breeches. Still they are by no means universal. Many Breeches are made up with fly fronts and cross pockets. Then, again, the position given to the sideseam is worthy of note. It will be noticed that from J to C of Figure 3 it runs down the side, but that it is brought decidedly forward at M, and this feature has been very much emphasised during recent years. It will also be noticed that four buttons show above the top of the gaiters, and that the first one is placed just below the knee, say at the small, the tack of the opening being placed 1 inch below the knee. The brace buttons are placed well to the side of the foreparts, and the back brace button about 2 inches from the seat-seam at back.

System for Fashionable Riding Breeches.

The Topside. Diagram 1. Plate 28.

Draw line 9, 12, and mark off 9 to 6, one-sixth seat.

9 to 9, one-fourth seat.

9 to 12, one-third seat.

9 to $1\frac{1}{2}$, $1\frac{1}{2}$ inches.

Square up from 9 and down from 6

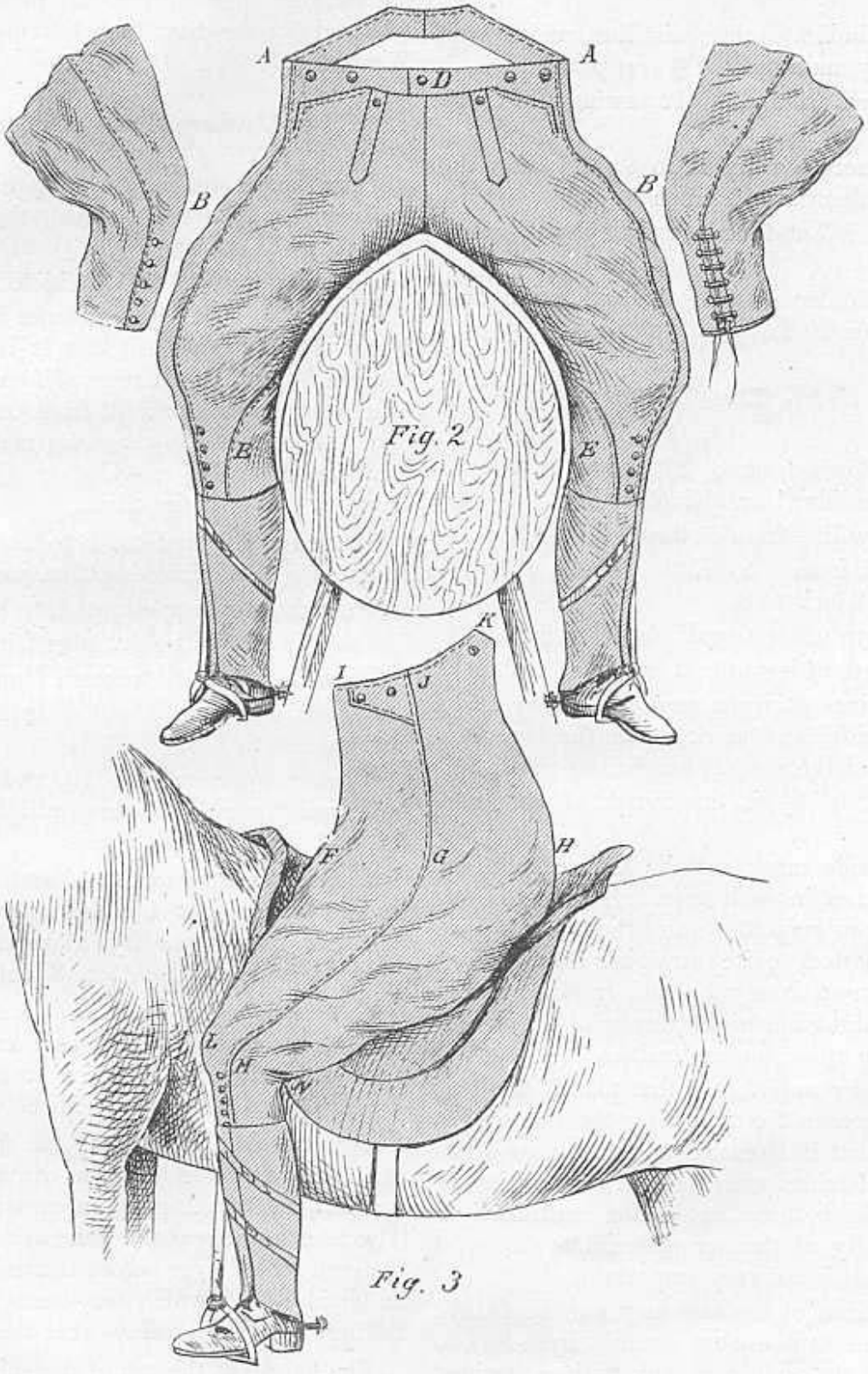


Fig. 3

Plate 27.

9 to A is the body rise, obtained by deducting length of leg from length of side, to any given point.

Point 8 indicates the waist line, which may be found by making 9, 8, $\frac{1}{4}$ seat plus 1 inch.

Draw fork from 8 to 12, swing the curve fairly high up.

Square across from A to S, and drop the front at A about 1 or $1\frac{1}{2}$ inches.

8 to 10 is one-fourth waist, plus 2 seams ($\frac{1}{2}$ inch).

Spring out from 10 to 12, and round over the hips from 10 to $1\frac{1}{2}$.

The Leg.

Square down from 6, 12 inches, and mark towards the side, 1 or $1\frac{1}{2}$ inches.

Now draw line from 6, through 1 to B.

Mark off from 6 to K the length of leg to knee, plus 1 inch to S.

The length of leg to calf plus 1 inch to B.

The length of leg to bottom plus 1 inch.

Square lines at right angles to these points on either side, and mark in on the leg seam one-fourth of the size of the various parts.

Thus K to $3\frac{1}{2}$ is one-fourth of the knee, and so on.

On the side mark out the same quantities, less $1\frac{1}{2}$ inches in each case. There are some who prefer to keep the run of the topsides from knee to bottom quite straight, so that they mark out from S say $1\frac{1}{2}$, and from B, 1; and draw a straight line right through. The size being made up on the undersides.

The reader may follow that plan if he likes, our only reason for following the plan illustrated is that it is easier to retain a good run on the undersides when they are cut all in one piece to the bottom, but as the continuations are generally of thinner material sewn on at the calf, this is not very important.

The outline of the legs may now be drawn, the legseam kept almost straight from fork to knee, and the sideseam cut with a decided round or balloon shape at side.

Much of the style of riding breeches is imparted by the shape given to the sideseam, and the outline here given is the same as is followed by the best breeches makers in the West End.

The Undersides. Diagram 2.

Take the cut out pattern of topsides and fold it over just above the knee, the extra inch added.

Mark out from 12 to $13\frac{1}{2}$, $1\frac{1}{2}$ to 2 inches.

Strictly speaking, the distance from 9 to $13\frac{1}{2}$ is one-eighth of the seat, but it is always well to err on the side of excess of fork rather than otherwise. Now mark out from knee, small and calf, 1 inch, the allowance for making up, and draw line from $13\frac{1}{2}$ to $4\frac{1}{2}$, 4 and $4\frac{1}{2}$, continuing down to 5 in a straight line.

Now measure up from B to 22, and 5 to the inside of $\wedge$. half size of bottom plus 1 inch.

We next turn our attention to the seatseam.

9 to 7 is one-sixth seat, plus 1 inch.

Draw line from 12 through 7 up to D.

Hollow seatseam about $\frac{1}{2}$ inch at D, and curve it out to $13\frac{1}{2}$.

Measure up from 8 to 10, and D to E the half waist, plus $2\frac{1}{2}$ inches, which allows for a fish of 1 inch, and six seams.

Now measure up to size of seat, as illustrated by the tape, about 4 inches over the half seat measure. This quantity, however, is variable, and may be made from 3 to 8 inches.

Now measure up from K to 5, the necessary amount to make up the half knee measure, after deducting the distance from the centre line to the sideseam of topsides.

Continue in like manner for the small and calf, but for the bottom continuing down straight, and making up to measure at the $\wedge$. The length of leg is the same as topside, minus the inch folded over before starting to draft the undersides, and which has been provided for fulling, or of the topsides over the knee.

The length at the top of the sideseam having been obtained by continuing the line across

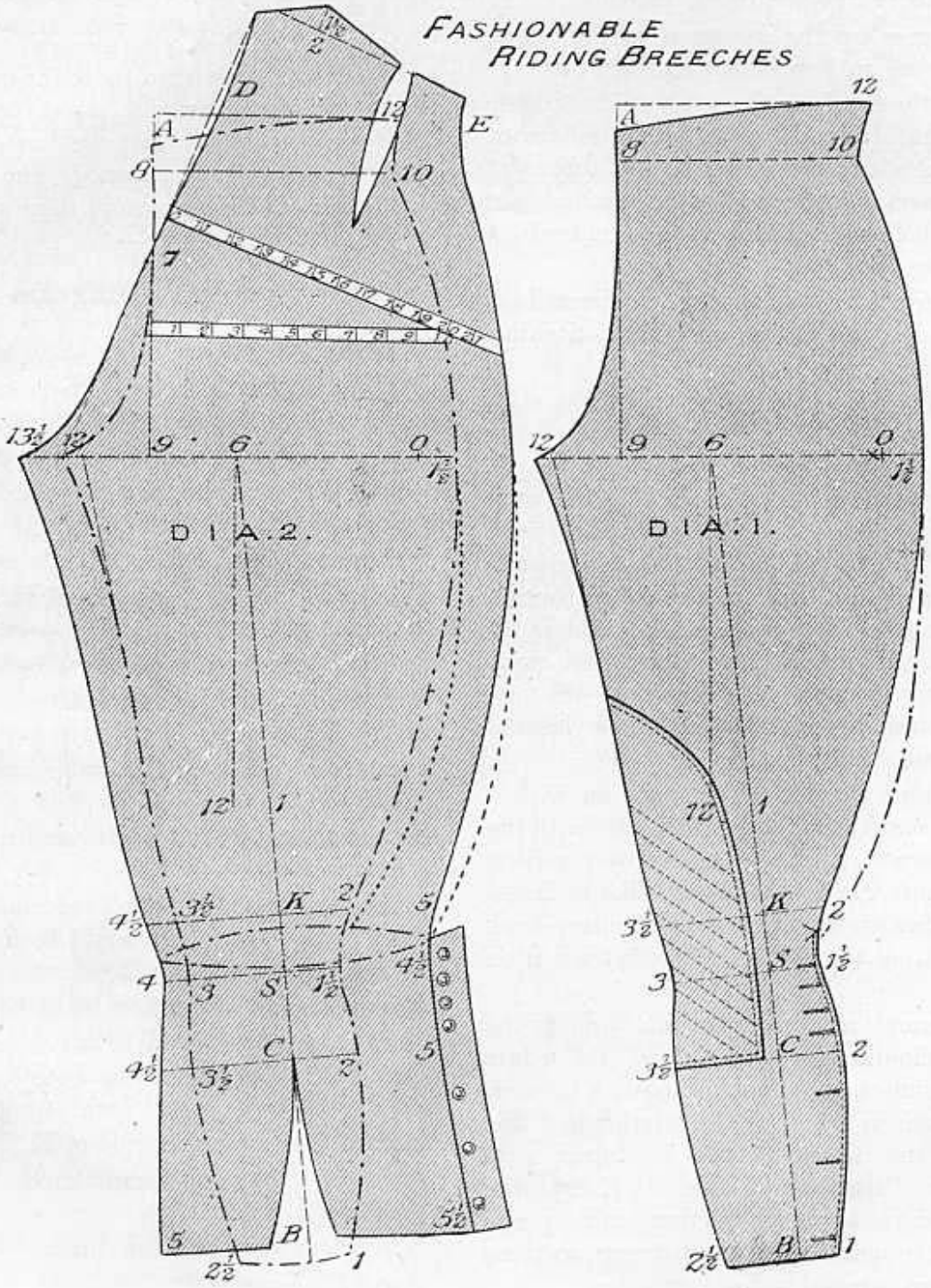


Plate 28.

from 12 to E, and coming up 1 inch. The outline of the underside being made to follow the topside as nearly parallel as possible.

Square across by the seatseam to the top of sideseam, come in two inches and mark up $1\frac{1}{2}$.

Take out the fish from the waist as illustrated, and if thought desirable, take out the fish from the undersides at knee, from 1 to $1\frac{1}{2}$ inches at the widest part, allow for a button stand on the undersides below the knee, and the undersides are complete.

The position of the strapping is indicated on Diagram 1, as well as the method of stitching it on.

Hints on Making.

The leg and seatseams should be very strongly sewn, as there is considerable strain on them. The fulling on at the various parts is best done by putting in a drawing thread, and reducing to the length desired, and as far as possible shrinking the surplus material away before sewing the seams. The seams are then sewn in the usual way, and the fulness located exactly in the right place.

The buttons should all be sewn on with a good long shank, and should be put on to the exact measures of customer, or even a little tight, as some gentlemen always like to fasten their breeches up at knee with a button-hook at the start, as they are sure to stretch a little in wear.

The seams at the legseam, under the strapping should be cut away and the edges stoated together, as this is smoother in wear and the strain is taken by the strapping. The seams of the fishes should be taped with galoon or Prussian binding. Everything should be done to avoid friction, and especial care taken to make the sewing strong, as these garments are exposed to hard wear.

The bottom buttons are flat as possible, and in the case of the continuations being sewn on, a tab is left on the bottom of topsides as shown on Diagram 3, this bringing the bottom buttons of the breeches behind the gaiter fastenings.

Farmer's Breeches. Medium Style.

Diagram 3. Plate 28.

Farmer's Breeches are generally cut in a more moderate style than those for gentlemen; the general characteristics, however, remain, so that practically all that we have said previously will apply to them. The measurements taken are the same, and their application to the draft is as follows:—

The System. Diagram 3.

Draw line O, 12.

O to 6, one-sixth seat; O to 9, one-quarter seat; O to 12, one-third seat.

Square up from 9 and down from 6.

9 to A the body rise, found by deducting leg length from side length.

Square across from A to 12.

Find waist line at $\frac{1}{4}$ seat plus 1 inch up from fork line.

8 to 10, $\frac{1}{4}$ waist plus $\frac{1}{2}$ inch.

Spring out slightly from 10 to 12, lower fronts at A about 1 inch.

Draw fork from 8 to 12, and shape sideseam from 10 to O.

Square down from 6 to 12, and mark off 12 inches always.

Mark towards the side the amount it is wished to open the legs, say 1 inch, and draw line from 6 through 1 to C.

Now measure down from 6 to K the length of the leg to knee, plus 1 inch.

Continue to S and C the lengths of leg to small and calf also plus 1 inch.

Square lines on either side of K, S, and C.

Make K to $3\frac{1}{2}$ one-fourth knee, K to 2, $1\frac{1}{2}$ inches less.

S to 3, one-fourth of the small.

S to $1\frac{1}{2}$, $1\frac{1}{2}$ inches less.

C to $3\frac{1}{2}$, one-fourth of the calf, and C to 2, $1\frac{1}{2}$ inches less.

By these points draft the sideseam from O to 2, adding on a tab at the bottom about 1 inch wide.

Come back from 12 to 11 one inch, and draw the leg seam straight from 11 to $3\frac{1}{2}$, from which point curve in to 3 and out to $3\frac{1}{2}$.

Spring out the leg at top to 12, and the topsides are complete, with the exception of reducing the bottom from $3\frac{1}{2}$ to 2 as shown.

The Undersides.

Take the cut-out pattern of topsides, fold it over just above the knee so as to shorten it 1 inch, and then proceed to mark off as follows:—

12 to $13\frac{1}{2}$ about $1\frac{1}{2}$ or 2 inches, the proportion being one-eighteenth of the seat.

It is, however, easier to calculate from 9 to $13\frac{1}{2}$ one-eighth of the seat.

From 9 to 7 is $\frac{1}{6}$ of the seat, plus 1 inch; and seatseam is drawn from 12 through 7 to D.

Curve out at $13\frac{1}{2}$, and slightly hollow it at D.

Measure up seat as shown by tape, making it the half-seat, plus 2 to 3 inches. A good average quantity to allow is $2\frac{1}{2}$.

Measure up waist from 8 to 10, and D to E the half waist plus $2\frac{1}{2}$ inches.

Continue line across from 12, and mark up 1 inch.

Then square across by the seatseam, and add on the point for the buttons by coming in 2 inches, and marking up $1\frac{1}{2}$ inches.

Take out 1 inch fish.

We now turn our attention to the legseam.

Mark back from $3\frac{1}{2}$ to $4\frac{1}{2}$ on line K, 3 to 4 on line S, and $3\frac{1}{2}$ to $4\frac{1}{2}$ on line C, 1 inch, the allowance for seams, and draw the legseam from $13\frac{1}{2}$ to $4\frac{1}{2}$ as shown.

Now measure up the size of knee to measure, plus 1 inch, as from 2 to $3\frac{1}{2}$, and $4\frac{1}{2}$ to 5.

Follow the same plan with regard to small and calf, and complete the undersides as shown, hollowing the bottom over the calf.

Continuations. Diagram 4.

Draw line O 7, and mark off the length desired.

O to $7\frac{1}{2}$ is the half calf, plus seams ($\frac{1}{2}$ inch).

7 to $5\frac{1}{2}$ is the half bottom, plus seams ($\frac{1}{2}$ in).

O to 2 is the same distance as from line C (of Breeches, Diagram 3) to side edge of tab.

7 to 2 is the same as from O to 2.

O to 1 is 1 inch less than O to 2, and 7 to 1 is 1 inch less than 7 to 2.

These are cut in two parts, the seam being placed up the centre of the back. They are generally made from some thin material of a similar shade to the breeches.

Split Falls. Diagram 5.

To the uninitiated Split Falls are a little complicated; they are cut in the following parts: Topside, waistband, bearer and welts.

The topside is shaped by first lowering the fronts about $1\frac{1}{2}$ inches straight across, then mark the width of fall as at D, say 2 inches from fall seam, slanting slightly back to E, say $2\frac{1}{2}$ from fall seam.

D to E about 4 inches.

Then mark the width of pocket so that C to B is from 6 to $6\frac{1}{2}$ inches, then lower the front from B to edge of fall about $\frac{1}{2}$ or $\frac{3}{4}$ in.

The waistband is cut as per the outline of the top, but adding on 1 inch for pocket facing at C.

The outline of this is shown by dash line.

The bearer is now cut by filling in the angle A, D, E, making A to F $2\frac{1}{2}$ to 3 inches.

Allow $\frac{1}{2}$ inch for seams from D to E and A to D, and this part is complete.

The only remaining portion is the welt, which is merely a straight strip of material 2 inches wide and of the required length. This is sometimes finished at the bottom with a "sprat's head," that is, a pointed end; at others it is finished D shape. The pockets are known as "frog," and are generally fastened up with a hole and button at the corner.

Livery Breeches. Diagram 6. Plate 28.

Livery breeches are of two distinct kinds—those worn by the coachman and groom, and those worn by the footman for full dress. At present we deal with those worn by the

coachman and groom. They are made to fit the thigh pretty closely, but in other respects resemble those shown on Diagram 3, though they are either finished with fly fronts or whole falls, and have cross pockets. They are often made from a heavy white cloth known as buckskin, but they are also made from tweeds, &c.

The System. Diagram 6.

Draw line O, 12, and mark off O to 6, $\frac{1}{6}$ seat.

O to 9, one-fourth seat.

O to 12, one-third seat.

Square up from 9 and down from 6.

9 to A, the difference between leg and side seams.

9 to 8, one-fourth seat plus 1 inch.

8 to 10, one-fourth waist plus $\frac{1}{2}$ inch.

Spring out from 10 to 12. Lower fronts at A about $\frac{1}{2}$ inch, and draw fork from 8 to 12 as shown.

Draw side from 10 to O.

From 6 to 12 is 12 inches.

Mark towards the side from 12 to 1, 1 inch.

From 6 to K, the leg length to knee, plus 1 inch.

To S and C, the leg lengths to small and calf, plus 1 inch.

Square off lines from K, S, and C, and mark off on the legside, $\frac{1}{4}$ knee, small and calf, and on the sideseam side, $1\frac{1}{2}$ inches less in each case.

Complete topsides by these points.

The Undersides.

Take the cut-out topsides, and fold over the legs 1 inch at the knee, and lay it down to draft the undersides.

9 to 7 is one-sixth seat plus 1 inch.

Draw line from 12, through 7 to D.

Hollow slightly at D, and curve out to $13\frac{1}{2}$.

Measure up waist to measure, plus $2\frac{1}{2}$ inches, thus allowing for 1 inch fish.

Measure up seat to measure, plus 2 inches.

E is 1 inch above the topsides.

Square across from seat seam to E, come in 2 inches and up $1\frac{1}{2}$.

We now turn our attention to the knees.

The outline of the undersides is the 1 inch behind the topsides at knee, small and calf, and the size of each of these parts is made up to measure at the sideseam, plus 1 inch.

The outline is now completed by these points.

The tack is placed 1 inch below the knee, and the first button is placed at the small.

Dress and Clerical Breeches. Plate 29.

We now come to consider another class of Breeches, viz, those worn for dress occasionsl, and it matters not whether they form part of the Unofficial Court Dress of a City Magnate, or a part of the livery of some footman, or even a portion of a Bishop's dress, for, as far as the cutting is concerned, they are produced in the style shown by Diagram 7, any slight variation in the length of the leg being a matter of easy adjustment.

Unofficial Court Breeches are made from black velvet, with cut steel buttons at knee.

Footman's Full Dress Breeches are made from plush, with three buttons at knee, and a garter at bottom, fastening with a buckle, and trimmed with gold braid.

The Bishop's Breeches are made from black faced cloth cut to the calf, or long enough to go under his gaiters, and finished at the knee with four buttons. In each case the buttons are kept well to the side.

The System. Diagram 7.

Draw line O, 12.

O to 6 is one-sixth seat. O to 9 $\frac{1}{4}$ seat.

O to 12, one-third seat. Square up from 9 and down from 6.

9 to A is the difference between side and leg seams.

6 to S is the leg length to knee, continuing to S and C the length to small and calf.

9 to $8\frac{1}{2}$, one-fourth seat plus 1 inch.

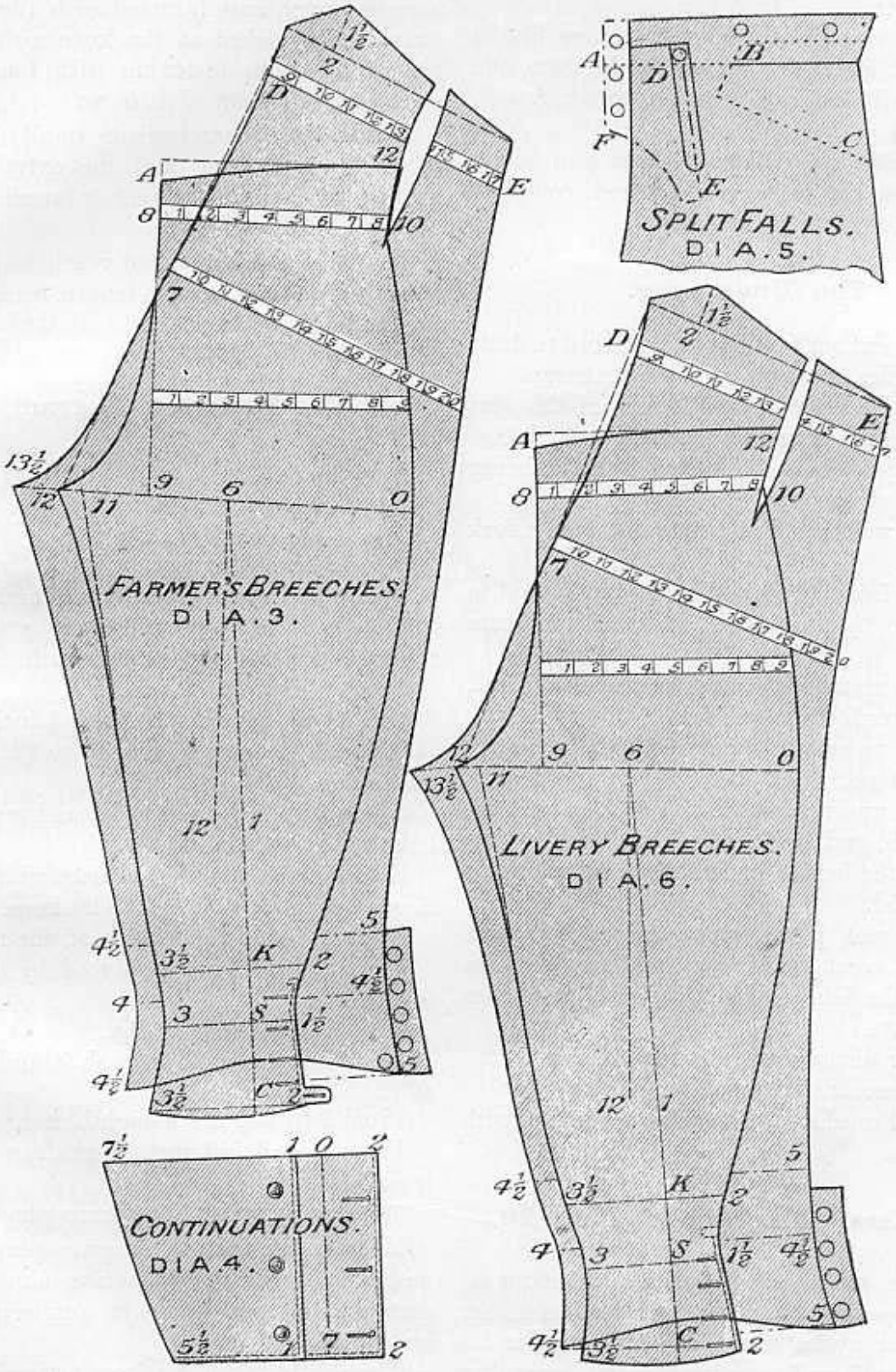

SPLIT FALLS.
DIA. 5.
FARMER'S BREECHES.
DIA. 3.
LIVERY BREECHES.
DIA. 6.
CONTINUATIONS.
DIA. 4.

Plate 28.

$8\frac{1}{2}$ to 10, one-fourth waist plus $\frac{1}{2}$ inch.

Curve fork from $8\frac{1}{2}$ to 12, and shape side from 12 to O.

Draw lines at right angles to centre line at K, S and C, and mark off on the legseam side $\frac{1}{4}$ knee, small and calf from K to $3\frac{1}{2}$, S to 3, and C to $3\frac{1}{2}$.

At the side make K to $2\frac{1}{2}$ from $\frac{1}{2}$ to 1 inch less than on the legseam side, and complete the outline of topsides as shown.

The Undersides.

Take the cut out topsides and proceed to draft the undersides, starting with the seatseam.

Mark up from 9 to 8 one-fourth of the seat less 1 inch, and draw line from 12 through 8.

12 to $13\frac{1}{2}$ is about $1\frac{1}{2}$ inches, 9 to $13\frac{1}{2}$ being one-eighth of the seat.

Hollow waist at D a trifle, and curve fork out to $13\frac{1}{2}$.

Mark in from $3\frac{1}{2}$ to $4\frac{1}{2}$ 1 inch, and from 3 to 4 and $3\frac{1}{2}$ to $4\frac{1}{2}$ also 1 inch, and shape legseam as shown.

Measure up the waist to measure and $2\frac{1}{2}$ ins., which allows for a 1 inch fish.

Measure up seat to measure plus 2 inches, as shown by tape.

Measure up knee, small and calf to measure plus 1 inch, and draft sideseam. Hollow the bottom of the legs of undersides, and allow for button stand.

To get seat piece square across from seat seam to E, come in 2 inches, and mark up $1\frac{1}{2}$. Take out the fish as shown, and the undersides are complete.

Alter for disproportion as for trousers.

Dress Breeches are usually made fly front.

Livery Breeches are usually made up with whole falls.

Knickers. Diagram 8. Plate 29.

Knickers are a very popular garment for all kinds of sport. They are the favourite nether garment for cyclists, and are very popular for shooting, golf, and pedestrian sports generally. They are made up in various styles at the knee. 1. Drawn in to the leg with elastic, and finished without opening at side. 2. Fulled into a narrow garter, and fastened with a buckle and strap. 3. Finished at the knee with a broad box cloth band, fastening with four buttons arranged well forward at front.

The leading characteristics in all of these is the width of the leg, and the extra length of leg provided for fulling over or forming the bag or pouch below the knee.

They are usually cut to reach to the small, about 4 inches of surplus length being allowed for the bagging over.

The System. Diagram 8.

Draw line O 12.

O to 6 is one-sixth seat.

O to 9 one-fourth seat.

O to 12 one-third seat.

Square up from 9 and down from 6.

9 to A the body rise, formed by deducting the leg length from the side length.

9 to 8 $\frac{1}{4}$ seat plus 1 inch.

8 to 10 one-fourth waist plus $\frac{1}{2}$ inch.

Give a little spring from 10 to 12, and curve on the hips to O.

Square down from 6 to K, and mark off the length of leg plus 4 inches.

K to 5 on either side $\frac{1}{4}$ of knee width desired. A good plan for a 36 seat is 20 knee.

Slightly round the bottom of the topside.

The undersides are produced by the cut out topsides.

9 to 9* is one-fourth seat.

Draw line from 12 through 9, and curve out to $13\frac{1}{2}$.

From 9 to $13\frac{1}{2}$ is one-eighth seat.

From 5 to 6 is 1 inch, and draw leg seam from $13\frac{1}{2}$ to 6.

Measure up waist to measure plus $2\frac{1}{2}$ inches.

Measure up seat to measure plus 2 inches, and complete draft by squaring across from the seatseam to top of sideseam, coming in 2 inches and up $1\frac{1}{2}$.

The fish is taken out from undersides 1 inch wide, and about 6 inches long, as shown.

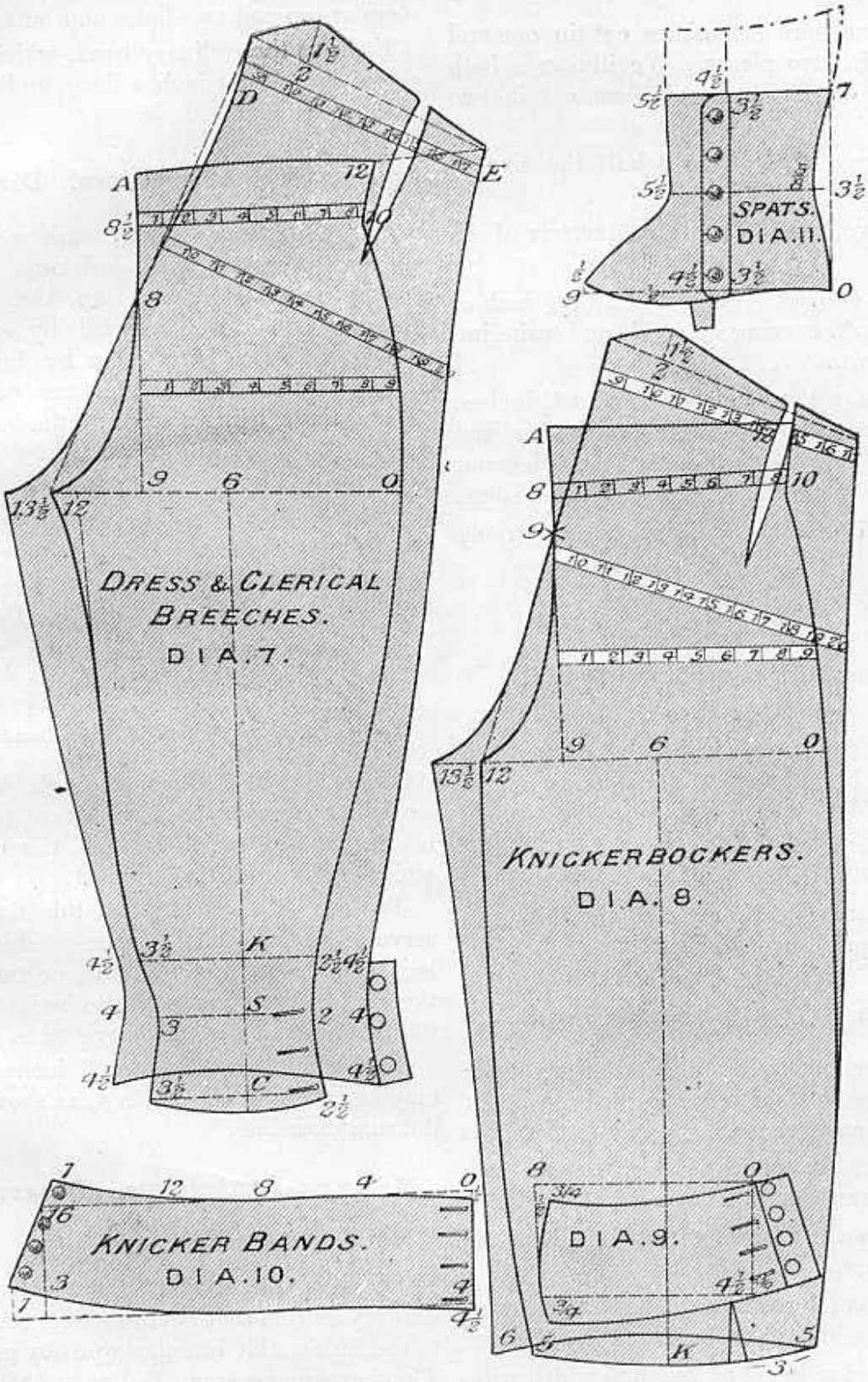

DRESS & CLERICAL BREECHES.
DIA. 7.
SPATS.
DIA. 11.
KNICKERBOCKERS.
DIA. 8.
KNICKER BANDS.
DIA. 10.
DIA. 9.

Plate 29.

Knee Bands. Diagrams 9 and 10.

Knee bands are sometimes cut in one and sometimes in two pieces. We illustrate both methods. Diagram 9 shows them cut in two pieces.

Mark across from O to 8 half the size of small plus 1 inch.

Come down from 8 to $\frac{3}{4}$ three-quarters of an inch.

Round in at back $\frac{1}{2}$ inch, and drop $\frac{3}{4}$ inch at bottom of back, curving up to $4\frac{1}{2}$, and springing out $\frac{3}{4}$ as shown.

The width of the band is from 4 to $4\frac{1}{2}$ inches. This is sewn on to the bottom of the leg, and a slit is left about 3 inches from the sideseam, so that the buttons may come well to the front.

Diagram 10 shows the knee band cut in one piece.

Square lines at right angles to O.

O to 4 the depth of band desired.

O to 16 the width of small plus $1\frac{1}{2}$ inch.

O to 4, $\frac{1}{4}$; O to 8, $\frac{1}{2}$; O to 12, $\frac{3}{4}$.

Curve up from 16 1 inch, and drop down from O $\frac{1}{2}$ inch, adding the same quantity from 4 to $4\frac{1}{2}$.

Raise the end at 3 1 inch, and add 1 inch of spring from 3 to 1.

This pattern will clip close to the shin, and give ample spring over the calf.

Various Styles of Knee Bands.

On the accompanying illustration we show some of the more fashionable methods of finishing knickers at the knee.

A represents the plain finish with bag over knees, and drawn in with elastic.

B is shown them sewn with a narrow band, which is fastened with a buckle.

C shows an underband at the knee, narrowed down to fasten through a buckle at the side.

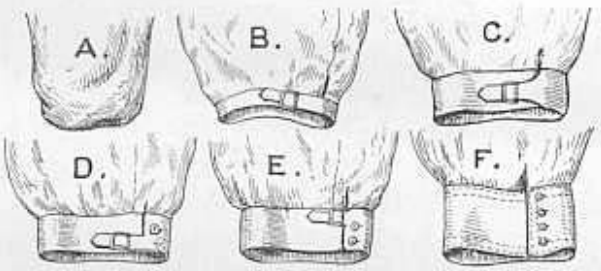
D illustrates a band of medium width with one button at top and a narrow strap round the bottom.

E illustrates a medium width band, with a strap at top and two holes and buttons below.

F shows the ordinary band, which is usually cut about $3\frac{1}{2}$ or 4 inches deep, and is finished with about four buttons.

Spats and Short Gaiters. Diagram 11.

Spats and Short Gaiters are very popular articles to wear with knickers. They are usually made to fasten up the side with buttons, but this is varied by substituting springs for the buttons, or by bringing the buttons well forward. They are cut in three pieces, there being a seam up the back and up the front.



Various Styles of Knee Bands.

They are best lined through with stout cotton or canvas, and have straps (preferably leather) to go under the foot, the position of which is shown on Diagram 11.

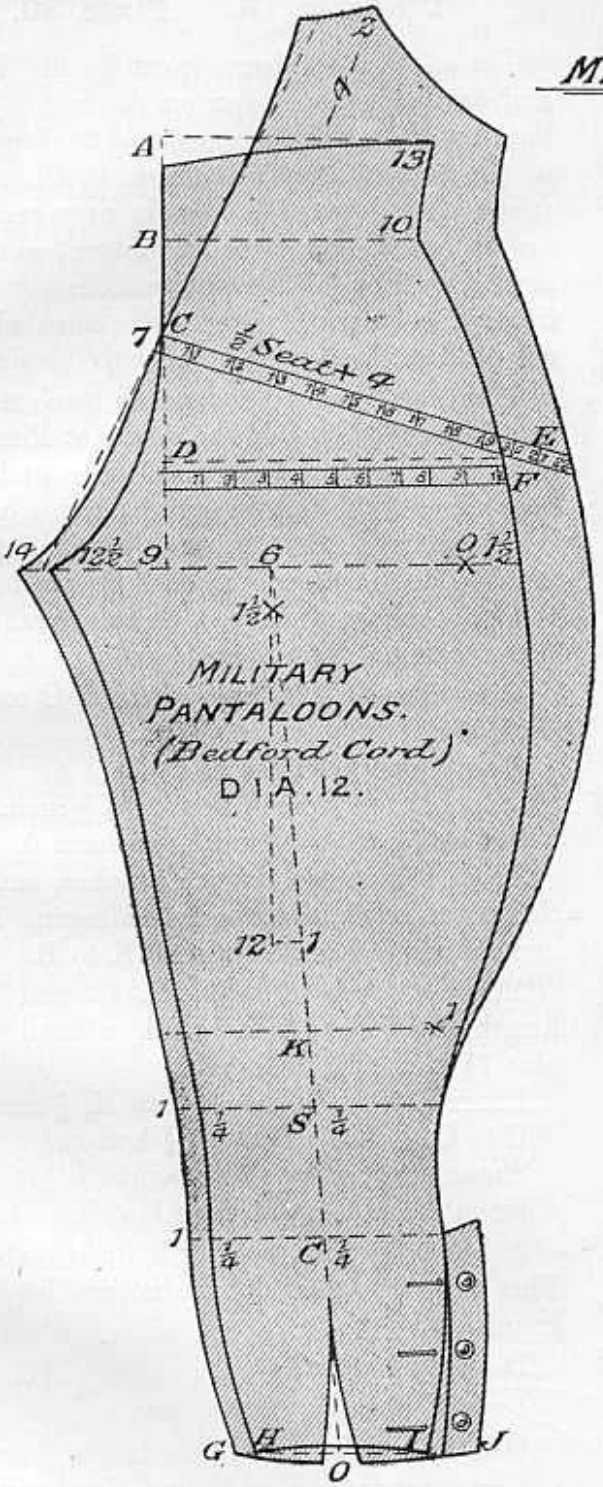
The quantities marked on this diagram will serve as a good model, larger or smaller sizes being produced by adding to or taking from the back. Variation may also be introduced at the front to suit the customer's taste.

The usual length is about 7 inches, but this may be added to if desired, as shown by the dot and dash line.

Military Pantaloons. Diagram 12. Plate 30.

There is one style of Pantaloons worn by military officers that bears a strong resemblance to the fashionable breeches worn by gentlemen. They are made from Bedford cord, and cut very full in the thighs and seat. The cutting of these is illustrated on Diagram 12.

MILITARY PANTALOONS.



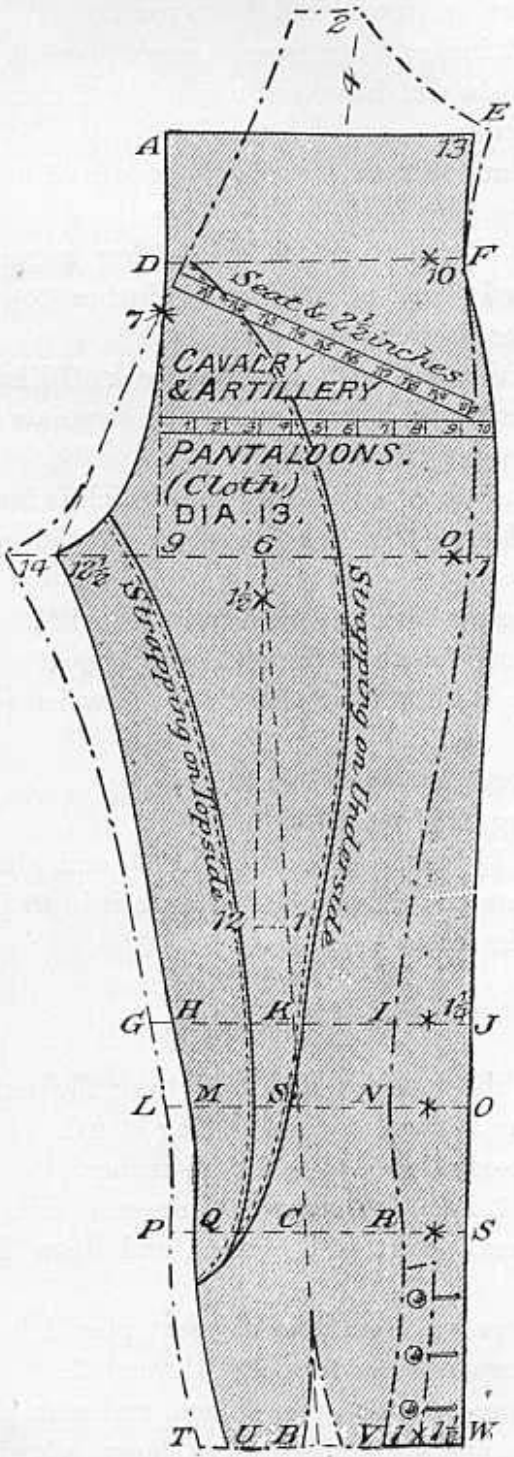


Plate 30.

Draw fork line O 12½.

O to 6 is one-sixth seat.

O to 9 one-fourth seat.

O to 12½ one-third seat plus ½ inch.

Square up from 9 and down from 6.

At 12 inches down from 6, mark towards the side 1 inch, and draw centre line from 6 through 1 to bottom.

Measure off from 6 to K, the length of leg to the knee, plus 1½ inches.

To S, C and O, the length of leg to small, calf, and bottom, adding 1½ inches to the measures in each case.

On either side of these points mark off ¼ knee, small, calf, and bottom, and by these points the leg seam may be drawn.

From 9 to A is the body rise, which is found by deducting the leg length from the side length.

Shape the fork as shown from A to 12½.

B is one-fourth of the seat, plus 1 inch.

From B to 10 is one-fourth of the waist, plus ½ inch.

Lower fronts at A 1 inch.

Spring out from 10 to B.

Add 1½ inches beyond point O, and shape side seam as illustrated, rounding it in to just below the knee.

The Underside.

Take the topsides, and fold over the extra 1½ inches allowed beyond the leg length.

Come out from 12½ to 14, 1½ inches.

Add 1 inch for seams at legseam side of knee, small, calf, and bottom, and draw legseam.

Measure up from 9 to 7, ⅙ seat plus 1 inch, and draw seatseam from 12½ through 7.

Measure up waist, plus 1 inch, and seat, plus 4 inches, and shape sideseam as shown, allowing for a ∧ at O.

Allow 4 inches up for top of seat, and come in 2, and complete as shown.

Cavalry and Artillery Pantaloons.

Diagram 13. Plate 30.

The cloth pantaloons worn by the Cavalry and Artillery are of quite a distinct style; in the first place they are made to fit closely, and in the second they are finished with a broad stripe down the side. It is now regulation orders for all stripes to be laid on, so that the actual position of the sideseam is not now so imperative as was formerly the case, when the ack of the stripe was sewn in with the sideseam.

It is, however, the custom to teach the coming Master Tailors of the Army at Pimlico to cut the topsides wide and the undersides narrow, and the reason given for this by those in authority is that it preserves a distinctive style, which in their opinion is desirable. Still there are many of the best military trades who prefer cutting them more equally.

Draw line O, 12½, and mark off O to 6 one-sixth seat.

O to 9, one-fourth seat.

O to 12½, one-fourth seat, plus ½ inch.

Square up from 9, and down from 6.

From 6 measure down 12 inches, and from this point mark towards the sideseams 1 inch, and draw line from 6 through K to B.

Mark off from 6 to K, S, C, and B, the length of the leg to knee, small, calf and bottom, plus 1½ inches in each case.

From K to H, ¼ knee. S to M, ¼ small.

C to Q, ¼ calf. B to D, ¼ bottom.

Shape legseam by these points.

From 9 to D, ¼ seat, plus 1 inch.

9 to A body rise, usually 3 inches above D. This may be found by deducting leg length from side length.

D to 10, ¼ waist.

10 to F, 1 inch.

O to 1, 1 inch.

Curve out from F to E, and shape side from E to 1.

K to J, ¼ knee plus 1¼; and B to W, ¼ bottom plus 1¼.

Continue sideseam to J, and draw J to W sharply.

The Undersides.

Take the cut-out topside pattern, and fold over the $1\frac{1}{2}$ extra length allowed in the legs, add on $1\frac{1}{2}$ at knee, small, calf and bottom, and $1\frac{1}{2}$ at fork, and draw leg seam.

Measure up from 9 to * 7, $\frac{1}{6}$ seat plus 1, and draw seat seam from $12\frac{1}{2}$ through 5, curving it out at the fork.

Allow 4 inches above the topsides for the seat pieces, and come in 2 inches from the point.

Measure up waist to measure and 1 inch, and seat to measure 2 inches.

Measure up the knee, small, calf, and bottom to measure and 1 inch, allowing for a 1 inch ∧ at bottom.

The dot and dash line shows the outline of the undersides.

On this diagram we show the position and size of the strapping; but this is seldom used except in the rank and file, the officers merely having the ordinary knee strappings. The legs are finished at the bottom with three small buttons.

Military Regulations.

The following are the regulations for the different branches of the Military Service.

General Officers. Blue cloth. $2\frac{1}{2}$ inch scarlet stripe.

Head Quarters and General Staff. Blue cloth. $1\frac{3}{4}$ inch scarlet stripe.

Household Cavalry. White leather for dress.

Household Cavalry. Blue cloth with scarlet stripes for undress.

1st Life Guards. Two stripes $1\frac{1}{2}$ ins. wide.

2nd Life Guards. Two stripes $1\frac{1}{4}$ wide, and piping between.

Royal Horse Guards. One stripe $2\frac{1}{2}$ in. wide.

Dragoons. Blue cloth. $1\frac{3}{4}$ stripe, same as men.

2nd Dragoon Guards. One stripe white cloth $1\frac{3}{4}$ wide.

6th Dragoon Guards. Two stripes $\frac{3}{4}$ wide and $\frac{1}{4}$ inch apart.

Hussars. Blue cloth. Two yellow cloth stripes $\frac{1}{8}$ apart.

11th Hussars. Crimson cloth. Two yellow cloth stripes $\frac{1}{8}$ apart.

13th Hussars. Blue cloth. Two white cloth stripes $\frac{1}{8}$ apart.

Lancers. Blue cloth. Two yellow stripes $\frac{3}{4}$ wide, $\frac{1}{8}$ apart.

17th Lancers. Blue cloth. Two white stripes $\frac{3}{4}$ wide, $\frac{1}{8}$ apart.

Royal Horse Artillery. Blue cloth. One stripe scarlet $1\frac{3}{4}$ wide.

Royal Engineers. Blue cloth. One stripe scarlet 2 inches wide.

Foot Guards. Blue cloth. One stripe scarlet 2 inches wide.

Infantry. Blue cloth. Scarlet piping $\frac{1}{4}$ inch wide.

Scottish and Highland Regiments. Tartans of authorised patterns.

Scottish Rifles. Tartan of authorised pattern.

Rifle Regiments. Rifle green cloth. Two inch wide black braid.

Mounted Infantry. Bedford cord.

Army Service Corps. Blue cloth. Two white cloth stripes $\frac{3}{4}$ wide, $\frac{1}{8}$ apart.

Army Medical Corps. Blue cloth. One scarlet stripe $2\frac{1}{2}$ inches wide.

Army Ordnance. Blue cloth. Two stripes scarlet cloth eleven-sixteenth wide, $\frac{1}{8}$ apart.

Army Pay Department. Blue cloth. Two stripes yellow cloth $\frac{5}{8}$ wide, $\frac{1}{8}$ apart.

Army Veterinary Department. Blue cloth. One stripe maroon cloth $1\frac{1}{2}$ wide.

Provost Marshal, Military and Mounted Police, Governor Military Prison. Blue cloth. One stripe scarlet cloth $1\frac{3}{4}$ wide.

Military Knickers.

These are cut the same as shown on Dia. 8, with the exception that the bottoms are rounded in a little, so that there is less fulness to put on to the band. The knee is cut as Dia. 10, and is finished with two buttons and holes.

How to make a Highland Kilt.

Plate 31.

There is very little cutting required in a kilt, and yet they must be made up in harmony with the size of the wearer, both as regards the length and width, so that a systematic arrangement is necessary.

The length of a kilt should reach to the knees. The average length for a figure of 5ft. 9 ins. or 5ft. 10 ins. is 27ins., and as that is the usual width of tweed, that is generally made to suffice for all but the very tallest figure, the tall man being expected to adjust his braces to regulate the height.

The kilt consists of two aprons and a pleated front, the aprons being arranged at either end, and in wear overlap each other. There is a very wide pleat on the side nearest the pleated part to each apron. The quantity of material required for a kilt varies from $7\frac{1}{2}$ to 9 yards, the size of the wearer and the pattern of the material having to be taken into consideration in estimating the necessary length of cloth.

There are in all about 30 pleats, 28 of which consume about 7 inches of material, and 2 about 14 inches of material, this latter being at either end of the pleated part, or nearest the apron.

The kilt is fastened round the waist of the figure by the aid of buckles and straps, the strap on the right apron passing through an opening left at about the fourth pleat from the left hand end of the pleated part, and fastened to a buckle placed just behind the opening. Another strap starts from the right end of the pleated part, and fastens to a buckle placed on the side of the left apron. Brace buttons are placed on the back and front, corresponding with those placed on trousers, only that the two buttons on the left side are put on the left apron, and the two buttons on the right side are put on the right apron.

The System. Diagram 14.

Draw line O, 27. O to 6, six inches.
O to 27, length desired plus 2 seams.
Square lines across from 6 to 18, half seat, and square line down to bottom.

Mark out from 27, 2 inches, and 18 to 20, 2 inches, and so obtain the shape of the apron.

18 to 32 is 14 inches to form the large pleat previously referred to.

20 to 32 is 12 inches, which is the provision at bottom for this pleat.

From 32 to 50 has to be pleated up before it is measured up. These are arranged towards the right, if of plain tweed each pleat should be 7 inches, if of tartan, the pleats should be so arranged as to retain the patterns of the tartan complete, or in any special manner desired. Thus, sometimes the clan stripe is arranged to come on the top of each pleat. The pleats usually number 30 in all, but there is no hard and fast rule in this matter, and when pleated up, the distance from 32 to 50 should equal the half seat.

From 50 to 64 is 14 inches, and 50 to 62 12 inches. 64 to 84 is the half seat, and 62 to 84 is the half seat plus 4 inches.

Hints on Making.

The pleats are firmly stitched from 32 to 50, and sometimes the under pleats are cut away to make it thinner. The tops are bound as a pair of trousers, stays being put under the buttons and straps. The under apron is reduced 1 inch, as, going under, it needs to be a trifle smaller; the under edge of a circle always being smaller than the outside. The edge of the left apron is trimmed with fringe and a couple of rosettes.

In finishing the bottom it will be found necessary to hollow at the centre of the two large pleats A, A, for being slightly narrower at bottom than they are at the top, it would dip below the level, and so appear uneven, so that this is hollowed up, and the edge turned in and felled, the same as a dust-hole in the pleat of a frock coat.

It only now remains to give the kilts a good pressing, and to remove the basting stitches, and the kilt is complete.

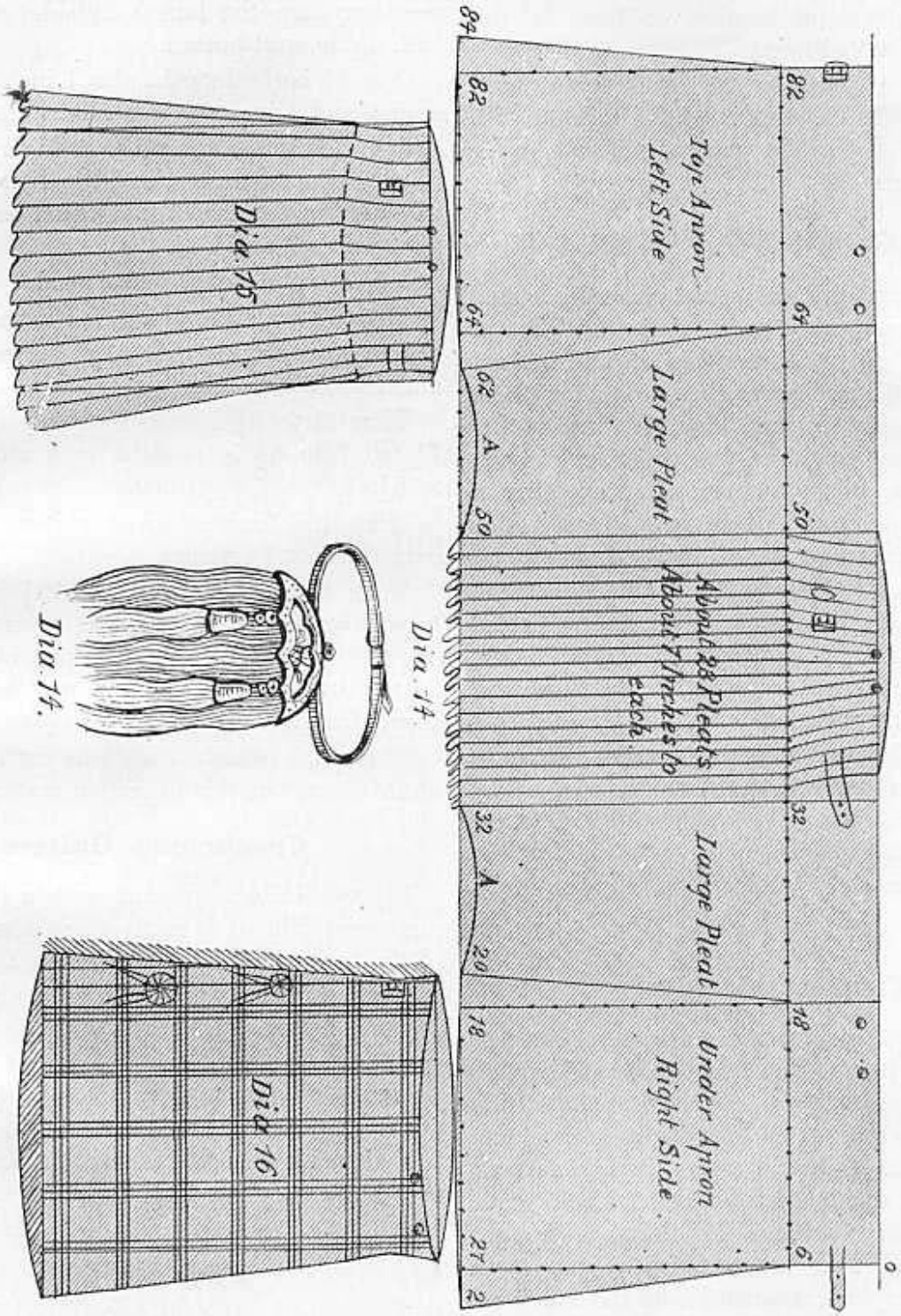

Tape Apron
Left Side
Large Pleat
Approx 28 Pleats
About 7 Inches to
Each
Large Pleat
Under Apron
Right Side
Dia 15
Dia 14
Dia 14.
Dia 16

Plate 31.

In making up the waist, it has been adjusted to the measure of the wearer, just as for a pair of trousers, only that in this case the pleats have been overlapped more or less, as the waist has to be reduced.

Diagram 15 shows the back view, and Diagram 16 the front view, of the finished kilt. Diagram 17 being the sporran generally worn with this garment.

Leggings and Gaiters.

Leggings and gaiters are not generally looked upon as very important garments by the different members of the tailoring trade, and we are inclined to think that if the orders for them were by some means diverted into other channels, they would be very greatly grieved, for those who wear them are often exacting in their demands, and the materials from which they are generally made, lack the firmness necessary to the production of a smart garment.

Of late years the popularity of Stowasser and similar makes of leggings has reduced the tailor's trade in that respect, so that very few gentlemen now wear cloth leggings.

We have illustrated on the opposite Diagrams 18 to 23, farmers' leggings, coachmen's gaiters, bishops' gaiters and spat puttees, these examples supplying the principles of cutting, and illustrate those styles most frequently in demand.

Farmers' Leggings.

As will be seen from the Diagram, these fit the leg closely, and fasten with about 7 buttons arranged straight down. They are made from tweeds, drab Devon, and similar materials, and are usually lined through with silesia, venetians, faced down the buttonhole side with the same material, and sometimes the lining is brought to the edge. The better finish is the cloth facing. They are stitched round the edge, and are finished with a hole at the top of the back seam, or with a loop at the same part. A loop is also placed inside the button side, to fasten them to the side buttons of the breeches.

Diagram 18

Shows how these are cut. The measures necessary are the length at side, the size of calf, ankle, and bottom.

O to 15 is the length, plus 1 inch, $\frac{1}{2}$ inch for seams, and $\frac{1}{2}$ inch for round over the heel.

O to 3 is the distance the calf is from the top, usually about 3 inches, and the distance from 3 to 15 is divided into three equal parts, which give points 7 and 11.

3 to $7\frac{1}{2}$ is half calf, plus 2 seams.

11 to $5\frac{1}{2}$ is half ankle, plus 2 seams.

7 to $6\frac{1}{2}$ is half the difference between 3 to $7\frac{1}{2}$, and 11 to $5\frac{1}{2}$.

Thus 11 to $5\frac{1}{2}$ is two inches less than 3 to $7\frac{1}{2}$, so 7 to $6\frac{1}{2}$ is made 1 inch more than 11 to $5\frac{1}{2}$.

Draw the back seam of gaiter, and curve over the foot $1\frac{1}{4}$ inches.

Mark forward from O 15, $2\frac{1}{2}$ inches, and backward one inch less, and so find the front edges. The small part is provided with a button stand, and the large part has the holes worked in it.

There are usually 7 buttons put up leggings of this sort, but this is quite a matter of taste.

Coachmen's Gaiters.

Livery Gaiters are cut with a half tongue, and are made to fit fairly close down the back of the leg, and come well over the foot in front.

They are usually made of drab kersey or Devon, and are finished with eight pearl buttons, the positions being marked as for 7, and an extra one is put between the two top ones.

A gaiter strap is secured to the side of the tongue, and a buckle is sewn on the inside, so that they may be kept in position about the foot.

Diagram 19.

The method of drafting that part behind line O 15, is the same as the preceding one.

O 15, is the length, plus 2 seams.

O to 3, three inches.

3 to 15 is divided into three equal parts.

3 to $7\frac{1}{2}$, half calf, plus $\frac{1}{2}$ inch.

7 to $6\frac{1}{2}$, one inch less.

11 to $5\frac{1}{2}$, one inch.

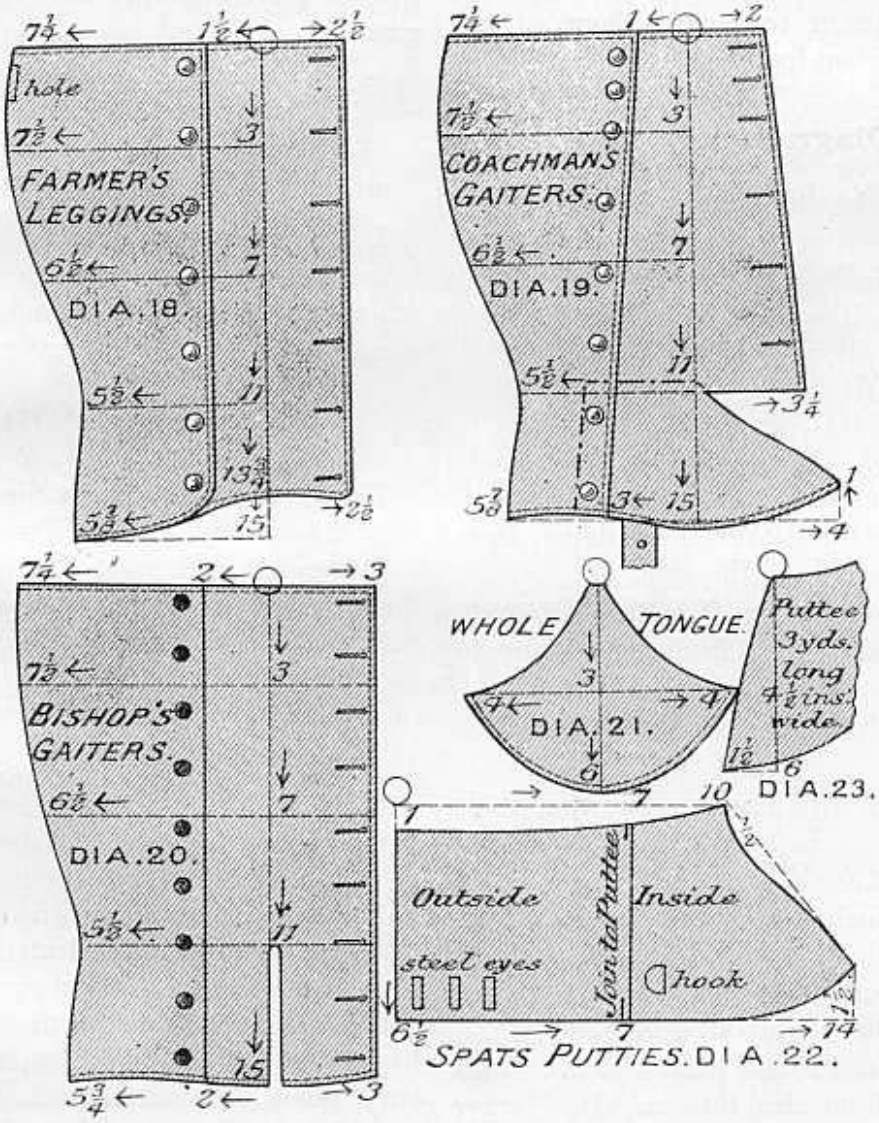
15 to $5\frac{7}{8}$, $\frac{3}{8}$ more than 11 to $5\frac{1}{2}$.

Shape back seam by curving in slightly at the top.

Now mark in from 15, 3 inches, and draw line from 1 to 3.

Now square across from 11 to $3\frac{1}{4}$ an inch more than from 11 to edge of small part, and draw line from 2 to $3\frac{1}{4}$.

Now measure forward from $5\frac{7}{8}$ to 4, half the size of bottom desired, plus 2 seams.



Now mark the front edge of the small part.

These should run with the buttons of the breeches, so that if the side of topside is 2 inches from centre line, mark out 2 inches from O to 2, and make O to 1 an inch less.

Come up from 4, one inch, and shape foot part in to a $\frac{1}{4}$ inch in front of 11.

The half tongue is cut as per dot and dash line, 11, 1, 15, 3, &c.

Two seams must be allowed for at the top of this half tongue.

Bishops' Gaiters.

Clerical gaiters are worn by archdeacons, deans, and bishops, and are generally made from the same material as their breeches, a fine doeskin. They fasten up the side with 9 flat flexible buttons. They differ from livery gaiters in the run of the buttons, and in having a whole tongue. They are lined through, and usually have some method for keeping them up, either a button to secure them to the breeches, or a ribbon loop.

Diagram 20.

Draw line O, 15, the length desired, plus 2 seams.

O to 3, three inches.

3 to 15, divide into three equal parts.

O to $7\frac{1}{4}$, half calf, plus $\frac{1}{4}$ inch.

3 to $7\frac{1}{2}$, half calf, plus $\frac{1}{2}$ inch.

7 to $6\frac{1}{2}$, 1 inch less.

11 to $5\frac{1}{2}$, 2 inches less than 3 to $7\frac{1}{2}$.

15 to $5\frac{3}{4}$ is $\frac{1}{4}$ inch more than 11 to $5\frac{1}{2}$.

O to 2 is 1 inch less than the distance from centre line of breeches to the side.

Draw line straight down O to 3, and 15 to 3, the same as the distance from centre line to side of breeches.

A slit is cut from 15 to 11, to receive the tongue.

Diagram 21 shows how to cut the whole tongue.

Draw line O 6.

O to 3, three inches.

O to 6, six inches.

3 to 4, four inches.

Make the width at O about $\frac{3}{4}$ inch.

Connect O 4, and round from 4 to 6. This will give a medium size tongue. If a larger one is desired, add on to the front at 6.

Spat Puttees.

This is a kind of gaiter recently adopted by the Army. It consists of an ordinary spat, with a long strip of material to wind round the legs. The quantities marked indicate inches, and will be found a good model. There is here, as with all other gaiters, a large and a small side.

The large side is fitted with steel eyes, and the small side with a hook to hold them together. Then there is a strip of single material, $4\frac{1}{2}$ inches wide and 4 yards long, sewn on to this, and at the top the ends are turned in and secured to a piece of tape. The cutting of plain spats we have illustrated on Diagram 11.

GLEANINGS.

In writing a work of this class there are sure to be a few items which, though they are of practical interest, do not come under the items already dealt with. Amongst them we note

Gamekeepers' Breeches.

These are usually cut in the plain style, with legs moderately open. Two inches allowed over the seat, the buttons at knee moderately forward, the fronts finished with Whole Falls, continuations cut on, and finished with about seven buttons. The sideseams are generally raised.

Leather Breeches.

Gentlemen sometimes have their breeches made from leather, and these are usually made up without a leg seam. The greatest difficulty is to get them to fit well about the knee, and there are some who say they never do. As a general rule the shape of the knee is obtained by the stretch of the skin; but this is never very much. Sometimes a ∧ is inserted to provide a spring over the calf, but this is not generally approved.

In arranging the pattern on the skin, place the seat on the thickest part to the top of the skin at the waist. Happily these garments do not often fall to the lot of the tailor, for they are only worn by the few, and are well-nigh everlasting wear.

Hints on Cleaning Breeches and Leggings.

Tweed and Cloth Breeches only require brushing to remove any ordinary dirt, whilst the leather strapping should be cleaned with special powder prepared for that purpose. If there are stains to be removed, use Quellia.

Brown Buckskin Breeches should have the dirt removed by sponging with a little cold water, but they should not be made too wet. Oxalic acid lightly applied with a flannel, will remove stains from the Saddle. A paste of cleaning powder is then made and applied evenly all over, and allowed to dry. They are then brushed with a stiff brush inside and out so as to remove all surplus powder. If the result is not satisfactory, repeat the process.

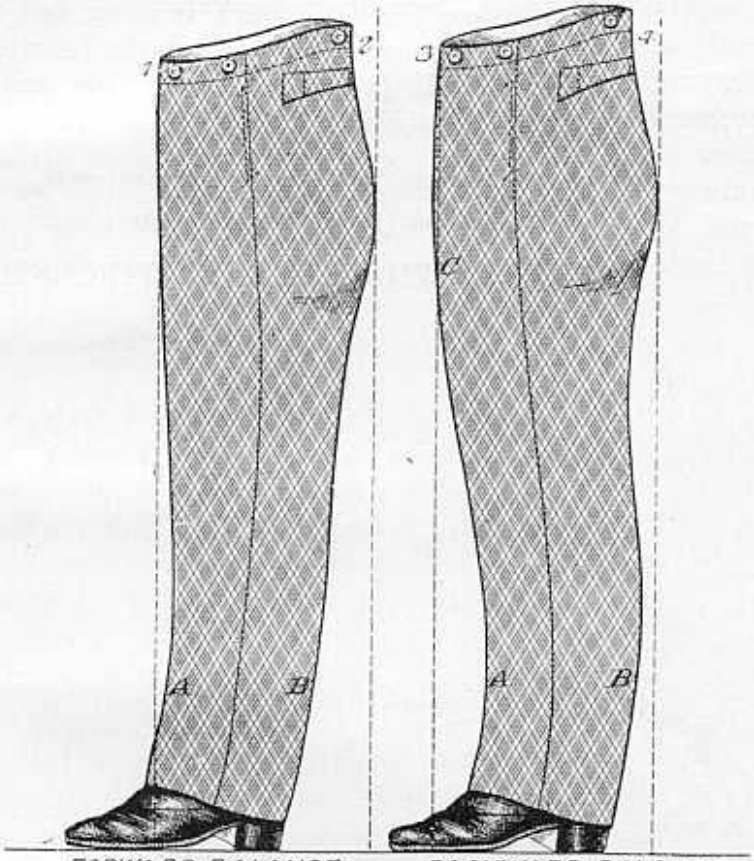
Box Cloth Leggings should have all the dirt brushed off, and then scoured with soap and water, always brushing the same way as the pile of the cloth. If stained, make a paste of some cleaning powder; lay it on evenly and allow to dry, and then remove all surplus powder with a stiff brush, or by beating with a stick.

Pigskin Breeches are cleaned with saddle soap only; special stains, &c., are apt to make them patchy, and should be avoided.

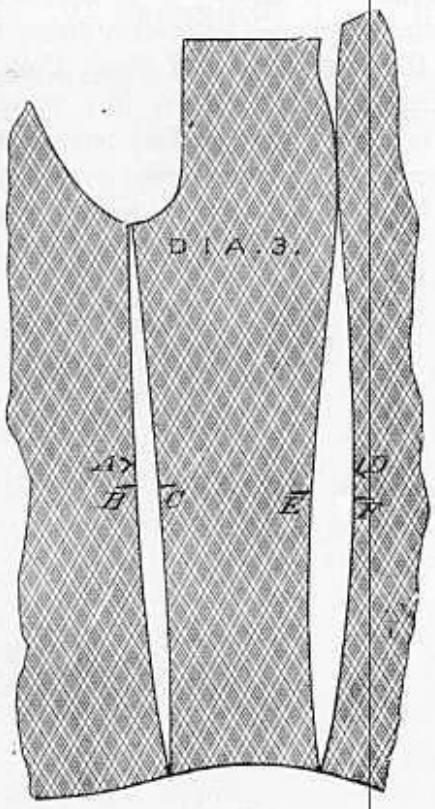
BALANCE.

Balance in Trouser Cutting is a many sided subject. Openness and closeness is one phase of it, a backward and forward hang, such as would be required by Figures 1 and 2 is, another; and in the absence of seams down the centre of topsides and undersides, has to be provided for by fulling on one part and keeping tight at another, the former increasing the length, and so giving a longer balance and allowing the part to drop, whilst the latter shortens the balance and lifts the lower part.

A third kind of balance is illustrated on Diagram 3. When the balance marks are put in, and the parts put together properly, the



FORWARD BALANCE. FIG. 1. BACKWARD BALANCE. FIG. 2.



balance is normal; but when D is strained down to meet E, then the balance is disturbed, and the result will be a twisting of the legs. We merely refer to these here to direct our readers' attention to the various phases in which the subject of Balance in Trouser Cutting and Making must be studied.

CONCLUSION.

Once more the end of another volume is reached, and ere we lay down our pen we again urge the old old story of attention to detail, of striving to please your customers by carrying out their wishes; and then, though trousers cutting may not receive the same honour as coat cutting, yet a good trousers cutter is always better than an indifferent coat cutter, and he will be in demand when the other will be seeking employment in vain. The demand is for men who excel; we trust this book will help to make such men, and then we shall be satisfied, for we shall have done our little for the elevation of the trade we love, and contributed our quota to help those of our fellow creatures who earn "the bread that perisheth" by wielding the shears.

We trust the practice of the teachings of this book will result in adding home comforts and happiness to many a foreman's family; and if when the day's work is over, and the cutter gathers his family round the hearth, a kindly thought is entertained for the writer, we shall be satisfied. For

"Kind hearts are more than coronets,
And simple faith than Norman blood."

WILLIAM D. F. VINCENT.