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LATERAL CURVATURE OF THE SPINE.

BY

GEO. STEELE-PERKINS, M.D.

*Delivered before the South Eastern Branch of the British
Medical Association, November, 1899.*



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LATERAL CURVATURE

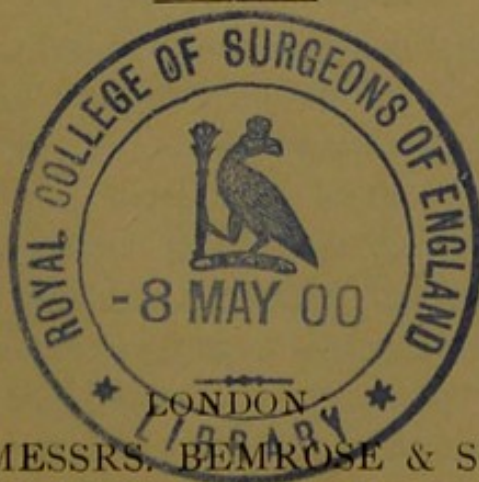
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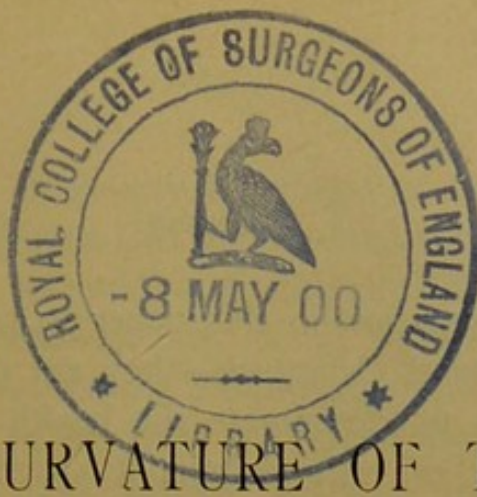
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Time did not permit me in this paper to describe the necessary exercises to be carried out in these cases. This I propose dealing with at a later date.

GEO. STEELE-PERKINS.

85, WIMPOLE STREET,
LONDON.



LATERAL CURVATURE OF THE SPINE.

MR. CHAIRMAN AND GENTLEMEN: When your Chairman, Mr. Bryden, did me the honour of asking me to read a paper before this branch of the British Medical Association, I considered on what subject I could address you that I might hope would be of some practical value, and Lateral Curvature of the Spine occurred to me as being one which must frequently come under your notice, and as it is a trouble which, partly owing to the great centralisation of the community into large cities, is undoubtedly on the increase, and unless proper precautions be taken by seeing that our young people, especially our young girls, have a sufficient amount of healthy and suitable outdoor exercise this condition will largely increase in the future, as naturally the air of our large towns is not so healthy in which to bring up our children as the atmosphere of the country, and the amount of mental work demanded from the rising generation is much greater than even in the last generation, and this amount of work necessary to enable our children to fight the battle of life successfully must of necessity increase as our knowledge advances, and increased mental work combined, with a want of purity of the air they breathe, must affect their well-being, and one of the many ways in which this is shown is, and will be, Curvatures of the Spine, because one of the first ways in which the human being shows weakness, is in its inability to maintain perfectly that erect position which is only possible when the individual is in good health, depending as it does on the equal development on the two sides of the body of numerous muscles and the perfect education of the muscular sense which enables us to keep an exact equilibrium.

Causes.

It is not my intention in this paper to say much as regards the causes of Lateral Curvature—they are numerous, and anything that tends to deteriorate the health of a child is likely to be productive of this complaint, such as any form of severe illness, insufficiency of food, unhealthy surroundings, either as regards air or insanitary conditions, overwork, the want of proper physical exercises, hereditary weakness, &c.

There are numerous other causes which may be productive of Spinal Curvature in an otherwise healthy child, such as sitting in wrong positions, especially at school, laziness, careless walking, girls being permitted to always ride on one side of a horse instead of using reversible saddles, excessive violin playing, and innumerable causes of this sort. Then you have Curvatures due to certain deformities, such as an inequality in the length of the lower limbs, a varying amount of genu valgum or genu varus, flat foot, &c.

There is one trouble, unfortunately, only too frequent in children, which I am quite convinced is a cause of Lateral Curvature, and which, to my knowledge, has never been mentioned as being so.

I refer to nasal, naso-pharangeal, or pharangeal obstructions, be it enlarged tonsils, adenoids, hypertrophy of the inferior turbinal bodies, or any obstruction, be the cause what it may, that makes a child a mouth-breather instead of inhaling the air through the nostrils as Nature meant us to do, whereby the air is warmed and purified before reaching our lungs. This, as a cause of Curvature, occurred to me from noticing the number of children who were brought to me with nasal, or throat, obstructions, who sat "all of a heap," with rounded shoulders, perceptible inequality of figure, &c.

On investigating this point it was surprising to find the number that had, more or less, either Lateral Curvatures, or undue antero-posterior curves of the dorsal or lumbar region.

On considering nose or throat obstructions as a cause of Curvature, I do not think we need feel surprised at their

proving to be so frequently the origin of the trouble, because it must be remembered that mouth-breathers, owing to the air being imperfectly warmed and filtered, fail to properly purify their blood, and consequently more or less impure blood is carried to the nerve centres and to all the tissues of the body, with the natural result that the development of the child suffers, and, as I said before, anything that tends to cause debility of the individual undoubtedly tends to produce an inability to keep in a perfectly accurate erect position.

Finally, in many of these cases we have to deal with children of indolent temperament, too lazy or too wilful to sit upright and to correct errors of position pointed out by their parents or those in authority over them; and further, that it is seldom that only one cause is at work in the production of Spinal Curvature.

Pathology.

As regards the Pathology of this trouble, there is no necessity, for our purpose this afternoon, to go into the bony changes that take place in severe cases, such as rotation of the bodies of the vertebræ, prominence of the ribs posteriorly, &c., but what it is most essential to thoroughly understand is that this condition is brought about entirely by the want of the proper and equal development of the muscles on the two sides of the spine.

This is the fundamental fact that it is necessary to remember when considering Lateral Curvature.

In these cases we are not dealing with any disease of bone; there is no caries, *i.e.*, there is no Pott's disease, no inflammatory condition, no breaking down of tissues; there is nothing but a lack of proper muscular development, and the bony changes that occur, and to which I have referred above, take place in the later stages and are brought about by the want of proper muscular development in those muscles which keep the spine erect, and, therefore, the primary condition in Lateral Curvature is a lack of muscular development.

Symptoms.

There is no necessity for me to detain you on the symptoms of this complaint, the condition being generally quite obvious to the eye when the back is examined.

More or less back ache is usually present, but by no means always, and I have particularly noticed that where back ache is absent, the child is generally fairly covered with adipose tissue, therefore, I would ask you to remember that absence of back ache in no way precludes Lateral Curvature, and that, moreover, I have seen very bad cases with a good deal of vertebral rotation and posterior prominence of ribs, in which this symptom was entirely absent.

Diagnosis.

The only disease for which it is likely to be mistaken is Caries of the Spine, but it is rarely any difficulty is presented in the differential diagnosis between these two complaints. In Caries there is angular curvature, not lateral, pain on movement and on pressure, with tenderness over certain vertebræ, and the trouble generally confined to one part of the spine; these symptoms, combined with the history of the case, usually render the diagnosis easy. When examining a case do not tell the patient to "stand up," but let her stand naturally, so that you can see the actual position which she usually adopts; as if you tell her to "stand up," she assumes a position which she cannot maintain.

Rotation of the vertebræ is a condition which is frequently overlooked; it is easily ascertained if present, as an early sign of such rotation is prominence of the ribs posteriorly, which is readily seen by making the patient bend forwards, allowing the arms to hang; owing to this condition not being diagnosed many cases remain without treatment until a late stage.

Prognosis.

It is in these cases more satisfactory to give your patient, as far as possible, a definite prognosis, and there is no difficulty in doing this.

The general rule that I would suggest for your guidance is this: That whatever is the best position in which you can place a patient, and in which a patient can remain for even five or ten seconds, you may safely promise to be able to make her attain permanently. The position of the patient when standing at ease is very different from the position into which you are able to place her by various little manipulations which one learns by experience, and it is this latter position you can faithfully promise to permanently secure.

In a large number of cases, in fact in all cases in which there are no bony changes, this "best position" is the absolute normal straightness of the spine; but if there be any permanent bony changes then to that extent you cannot rectify the deformity.

In those cases in which you cannot get the perfectly erect position by your manipulations one frequently finds that the spine will become straighter if the child extends its spine by hanging from a trapeze, but it cannot be promised in those cases that the spine can permanently be made as straight as that; it may be done, but usually a position can be attained in these bad cases somewhere between the "best position" to be attained by your manipulations as above-referred to and that to which the spine is capable of being extended; it is better to promise less and to do more, than to promise more and do less; therefore, personally, I never promise to be able to make a child straighter than the position in which she is able to hold herself for a few seconds; but, nevertheless, in those cases in which the patient is unable even for a few seconds to attain the perfectly erect position, but can do so when hanging on the trapeze, I generally am able to improve on the temporary position in which she can stand and in many cases get the child quite straight.

Having spoken of extension, I should like to mention, as extension is advocated by some, that extension of the spine is useless if the muscles of the spine cannot be developed up to keep it in that position, and that, therefore, extension of the spine is only useful to that extent, and if carried further must of necessity do much more harm than good as it must at least injure the ligamentous and muscular tissues of the spine.

Treatment.

In speaking of the treatment for Lateral Curvature of the Spine I would wish to discuss the two methods at present adopted for rectifying this condition, viz., firstly, by Physical Exercises and Position; and secondly, by Spinal Supports. I trust that ere long it will be unnecessary to argue in favour of the former method and against the latter, as I hope treatment by spinal supports will soon have become a thing of the past, but at present we still have several men who adopt this method, and, believing them to be conscientious in their method of treatment, I feel it is one's duty to give reasons for disbelieving in those methods, and to show why the treatment by physical exercise and position is the only correct, and therefore the only justifiable, method by which to conduct the treatment of these cases.

When we speak of spinal supports it is immaterial for our argument whether it be a poro-plastic or leather jacket, with or without steels, pads, screws and such like apparatus, or plaster of Paris, they all come under the heading of spinal supports against which I wish to most emphatically protest, believing them to be in the majority of, if not in all, cases more or less actually harmful.

I would wish here to exclude one class of Lateral Curvature from this sweeping assertion, and that is those cases which are due to actual paralysis of muscles; it stands to reason that in cases of actual paralysis you must have a spinal support, as of necessity you are obliged to have in cases of caries of the spine; therefore, in speaking of this subject please remember I exclude those cases due to paralysis.

On what grounds can the treatment by spinal supports be upheld?

I know of none; take the pathology—you know this condition is brought about by a weak condition and bad development of the Erectores Spinæ—how then can spinal supports by any possibility improve that condition? Again, spinal supports of necessity render the muscles practically inactive; they, therefore, cannot develop, but, on the contrary, must of necessity become

weaker, so the last stage of that back must be worse than the first.

In the case of a fractured arm or leg we are obliged to put the limb into splints whilst union of the bone takes place, in order to keep the ends of the bone in proper position ; but we all know the condition of the limb when the splints are removed, the muscles smaller and weaker, the joints—in those cases in which it has been necessary to keep a joint still—more or less stiff ; of necessity precisely the same thing happens if you place the spine in a splint, the muscles get smaller and weaker, cannot by any possibility develop, and the natural movements of the spine are more or less lost. Again, the general health of the patient must of necessity suffer, not only by the weight of the jacket, but also by the comparatively inactive life she is compelled to follow, and by the restriction to the development of the chest, and thereby to the development of the lungs, and owing to this an imperfect oxygenation of the blood, with the consequent lack of proper development of all the tissues of the body.

It is unnecessary to pursue this argument further than to say that treatment by spinal support always extends over years, and the expense to the patient from beginning to end is very great.

Let us now look for a moment at some of the arguments in support of the treatment by physical exercises and position : The muscles which support the spine are weak and ill developed ; the exercises which should be adopted develop those muscles and ultimately enable the patient to hold herself straight and erect, and those parts of the erector spinæ on the one side which are not equal in development to the corresponding part of the erector spinæ on the other are duly developed, until they do equal the erector spinæ on the other side, and thereby pull the spine back into its proper position and maintain it there. Again, the exercises given develop the chest and thereby permit expansion and growth of the lungs with, in consequence, a better purification of the blood and a healthy development of mind and body. Again, the child is able to take exercise unhampered by the weight of a jacket, and, as the case improves, to join in games and other means of healthy recreation ; finally, the treatment does

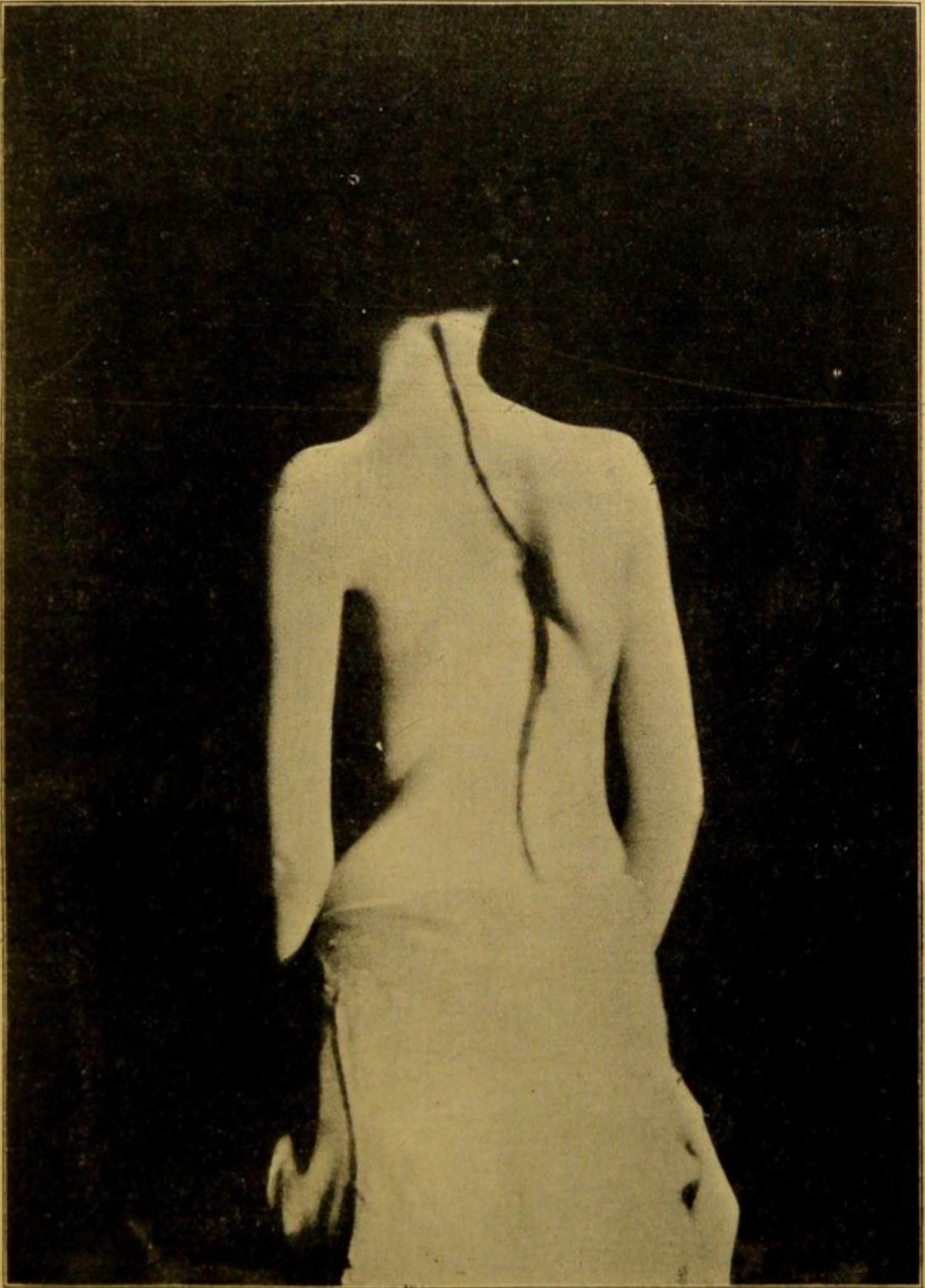
not extend over years, but even the worse cases are only a matter of months, and even then have not to be in constant touch with their medical men, as, when a certain stage has been reached the conduction of the case can be safely handed over to any intelligent person to whom the medical man has taught the necessary exercises, and in slight cases one is able to teach these exercises at a very early date.

Another very important point in favour of the treatment of these cases by physical exercises is that whilst developing the muscles you at the same time teach the child to hold herself in the correct position by educating her muscular sense, which in all these cases has become perverted ; this, of course, cannot be done with the support treatment, because the muscles are largely inactive and have their work done for them by the splint in which the body is encased.

I hope that I have said sufficient to convince you that the proper treatment of Lateral Curvature is by exercises and position and not by supports ; but before passing on to some of the details of the treatment by the method I advocate I wish to show you three photographs that I have of a case which came to Mr. Charters Symonds and which he sent on to me for treatment.

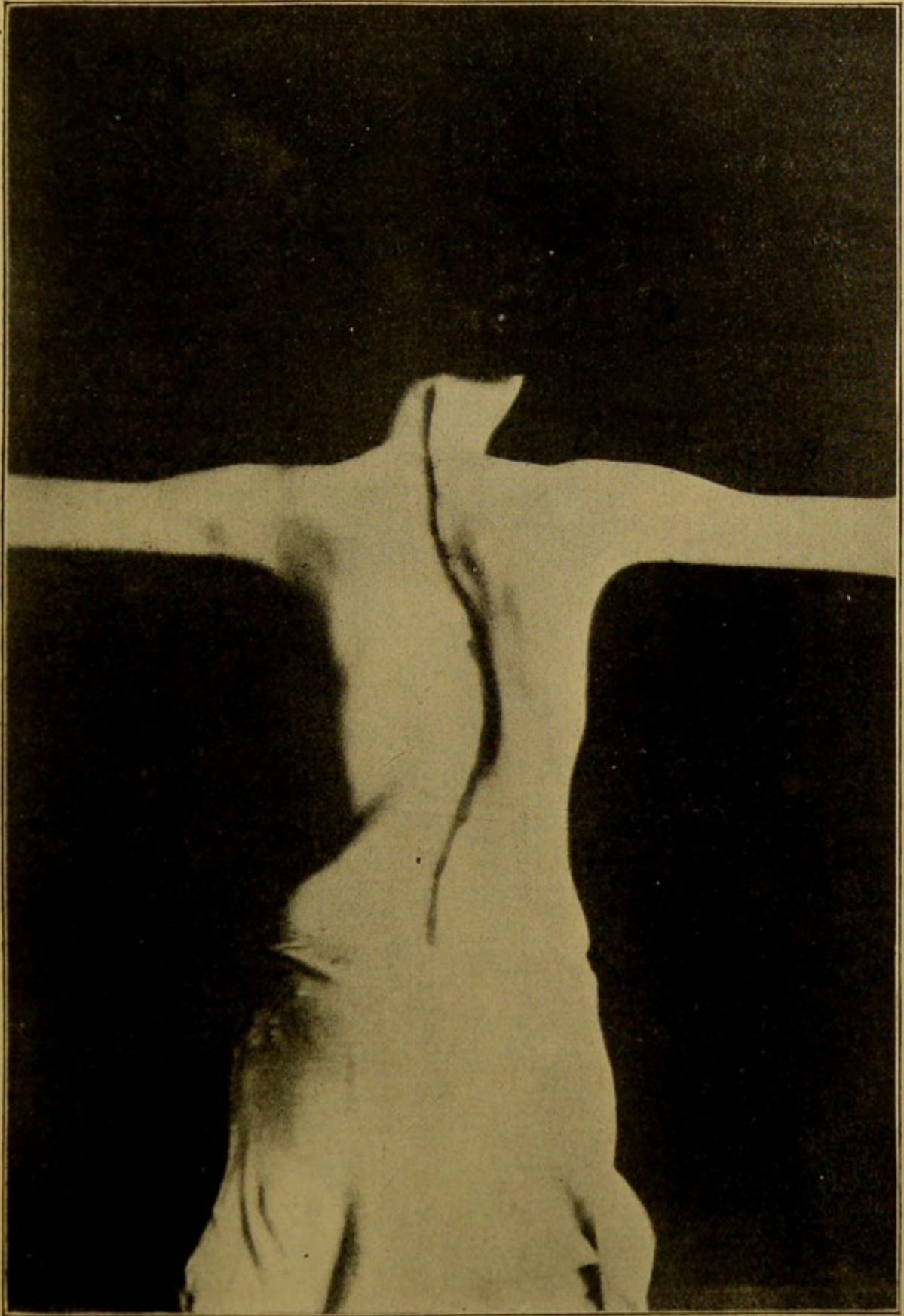
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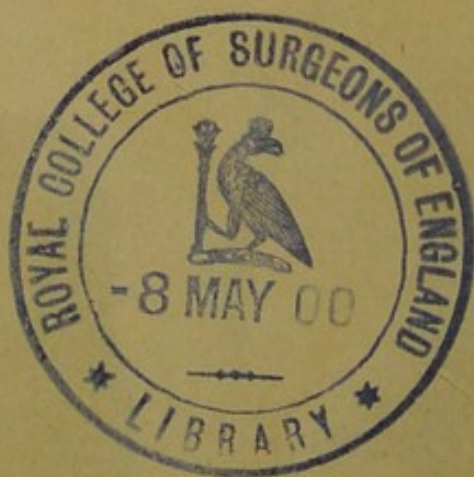


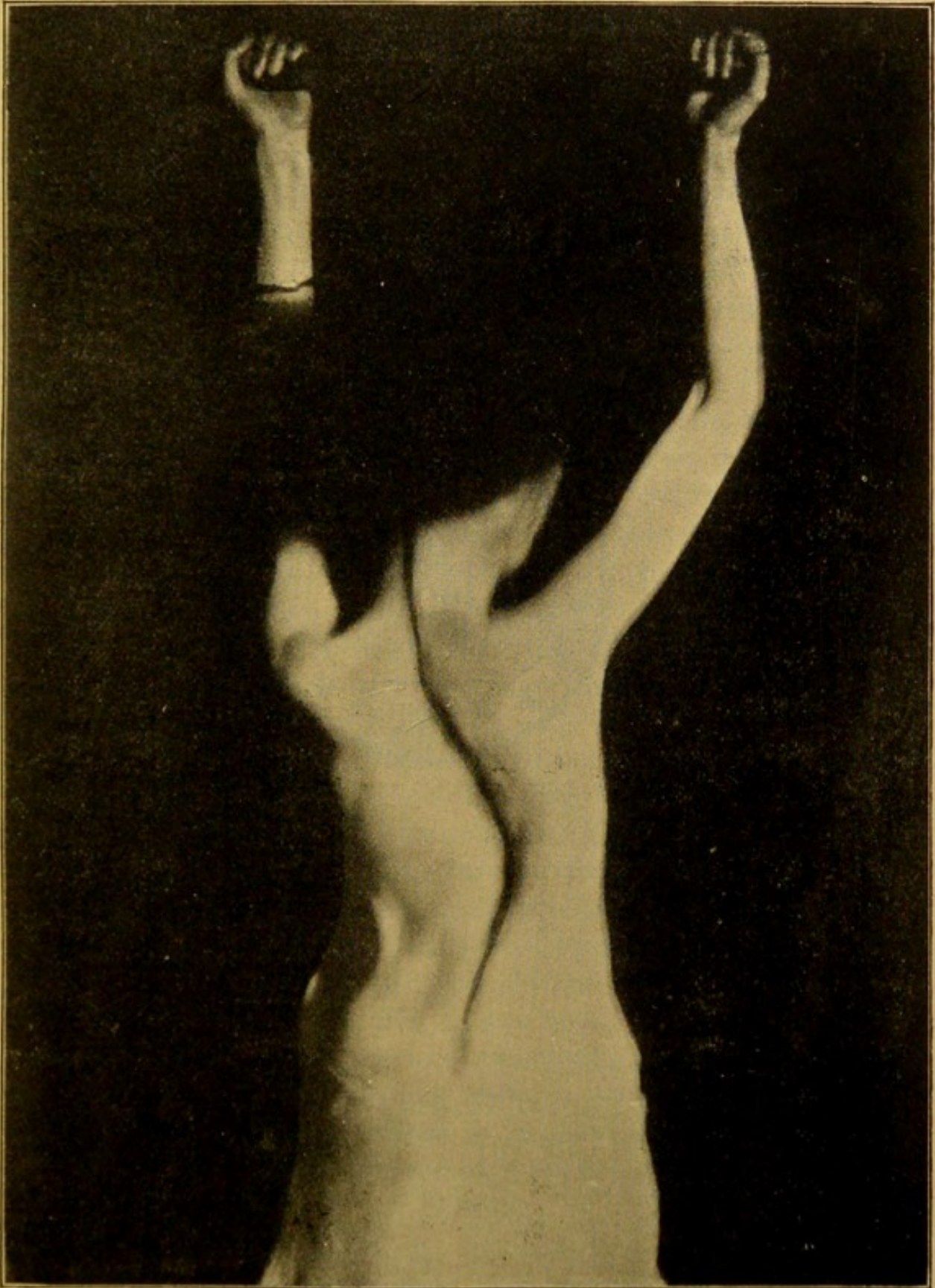
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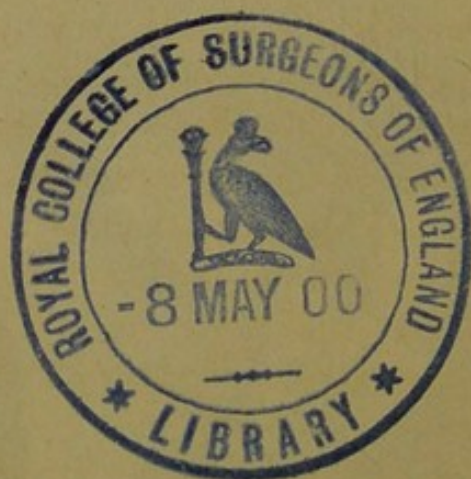


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Photographs.

These photographs are of a young lady aged seventeen, who, at the time they were taken, had been wearing a spinal jacket for three and a half years, under the supervision of one of the leading men who adopt that method of treatment; we are, therefore, justified in saying that the result obtained in this case was the best possible to be obtained by the spinal support treatment. I wish to mention that these photographs were not taken by me, or for me, that they were taken at the instigation of the patient's medical man before the case came under my care, and I think you may, therefore, accept them as an accurate record of the condition of the patient. The first shows the patient in the best position in which she can stand without the jacket, and with the arms at the side. The second photograph gives the best position the patient can attain with the arms extended from the shoulders. The third photograph exhibits the straightest position into which the spine can get even when extended to its utmost by the patient hanging from a trapeze.

I do not wish in any way to be misunderstood; this case not having been seen by me before the spinal support treatment was adopted it is impossible for me to assert that treatment by physical exercises would have brought the spine straight; that depends entirely, as I have already pointed out, to what extent permanent bony changes had taken place; but it must be remembered that we who advocate physical exercise treatment do not pretend to be able to alter to any great extent bony changes that have occurred previous to the cases coming under our care, whereas those, or at any rate some of those, who adopt the spinal support treatment claim to be able to alter these bone changes; these photographs afford, I think, a complete answer to such an assertion.

When this case came to me her head was very much on one side, and when lying on her back she could not raise her head from the table. These conditions were due to atrophy of the sterno-mastoids and other muscles, owing

to their having been kept inactive for the three and a half years during which she had worn the spinal support. Now, after three months' treatment by physical exercises, she is able to carry her head straight and raise it from the table with ease. Her breathing was entirely abdominal, and she was unable to raise her chest to the slightest extent in inspiration, owing to weakness of the muscles caused by the spinal support having kept them inactive; she can now raise her chest fairly well. Further, her general health was very unsatisfactory, whereas now she feels well and her general health is excellent.

We will now mention some of the points in connection with the treatment of these cases by physical exercises and position.

First let me say a word as regards *Position*. What I mean by this is, that the patient is made to do all her exercises in the "best possible" position, and her muscular sense, which has become perverted, re-educated, so that she learns to know when she is straight, as, having been for a greater or less length of time in a wrong position, her nerve centres have got to think the crooked position is the straight position, and when you put her straight the patient thinks she is crooked, and therefore you have to train and teach her what is the straight position and thereby correct the wrong impression into which her nerve centres have fallen; and remember that in putting her in the "best possible" position you must not only pay attention to the spine but to the tilting and rotation of the pelvis, which is frequently present in these cases.

Some of those who treat Spinal Curvature with exercises take their patients in a class; with this I do not approve, as, to obtain the best possible result in the shortest time, it is necessary to devote all your attention to the individual case when doing the exercises, as you are continually correcting errors, resisting their movements and attending to innumerable details.

At the same time that you are carrying out the physical exercises necessary for the development of the weakened spinal muscles there are many points to which attention must be paid; for instance:—

The back must always be visible; this is of great importance, as it is impossible to see if the patient's spine be straight if there be

any garment covering the back. The plan I usually adopt is to make the patient put on a vest or bodice the reverse way, *i.e.*, with the back of the garment over the chest, which leaves the back of the patient exposed.

The patient must rest on her back in a straight position on a flat hard surface, with small pads sufficient to fill up the hollows under the neck and in the small of the back, but with no pillow under the head, for given times every day ; one long rest daily is not advisable, it is better for the patient to take at least two separate half hour rests rather than one of an hour, and if necessary to have additional quarter hour rests when requiring them, as when muscles are growing and developing they soon tire but soon recover their condition, therefore long rests are not required but short and frequent ones, as we learn from the movements of young children and animals.

For the same reason during the early treatment of these cases a short rest on the back should be given between each exercise. Again, get the greatest benefit you can from each exercise, *i.e.*, resist the patient's movements as much as you consider the patient is able to withstand, without running the risk of straining a muscle.

Examine the patient for inequality in the length of the legs, and, if necessary, order a thickening of the sole of her shoe on the shorter side.

Observe if there be any flat foot ; if so, order the necessary pad for the inside of the shoe, and have carried out daily exercises to strengthen the leg muscles combined with massage of the foot and leg.

Shoes should always be worn and not boots.

Note the position in which the patient sits, and be sure she is taught to sit straight, resting equal weight on both buttocks, one foot not advanced in front of the other, and a footstool of sufficient height so that the thighs may be at right angles to the body. This is best attained by her always using the same chair, the seat of which should be flat and hard ; she should always be made to sit upright whether at lessons, music, or anything else.

At night she should lie on a hair mattress with head low, and, if possible, should learn to sleep on her back.

Attend to her general health and hygiene, rectifying anything that may be wrong, such as anæmia, constipation, errors of diet, nasal or naso-pharangeal obstructions, &c.

In many cases a good deal of tact must be used, as children suffering from Lateral Curvature are frequently lazy, indifferent, wilful or bad tempered; many have been spoilt, and frequently there is a lack of determination in those who have charge of them; be kind but firm, and insist upon strict obedience to all your directions.

I had hoped to have described some of the exercises which one usually adopts, but time does not permit; however, I trust I have said sufficient to arouse your interest in the subject of Spinal Curvature, and that you will not consider your time has been altogether wasted that you have so kindly spent in listening to my paper.
