

Our feet and their coverings : a review.

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OUR FEET

AND

THEIR COVERINGS.

A REVIEW,

RE-PRINTED (BY PERMISSION OF THE AUTHOR) FROM THE

“MEDICO-CHIRURGICAL REVIEW,”

JULY, 1862.

W. A. Flower

LONDON:

PRINTED BY J. IVISON, 27, SILVER STREET, CITY.

NOTICE.

The following *Review* claims such special attention that I have been induced to give it publicity, in order to disseminate correct information on the proper clothing for the Human Foot, which it so forcibly advocates. The importance of the subject engaged Dr. Camper's attention in his time; it has practically occupied mine ever since I commenced business as a Shoemaker, indeed, so far back as 1835, my improvements met with the approbation of the Royal Scottish Society of Arts, who in that year awarded me their Silver Medal. Recently, it will be seen, this most interesting branch of applied science has also been investigated scientifically by Dr. Meyer and Dr. Humphry.

455, STRAND, LONDON.

JAMES DOWIE.

OUR FEET AND THEIR COVERINGS.

I.

THE HUMAN FOOT AND THE HUMAN HAND.

By G. M. HUMPHRY, M.D., F.R.S.,

Lecturer on Anatomy and Physiology in the University of Cambridge,

Cambridge and London. 1861.

II.

WHY THE SHOE PINCHES.

By HERMAN MEYER, M.D.,

Professor of Anatomy in the University of Zurich,

TRANSLATED FROM THE GERMAN BY J. S. CRAIG.

Edinburgh. 1860.

III.

THE FOOT AND ITS COVERING:

Comprising a full Translation of Dr. Camper's work on "The Best Form of the Shoe."

By JAMES DOWIE.

London. 1862.

Or all subjects to which the efforts of social and sanitary reformers are directed, those acts or customs

which produce serious physical ills without any compensating advantage or pleasure, would seem at first sight to offer the fairest field and easiest victory; though experience has unfortunately shown the difficulty of overcoming prejudice and folly, when sanctioned by prevailing fashion or long-continued use. One of the objects of the works named at the head of this article is to attack an evil which undoubtedly comes under this category, and even if the subject be deemed of little importance compared with the gigantic schemes of regeneration to which our attention is so frequently called in this age of progress, it is one which has the great merit of possessing a simple and effectual remedy, requiring no sacrifice, and within reach of all who will take the smallest possible trouble to avail themselves of it.

But is it really of that trivial and unimportant nature that many are disposed to consider it? Is the proper conservation of the natural form and functions of so valuable a portion of the human frame as the foot not a worthy subject of consideration for the philanthropist and medical man? Is it not a strange reflection, so far are the feet of all persons in our own country and time deformed by the voluntary and unnecessary adoption of an improper form of covering, that in Europe "from the antique alone any knowledge of what is beautiful in the adult human foot can be derived"?*

"We bestow reasonable compassion upon the fate of the Chinese women, who dislocate their feet in obedience to the dictates of a barbarous custom, and yet we ourselves have submitted complacently for ages to tortures no less cruel."

So the Dutch anatomist wrote a century ago, and it is said by one of our present authors that "the boots

*The Proportions of the Human Figure, p. 19. By J. Bonomi. London, 1857.

and shoes of the present day are even, if possible, more objectionable than those of the time when Camper wrote upon the subject." (Dowie, p. 141.)

And are these statements exaggerated? We think not. Indeed, from personal observations upon a large number of feet of persons of all ages and of all classes of society, we do not hesitate to say that there are few, if any, to be met with that do not in some degree bear evidence of having been subjected to a compressing influence more or less injurious. Let any one take the trouble to inquire into what a foot ought to be. For external form, look at that of any of our approved Grecian models, the nude Hercules Farnese, or the sandalled Apollo Belvidere—watch the beautiful freedom of motion in the wide-spreading toes of an infant—consider the wonderful mechanical contrivances for combining strength with mobility, firmness with flexibility, the numerous bones, articulations, ligaments, the great toe with seven special muscles to give it that versatility of motion which it was intended that it should possess,—and then see what a miserable, stiffened, distorted thing is this same foot when it has been submitted for a number of years to the "improving" process to which our civilization condemns it. The toes all squeezed and flattened against each other; the great toe no longer in its normal position, but turned outwards, pressing so upon the others that one or more of them frequently has to find room for itself either above or under its fellows; the joints all rigid, the muscles atrophied and powerless; the finely-formed arch broken down; everything which is beautiful and excellent in the human foot destroyed; and this without saying a word about the more serious evils which so generally follow—corns, bunions, ingrowing nails, and all their attendant miseries.

Now the cause of all this will be perfectly obvious to any one who compares the form of the natural foot

with that of the last upon which the shoemaker makes the covering for that foot. In the words of Mr. Dowie, the fashionable shoe—

“is made upon a last shaped in front like a wedge, the thick part or instep of the last rising in a ridge from the centre or middle toe instead of the great toe as in the foot, the last thus slanting off to both sides from the middle, terminating at each side and in front like a wedge; that for the inside or great toe being similar to that for the outside or little toe, as if the human foot had the great toe in the middle, and a little toe at each side like the foot of a goose!”

The great error in all boots and shoes made upon the system now in vogue in all parts of the civilised world, is that they are constructed upon a principle of bilateral symmetry (fig. 3). A straight line drawn along the sole from the middle of the toe to the heel will divide it into two equal and similar parts, a small allowance being made at the middle part or “waist”

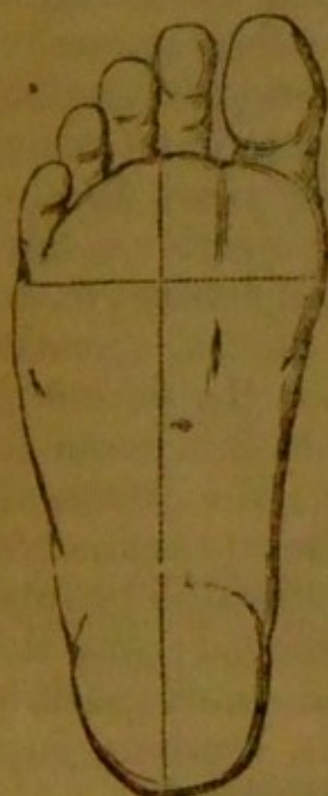


FIG. 1.



FIG. 2.

Fig. 1. Outline of natural sole.

Fig. 2. The same modified by wearing shoes of the ordinary construction.

for the difference between right and left foot. Whether the toe is made broad or narrow it is always equally inclined at the sides towards the middle line, whereas in the foot there is no such symmetry, the first or inner toe is much larger than either of the others, and its direction perfectly parallel with the long axis of the foot; the second toe may be a little longer than the first, as generally represented in Grecian art, but it is very frequently shorter; the other toes rapidly decrease in size (fig. 1). The consequent modification in the form of the foot and direction of the toes is shown at fig. 2. Often it will happen that the deformity has not advanced to so great an extent, but unfortunately there are very many worse cases than the one here represented.

It seems perfectly marvellous that any one who had ever looked at a healthy pair of human feet could have thought of the possibility of wearing a stiff, unyielding shoe of identical form for both right and left, and yet the very trifling difference which is at present allowed is a comparatively modern innovation, and is even now too frequently disregarded, especially where most needed: in the case of children. The changes that the foot has to undergo in order to adapt itself to the ordinary shape of a shoe could probably not be effected unless commenced at an early period, when it is growing, and capable of being gradually moulded into the required form.

"At this helpless period of life, the delicately feeble outspreading toes are wedged into a narrow-toed stocking, often so short as to double in the toes, diminishing the length of the rapidly-growing foot! It is next, perhaps, tightly laced in a boot of less interior dimensions than itself; when the poor little creature is left to sprawl about with a limping, stumping gait, thus learning to walk as it best can, under circumstances the most cruel and torturing imaginable." (Dowie, p. 107.)

The loss of elasticity and motion in the joints of the

foot, as well as the wrong direction acquired by the great toe, are not mere theoretical evils, but are seriously detrimental to free and easy progression, and can only be compensated for in walking by a great expenditure of muscular power in other parts of the body, applied in a disadvantageous manner, and consequently productive of general weariness. The labouring men of this country, who from their childhood wear heavy, stiff, and badly-shaped boots, and in whom, consequently, the play of the ankle, feet, and toes is lost, have generally small and shapeless legs and wasted calves, and walk as if on stilts, with a swinging motion from the hips. Our infantry soldiers also suffer much in the same manner, the regulation boots at present in use in the service being exceedingly ill-adapted for the development of the foot. Much injury to the general health, the necessary consequence of any impediment to freedom of bodily exercise, must also be attributed to this cause. Since some of the leading shoemakers have ventured to deviate a little from the conventional shape, those persons who can afford to be specially fitted are better off as a general rule than the large majority of poorer people, who, although caring less for appearance, and being more dependent for their livelihood upon the physical welfare of their bodies, are obliged to wear ready-made shoes of the form that an inexorable custom has prescribed.

Before considering the remedy for this universal evil, we may pause to reflect upon the motives which have induced men to inflict it upon themselves, and the following remarks of Professor Meyer upon the subject are certainly deserving of consideration.

“A shoe, then, has to afford protection against unequal and rough ground, as well as against cold and wet. This is the object of a covering for the feet.

“A covering for the foot has, however, to fulfil this object in

a manner that will give rise to no disadvantage, the existence of which would essentially diminish the benefits of protection. The remedy would in this case be worse than the evil. Here, however, Fashion, so unfortunately mixed up in all our clothing relations, steps in, and must even have her say on the shape of the shoe. So long as the influence of fashion is confined to the cut and amplitude of the coat, the colour of the hat, and the like, the only harm that accrues is the probable production of a ludicrous effect. It signified little, so far as health is concerned, whether a man wears a grey coat or a brown one, but it is of some importance whether the shoes he wear be broad or narrow, rounded or pointed, long or short. The shape of the shoe has too much influence on health and comfort to be left to the dictates of fashion.

"It is quite clear that the foot must get inside the shoe, and if the shoe differ in shape from the foot, it is no less plain that the foot, being the more pliable, must of necessity adapt itself to the shape of the shoe. If, then, fashion prescribes an arbitrary form of shoe, she goes far beyond her province, and in reality arrogates to herself the right of determining the shape of the foot.

"But the foot is a part of the body, and must not be changed by fashion, for our body is a gift, and its several parts are beautifully adapted for the purposes for which they were intended. If, therefore, we in any way change its normal form, not only do we not improve, but we actually disfigure it."

Few sensible persons can really suppose that there is anything in itself ugly, or even unsightly, in the form of a perfect human foot; and yet all attempts to construct shoes upon its model are constantly met with the objection that something extremely inelegant must be the result. It will perhaps be a form to which the eye is not quite accustomed; but we all know how extremely arbitrary is fashion in all her dealings with our outward appearance, and how anything which has received her sanction is for the time considered elegant and tasteful, while a few years later it may come to be looked upon as positively ridiculous. That our eye would soon get used to admire a different shape, may be easily proved by any one who will for a short time wear shoes constructed upon a more correct principle, when the prevailing pointed shoes, suggestive of cramped and atrophied toes, become as positively

painful to look at as to most people of the present time are the once-admired proportions of an unnaturally-constricted waist.

Having so far touched upon the errors of the present system of shoemaking, we now take up the means by which it is suggested that these may be remedied. It is not enough to say that the shoe should resemble in form the part it is intended to cover and protect, for unfortunately, few shoemakers know much either of the structure or uses of the different portions of the foot in its natural condition.

The sole is the foundation upon which the shoe is built, and unless this part is made of a proper shape, the superstructure cannot be perfect. Hence the first thing to understand is the correct principle upon which the outline of the sole ought to be designed. This is

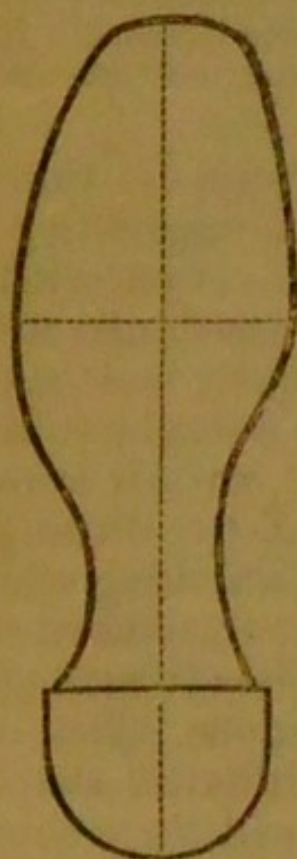


FIG. 3.

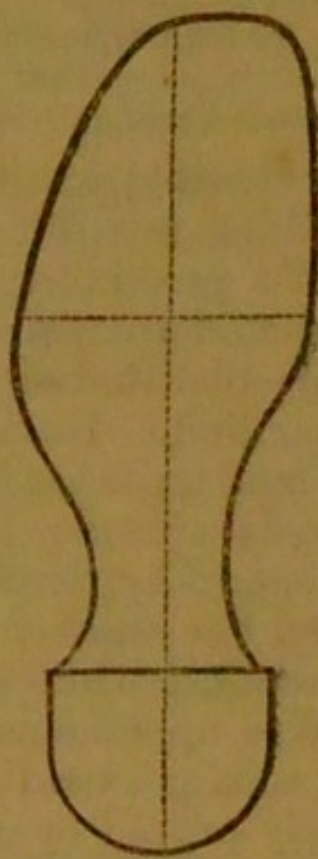


FIG. 4.

Fig. 3. Outline of sole of ordinary shoe.

Fig. 4. Proper form of shoe.

very clearly laid down by Professor Meyer, although we think he is not quite right in making the line corresponding to the axis of the great toe, when prolonged backwards, pass through the *centre* of the heel, as it throws the latter part too much to the inside, and produces a twist in the under surface of the foot, which does not exist in nature. The cardinal point to be attended to is, that the inner edge of the sole be perfectly parallel to the long axis of the foot—i.e., a line drawn through the centre of the heel and bisecting a transverse line across the roots of the toes. (Fig. 4.) Of course ample length and breadth are essential, and if the measurement is taken when the foot is off the ground, an allowance must be made for the expansion in both directions which takes place when it is bearing the weight of the body. As in a pair of natural and healthy feet, placed side by side, with the heels together, the great toes are perfectly parallel, and touch each other almost to their ends; so in a pair of shoes made upon this principle, placed in the same position, will the inner margins of the front part of the sole be parallel and in contact. When shoes made upon the ordinary plan are placed with their inner sides together, it will be seen that the toes diverge from each other, and in proportion as this divergence is increased, so is their construction faulty, and the foot that can be placed inside them diverted from its normal configuration. We recommend this easy experiment as a test by which any one can ascertain in a moment how far his feet have been made to depart from the form which, being that given by nature, must alone be considered beautiful.

The correct construction of the sole is by no means the only important point to be attended to in making a shoe, for if the last is not made to correspond with it in all points, a perfect fit cannot be obtained. We have already alluded to the errors in the shape of

the lasts now in use—errors which might easily be avoided if the lastmaker would only take a cast of a really well-formed foot, and place it beside him while at work. High and narrow heels are of course much reprobated by all the writers before us, but for various minor suggestions for improving our feet covering we must refer the reader to the actual works.

Although the stocking is more pliable than the shoe, and therefore less capable of producing a permanent impress upon the form of the foot, its shape and size should by no means be neglected, and the very pointed ends generally made to this article of dress, undoubtedly exercise an injurious effect upon the development of the toes, especially in the growing feet of children.

One great obstacle to the introduction of a reformation in this department is the idea that with the present generation it is too late for any improvement, that our feet have already been reduced to the artificial pattern prescribed by fashion, and could never wear shoes of the form adapted for a Grecian statue. This is true only to a limited extent. If a foot with the great toe much diverted from its normal direction be at once put into a shoe of the shape recommended by Professor Meyer, it will not feel at all at ease; but this is no reason why the change should not be made by degrees. It is surprising to find how readily the toes will recover their liberty of action and natural form if encouraged to do so, the only necessary precaution being that the shoe is made long enough, for as the great toe gradually assumes the straight position, of course the length of the foot is increased. Experience has already shown that, even in middle-aged persons, the restoration of freedom to the toes is attended by superior power of action in the foot and leg, and increased facility in progression.

The ordinary method by which the shoemaker

relieves the pain caused by the pressure of the shoe upon the projection of the metatarso-phalangeal articulation, produced by the habitual forcing of the point of the great toe towards the middle line of the foot, is to give more room to the upper-leather at this spot. This expedient may afford a temporary palliative, but eventually only adds to the misery of the patient, by aiding to increase the obliquity of the great toe. The sole real and permanent cure for bunions and corns, so well pointed out many years ago by Sir B. Brodie, is to restore the normal position of the toes. This may be a work of time, but with patience and care it may generally be accomplished.

But if we ourselves have suffered from the ignorance and blind adherence to custom of those who had the control of our feet in our infancy, there is no reason why we should transmit the same fate to a future generation. The members of our own profession, to whom the world is so much indebted for the dissemination of correct information upon many questions connected with the sanitary management of infants, should, by their advice and encouragement, and especially by example in their own families, give an extended impetus to the movement inaugurated in these works. We are persuaded from actual experience that if such a movement became general, a vast increase in the health and happiness of our children would be the necessary consequence. The drawing of an outline of the sole of the foot of a grown-up person, relied upon by many shoemakers as the most exact method of obtaining the required form for the shoe, in many cases does more harm than good, as it assists to perpetuate instead of correct, the already existing deformities; but with a child this plan will give a perfect representation of what is required. A comparison of the outline of such a drawing, and that

of the sole of the shoe usually sold for the same foot, will furnish a serious matter for reflection.

We quite agree with Dr Humphry in his protest against the common notion of supporting and strengthening the ankles by tight-laced boots, which, as he says—

“Has its parallel in the idea of strengthening the waist by stays. The notion is, in both instances, fortified by the fact that those persons who have been accustomed to the pressure, either upon the ankle or the waist, feel a want of it when it is removed, and are uncomfortable without it. They forget, or are unconscious, that the feeling of the want has been engendered by the appliance, and that had they never resorted to the latter, they would never have experienced the former.”

There can be no surer way of producing permanently weak ankles, than by lacing them up tightly during childhood, and so preventing the natural development of their ligaments.

A few words may be useful, in conclusion, upon the character and contents of the works above referred to.

‘Why the Shoe Pinches,’ is the English title of a well-illustrated little pamphlet, by Professor Meyer, of Zurich, who is already known for his researches into the structure and mechanical adaptations of the foot and lower limbs. We have had occasion to mention one point on which we are inclined to differ from the author, and we think that if more had been said about the form of the last, the work would have been rendered more complete, but on the whole it illustrates so forcibly the errors of the present system of foot-covering, and indicates so clearly their remedy, that it deserves to be in the hands of every maker, and we might almost say, every wearer of shoes. The translator’s part is performed by Mr. Craig in an unexceptional manner.

We are much indebted to Mr. Dowie for bringing before the English public the philosophical essay of

Camper, which contains many valuable suggestions, some, however—as those relating to the position of the buckle, and to enormously high heels—are more applicable to the period at which it was written than to the present day. In his own part of the work, Mr. Dowie unsparingly denounces the evils inflicted upon mankind by his fellow-craftsmen, among whom he has long been known as an ardent reformer. The chief peculiarity of the book consists in the advocacy of flexible, instead of rigid soles, an object which is to be gained by the introduction of a piece of a material called ‘elasticated leather,’ at the waist, or middle part of the shoe.

Dr. Humphry’s work is an amplification of two lectures delivered at Cambridge. Addressed to unscientific readers, it is written in language the most popular, but bears ample evidence of the extensive knowledge and careful consideration of the subject which might be expected from so accomplished an anatomist. It is divided into two sections, the first devoted to the foot, the second to the hand. Although it might be supposed that the well-known Bridgewater Treatise of Sir Charles Bell had exhausted the latter subject, Dr. Humphry has contrived to bring together much that is novel as well as interesting in relation to the uses of this most important member, and has enlivened the dry details of structure by numerous references to comparative anatomy and to social customs, as those of shaking hands, wearing the ring on the fourth finger, the preferential use of the right to the left hand. The last question has very often been asked, but never satisfactorily solved. Dr. Humphry, after dismissing as untenable any supposed anatomical reason for the disparity of the two limbs, arrives at the conclusion that “the superiority [of the right hand over the left] is acquired, the tendency to acquire the superiority is natural.” This specializing

of one of the hands for particular kinds of work is an extreme example of that principle of division of labour, which, as carried out in the animal system, is the criterion of elevation of organization. The subject of the proper form of shoes is treated of, though rather briefly, but we are glad to find that the author fully sanctions the views of Professor Meyer, and gives his little work a cordial recommendation.

W. H. F.