

**Remarks on an additional means of treating lateral curvature of the spine.
The invention of Drs. Brown, Boston, U.S. / by W. J. Little.**

Contributors

Little, William John, 1810-1894.
Royal College of Physicians of Edinburgh

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REMARKS
ON
An Additional Means
OF
TREATING LATERAL CURVATURE
OF
THE SPINE.

THE INVENTION OF THE DRS. BROWN, BOSTON, U.S.

BY W. J. LITTLE, M.D.

PHYSICIAN TO THE LONDON HOSPITAL, ETC. ; FORMERLY
PHYSICIAN TO THE ORTHOPÆDIC HOSPITAL.

LONDON.

1848.

REMARKS

ON ADDITIONAL

TREATING LATERAL CURVATURE

THE SPINE.

THE LECTURES OF THE DOCTOR, BOSTON, U.S.

BY W. J. LITTLE, M.D.

LECTURES ON THE LONDON HOSPITAL, AND AT ROYAL
HOSPITALS TO THE MEDICAL SOCIETY.

LONDON :

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PREFACE.

THE following observations, relating to a subject the pathology and treatment of which are acknowledged by the candid inquirer to be still obscure, are offered to the consideration of the author's professional friends. In placing before them the knowledge of an additional means of remedying Lateral Curvature of the Spine, he believes he is performing a duty to the Inventors, as well as to a numerous class of sufferers.

10 FINSBURY SQUARE,

August 1848.

PREFACE

The following observations, relating to a subject the pathology and treatment of which are acknowledged by the candid inquirer to be still obscure, are offered to the consideration of the author's professional friends. In placing before them the knowledge of an additional means of remedying Lateral Curvature of the Spine, he believes he is performing a duty to the Inventors, as well as to a numerous class of sufferers.

10 PRINCE STREET,
LONDON 1848.

ON

An Additional Means

OF TREATING

LATERAL CURVATURE OF THE SPINE.

WITH whatever degree of confidence special authors on the treatment of lateral curvature of the spine may have enunciated their opinions, and however ample the experience they have individually acquired of the value of the particular methods they have severally advocated, it will readily be admitted that—from the inherent difficulties of the subject, the perplexing varieties presented by individual cases, the obstinacy with which in particular instances, even in young persons, the deformity has resisted, or has continued to increase under, apparently the best-devised remedies—the profession are fully prepared to welcome the discovery of any additional means of arresting or curing this too frequent complaint.

After fourteen years' close observation of this deformity, I am prepared to abide by the above expressions as the confession of my faith and experience in the modes of treatment hitherto published and practised upon the Continent and in our own country; and I cordially acknowledge my obligation to the discoverers of the additional

means of treating lateral curvature which I purpose briefly to describe.¹

In the following observations, I have no intention of reviewing the different modes of treatment, or of explaining in detail² that which constitutes, in my opinion, the most eligible procedure. I believe that an eclectic plan is preferable to either the prone, recumbent, lateral,³ gymnastic, the mechanical, or supporting methods exclusively adopted.

The immediate object I have in view is, to describe and recommend for adoption, in suitable cases, an apparatus invented by Drs. Brown, of Boston, U. S., for assisting in the rectification of ordinary lateral curvature of the spine. Two years have elapsed since those gentlemen honoured me with a private communication respecting their new contrivance; and as I have since submitted it to ample

¹ The above estimate of the success usually attendant upon the exclusive adoption of any of the various modes of treatment of tolerably severe cases of lateral curvature is not deduced from observation confined to my own practice; as, from the gradual progress of the deformity, patients enjoy abundant time for consulting in succession every person who has acquired notoriety in the department of practice within which lateral curvature is comprised. I am aware that the result of my observation differs from that which the medical, and especially the non-medical, public may have inferred from various sources of information.

I avail myself of this occasion to thank Dr. Serny and Mr. Hare for the opportunities kindly and spontaneously afforded me of watching the progress of several patients whilst under their immediate care. The benefit effected in some of those interesting cases was exceedingly satisfactory.

² See Lecture on Treatment of Spinal Curvature by the Author. *Lancet*, Dec. 1843.

³ See Mr. Lonsdale's valuable remarks on lateral curvature. 8vo. London, 1847.

tests, I have much gratification in reporting favourably of its advantages.

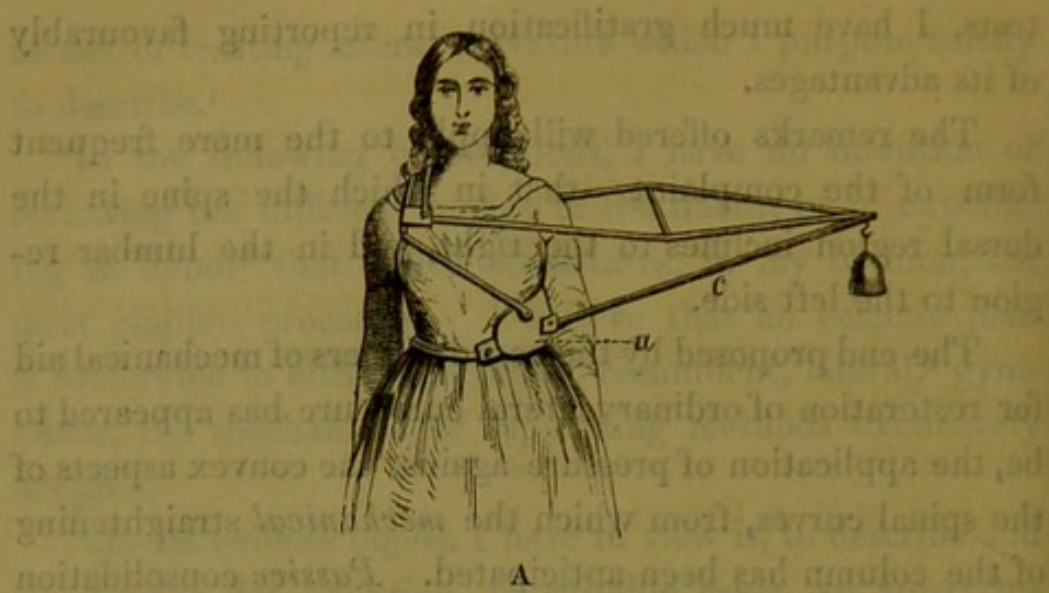
The remarks offered will apply to the more frequent form of the complaint—that in which the spine in the dorsal region inclines to the right, and in the lumbar region to the left side.

The end proposed by the best designers of mechanical aid for restoration of ordinary lateral curvature has appeared to be, the application of pressure against the convex aspects of the spinal curves, from which the *mechanical* straightening of the column has been anticipated. *Passive* consolidation of the component parts of the spinal column has been expected to result from the improved adaptation. Some practitioners, more physiological in their views, have simultaneously endeavoured, by their instrumental appliances, to improve the mode of action, and the respective powers of the muscular parts of the column. Amongst the last-mentioned class, Tavernier, by the introduction of the lever-belt that bears his name, ranks, in my opinion, as one of the most successful. The plan of the Drs. Brown subserves this double object—of applying support or pressure against the convex aspects of the curves, and of exciting the muscles in a manner that will favour the restoration of their power of maintaining the equilibrium of the column, and consequently its straightness.

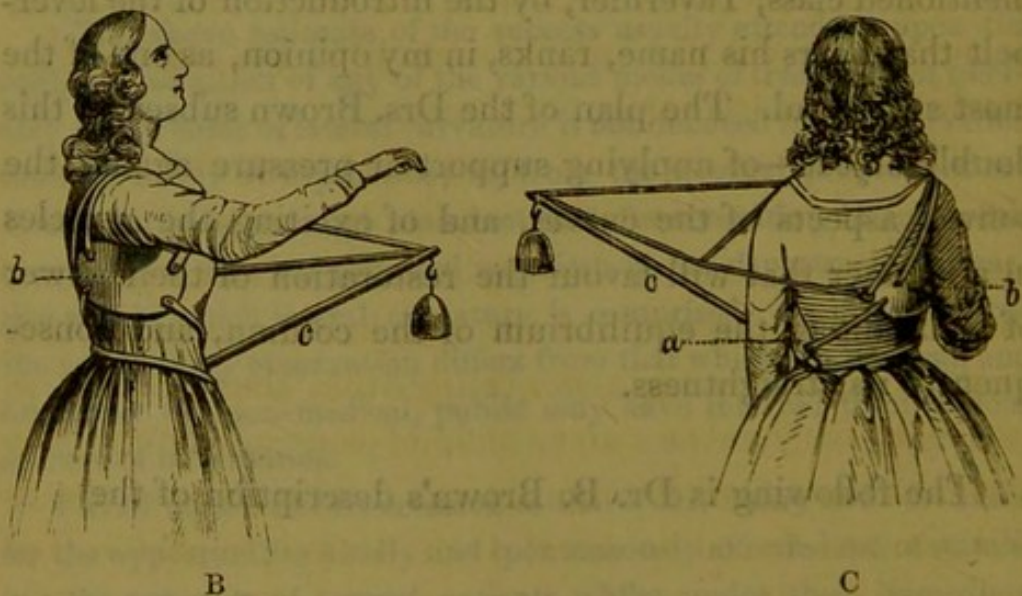
The following is Dr. B. Brown's description of the

“HORIZONTAL LEVER-BELT.”

“It consists, in the first place, of two large stuffed and covered pads of steel. One of these, shewn best in the figure A *a*, is concave, and made to fit well to the left



ilium,—I speak of the more common form of curvature, where the convexity of the dorsal curve is to the right. This pad measures 8 inches each way, but is narrower above than below. The second pad, more distinctly seen at *b b* in the drawings marked B and C, is $9\frac{1}{2}$ inches long



by 4 broad, and is fitted to the right projecting ribs, just below the axilla. From each end of this—viz., anteriorly and posteriorly—projects a piece of steel 1 inch broad and 2 long, having a knob or button on the end serving to lengthen the pads, and prevent the pressure of the belt

attached to them upon the chest or abdomen. A rod *c* of wood or steel 18 inches in length is affixed by a hinge-joint to the iliac pad, upon which it moves freely in a perpendicular direction. A double hook, one convexity looking upwards and the other downwards, is fastened to the outer extremity of this rod. A weight is suspended from the lower hook, and maintained in a position nearly horizontal, slightly obliqued upwards, by two bands of webbing extending from the upper hook in front and behind, and attached to the buttons on the steel projections of the upper pad. A rod furnished with metallic points, intended to penetrate the webbing, is placed transversely between the bands, in order to keep them apart. Pressure upon the front or back of the chest is thus altogether avoided. The upper pad is secured in position by straps passing over the shoulder, and fastened to metallic buttons on the pad before and behind; and the lower one is held in its place by a band encircling the pelvis and attached to buttons on the steel projections of the pad, and also by bands reaching from it to the upper.

This instrument, which may be appropriately called the Horizontal Lever-Belt, necessarily exerts a powerful effect. The lever, with the weight at the extremity, serves, through the intervention of the long bands and upper pad, to press upon the right projecting ribs; thus opening, so to speak, the lumbar curve, and, of course, throwing the spinal column from its equilibrium. The muscles are in this manner forced to exert their utmost to restore the head and shoulders to the lost centre of gravity, and constantly tend, therefore, to straighten the dorsal curve, and to elevate the left, and depress the right, shoulder. The muscles are excited to do their own work, the cure being effected through their agency. The secondary effect of this instrument is to replace the left hip, which commonly

projects in lateral curvatures. The patient, while using this machine, may also carry a weight upon the head to increase the effect."

A glance at the figures will indicate to the medical practitioner ordinarily conversant with the form of lateral curvature of the spine, commonly commencing among females at various ages—especially from seven to sixteen or eighteen years—that the use of this apparatus will tend to compress the spinal column at the convexities of the unnatural curves, and thus, by its mechanical action, fulfil the first indication, viz. that of endeavouring mechanically to straighten the column. It is equally apparent that the weight attached to the extremity of the lever, acting at so great a distance from the fulcrum, will incline the body to gravitate towards the left side, and by this means exercise a powerful influence in exciting the muscles upon the right side of the trunk to resist this lateral tendency, and cause it to assume the erect position. In contemplating the mode of action of the muscles of the right side of the trunk whilst resisting the lever, we may regard them as a continuous band, formed of the right *scaleni*, *intercostales*, and abdominal muscles. The united action of these muscles results in a pressure exercised upon the right side of the vertebral column through the intervention of the ribs. The powerful muscles occupying the right posterior groove of the back do not remain idle. The inferior portion of this mass of fibres,—that which occupies, on the right side, the concavity of the lumbar curve,—would act unfavourably for the restoration of the spine, were it not that the left side of the lumbar *vertebræ* is the fulcrum upon which the lever acts. These *vertebræ* are gradually pressed towards the right side into a more natural position; the *sacro-lumbalis*, which, but for this gradual rectification of the lumbar portion of the column, would, if

excited to greater activity, tend to increase the deformity, now opposes no effective resistance to restoration. The excited activity of the superior portion of the muscular mass is eminently beneficial, as by its means a living pressure is maintained upon the part of the column that has most lapsed from the right line, namely, the right dorsal region. The restoration of this part is simultaneously facilitated by the pressure exercised through the intervention of the pad acting against the ribs of the right side.

The stimulus to increased activity is not confined to the muscles of the right side of the back, those of the left participating in the benefit; thus, one of the most marked results of the application of the Horizontal Lever is an immediate elevation of the left shoulder, a part commonly depressed in lateral curvature (to the right side). A decided improvement in the attitude is observable; the muscles extending from the left side of the neck to the corresponding shoulder elevate this part, and a cessation of the inert condition usually perceptible in the structures connected with, and covering the posterior surface of, the left ribs ensues. Amongst the muscles here prompted to renewed vigour, the trapezius holds a prominent rank, and doubtless, by its situation, bulk, and corresponding power, tends to the rectification of the upper portion of the column.¹

It cannot in my opinion be doubted, that by the pro-

¹ The *crutch* beneath the depressed shoulder, introduced into many forms of apparatus intended for the reduction of lateral curvature, elevates the shoulder only so long as the apparatus is applied, the shoulder being passively held in an improved position; whereas, in the operation of the Horizontal Lever-Belt, the shoulder is raised by active exertion of the patient's muscular power, and the improvement remains after the use of the apparatus is discontinued. The crutch is often employed with a more scientific object than that of passively elevating the shoulder. When the shoulder is elevated,

longed wearing of this apparatus by a healthy growing individual during a considerable length of time, for the sake of experiment, a curvature of the spine in the opposite direction to that which so often becomes the subject of medical treatment would be induced.

In the instrumental treatment of spinal, as of curvatures and deformities of other parts of the frame, the object of the practitioner should be, the employment of those means which, if continued during too long a period, appear calculated to induce a curvature or deformity in an opposite direction.

These constitute some of the advantages of the Horizontal Lever-Belt. It is scarcely necessary to point out one disadvantage that it possesses, apparent upon cursory inspection. Although portable as well as simple in its application, its construction is, at first view, complicated; and when applied, the patient's appearance is not at once rendered less unsightly. This is doubtless a serious drawback in the minds of those who consider the most essential means of treating lateral curvature to consist of that which instantly improves the figure—a matter most becomingly entrusted by the medical practitioner to the corset-maker.

But the practitioner will experience no difficulty in inducing the sensible parent or patient to set aside the handsome corset, contrived mainly to hide deformity, for that contrivance which may ultimately render concealment unnecessary. The Horizontal Lever is unsuited to persons desirous of recovery without considerable retirement from the ordinary occupations of society.

It would be fortunate if the successful management of and the axilla firmly rests upon the crutch, the shoulder is regarded as a fixed point, from which the attached muscles may act, and tend to draw the neighbouring part of the column towards it; also to diminish weight.

spinal lateral curvature could always be conducted *tuto, cito, et jucunde*. The active and adequate treatment of moderately severe cases is incompatible with large intercourse with society. During the years in which the greatest amount of success is obtainable, withdrawal from all but the family circle is not difficult. As a set-off to any objection entertained from the appearance of the patient wearing the lever, the reader may be reminded that the Horizontal Lever-Belt requires only to be employed during the hours devoted to exercise, and should be regarded as subsidiary to other modes of treatment. A considerable portion of the patient's time should be passed in the horizontal posture, either in the prone, recumbent, or lateral positions, according to the circumstances of the case. Numerous gentle and varied exercises may be employed, partly on account of their beneficial influence upon the frame in general, and partly from their tendency to develop structures that have fallen into disuse. In this manner, any thing approaching to a tedious, unsightly routine of duties may be avoided.

Whilst briefly alluding to various portions of the plan of treatment of lateral curvature, I may advert to the indispensable necessity, in many cases, of resorting to means of improving the health of the patient, some of these being directed to the regulation of the digestive and cutaneous organs; others to the invigoration of the nervous and circulating systems, whilst the catamenial functions, being often irregularly performed or absent, require a share of the practitioner's attention.

Lateral curvature of the spine is essentially a chronic affection; its progress,—from the slightest want of correspondence of the hips or shoulders, and an amount of deviation of the spinal column imperceptible to the ordinary eye, to that stage in which one shoulder and subjacent ribs form

an unsightly dorsal protuberance, the opposite axilla, reaching to within a hand's breath of the corresponding hip, — occasionally occupies a period of many years. I believe that, in the majority of cases, the weakness is during several months entirely overlooked. During another period of several months, the simplest means of ameliorating the figure are resorted to; such as attention to attitude, gymnastic exercises, and the recumbent position. These means are often successful; but very frequently the mischief proceeds unchecked, or even becomes visibly aggravated. Sometimes the occurrence of indisposition, or a severe illness, withdraws attention from the minor evil of deformity until after convalescence, when it is found that, with greater general debility, the deviation has advanced with an accelerated pace. In like manner, the evil often appears stationary for months, or the increase escapes the watchful eye of the parent, rendered incapable of correct appreciation of the matter by too frequent contemplation of the object. It is, then, a disorder of months and years' progress and duration; and, like all chronic affections, admits but of slow recovery. The value of the Horizontal Lever, as indeed of other plans of treatment of spinal curvature, cannot be duly estimated by a limited trial of its operation. Its use should be continued during months; and when the infirmity is not merely arrested, but the progressive deterioration of the spinal column, and sometimes of the patient's health, gives place to amendment, the patient and attendant will be encouraged to perseverance. Nicety of application of the portions of which the apparatus is composed is indispensable. The pieces intended for the projecting ribs and for the lumbar vertebræ, or pelvis, require adaptation to the varying forms of the parts in different individuals. The weight attached to the lever must be adjusted to the age and strength of the patient,

and to the obvious effect upon the muscles of the back: I have found that it may vary from four ounces to two or three pounds. The cases in which the cervical curve is slight or altogether wanting,—in which the column is still flexible,—in which the deviation diminishes when the patient assumes the prone position,—in young subjects, in whom the growth of the frame is incomplete, and in whom the general health, although perhaps weakly, is free from any decided constitutional disease,—are those for which the Horizontal Lever is most suitable. These, indeed, are the cases for which any other beneficial plans of treatment advocated from the time of Andry to the present day are available. I have witnessed much benefit from its use in some advanced cases, although *cure* is unattainable. The attempt to *cure* inveterate cases of lateral curvature, if at the suggestion of the scientific and philosophic mind, can, in my opinion, only end in disappointment; if at the promptings of the dishonest pretender, in painful delusion and victimising of the unfortunate sufferer. In incurable cases, much may be effected in preventing further physical degradation of the spinal column, and of the important organs of the chest and abdomen dependent upon the adequate protection and support of the spine for their proper functions: the patient's aptitude for exertion, and for the amenities of society, may be augmented by proper mechanical support; whilst the patient's moral feelings may then be solaced by the art of the corset-maker.

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