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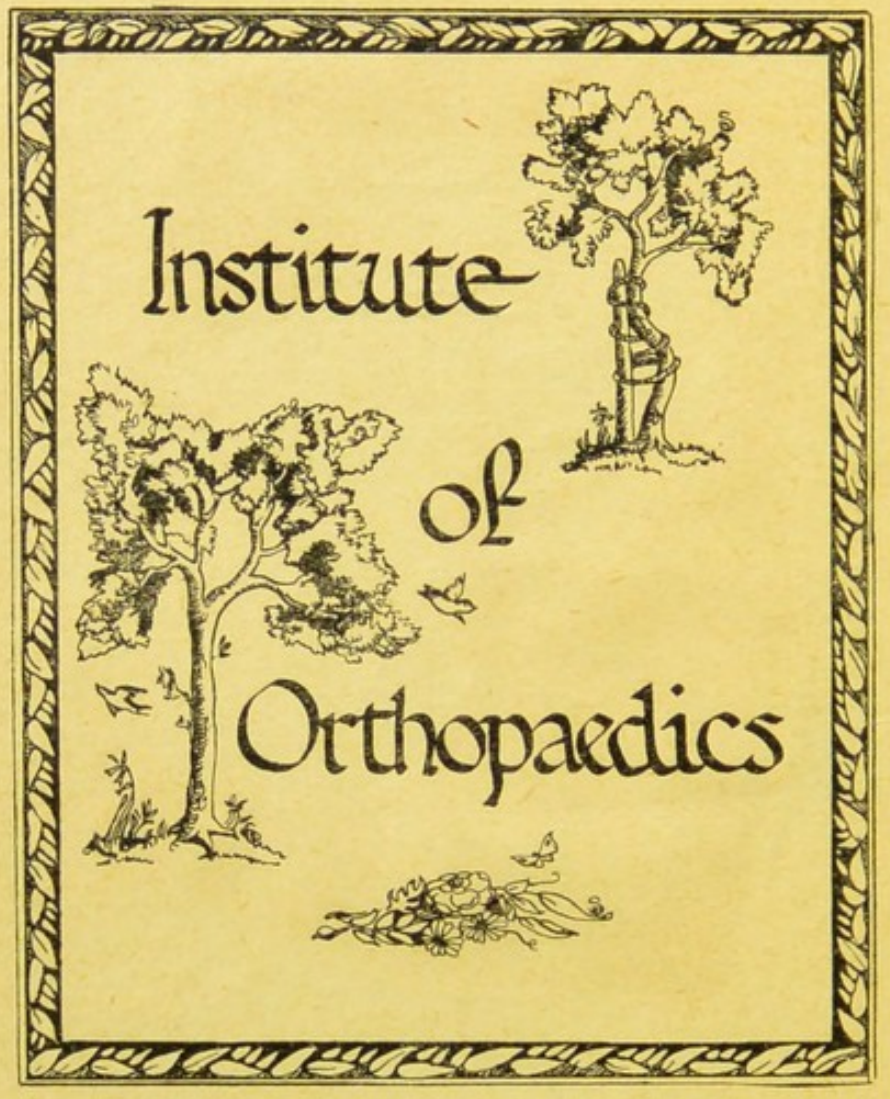

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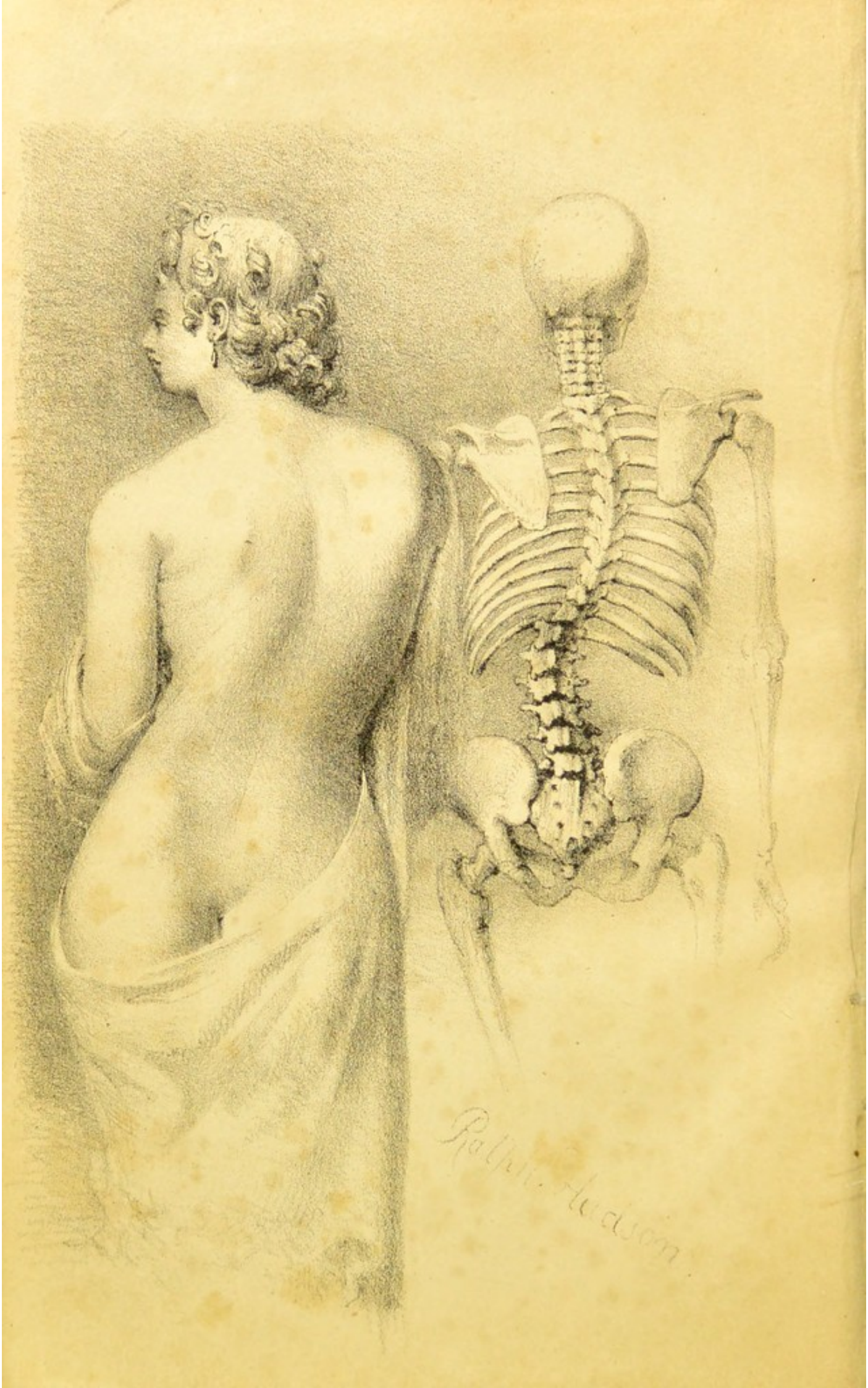
OBSERVATIONS

ON

DISTORTIONS OF THE SPINE,

&c. &c. &c.



OBSERVATIONS

ON

DISTORTIONS OF THE SPINE;

WITH

A FEW REMARKS

ON

DEFORMITIES OF THE LEGS.

By LIONEL J. BEALE,

MEMBER OF THE COLLEGE OF SURGEONS, AND AUTHOR OF A TREATISE ON DEFORMITIES.

LONDON:

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PREFACE.

SINCE the publication of my Treatise on Deformities, further observation has tended to modify some of the opinions therein contained, and fresh facts have given rise to other views of some of the varieties of Spinal Curvature. A new edition of that Work is now called for, but as I am desirous of making it a complete book of reference on the subjects of which it treats, I shall delay as long as possible bringing forward the second edition; and the object of the present Tract is to elicit from others, criticisms and opinions on the matters discussed, in order that I may have my own opinions either strengthened or modified by the experience of others. In the medical sciences we meet with so many opposing facts, our opinions are so altered by observing the operations of Nature under differing circumstances, that it is always difficult to draw satisfactory inferences; and it is only by free communications of numerous ob-

servers, and the great accumulation of such observations, that we can arrive at correct conclusions on medical subjects.

Many of those extraordinary cases so frequently met with in practice, designated by the indefinite term "Nervous," have been traced to an irritable state of the spinal cord, its nerves or envelopes, and the connexion of such affections, with slight curvature of the vertebral column has not escaped notice; but as it is desirable that additional facts should be recorded to confirm these opinions, I have considered that I was performing a public duty in keeping up attention to so important a subject, and so fertile a source of disease as I conceive spinal distortion to be. With regard to lateral curvature of the spine which is now so common, and which almost entirely results from mismanagement during the period of growth, there is no subject which merits more serious attention, not only as concerns the beauty of the female form, but the continued, though often trifling ill-health which constantly attends a deviation of the vertebral column.

31, *Bedford Street, Covent Garden,*
16*th April*, 1831.

CONTENTS.

PAGE

OBSERVATIONS ON SPINAL CURVATURE 1

OF LATERAL CURVATURE 5

CHRONIC INFLAMMATION OF THE CARTILAGES AND LIGAMENTS OF THE SPINE 20

EFFECTS OF ATTITUDE, WANT OF EXERCISE 36

EFFECTS OF STAYS AND TIGHT LACING 42

OF SPINAL IRRITATION 55

CASES IN ILLUSTRATION 64

DISTORTIONS OF THE LEGS 91

OBSERVATIONS

ON

CURVATURES OF THE SPINE,

&c. &c. &c.

BEFORE my attention had been so much directed to spinal curvature, I was rather sceptical as to the effects said to be produced by slight derangements in the position of the bones of the spine, but a multiplicity of facts has convinced me, not only that some of the affections commonly called "nervous," but that many pulmonary complaints, and numerous disorders of the functions of digestion and nutrition, owe their origin to mechanical or functional derangement of the vertebral column or its contents. I have traced so many of these disorders to spinal tenderness, that I have no hesitation in considering them as cause and effect.

That deteriorated state of the health, which is always concomitant on incipient spinal distortion, in some instances unquestionably precedes the af-

fection of the spine, and may be the cause of the latter: but, in all such cases, the primary disturbance of health is increased by that very mechanical derangement of the bones of the spine which it was instrumental in producing. Great muscular weakness results from this very impaired state of health, the connecting cartilages and ligaments of the spine lose their tenacity, and the bones their natural and relative positions. The spinal brain must be in some degree extended or compressed by the slightest deviation of the vertebral column, or the nerves, as they issue between the vertebræ, must be similarly circumstanced; and, according to the situation of the spinal affection, different functions will be deranged. If the primary curvature occurs in the upper dorsal region, the respiratory organs are principally affected; if the lower dorsal or lumbar region is the seat of disease, we have derangement of the functions of digestion, and sometimes those of generation.

We are all acquainted with that characteristic of nervous and hysterical disorders to simulate inflammation; this fact has been long known, and has been dwelt upon in a marked manner by that prince of physicians, Sydenham, a man whose acuteness of observation allowed no fact to escape him, and whose comprehensiveness of mind enabled him to deduce from accumulated facts the most correct inferences. His remarks on hysteric diseases deserve

attentive perusal, and were the lessons inculcated better observed, we should not so frequently witness nervous and hysterical affections treated as inflammatory. The extraordinary resemblance between the forms of some nervous disorders, and inflammation of the deranged organs, have led to serious mistakes, and some experience is required to convince us of the powers of simulation in these affections. It is no uncommon thing for a girl of delicate health to be attacked with difficulty of breathing, cough, fixed pain in the chest, and every symptom of pleurisy, when, in fact, no inflammation is present. It is most easy, in such cases, for a routine practitioner to mistake the nature of the complaint, and instances do occur, where the most mature judgment will find it difficult to pronounce, whether the symptoms be dependent on inflammatory action, or on that peculiar mobility of the nervous system which, in such persons, simulates every kind of disease. These are the cases which are so profitable in the hands of ignorant pretenders to physic; for if they mistake their nature, which is frequently the case, derangement of function becomes organic disease, and if, by the effect of circumstances, the disturbance subsides, they get credit for the cure of a disease, the importance of which only existed in their ignorance of its real nature. Many constitutions have been impaired by the bleedings, digitalis, and other powerful means which have been called into

operation to remove these phantoms of disease. Inflammation has been too long the fashionable and exclusive cause of every disturbed state of health; in the eyes of some practitioners, there is no disease but inflammation, and really it saves much trouble in our investigations to come to this sweeping conclusion—medicine is thus spoiled of its mystery, and the art of curing disease becomes one of the most simple affairs possible. The word inflammation is a sort of scarecrow, which is ever in the mouth of some practitioners, and if we picture to ourselves Le Sage's celebrated doctor adding the use of mercury to his other scientific means, we shall have a very fair type of some of the fashionable doctors of more modern times.

Mr. Tate, Dr. Addison and others, have published their experience of the connexion between nervous and hysterical disorders, and spinal disease. Within a few years, the accumulated experience of many observant practitioners has almost established, as an incontrovertible fact, that the seat of these anomalous complaints is in the spinal marrow or its envelopes, or the communicating nerves; my own observations corroborate these views, and I conceive that keeping up attention to the subject cannot fail to be attended with advantage to medical science and benefit to the public.

OF LATERAL CURVATURE.

PERHAPS there is no infirmity to which the human frame is liable, more deserving our attention, than that which is the subject of the following pages—whether on account of that portion of the community who are most frequently the sufferers, or in reference to the numerous afflictions which result from disturbance of the spinal cord, or its appendages. From a variety of causes, lateral curvature of the spine has of late years become so common, that there is hardly a family in the middle or upper ranks of society in this country, which has not one or more of its members so afflicted: indeed, so generally have these causes operated, that there are very few females in these classes of society who are totally exempt from some slight degree of spinal curvature or weakness. A small degree of curvature exists in numerous instances without being suspected, and many of the nervous, hysterical, and other anomalous affections met with in practice, have their cause in some slight deviation of the bones composing the spine.

The causes which give rise to this widely-spread calamity, are very numerous and very different. There are various kinds and degrees of lateral curvature, some arising from a single, some from a combination of several of these causes. The origin

of different cases may be traced to the following: a softened state of the bony parts of the spine—chronic inflammation of the cartilages and ligaments of the vertebræ—the long-continued operation of peculiar attitudes, tight lacing, &c.—contraction of one of the sides of the chest from inflammation, and destruction of a portion of lung by abscess—overgrowth, especially when operating in conjunction with the debilitating effects of some of the diseases peculiar to childhood, as scarlet fever, &c.

In some instances of lateral curvature one of these causes may have alone produced the effect, but in others, several of them have acted in concert. I shall make a few remarks on each.

Too Soft a Condition of the Bony Parts of the Spine.

This cause operates in very young children, and is that peculiar condition of the frame, known under the name of Rickets, in which the bones are affected by a specific disease. The organs of nutrition imperfectly perform their functions, and the circulating system is consequently ill-provided with the solid materials necessary to enable it to deposit those particles of phosphate of lime, which constitute the hard parts of the bones. Sometimes the bones of the spine and trunk alone partake of this

disease, and the limbs remain straight; but generally speaking, all the bones are equally soft, and the legs and thighs are more especially bent. I have lately seen three decided instances of spinal curvature in children, from the ages of two to seven, where I am satisfied this soft condition of the spine alone existed; one of them had been treated for caries, but with no benefit. To another of these children I recommended nothing but attention to diet and the state of the bowels, with an injunction that it should spend the greater part of the day in the open air;— in a few weeks the health was so much improved, that the child was enabled to take active exercise, and in a few months it was perfectly re-established. The curvature of the spine had almost disappeared; but when we had every reason to be satisfied with having removed the rickety affection of the bones, the hydra-headed monster appeared in another form; several glands in the neck enlarged, and some suppurated. This case afforded a remarkable illustration of the justice of that opinion which connects rickets with scrophula, and exhibits the difficulty of preventing, in constitutions predisposed to the disease, its irruption in one or other of its forms.

In another of these cases, a child of two years, the mischief had been engendered by a long course of mal-treatment. It was a healthy infant when born, but its mother was fond of society, and was in the habit of taking it out to evening visits, before it was

six months old. The mother kept late hours, to the injury of her own health, and the poor infant not only suffered in consequence, from the deteriorated supply of nourishment, but also from the restlessness naturally induced by strange beds and strange nurses. The pursuance of this system soon rendered it a puny infant. When it was weaned, it was allowed to partake of all that was about; and, as the nurse drank porter, so the baby was indulged in the same; and there is reason to believe that, it was sometimes gratified with some share in the potations of a stronger liquor. Its meals were irregular, and in the intervals it was indulged with cakes, so that, as a matter of course, proper food when offered was rejected, and the child's appetite was supposed to be bad, when in reality the fault was in the absurdity of its mode of treatment. In addition to the mistakes in point of diet, the child was neglected with regard to cleanliness, and it seldom breathed better air than that of a confined room in a London house. From such a combination of causes, its health declined from the age of four months; and when I saw it at the age of two years, it was one of the most pitiable objects I ever beheld: it was much emaciated, totally incapable of bearing on its legs, which were in fact but barely covered with skin, and the bones so slight, that a touch would have broken them. The spine formed a complete serpentine curvature from the upper

dorsal to the lower lumbar vertebræ. The intellectual faculties were remarkably precocious, so that a stranger would have supposed the child to have been double its age. Cold bathing and friction, with the internal exhibition of alteratives and steel, were recommended, and their employment was attended with some benefit; but the health was so much deteriorated that nothing had any permanent good effect, and the child sunk into its grave a victim to the folly and over-indulgence of its parents. This case is by no means a solitary one, and its history, somewhat modified, would apply to hundreds of others, where scrophula, rickets, pulmonary and other diseases are engendered in children, from the gross mismanagement of their early years. Such complaints are commonly imputed to the impure atmosphere of large towns, which is often bad enough, but in no part sufficiently so to produce these evils without other operating causes. In the very closest parts of London children will be healthy, if proper attention is paid to the circumstances of cleanliness, bathing, diet, and exercise in the open air. It is the confined air of unventilated rooms which is so injurious to children; but the open air, even of the most closely-built portions of the old city, is sufficiently pure to preserve a tolerable standard of health: if the substances taken into the stomach were as free from impurities as the atmosphere, even of London, the latter would not be in

such bad repute. In ninety-nine disorders out of a hundred, especially in children, it is the stomach which is primarily in fault.

Rickets, in every degree of intensity, is produced by the mismanagement of children during the first three years of their life. Many of the subjects of this malady are weak from their birth, but the majority of them are rendered so by the neglect of those means which invigorate children, by proper attention to which even those who are born weak may be strengthened, and preserved from this scourge of the children of this country. I call it so, because it is, perhaps, the most diffused of all the maladies of this period of childhood, existing more or less in almost every family, in many cases so slightly, that the name of rickets is not applied, although the tendency to the disease, in its incipient characters, cannot escape the eyes of the observant practitioner. All those children who have apparently large joints, those who are late in their dentition, and others in whom there is a tendency to curvature in the bones of the legs, are rickety subjects, and, under circumstances favourable to the development of the disease, bad air, bad food, insufficient clothing, and want of cleanliness, would become miserable objects of deformity.

In cases of lateral curvature from this cause—a want of sufficient solid matter in the bones, the distortion appears most commonly in children, from

the age of two to eight, for, in some instances, this soft condition of the bones continues through all the period of childhood. Among the cases at the end of these general observations will be found some illustrative of this fact; and I have no doubt that many cases imputed to caries, are truly instances of this soft condition of the vertebræ. In a dissection which lately came under my notice, of a child of six years of age, the four upper dorsal vertebræ projected considerably backwards, and at the same time formed a lateral curvature towards the left side. This had been considered a case of caries, and issues had been used: however, on examination, the bones were ascertained to be free from ulceration, but compressed into a wedge-like form at the point of curvature.

The disease in this variety of spinal distortion commences by general derangement of the nutrient system; the child either refuses its usual food, or is preternaturally voracious, for the latter is as certain a sign of disordered stomach as the former: he loses his flesh—his arms and legs become flabby and emaciated—he cares not to move about—neglects his usual sources of amusement, is irritable and peevish—this state of things in a young child is almost invariably referred to its teeth, and is, consequently, too often neglected. Hundreds of children are sacrificed, or become cripples, from the common practice of referring all their disorders to

teething, although some derangements do unquestionably depend on this as a cause. Dentition is the grand process of the animal economy, is the point to which all the energies of the system is directed in infants very soon after birth, and any derangement of so important a process must be attended with bad consequences. There is doubtless a connexion between the process of dentition and the deposition of ossific matter in the bones of the skeleton, and it invariably happens that, when the teeth are backward in their appearance, the bones are soft, and in all such cases, more or less curvature of the legs will be found. Many children, at the period when they should begin to walk, are incapable of so doing ; and as the teeth should also appear in succession about the same time, it *must* be the teeth which prevent the child from walking. In fact, every complaint to which the human frame is liable, from the crown of the head to the sole of the foot, is at this time of life referred to dentition, with as much justice as in the hacknied illustration of Tenterden Steeple being the cause of the Goodwin Sands, because the inundation of the latter happened to take place while the former was building.

When at this tender age the health is deranged, and, in consequence, the spine or limbs become incapable of bearing the weight of the child, or when any other disease occurs in combination with retard-

ed or incorrect dentition, so far from the one being the cause of the other, they will generally be effects of the same cause, and that cause is—derangement of the nutrient system. Let the stools be examined, and in all such cases they will be found either pale or of a grey colour, very like blue clay, or black, and so hard that the child goes through a painful labour at every evacuation, or they will be found slimy and too frequent; in some way or other we shall find sufficient evidence that the functions of the intestines and of the glands which co-operate in the processes of digestion are deranged. The other symptoms which are referred to dentition enforce the conclusion to which we have arrived:—the tongue will be pale or encrusted with a fur of various shades of dirty white and yellow—the stomach will not demand its proper food—the belly will be large, and often tense as a drum; the cartilages of the ribs so swoln out that the chest will exhibit a contraction above the false ribs, which is in some instances very great, and tends to increase the malady by impeding respiration.

All the foregoing circumstances point out the real origin of the disease to be in the nutrient organs; but, as I have already said, they are overlooked, because teething is or should be going on, and the complaints of the child are expected to vanish when it has got all its teeth; and so, perhaps, they would, but before this period can arrive, death will have

put an end to its sufferings. The original derangement in the functions of the digestive system becomes organic disease :—the intestinal tube and co-operating organs, the liver, the pancreas, &c., become incurably diseased—the mesenteric glands enlarge, the thoracic duct no longer conveys to the circulating system any portion of nutrient matter, and the child becomes a skeleton. But the cases to which I am now directing attention, do not always advance to this ultimate point, because some means are adopted to check the disease :—a certain degree only of debility is induced by insufficient nutrition, the growth of the bones is impeded—they are not supplied with a proper quantity of solid matter, and they give way to the weight which they were intended to support—the vertebræ, most commonly those of the back, are compressed into a wedge-like form, the narrow part of which is sometimes lateral, and sometimes anterior—the ribs partake of the deformity, the form of the chest becomes narrowed, and the anterior part projects in the form of the breast of a bird.

Such is the origin of one form of spinal curvature; and, as many other infantile diseases originate in the same manner, the above observations have necessarily taken a wider range. I would implore parents not to impute every derangement of a child's health to teething, many a serious disorder has been neglected in its incipient and only curative stage, by

this false fact. Retarded dentition is itself a symptom of disorder, and that disorder will be found in the organs of nutrition, where nine-tenths of our diseases originate. The importance of these functions need not be insisted on. When we contemplate the size of the organs concerned in eliminating from our food those particles which are to be endowed with vitality for the support of our frames, we shall cease to be surprised at their influence over the state of our health. The length of the intestines is six times that of the body, their inner surface spread out would cover from 4 to 500 square feet, and the whole of this surface is lined with a membrane more delicate than the lips or inner surface of the mouth. Can we then wonder at the mischief produced by irritating substances on such an extent of delicate tissue? We may more justly admire the powers of resistance in so tender an organization, when we call to mind the variety of substances which come in contact with it. The well-being of the body depends on the healthy action of the whole intestinal tube, that it should separate only proper materials from the food, that the circulating system may be supplied with means to provide for the wants of the different parts of the frame. Throughout the course of the intestines, numerous tubes enter or depart from their inner surface, to convey the nutrient particles into the mass of the blood;—of the former class are the

ducts from the liver and other glands, bringing into the bowels bile and other fluids, which perform an important part in the processes of converting dead animal and vegetable materials into living and organised matter. With all that has been written for the public on the subjects of diet and digestion, there are very few who apprehend the importance of the functions by which the assimilation of the food and its conversion into vital aliment are effected, or the mischief which results from the derangement of any portion of the apparatus to distant parts, or to the whole frame. Many persons express surprise that the digestive organs can exert so powerful an influence over the rest of the body, are sceptical as to the connexion of various diseases of remote parts with such derangements, and are apt to consider this as the fashionable medical doctrine of the day, which, like its predecessors, will in due time sink into oblivion. But if this were the place, it would not be difficult to prove the superiority of the simple and rational modes of explaining the nature of disease, employed in the present day, over the artificial and unintelligible doctrines of the physicians of by-gone ages. The simplicity of the modern medical doctrines is a very considerable evidence of their foundation in truth—truth is simple, and the farther we advance in our knowledge of the operations of Nature, the more and more do we perceive the simplicity of the means employed.

Having traced this variety of spinal curvature to softness of the bones, resulting from disordered action of the nutrient organs, we must now say a few words on the mode of removing such a condition. Inasmuch as this impaired state of the health has been the result of long-continued mismanagement, and of the slow and gradual inroads of disease, so we cannot hope for means which will instantly remedy such a condition. The production of the mischief has been the work of time, and almost as long a period will be necessary for its removal. Many chronic diseases are rendered incurable by the false expectation of patients to see them speedily removed, and such persons run the gauntlet of all the physicians, surgeons, and empirics of this town, without allowing any one of them time to effect a change in the disease. The notion is too prevalent that there is a specific remedy for every disease; even among the most enlightened this opinion prevails, and the consequence is, that comparatively few persons can be persuaded to go through that slow and gradual system of diet and regimen so essential for the removal of chronic diseases.

The treatment of the disease which occupies our attention is very simple; the child should not be allowed to stand or walk, while the bones remain in a soft state, but nevertheless it should be in the open air the whole day in fine weather, it should in fact live out of doors, and be never within the

house but for repose and its meals. Unless the weather be bitterly cold, the patient should be out, a moist atmosphere is not of itself injurious, but becomes so when in combination with great cold or miasmata;—the neighbourhood of the sea is always damp, but there are very few persons who do not enjoy improved health while inhaling its breezes. My own observation has long led me to the general conclusion, that it is a very cold atmosphere, or a combination of cold and wet, which is most injurious to health, and not simple moisture when unaccompanied with cold. I, therefore, recommend children to be out if possible in all weathers, except extreme cold. The good effects I have witnessed of improved health from a steady observance of this rule, leads me to impress it thus forcibly. Even in this smoky town the open air is valuable, and those who are always out in it enjoy very good health, it is in close, heated, unventilated rooms, that disease is generated; and, perhaps, there is no portion of the community who enjoy better health than those inhabitants of London, whose occupations oblige them to be in the open air the greater part of the day.

The next important subject of consideration is exercise—active exercise in such cases is of course impracticable, but there are various modifications of exercise which may be employed. Friction and shampooing are of this nature; flexion and extension of the limbs and friction to the surface will improve

the tone of the muscles, increase the vigour of the circulation; and, if properly applied, will have almost as good an effect as active exercise itself. Friction for half an hour in the day will do no good; at least three hours should be devoted to this purpose, at intervals; every part of the body should be well rubbed twice or thrice in the day, the upper as well as the lower extremities, and the muscles of the back and abdomen most especially. A little flour or powder, to prevent chafing is all that is necessary. The good effects of friction are but little known, because, when recommended, it is not efficiently tried; half an hour night and morning is generally the full extent, when at least six half hours should be devoted to it. Under the superintendance of the late Mr. Grosvenor, at the Oxford Infirmary, this plan was put into complete action with immense success, and a small work on the subject, by his successor, Mr. Cleobury, is well worth perusal. If the child is old enough, various amusing exercises may be invented for it while retaining the recumbent position; pullies and other mechanical contrivances may be used at first by the arms alone, and afterward in a sitting posture. With regard to diet, the utmost simplicity should be observed; the meals should be at regular hours, and nothing whatever, on any pretence, given in the intervals. If the child has teeth, it should be allowed a portion of animal food for its dinner; and I

think solid animal food better than broth: it should have three meals in the day at regular intervals, and nothing should be allowed to derange the system. Children do not require such variety of food as adults; their stomach requires nothing but the most simple aliments, and, therefore, when any system of feeding is found to agree with a child, there can be no reason for change. The same kinds of food do not agree with all stomachs, and therefore no general rules can be laid down which will be universally applicable, and individual experience can be our only correct guide.

With regard to medicine but little need be said—the secretions of the alimentary canal should be improved by aperients and alteratives, and the general tone of the system invigorated by tonics—the various preparations of iron are more readily taken by children, and, as far as my experience goes, they are infinitely more beneficial than the vegetable tonics.

Chronic Inflammation of the Cartilages and Ligaments of the Vertebræ.

This is a cause of spinal curvature which operates on children of a lymphatic or strumous habit, between the ages of six and fourteen, and most commonly in girls. The disease is so imperceptible in its earlier

stages, that little or no attention is paid to it until the spine gives evidence of curvature. The pain when complained of, is described as heavy, aching, weary, but never acute. The child's health suffers without any very apparent cause, the thoracic or abdominal viscera exhibiting symptoms of disorder according to the seat of the disease in the spine. This disease most frequently occurs in the dorsal vertebræ, and this leads me to remark on the discrepancy of opinion which exists among different authorities with respect to the primary seat of lateral curvature; Messrs. Bell and Shaw being of opinion that lateral curvature always begins in the loins; that the curvature of the dorsal region is consecutive, and the result of muscular efforts to restore the equilibrium of the head and chest, disturbed by the curvature in the loins. Most of the continental writers and some observers in our own country, have thought that, in some instances, the primary curvature has been in the dorsal region. According to Mr. Bell's theory, lateral curvature always commences in the lumbar region, and so it unquestionably does in cases depending on mechanical derangement of the spinal line from muscular debility, in which the muscles of the spine are incapable of supporting the vertebral column in its true position. But a disease either of the bones or connecting ligaments and cartilages, will of course begin at every part of the spinal column, and

therefore the primary curvature will be in different parts in various cases of this disease, most frequently according to my observation in the upper part of the dorsal region; and I am most happy in having my opinion strengthened by Dr. E. Barlow, of Bath, whose acuteness for correct observations, and liberality in communicating them, I have the utmost pleasure in acknowledging. The following is an extract of a letter from this gentleman, and is interesting in other points besides that to which I have here referred.

"For many years, lateral curvature in its incipient stage had attracted my observation, first, from remarking the incidental derangements of health so often attendant, and afterwards from tracing back such derangements to curvature, in cases where this was not conspicuous. This latter course of investigation has led me oftentimes to detect incipient curvature where none had been suspected, and hence to adapt the treatment to the primary derangement, with great satisfaction to myself and benefit to the parties concerned. I had seen, in connexion with lateral curvature, hurried respiration, short cough, palpitation, hysterics, with a host of other nervous derangements, all yielding readily to proper treatment of the spine and improvement of the general health. When I afterwards met with these symptoms unattended by the constitutional derangements which usually accompany them when resulting from

inflammatory affection of the lungs or heart, I suspected the spine, and was led to look more closely after it. It has often surprised me to witness how much disturbance a very slight inflection of the spine could occasion in the heart and lungs, and how readily it was allayed by directing the treatment to the primary malady. This treatment has, in my hands, been very simple, consisting chiefly in regulation of bowels, suitable diet, this being nutritive without pampering, tonics, especially quinine, sometimes steel, recumbent posture alternated with exercise of the spine, cold sponging, shower-bath, partial exercise of the muscles of the back by means of the weight and pulley, with the cord attached to the head, I have used with advantage; but, in the incipient cases to which I allude, the simpler means in general suffice. From repeated examination of such cases, my impression had long been that, in them, the dorsal curve was that which first occurred, the countervailing bend afterwards taking place below. It is very possible that my scrutiny might not have been conducted with sufficient accuracy; and while I still retain my original belief, I by no means contend that I may not be wrong. My reasons for the belief were, that in the earlier stages I saw only the slight curve between the scapulæ, and that the raised shoulder and protruding scapula occurred where no projection of hip was perceptible. In short, I doubted not of the fact,

nor am I yet convinced, even by Mr. Bell's highly ingenious explanation of the rise and progress of lateral curvatures, that I am wrong. He considers the first bend in the lumbar vertebræ to take place in the standing posture. It may be so in many instances, but I cannot believe it to be so in all. In those which I have seen in the incipient stage, the parties had not been accustomed to long standing. They sat much, and were accustomed to make forced efforts towards keeping the trunk of the body erect, when the natural strength was inadequate. This state of weakness can never be disguised. Even under ordinary medical examination, enough occurs to display it which no observant practitioner can mistake. The party makes a forced effort to sit erect; in a few moments the effort relaxes and the spine yields, the trunk sensibly sinking, the chest becoming flatted and the back arched. When this degree of weakness exists the spine is never safe, it is sure to yield in some direction; and the early inflection begets a long train of nervous, thoracic, and other disturbances. In such cases, whether curvature be discoverable or not, I enjoin the parties to take refuge in the recumbent posture, whenever they feel that they cannot support themselves, alternating this as much as possible with active exercise. So long as the dorsal muscles are in action, the mischief cannot advance, and restoration of power to these muscles by

local and constitutional means is the only effectual cure. The cure, too, is not difficult when commenced early and judiciously pursued. So long as the weakness continues, there is no security save in avoiding the sitting posture whenever the trunk cannot be fully supported. I have found a great advantage in this respect in dispensing with the 'board,' as it is termed, and converting a common sofa into an inclined plane. This is readily done by any carpenter, a plane raised to 7 or 8 inches at one end, and terminating in a point, being slipped under the cushion. This arrangement excites no observation, a consideration of some moment where feelings are sensitive; it is always at hand, and will be used freely, when the formality and display of lying down on the board would be repulsive. From the sensible relief afforded, it becomes the favourite repose; and no time being enjoined, the parties lie down and exercise alternately, precisely as the most accurate judgment would direct. Sometimes there is prejudice to encounter, especially in schools. The young lady is accused of neglecting her 'carriage.' Under remonstrance, perhaps reproof, she can draw herself up, and the power of doing so being thus demonstrated, obstinacy is imputed, the total inability to sustain the forced effort being wholly overlooked. In this way, much injustice is practised against these weakly creatures, much injury inflicted. Your acknowledgment, that curvature oc-

casionally originates with the dorsal vertebræ is satisfactory to me, as shewing that cases have occurred to others, in which the dorsal bend was the earliest. The difference, however, is of little moment, a common origin being acknowledged in both cases, and the principles of treatment being consequently the same.

"I am the more pleased to see this matter subjected to free discussion, from the light which this cannot fail to shed on many derangements of female health, in which a mistake of their real nature leads to much mal-treatment. Young females have been brought to me with alleged disease of the heart, phthisis, &c. whose maladies, traceable to muscular weakness and incurvated spine, have readily yielded to such treatment as I have mentioned; while bleeding, digitalis, and remedies of this class, would have sunk their powers and accelerated their fate. Had either disease actually existed, the treatment employed must have failed. I have seen local excitement enough to mislead an unwary practitioner into bleeding and depletory treatment, which, however it might abate symptoms, must, by increasing weakness, aggravate the real disease. These cases require close discrimination, for it does happen that the pulmonary disturbance leads to a state of congestion and inflammation, so as even to require the lancet to be used; but these cases differ widely from primary inflammation of the chest, and require

the treatment to be modified accordingly. In reflecting on this subject it has occurred to me, that the insidious disorganization of the lungs characteristic of phthisis, may not unfrequently have its origin in the disturbance of pulmonary function occasioned by curved spine."

Many cases of spinal curvature have their origin in the dorsal region, and the convexity of the curvature is sometimes directed towards the left side. Sometimes the whole dorsal and lumbar vertebræ are implicated in one curve; at others the curvature is confined to four or six dorsal vertebræ. Such cases cannot arise from muscular debility, or from position or bad habits of sitting, standing or lying; they occur from a very early age to 12 or 14, in children of bad constitution, of hereditary or acquired strumous habit. The disease is in the fibrous tissues connecting the vertebræ, of a precisely similar nature to that which occurs in the hip and knee-joints of subjects of a similar habit.

This disease of the fibro-cartilages has not attracted much attention in this country, but on the Continent, and especially by Delpech, numerous cases of lateral curvature have been traced to it. I shall not here enter into a detail of the symptoms, but shall refer to the tenth chapter of my Treatise on Deformities, where I have endeavoured to concentrate all that is known on the subject. One of the

objects of the present tract is, to call the attention of my professional brethren to this subject, that by accumulated observations we may be enabled to elucidate the real nature of the disease, and adopt sound principles of treatment.

In all obscure and anomalous diseases of the pulmonary or abdominal viscera, I would strongly urge the necessity of examining the spine with attention. The observations of Mr. Teale, Dr. Addison, and Mr. Tate, all agree in leading to the conclusion that, in hysterical and nervous affections, the primary seat, the origin of the mischief, is in the spinal column or its contents. When we reflect on the important offices which the vertebral column performs as the only support for the head and thorax, and particularly of the abdominal viscera, as the medium of communication between the nerves of all parts of the body and the brain, we cannot be much surprised that the disorders resulting from its derangement should be very numerous. Among the cases will be found some in which I concluded that this disease existed—they were treated on the principle that the primary cause of the mischief was a chronic inflammation of the cartilages and ligaments of that portion of the spine where the seat of the disease was indicated either by a curvature or by pain or uneasiness on pressure. I am quite convinced that early attention to the spine would prevent the ap-

pearance of curvature altogether, and I do flatter myself that, in a few cases, by such early attention, I have prevented deformity.

The long-continued operation of the same attitude, has been adduced as a frequent cause of curvature of the spine, and no doubt it does so operate to a certain extent. Witness the backs of clerks, artists, &c., who for many hours every day maintain such a position that the right shoulder is elevated while the left is depressed, and the spine in some of these persons becomes in consequence permanently bent. Girls who at an early age have been obliged to carry a child, are said frequently to become crooked, but in all the cases which I have seen where this cause has operated, I have found cause to think the deformity in part attributable to chronic inflammation of the fibro-cartilages; and I have concluded that the latter of these causes had as much to do in the business as the former. Such children generally exhibit indisputable marks of scrophula, and every surgeon is aware how frequently diseases of the joints manifest themselves in such subjects. This disease of the connecting cartilages of the vertebræ probably resembles those diseases we so frequently meet with in similar tissues of the knee and other joints. In these cases of spinal disease we have not a very frequent opportunity of verifying our observations by the morbid appearances, because the disease seldom takes away life, for when at its

worst stage, the very consequence of its ravages is incapacity of motion, and this incapacity of motion places the body exactly under the most favourable circumstances for the cure of the disease by anchylosis. In some cases of caries, the disease begins in the soft tissues connecting the bones, and afterwards spreads to the bones themselves, as we observe in the joints of the extremities. When the bony substance of the vertebræ is destroyed, the spinal marrow is compressed, paralysis of the legs takes place in consequence, and perfect repose ensues with much more certainty than it ever does from the injunctions of the surgeon, however positively enforced. The establishment of perfect repose gives time for the consolidation of the diseased bones into one mass, the spinal marrow accommodates itself to the new position of the parts, and the patient, although permanently deformed, acquires, if wisely treated, a tolerable degree of health and strength.

This is the farthest extent of mischief induced by chronic inflammation of the connecting tissues of the vertebræ, but it does not often proceed to such a length; the most usual consequence is a thickening of the intervertebral substance and protrusion, either backwards or laterally, of one or more of the vertebræ. However, long before any appearance of mischief occurs in the back, the patient will have suffered repeated attacks of various kinds;—affections of the pulmonary or abdominal viscera have

frequently occurred and resisted the ordinary remedies. Sometimes there is continual cough and expectoration, with evening fever and emaciation, giving rise to fears of consumption ; in some cases the heart is affected, in others the attacks assume the form of spasmodic asthma. When the functions of the abdominal viscera are principally deranged, we find, at times, symptoms of chronic inflammation of the liver—pain about the head of the colon is very common in many cases of lateral curvature—the functions of the stomach are generally depraved—the process of digestion always impaired, and the action of the large intestines torpid. Very often the pelvic viscera exhibit symptoms of disorder, more especially the uterus, and then we meet with all the Proteian forms of hysteria.

Two or three years will one or other of these trains of symptoms go on, sometimes alternating with each other;—apparent inflammation of the lungs will be suddenly succeeded by violent pain in the bowels, and simulated inflammatory action will appear by turns in almost every part of the body. I do not know any more important faculty which a medical practitioner can possess than a power of minute discrimination, of seeing those small distinctions which are not very apparent to any but experienced eyes. It is of the utmost importance to distinguish these simulated diseases of the nervous

system from the active inflammations which they resemble, and the points of difference are sometimes so minute that there is often difficulty in the diagnosis. In all such complaints the spine should be examined, and so commonly is it affected in nervous disorders, that these will almost always be relieved by local means applied to that portion of the spine with which the nerves of the affected part communicate.

The treatment of this variety of spinal curvature is very simple, and when applied sufficiently early will prevent any permanent fixed deformity. The recumbent position is perhaps the most essential part of the treatment, inasmuch as taking off the weight of the upper part of the body will remove much irritation from pressure on the inflamed cartilages, and that peculiar feature of the disease, the distention of these tissues, will subside. It is this distention of the intervertebral substance which renders the affected part of the spine unusually flexible, so that, by moving the spinous processes from side to side, we can perceive the want of tenacity in the connecting bands of the vertebræ. The extent of curvature is generally small, and in some instances the disease has appeared simultaneously in several parts of the spine, so that its line has exhibited the utmost irregularity, while in other cases the whole of the cartilages of the dorsal vertebræ will be at

the same time in a state of disease, and one large curvature either to the right or the left will take place.

Having premised the horizontal recumbent posture, not on an inclined place, because in this position there will still be some degree of pressure on the diseased parts, we should apply leeches, not in great numbers, (for the disease is chronic, and the patient generally bloodless,) to the part of the spine which exhibits pain on pressure. The application should be repeated daily, or every two or three days, according to circumstances; in all chronic diseases more benefit is derived from the repeated application of a small number of leeches, than of a larger number once or twice; the malady is of slow growth, and its decline will be likewise tedious. Blisters are useful, but not to the same degree as the repeated application of leeches or cupping. Caustic issues always do mischief—in almost every instance that I have watched where caustics have been made, the irritation to the system has been most injurious. I have been obliged to allow the issues to be healed from the suffering they produce—the subjects of these spinal diseases are generally of a very sensitive, irritable habit; their nerves appear to feel more acutely than the generality of other persons, and the peculiarly distressing nature of their complaints render them peevish and highly susceptible. I am quite sure that unremitting rest

will, in the majority of cases, supersede the necessity of issues. In young children, more especially under the age of four, caustic issues are very distressing, and I think the same remark will equally apply to setons.

In this disease the functions of the whole system of nutrition are usually impaired—the stomach, the duodenum, the liver, the intestines, all are deranged. The stomach either does not demand food, or what it craves for is improper—the abdomen is large, and the intestines distended with flatus—the evacuations are dark, green, clayey, or otherwise removed from a healthy condition. The large intestines are often torpid, allowing of large accumulations of fæces. It is neglect of these important matters which in some cases may lay the foundation of this disease; and what disease does not long-impaired digestion tend to produce. There cannot be a doubt that, if the functions of digestion are kept in tolerable order, many constitutional diseases may be kept in check, and however weakly the constitution, by due attention to the primary sources of life, which are those organs that convert the food we take into living matter, we can command a degree of health sufficient to render life very bearable. Nine-tenths of the diseases with which we are affected originate in disorder of the functions or disease of the organs of nutrition; and the other tenth if they do not originate in disturbance of these organs, are at least accom-

panied by it ;—in a few words, health cannot exist unless these organs perform their duty properly, and no disease of any importance can be established if they do.

Very long before the appearance of this variety of lateral curvature, if the evacuations from the bowels and kidnies be noticed, ample evidence will be found of disorder, and perseverance in means to improve the action of the organs of nutrition, combined with a due observance of the horizontal posture, will alone remove the spinal disease. We shall very commonly find tenderness in the right hypochondriac region, arising often from torpidity in the action of the ascending colon, the mechanical action of hardened and accumulated fæces, inducing a chronic inflammation of this gut, and the neighbouring parts of the liver, &c. I met with this state of things very lately in a boy of 14, where the spine formed an arch deviating an inch from a plumb-line suspended from the neck, that is to say the string touched the spinous process of the last cervical vertebra, and hung exactly over the same process of the third lumbar, all the intervening vertebræ forming an arch to the left side, the central point of which was one inch from the line. In this case active purgatives and glysters removed from the bowels a mass of fæces black as pitch, nearly two feet in length, and of large diameter, being in fact a mould formed by the large intestines, and probably

the accumulation of months, the daily evacuations passing over its surface, and being scanty, ill-conditioned, and horribly offensive. There may, perhaps, exist a doubt whether in this case the primary source of disease was in the spine or the organs of digestion; in my own opinion, the affection of the spine resulted from long-continued derangement of the functions of nutrition. By frequent purgatives and glysters, with five grains of blue-pill and five of ext. of hyosciam. every second night, the action of the bowels was improved, and afterwards, by the administration of quinine, the powers of digestion were strengthened;—these means and perseverance in a simple plan of diet, re-established the health; proper exercises were afterwards adopted, and in six months all appearance of spinal curvature had disappeared.

Effects of Attitude, Want of Exercise, Tight Lacing, Stays, &c.

Among the most commonly adduced causes of lateral curvature of the spine, is the long-continued influence of the same attitude. That this does operate is unquestionable, for multiplied experience has shewn it in many persons whose occupations oblige them to maintain the same posture for many hours daily. Attitude has most effect during the period of

growth, but probably too much has been attributed to it; for, without the simultaneous action of other causes, it would not alone be sufficient to account for the production of spinal curvature. The attitude which a girl is obliged to assume at almost all her lessons, unquestionably tends to draw the spine to one side, and to elevate the right shoulder; which, together with want of exercise, stays and tight lacing, operates in the production of that variety of lateral curvature, which the modern system of female education has rendered so common.

The attitude assumed in needle-work, writing, drawing, the piano, the harp, all have the same tendency to contort the spine; all these occupations are sedentary, and so many of these and other accomplishments are now demanded, that the day is hardly long enough to go through the usual lessons. Boys sit much at their studies as well as girls, but when relieved from them, their amusements are of such an active description, that the alternation of a few hours sitting is really beneficial to them; but girls, in their intervals of relaxation, are too often permitted to take no other exercise than a slow walk for an hour or so. The motions necessary for boyish games, bring into active play the muscles of the back, increase their vigour, and thus enable them to maintain the spine in its proper position, but the action of walking has but little effect on this class of muscles; the omission of those active exer-

tions which youth of both sexes would naturally indulge in, is one main cause of such frequent instances of lateral curvature in girls. Every care is taken to check in girls that activity which is natural to the season of youth—young ladies should not be romps—such and such exercises are boyish—delicacy of appearance is considered genteel, and we all know how successful the system is in rendering girls delicate. Even in those cases where some degree of active exercise is permitted, the poor child is eternally admonished not to assume the attitude which Nature dictates to relieve for a while the muscles of the back. Miss must not stoop, must always hold her head erect, sitting or standing; the head and chest must be upright, and straight-backed chairs, backboards, and other ingenious arts of tormenting have been invented, to prevent children from adopting the attitudes of repose dictated by Nature. Who would ever think of preventing a horse from assuming that position of repose which he almost invariably takes when standing still, by raising one of his hind legs to rest, while the body mechanically bears on the other three without much muscular exertion—in this position the spine becomes curved; and, it would be as wise to fear deformity in a horse, because he occasionally assumes this position, as in a girl to fear her being permanently round-shouldered, because she occasionally relieves herself from the irksomeness of

continually maintaining the same position. Perhaps there is nothing more beautiful or more conclusive of design, than those contrivances in the structure of animals which enable them to assume positions of repose without the expenditure of muscular power. The manner in which birds roost is a familiar illustration; the weight of their body alone acts on the tendon of the flexor muscles of the toes, which thus mechanically grasp the perch without any muscular effort. The position of the horse above-mentioned, and that of the soldier when he stands at ease, are also examples of this provision of Nature. In the human body, the means of effecting this object was, I believe, first pointed out by Mr. Bell, and has been illustrated by him in the article "Animal Mechanics" of the Library of Useful Knowledge, and by Dr. Arnott, in his Elements of Physics, from whose work I shall take the liberty of making the following extract, which, in forcible language and correct reasoning, cannot be surpassed.

"Strongly as Nature has expressed herself upon the important subject of exercise among the young, tyrant fashion, with a usual perversion of common sense, has of late times in England formed a school discipline for young women of the higher classes, which wars directly with Nature's dictates; and the consequences have been such, that a stranger arriving here from China, might almost suppose it the design to make crooked and weak backs by our

school discipline, as it is the design in China to make little feet by the iron shoe. The result is the more striking, because the brothers of the female victims, and who, of course, have similar constitutions, are robust, healthy, and well-formed. A *peasant girl* is allowed to obey her natural feeling, when her spirits are buoyant, and at proper times may dance, and skip, and run, until healthy exhaustion asks that repose which is equally allowed; and she thus grows up strong and straight. But the *young lady* is receiving constant admonition to curb all propensity to such vulgar activity; and often, just as she subdues nature, she receives the praise of being *well-bred.* Her multifarious studies come powerfully in aid of the admonition, by fixing her, for many hours every day, to sedentary employment. This adoption of sedentary habits is not only hurtful, by preventing the natural extent and variety of the exercise, and thereby weakening the whole body, but is rendered particularly injurious to the back, by the manner in which the sitting is performed. It would be accounted great cruelty to make a delicate young creature stand all day, because the legs would tire; but this very cruelty is almost in constant operation against the back, as if backs could not tire as well as legs. When a girl is allowed to sit down, because she has been long standing, great care is taken that the muscles of the back, which still remain in action as she sits, shall not be at all relieved;

for, from the idea that it is ungraceful to loll, she is either put upon a stool which has no back at all, or upon a very narrow chair with a perpendicular back. The stool relieves the spine more than the chair, because it allows of bending in different ways, so as to rest the different sets of muscles alternately; but the chair forces her to keep the spine quite upright, and nearly unmoved. The consequence soon is, that being first weakened generally, by sedentary habits, and the back being still farther weakened by excessive fatigue, the spine gives way in some part and bends, and the curvature becomes permanent.

"When the inclination of the back has once begun, it is very soon increased by the means used to cure it. Strong stiff stays are put on, to support the back, as it is said, but which in reality, by preventing those muscles from acting which are intended by nature as the supports, cause them to lose their strength; and when the stays are withdrawn, the body can no longer support itself. The only things forgotten are to give proper exercise in the air, and to let the child rest when she is not taking such exercise. The prejudice had at last grown up, that strong stays should be put upon children very early, to prevent the first beginning of the mischief, and that the child should always be made to sit on the straight-backed chair, or to lie on the hard plane; and, it is probable, that if these

cures and preventives had been adopted as universally and strictly as many deemed them necessary, we should not have, in England, a young lady whose back would be straight or strong enough to bear the weight of her shoulders or head. It would disgust us to see the attempt made to improve the strength and shape of a young race-horse or greyhound, by binding tight splints or stays round its beautiful young body, and then tying it up in a stall; but this is the kind of absurdity and cruelty so commonly practised in this country towards, what may be well called, the most faultless of created things."

Although want of exercise is perhaps the most important cause of the frequency of lateral curvature, yet I do not doubt that stiff stays and tight lacing very materially increase the mischief produced by inactivity. Tight lacing not only prevents a due development of the muscles by pressure, but by fixing into one immoveable mass the ribs and vertebræ of the back, which, more especially in youth, should have free motion on each other, makes the whole upper part of the body a dead weight on the vertebræ of the loins, which in consequence give way to one or other side, and lateral curvature is produced.

The natural and proper motions of the spine are produced by muscles connected with the head, shoulders, ribs, and pelvis; and it is in the perfect adjustment and reciprocity of action among these

muscles, that the true equilibrium of the spine is to be maintained. If we deprive a large class of these muscles from acting at all, this reciprocity is destroyed, the remaining muscles having more duty to do than properly belongs to them, either become weakened, or having lost the opponent power of their antagonists, draw the vertebral column awry. This is precisely the effect of tight lacing—the numerous muscles inserted into the ribs, shoulder-bones, and spine, are all compactly bound together, so that the bones of the chest, which should have some motion on each other and on the spine, become one mass, being a dead weight on the vertebræ and muscles of the loins. I cannot but think that this is one great source of that variety of lateral curvature which commences in the loins, and which is the most common; indeed it is almost universal, for there are few women in whom some slight deviation of the lumbar vertebræ may not be detected.

There must be some very general cause of lateral curvature operating specifically on girls, to be productive of the much more frequent cases which occur among them, than among boys. That their occupations are more sedentary is not sufficient, for many youths about the age of sixteen become very studious, and have little or no active exercise, but how rare a thing is lateral curvature among them. I have met with several cases in girls of a very active disposition, who have lived in the country, and have

jumped, skipped, and danced as much as could be wished, and whose health has been uniformly good—in these instances I could attribute the mischief to no other cause than tight lacing; and to this pernicious custom, I have no doubt, they owed their deformity. It is not the mere effect of a tight band round the waist which is so injurious, but it is the fixing together in one compact and immoveable mass the bones, ligaments, and muscles of the shoulders, chest and dorsal region of the spine; this is effected by encasing the body in well-fitted stays, which, when properly laced, prevent the natural motions of these parts on each other.

Let us examine the action of one only of the numerous muscles connected with the chest and spine, the latissimus dorsi, which arises from the common tendon of the loins; the fleshy part of this muscle encircles the lower and back part of the chest, passes over the corner of the shoulder-blade, from which it receives a fleshy bundle; and as it passes over the ribs, it sends some tendinous slips to them: the lower fibres of this large muscle ascend, the upper ones go directly across, the flat tendon produced by the junction of these fibres forms the back part of the arm-pit, and is inserted into the arm-bone. The action of this muscle is to draw down the arm, and when either arm is fixed, it draws the spine to one side or the other, as in climbing, &c. How can this muscle act as it should do

under the compression of tight stays? The same question would apply to others of the muscles of the spine and chest. The whole back is clothed with strong muscles, its cavities are crossed by many smaller ones related to the ribs and spine, and the actions of all are more or less impeded by the compression of stays. Look at the withered legs of the beggars in our streets, notoriously produced by tight bandages—tight stays produce a similar effect in a less degree, but sufficient to weaken the power of those muscles whose duty it is to maintain the natural position of the spine.

Not only does tight lacing act directly in this manner, but indirectly it operates in diminishing muscular vigour, by impeding respiration. It is well known that muscular power bears a relative proportion to the freedom of respiration, animals having the highest development of the respiratory organs, being the most powerful in muscular force. Tight stays compress the ribs together, and prevent the play of the respiratory muscles—when applied during the growth of the body, they prevent the development of the chest, and thus lay the foundation of many pectoral diseases. Much more might be said on the subject—to expect that stays will be banished from the female dress would be idle, but I think few mothers who will reflect on the evils of tight lacing in growing girls, will hesitate to defer at least to the latest moment, the vanity of forming

their children of that shape which is most convenient to the dress-maker; for really the great use of stays from all I can learn on the subject, appears to be, that they form the most suitable groundwork for the attachment of the manufactures of these artists. The female form, at least in youth, requires no artificial aid to improve it; who would think of putting stays on the Venus de Medici!

I shall endeavour to give strength to my own opinion by the following quotations:

"Almost every step in the education of a young lady tends to make her artificial, at least as far as her body is concerned. Stays tightly laced are applied at an early age, and she is debarred taking the exercises natural to youth: yet, notwithstanding the tendency of such a system to weaken all the muscles of the back, she is expected to be able to keep her spine as upright as if she had the strength of a porter. She may appear to sit erect, when she is in fact crooked. A mistake seems to exist with regard to the effects produced by stays, which are not stiffened with bones. Mothers are led to believe, that their children are in no danger of becoming distorted by wearing such stays; but they forget, or do not know that the tight bandaging of the chest, when continued, is more injurious than the effect produced by stays which support the figure, even to such a degree as to obviate the necessity of the action of the muscles. It is

true that a bandage, occasionally applied, gives support and strength ; but, if constantly worn, it produces a wasting of the part."—*Shaw on the Spine.*

Portal, an eminent French physician of the last century, strongly reprobates the use of the stiff stays of his day, and some of his observations are worth recording. " On peut dire qu'on a peine à démontrer les muscles du dos dans les femmes qui se sont distinguées à porter des corps étroits ; cependant, les dames moins jalouses de leur taille, lorsqu'elles sont parvenues à un certain age, abandonnent l'usage des corps, ou en prennent de plus laches, et comme alors les muscles du dos sont prodigieusement affaiblis elles se voutent ou elles s'inclinent sur les côtes. Plusieurs qui sont devenues bossues vers leurs temps critiques, rapportent la cause de leur distortion à la cessation du flux periodique, tandis que ce n'est qu'à la cessation de l'usage des corps, ce qui prouve qu'il est pernicieux d'en faire contracter l'habitude aux enfans."

The following passage occurs in a work entitled " A Comparative View of the Faculties of Man with those of the Animal World."

" Some nations have fancied that Nature did not give a good shape to the head, and thought it would be better to mould it into the form of a sugar-loaf. The Chinese think a woman's foot much handsomer, if squeezed into a third part of its natural size. Some African nations have a like quar-

rel with the shape of the nose, which they think ought to be laid as flat as possible with the face. We laugh at the folly, and are shocked with the cruelty of these barbarians, but think it a very clear case, that the natural shape of a woman's chest is not so elegant as we can make it, by the confinement of stays. The common effect of this practice is obstructions in the lungs, from their not having sufficient room to play, which besides the tainting the breath, cuts off numbers of young women in the very bloom of life. But Nature has shewn her resentment of this practice in a very striking manner, by rendering above half the women of fashion deformed, in some degree or other. Deformity is peculiar to the civilized part of mankind, and is almost always the work of our own hands. The superior strength, just proportion, and agility of the savages, are entirely the effects of their hardy education, of their living mostly in the open air, and their limbs never having suffered any confinement."

So long as the body is growing, stays should never be used on the principle of supporting it; for, if this be done, the muscles will never of themselves be able to perform that duty. When growth has ceased, when the muscles are fully developed, and the bones are properly connected by their cartilages, ligaments, and muscles, less mischief will be done by artificial supports; and where exercise cannot be used, they are very necessary to the comfort of

many persons of weak bodies. In permanent lateral curvature, where all hope of cure must be abandoned, where no means can raise the spine to its proper position, steel supports become essential, not only for the ease of the individual, but to prevent the mischief from increasing. I have met with many cases where the deformity has increased, even after the age of 30, and in which steel supports would have been very beneficial. Prejudices against the use of such instruments are almost universal among medical men. I call them prejudices, because they are unfounded in reason, because they are conclusions drawn from witnessing the abuse of mechanical means, and because they are held in deference to the advice of surgeons, who have deprecated their use only because they themselves have never employed them. The late Mr. Shaw, in his earlier publications, was a great enemy to all mechanical support of the spine, but length of experience induced him to alter his opinions on this subject.

The attempts to cure spinal deformity by the sole aid of instruments, and the unfortunate results which have too often followed, has raised so great a dislike to mechanical aid, that among our most celebrated surgeons such means are entirely discarded. That many cases of lateral curvature have received no benefit from the long-continued use of steel stays and other supports I am ready to admit; but the

reason has been, that no other means were employed, in combination with the use of instruments, to strengthen the muscles, and thus enable them, without artificial aid, to retain the spine in its proper position. Supports have been employed, under the notion that if the body could for a time be kept erect, it would, when growth had ceased, continue upright without assistance, and in some cases this has occurred. Some girls become awry in consequence of the rapidity of their growth, the bones are elongated, the muscles are consequently lengthened by the separation of their two extremities, and it is some time before their breadth measures in proportion to their length. In such cases, if by any means, either the recumbent posture or the use of steel supports, the spine can be kept erect until growth ceases, and the muscles are fully developed, then all fear of lateral curvature will have ceased. But in the majority of cases where spine-supporters have been employed, the end has appeared to be gained by the mere concealment of the deformity; and when the unfortunate patient has attempted to lay aside her artificial support, she has found herself weaker than ever, and of necessity obliged to continue it all her life.

Instruments to support the spine are useful as adjuvants to the treatment, so long as the period of life affords a hope of cure, and afterwards they are useful in preventing an increase of deformity, and as

conducing greatly to the comfort of the wearer. The obvious remedy, in that variety of lateral curvature of which we are speaking, is to improve the general health and strength, and more especially to invigorate the muscles of the spine. Now it must be apparent, that an instrument which will at all impede the motions of the spine, will prevent the possibility of effecting a cure of the distortion, and such is the case with all the machines invented for the removal, or, more properly speaking, the concealment of spinal deformity. There are few cases of lateral curvature which may not be cured, if properly treated before the cessation of growth. The incurable cases are those resulting from contractions within the chest, consequent on diseased lungs, and those dependent on the effects of inflammation of the cartilages and ligaments, where rigid contractions have taken place among these parts and the bones;—but these cases are few, in comparison with the large number dependent on the other cause enumerated.

The principal feature in the treatment of lateral curvature is exercise. In incipient cases of contortion of the spine, if the body be observed during exercise all appearance of curvature will have disappeared:—While the body is in active motion, the muscles of the spine hold it erect; but soon after the patient stands still, or sits down, the curvature will re-appear. If, during the intervals of exercise,

the spine can be prevented from falling out of its proper line, an obvious benefit will result, and this may be effected in two ways—1st, by keeping the body in a horizontal position when not in exercise—or, 2nd, by putting on a machine which will support the spine during the period of sedentary occupation. A combination of these means I think preferable to the use of only one, as, by such combination, a girl may continue her studies without inconvenience or danger of increasing her present distortion. Such an instrument has been made by Mr. Eagland, and well fulfils the intended object.

This instrument supports the spine by embracing the ribs, and holding up the axillæ on a kind of crutch, the lower end of which rests on the seat, so that, while the patient is at her meals, or taking any lessons, the muscles of the back are relieved from all exertion. It slips over the dress, is adjusted in a minute and as soon removed. By this means and the recumbent position alternately during the intervals of exercise, the spine is never suffered to relax into that serpentine form which constitutes lateral curvature. This serpentine form is often apparent in the very earliest stage of lateral curvature, and the ingenious theory of Mr. Bell will not apply in all cases. Mr. Bell asserts that the primary curvature is in the loins, and that the upper curves are mere effects of the efforts of the muscles to restore the equilibrium. Mr. Bell's own

illustration of the soldier standing at ease, when the spine assumes this serpentine form, strongly favours the opinion that, in some cases at least, the alternate curves are not consecutive, but primary, and of simultaneous origin. Weakly girls frequently indulge in this standing at ease ; at length, by constant habit and too much adherence to study, the unnatural form becomes fixed, and if neglected, after a time permanent. In most of these cases, a period of some years elapses before the distortion may be considered permanent. I have not met with one before the age of 20, where the spine, by extension could not immediately be made more straight, proving the possibility, by proper means, of improving the form, if not of entirely rectifying it. In persons who have one leg shorter than the other, the spine is thrown into a serpentine form at every step, and yet individuals thus circumstanced pass through life without permanent lateral curvature. I instance these cases, to shew how long a time it takes to make lateral curvature of the spine rigid and permanent, provided there be no disease in the bones, ligaments, and cartilages.

The health always suffers in cases of lateral curvature primarily or secondarily, and it is surprising to witness the effect of exercise in improving it. Where any degree of perseverance in exercise is observed, the health speedily improves, and, if the diet be at the same time judicious, little or no me-

dicine will be required. The great desideratum in these cases is perseverance, with which almost all may be benefited, but without it no method of treatment will avail. In the exercises usually adopted it is essential to fix the pelvis, in order that the body should bend at the loins and the muscles of the back be called into action, otherwise the whole trunk with the pelvis, will move on the heads of the thigh-bones. This circumstance will also point out the absurdity of expecting benefit to result from exercise while the patient is wearing a steel support, the very object of which is to fix the spine immoveably on the pelvis, and thus prevent all possibility of exercise to the muscles of the back and loins. When a mechanical support is used, it should be in the intervals of exercise alone, to be taken off on every occasion when the exercises are resumed.

By perseverance in a system of judicious exercise, alternated with repose, lateral curvature dependent on muscular debility may be removed in most cases and benefited in all. But these means should be employed as early as possible; the longer the parts have been allowed to retain their unnatural positions, the more difficult will be their restoration, for there is a constant tendency in distortions of the spine to increase. We have only to look at the vertebral column, to be satisfied of the certainty of an increase of any existing curvature:—In the na-

tural condition of the spine, the base of one vertebra rests firmly on its successor; but when any part of the spine deviates to one side, the tendency of the superior vertebræ to slip is obvious, the basis of support being lost, and the chain of bones only kept together by the ligaments and muscles. From this consideration, it is obvious that children never can outgrow these distortions.

OF SPINAL IRRITATION.

The term spinal irritation has been given to a condition of the spinal marrow, or the nerves as they emerge from it, which is supposed by late observers to be the immediate cause of many neuralgic and hysteric disorders. Several writers on spinal distortions have described symptoms which they have referred to incipient curvature, exactly similar to those which have of late been ascribed to a peculiar condition of the spinal marrow, or the nerves at their junction with it. This condition has by some been designated spinal irritation, and by others sub-acute inflammation. The similarity of the symptoms in these cases to those which occur in the early stage of spinal distortions, has induced me to introduce a few remarks on the subject, which I the more readily do because it is at present involved in some doubt, and it is very

desirable that the observations of those who refer nervous and hysteric disorders to the spinal brain may be verified, as we shall then have a means of remedying diseases which have ever been among the opprobria of medicine. Many of our leading medical authorities are very sceptical as to the connexion of these complaints with spinal irritation, and consider the relief which follows leeching and blistering the spine as coincidences rather than consequences. A writer in the Medico-Chirurgical Review says, speaking of a case of this kind—" of this we are sure, that similar cases repeatedly do well without the application of a blister or a leech, the spine of the patient being just as unaffected as ours at the present time of writing." When such differences of opinion exist on any subject, discussion cannot fail to do good; perhaps I have another motive in directing attention to the subject, for, as far as my own experience goes, I cannot help coinciding with those who refer neuralgic disorders to some mischief in the spine; but, at present, I am disposed to think that this is, in many cases, the early condition of spinal curvature arising from chronic inflammation and lymphatic infiltration of the cartilages and ligaments connecting the vertebræ.

Dr. Brown, in a paper in the Glasgow Medical Journal, was, I believe, the first to make use of the term spinal irritation; he describes as the most prominent symptom, a pain under one or other of

the mammæ, a symptom which is among the most common in cases of lateral curvature; he has always found it accompanied with pain on pressure of some of the vertebræ, most commonly the 8th or 9th dorsal. He is of opinion that the immediate cause of pain in the back and breast, is spasm of one or other of the muscles arranged along the spine, altering the position of the vertebræ, or otherwise compressing the nerves as they issue from the spinal marrow; that this spasm in many instances is a local disease produced by fatigue, wrong posture or other causes, and quite unconnected with the state of the brain, spinal marrow, or nervous system in general.

Mr. Teale has devoted a work to this connexion of neuralgia with spinal irritation. He traces many nervous and anomalous disorders to tenderness in the spine, and adduces evidence sufficient to warrant the conclusion that they are cause and effect. He describes this disease in the spine as existing commonly without the slightest evidence of distortion; extreme degrees of deformity often occurring without any affection of the nerves; and when lateral curvature does occasionally co-exist with spinal irritation, local antiphlogistic treatment will speedily remove the nervous symptoms, whilst the curvature remains unrelieved. To irritation of the sympathetic ganglia Mr. T. refers a host of disorders of the heart, lungs, and stomach. Dr. Addison and

Mr. Tate, in their respective works on "Uterine Irritation" and "Hysteria," have also traced many of these affections to pain on pressure of some part of the spine. Mr. Whatton, in the February number of the North of England Med. and Surg. Journal, has given a paper on spinal and spino-ganglial irritation; in the first he classes cases of spinal irritation simply; in the second those which commence in the spinal nerves, and extend by their communicating branches to the ganglionic system.

In the 63d, 64th, and 65th Vol. of the Med. and Phys. Journal, are some interesting papers on functional disorders of the spinal cord, by Dr. and Mr. Griffin. These gentlemen give a large number of cases of various nervous, hysteric, and spasmodic diseases, which they have traced to tenderness of some part of the spinal cord, and which have uniformly been relieved by bleeding, counter-irritation, &c. They defend the term Irritation as one which is expressive of the state of the parts affected, and define it as "any stimulus acting on the whole or parts of the system, through the sensorium, without vascular excitement." It is not improbable, even in those diseases, apparently originating in vascular excitement, as inflammations, that increased action of the vessels is not the first step of the process, but that a certain impression, as in the disorders of simple irritation, previously take place in the sensorium or nervous system.

From the mass of evidence adduced by these and other practitioners, we cannot refuse to grant that there is at least some probability that many nervous disorders, and a peculiar condition of the spinal marrow or nerves, bear the relations of effect and cause; and, as this peculiar condition generally yields to local bleeding and counter-irritation, it may sometimes depend on sub-acute inflammation. The evidence of morbid anatomy is however still wanting to reduce opinions to certainty; for, as these cases rarely if ever terminate in death, opportunities of post-mortem examinations can only be met with from the incidental occurrence of some mortal disease. This difficulty will continue to envelop the subject in some obscurity, but as attention has of late been strongly directed towards it, the multiplied experience of numerous observers will not fail to shed light upon it.

The symptoms attending this condition of the spinal marrow or nerves are very varied and anomalous, and differ much in extent and intensity. In slight cases, irregular shooting pains occur in the muscles in different parts of the body—occasional head-achs, palpitation of the heart, loss of appetite, startings and tremblings, with general disability to exertion. In more severe cases, uneasiness becomes fixed, darting lancinating pains occur in the chest, abdomen, or limbs. These and other nervous symptoms may have existed for months without exciting

suspicion of the real nature of the disorder, and various kinds of treatment have been adopted, often unnecessary, and generally inadequate to the removal of the complaint, the one symptom characteristic of this disease being overlooked, viz. tenderness on pressure in some part or parts of the spinal column.

In slight cases pressure can be borne without any great suffering, in others the tenderness is so great that, in running the finger along the spine, the instant the irritable spot is arrived at the patient starts, and a degree of anguish is occasioned so exquisite and excruciating as to produce the most violent spasms, which either go off gradually in repeated faintings, or subside into periodical and less painful dartings along the nerves, running from the part through all their different ramifications.—*Whatton.*

This disease occurs in every region of the spine; it exists sometimes in different parts at the same time, and occasionally in the whole column. When the upper cervical nerves are affected, the seat of pain is in the back part and sides of the head, the muscles of the face and neck are stiff, and there is difficulty in moving the jaw. When the seat of the irritation is the lower cervical region, we find darting pains and cramps in the course of the axillary and brachial nerves, in the upper and fore-arm, the muscles about the shoulder-joint and those of the upper and lateral parts of the chest: the breasts are sometimes hard and painful, there is a feeling of de-

pression and lassitude, often accompanied by sighings, tremblings, and other of the symptoms usually called nervous.

When the disease is seated in the upper dorsal region, painful shootings occur along the intercostal muscles, the edges of the ribs and sternum, and peculiarly under one of the breasts, which is most commonly the left. When the malady is in the lower dorsal region, there is pain around the abdomen and over the stomach, soreness and smarting along the ribs, a sense of constriction across the chest or the pit of the stomach—sometimes a difficulty of breathing, and a burning sensation over the sternum and at the point of the ensiform cartilage. In some cases there is a degree of atony in the abdominal muscles, producing difficulty in the expulsion of the urine and fæces, irregular pains over the whole abdomen, and occasionally partial paralysis of the integuments, covering the lateral parts of the belly and thighs.—*Whatton.* When the lumbar nerves are affected there is aching pain in the loins, soreness of the muscles and skin of the generative organs and upper parts of the thighs, painful dartings along the crural nerves down to the ankles and feet, there is trembling, unsteadiness, and diminution of power in the whole of the lower limbs.

When the irritation has extended to the ganglionic system, we have, in addition to the above symptoms, irregular and spasmodic actions of the

involuntary muscles, and derangement of the functions of those organs which derive their nervous energy from the ganglia to which the irritation has been communicated. When this occurs with regard to the cervical ganglia, we have violent and stabbing headachs, painful throbbings of the carotid and temporal arteries, fixed and heavy pain at the base of the skull: from the lower cervical ganglia the mischief may extend to the cardiac nerves, and this may possibly be the cause of the violent palpitations, tremors, and alarms of nervous persons. This disease, when originating in the dorsal region, will extend to that part of the ganglionic system which gives off nerves to the organs of digestion and nutrition: the diaphragm, stomach, liver, and spleen, the large and small intestines, as their appropriate ganglia are affected, become in their turn liable to derangement. When the irritation has extended to the stomachic plexus of nerves, there will be, among other symptoms, a painful depression at the pit of the stomach, tenderness on pressure, unpleasant distention, especially after eating, incomplete digestion, flatulence, acidity, &c. &c. In these cases, the sympathy of the stomach with the brain will propagate the irritation to the latter organ, and will thus produce all the melancholy forebodings of hypochondriacism. It is not my purpose to enlarge on this subject, or I should be led into the interminable mazes of those extraor-

dinary complaints, which, under the titles of hypochondriasis, hysteria, spleen, the English malady, &c. have perplexed patients and doctors in all ages. My object has been to give a summary view of a modern opinion with regard to these complaints, which still requires the sanction of experience.

We have enumerated many symptoms which appertain to the long catalogue of those which characterize what have been denominated nervous disorders, and if experience affirms the conclusion, that these distressing and perplexing maladies always have their cause in the spine, this will not be the most unimportant of the modern improvements in the art of healing. That such a connexion does exist in many instances we have abundant facts to testify; numerous cases are now on record, of nervous and hysteric complaints being removed by local applications to particular parts of the spine. This class of diseases have hitherto been so perplexing, and a remedial means has so long been a desideratum, that the spine should never be neglected in such disorders. By careful observations, we shall be enabled to verify the truth of the foregoing descriptions, and determine how far we are warranted in referring nervous disorders to irritation or subacute inflammation of the spinal brain, or the communicating nerves. If we succeed only here and there in a case, we shall be rewarded for our trouble, for although these complaints are too often

disregarded and made the subject of ridicule, although they are never attended with any danger to life, yet there is no class of maladies more distressing to the sufferers themselves.

CASES

In Illustration of some of the preceding Observations.

Case I.

Miss ——, aged 16, tall and thin, had about a year before suffered from an attack of scarlet fever, which had much enervated her. She complained of lassitude, weakness—want of refreshing sleep, rising in the morning with aching limbs, and as much weariness as would be felt after great fatigue—her complexion was pale and sallow, her appetite bad, and she often had slight febrile attacks in the evening. These symptoms had been treated as consequent on derangement of the digestive organs. Some time after the commencement of these attacks, pain was felt in the back, but was at first disregarded, under the idea that it arose from circumstances to be expected at this period of life. However, as her health did not improve under the

treatment prescribed, the back was examined, and the upper lumbar vertebræ were found to bend slightly towards the left side. Pain was felt on pressure at each side of the spine, and on tapping the spinous processes, especially that of the second lumbar vertebra.

She now complained of frequent headachs—there was some accession of fever in the evening—the pain in the back was described as dull and heavy—a sense of constriction was felt over the stomach, which organ was very irritable, and often rejected its contents. There was little or no disturbance in the thoracic organs. The functions of digestion were much impaired—the alvine evacuations were scanty, irregular, and unhealthy—she was much troubled with that peculiar noise in the bowels, so common to nervous women, and those who lace tight—the catamenia had not yet appeared. The most comfortable position was lying on the back. The curvature in the loins was very slight, so little that the ribs did not appear in the least distorted, and it was removable by the slightest extension. The treatment consisted of the recumbent position, the application of several successive blisters, gentle aperients, and alteratives. When the fever had passed away, and the pain in the back was removed, small doses of quinine were administered—gentle exercise was permitted, but still the recumbent position was strictly enforced in the intervals of exer-

cise. A few months perseverance in this simple treatment restored the health, and the curvature in the loins became hardly perceptible. Still I thought it right to recommend strict attention to the health, especially the functions of nutrition, for I have no doubt that any circumstance which would again derange the health, would debilitate the muscles of the back, impair the tenacity of the connecting ligaments and cartilages of the spine, and allow the weight of the upper parts of the body again to bear it out of its natural position.

Remarks. In this case attention was fortunately directed to the vertebral column at a very early period of the curvature, when the disease was in a very incipient stage. The distortion was not fixed, for the smallest extension removed the curvature, and while the patient remained in the horizontal position it did not recur.

Case II.

F. S. began to complain at the age of 17, of pain in the back ; she had frequent accessions of fever, tenderness on pressure at the pit of the stomach—the uterine functions not regular. On examination of the spine at the age of 19, a considerable distortion was discovered. The body was much emaciated from two years' suffering, and the spinal curvature being attributed to weakness, a residence at

Harrogate, and the use of the waters, was prescribed. At first, some improvement took place in the health, but after a time the deformity increased, the lumbar and lower dorsal vertebræ formed a curvature, the convexity of which was to the right, the upper part of the spine having a countervailing bend to the left.

The recumbent position on a firm mattress, with daily moderate extension, sensibly diminished the curvature, while regulated exercises, and the internal exhibition of steel, improved the health and increased the strength. Frictions on each side of the lumbar vertebræ tended to relax the contractions and rigidity the muscles and ligaments had acquired from long-continued disarrangement.

Remarks. This had been a case of chronic inflammation of the fibro-cartilages of the lumbar vertebræ ;—the effects of the disease alone remained when it came under my notice, and the deformity of the spine and excessive debility alone required to be attended to. The curvature now remaining is very slight, and I have no doubt that perseverance in the course of exercise prescribed, with attention to diet and regimen, will remove it. In such cases the deformity might be altogether prevented in the early stages of the disease ;—by strict repose, repeated leeching, counter-irritation, and attention to the general health, that thickening and softening of the cartilages in which this variety of curvature

originates, would not take place. The following case is also one of chronic inflammation of the fibro-cartilages, but which being arrested at an early stage, was accompanied with only a very slight distortion.

Case III.

A girl of 12, of fair complexion, blue eyes, languid circulation, and other indications of a lymphatic temperament, had long been subject to a variety of disorders of the chest and stomach. Sometimes attacks of dyspnœa and cough, sometimes pain and tenderness in the epigastric region, &c.; these symptoms had been treated in the usual manner, but with no complete success, for the attacks still recurred as fast as they were to appearance subdued. Complaining of slight uneasiness in the back, her spine was examined, when a tendency to curvature was found implicating the whole lumbar and dorsal vertebræ; and there was much pain on pressure about the 11th and 12th dorsal vertebræ. In the recumbent position the deformity did not disappear, nor could extension with prudence be employed—this is one mark of distinction between these cases and those resulting from muscular debility. In this case, in all probability, there was chronic inflammation and lymphatic infiltration into all the fibro-cartilages, from about the first dorsal to the third lumbar vertebræ; there was a general

inclination of the trunk towards the left side, the curvature not having existed long enough to have caused a countervailing bend to the left.

A strict recumbent position was ordered to be maintained; a few leeches were applied daily for four days, and afterwards two successive blisters; the bowels were kept free by dec. aloes comp. In about a month, all pain on pressure having ceased, tinct. ferri mur. was prescribed; and, after three months repose all deformity had disappeared, the health was much improved, and there had been no recurrence of mischief eighteen months afterwards.

In this case the fibro-cartilages were increased in thickness, and diminished in tenacity; the connecting media of the vertebræ being relaxed, the weight of the body and the action of the muscles drew it towards the right side; and had the disease been neglected, permanent deformity would have ensued.

Case IV.

Miss B, aged 19, had been long subject to coughs; had been considered, during the Winter of 1829-30, to be labouring under pneumonia and inflammation of the liver; her difficulty of breathing at times was so great, as to appear to threaten suffocation—her bowels were extremely torpid, and these attacks of supposed pneumonia and inflammation of the liver repeatedly recurred. The treatment to which she

was subjected necessarily weakened her; and in the last Summer she was removed to the coast, where she in some degree recovered her strength.

On her return to town she was extremely delicate and weak, her appetite capricious, her bowels inactive without medicine; she still had frequent attacks of pain in the chest, difficulty of breathing, cough and expectoration, and in the eyes of her friends, she was considered consumptive.

At this period, when I first saw her, she was extremely thin, her countenance sallow, her eyes dull, her tongue coated, respiration rather hurried, occasional dry cough, pulse weak and frequent; she complained of palpitation of the heart, and fluttering at the pit of the stomach, some degree of tenderness over the region of the liver and stomach, the bowels seldom acting oftener than once in three days, and then not without medicine. Her sleep was unrefreshing, seldom having more than two or three hours during the night.

I found, on enquiry, that before and during the paroxysm of difficulty of breathing, &c., which generally recurred once in a week or fortnight, she experienced a sense of choking, that her heart beat much, and that her urine was pale and in large quantity; from these circumstances, and her general appearance, I had no hesitation in concluding all her suffering to be neuralgic or hysterical; and, as the uterine functions were regular, I pursued

my enquiries to the spine. On examination, a curvature of the dorsal vertebræ was discovered, the convexity towards the left side, the ribs on this side being preternaturally separated, while those of the right side were approximated. The left shoulder-blade was nearer to the spine by an inch and a half than the right, but there was no material difference in their elevation. There was no pain on pressure either on the spinous processes, or at their sides.

On extending the spine the curvature was much lessened, which not only proved the recent state of the distortion, but the probability of an entire cure. The recumbent position, with occasional extension, was strictly adhered to for the first two months, after which exercises were employed, principally that of raising a weight over a pulley, by the action of the muscles of the neck and back. Mild cathartics and a regulated system of diet, after a time restored the action of the digestive organs. Tonics were employed to give tone to the system, and a few months restored this young lady to better health than she had experienced for some years.

Remarks. This case exhibits an example of the sympathetic affections which sometimes result from pressure or irritation of the spinal marrow, or the nerves at their exit. We have neuralgic affections simulating the most important diseases. It is an instance of the necessity of a strict investigation

before we determine the nature and consequently the treatment applicable to such cases. In delicate women, we should always hesitate before pronouncing a verdict of inflammation—it is hardly probable that such persons should be liable to violent inflammatory affections, and as far as my experience goes, I should say that in such subjects, what ought to be fairly denominated inflammation is rare, and I am quite certain that many delicate females have been sacrificed to the indiscriminate employment of anti-inflammatory remedies. There is a peculiar nervous mobility, call it what you will, in the female constitution, or something in their manner of life, which disposes them to neuralgic or congestive diseases, and but little to increased arterial action. The uterine system from puberty commences its influence, and there is no organ or function which is not occasionally influenced by sympathy with it. A delicate palefaced, bloodless female, complains of pain in the side, may have a slight cough, her breathing is hurried, her pulse frequent, her appetite bad, her tongue coated. A routine practitioner pronounces it a case of pleurisy, the lancet is called into play, drastic purgatives are administered, foxglove or colchicum is prescribed, and that irritation which really constituted the complaint is kept up by the treatment adopted. Perhaps the symptoms are aggravated, the obstinacy of

the disease calls for farther antiphlogistic remedies, and the patient dies, or falls into a state of apparent consumption.

Such cases are not uncommon, and it behoves the young practitioner to endeavour to form a correct judgment with regard to them. Unfortunately the kind of cases which are seen by students at hospitals and dispensaries, being chiefly those of the labouring classes, and for the most part inflammatory, misleads the judgment, and he commences practice with the admonitions of his teacher and his own experience, leading him to see inflammation at every step. It is often many years before the prejudices imbibed in the schools are destroyed by real experience of the diseases of a higher grade of society; but time at length convinces him that, as there is a nervous as well as a vascular system, so there are as many and perhaps more nervous, than vascular or inflammatory diseases.

Case V.

Miss ———, aged 26, had long been in a deranged state of health, consulted me in April, 1822. At this time she complained of pain in her back and side, her complexion was sallow, her person thin, and she bore the appearance of one who had suffered from long-continued illness. Upon enquiry, I found that, for several years, she had been subject to repeated attacks of what were considered

inflammatory disorders, sometimes in the chest, but more frequently in the viscera of the abdomen—general and local bleedings always relieved her; and after these and other remedies she recovered, and usually enjoyed a fair degree of health for a few weeks or months, when fresh attacks occurred, and gave way to corresponding remedies. When I first saw her, she had slight fever, quick, small, and slightly intermitting pulse; her tongue was covered with a dirty-yellowish fur; the stomach was irritable, and frequently rejected its contents; the bowels were not confined, but the motions had been very scanty for some time.

The pain was in the left side, and was increased by pressure on the ribs; in fact, it was rather tenderness than pain, for the slightest touch was complained of. This is commonly enough the case in neuralgic pains, and when it does occur, it leaves no room for mistaking it for the pain of inflammation.

I found her lying on a sofa, having some time before consulted an eminent surgeon in a large provincial town, who was of opinion that there was a disease of the spine, and had enjoined an unremitting horizontal posture. This plan she had now adopted for some time without benefit; on the contrary, her symptoms were much more severe than they had been. On examination of the vertebral column, I could perceive no point where there was the slightest deviation, nor was there any part of

the spine painful on pressure. It is true she complained of the loins generally, but the pain was seated in the muscles, being increased more by motion than by pressure or percussion. I found on enquiry that the uterine functions were impaired, the catamenia being irregular in their periods, scanty in quantity, and unusually dark.

I had no hesitation in determining this to be a case of hysteria, and that there was no disease whatever in the spine: how far such cases may depend on a disturbed state of the nervous power, imparted by the spinal marrow, I shall not pretend to say; but it does seem probable, from the fact that counter-irritation applied to that part of the spine from which the nerves supplying the seat of pain communicate. This has been strikingly illustrated by several modern writers on hysteria.

To return to our patient:—The local pain in the side was removed by a blister; she was ordered pil. hyd. and extr. hyosciam. of each five grains every night, and the mist. ferri c. twice in the day, with a purgative draught every second morning. Under this plan of treatment the digestive functions improved; and, as all belief of spinal disease was dismissed, the recumbent position was abandoned, and she was permitted to take as much exercise as possible in the open air. After taking steel and occasional purgatives, the uterine functions performed their duty, and so long as she continued exercise in

the open air her health improved, although I have since learnt she has had a repetition of her old attacks.

Case VI.

The Rev. T. S. aged 34, requested me to examine his spine, having, on occasion of illness occurring when from home, been informed by a medical gentleman who was attending in the family where he was on a visit, that he had a disease in the spine, which could only be removed by a recumbent posture for two or three years. This gentleman had a sister who had been condemned to the same ordeal, and had, after having gone through it, got up with a very good back, and he was prepared to follow the same advice.

On his return home he sent for me, very seriously related the case, and lamented the interruption it would necessitate in his parochial duties. He was a very nervous man, and, having attended him repeatedly before, I could not help doubting the correctness of the surgical diagnosis. I examined the back in every position, carefully scrutinized each spinous process, but could find nothing to warrant so serious a sentence as three years' imprisonment to a sofa. Still, so impressed was my patient with the certainty of his spine being diseased, that I had very great difficulty in bringing him to a different conclusion. However, after a time, I convinced him

that it was improbable, and he consented to defer for a fortnight his intention of lying down. During this fortnight, I prevailed on him to take a few doses of colocynth and calomel, which, with a spare diet and horse exercise, so improved his health, that before this period had elapsed, he began to doubt the reality of the spinal affection, and, after some time, found reason to relinquish it altogether.

It is now some years since the occurrence, and he has suffered no inconvenience from omitting the recommendation of three years' recumbency.

I have introduced these cases, to shew the necessity of a patient investigation of a case before coming to a conclusion. In both instances, the medical men who had so decided were in great practice. One of them enjoys a deservedly high reputation, and is surgeon to a large provincial hospital. I could enumerate other cases, which, from a superficial examination, have been treated as spinal diseases, and I know several who are wearing mechanical instruments for curvatures, which never existed but in the imagination of the mechanics who recommended them.

Case VII.

Miss T——, from about the age of 10, had been in a very delicate state of health, being constantly under medical treatment, and was observed fre-

quently to fall into those attitudes which gave apprehensions of spinal curvature. At the age of 14, the right shoulder was considerably more elevated than the left, and the scapula of the same side projected backwards; the spine had assumed a serpentine form, and there was much deformity in the bones of the chest. The dell formed between the hip and the ribs, caused that apparent projection of the former which often excites suspicion that this part is the seat of disease. As there was no pain in any part of the spine, nor other symptom of recent inflammation of the fibrous tissues of the vertebral column, I had no hesitation in employing gentle extension; but the rigidity of the parts was very great, and but little impression was made.

The functions of nutrition were much deranged—the alvine secretions extremely depraved, being pale in colour and very offensive—the appetite was bad, and there existed great and general debility. She was ordered the following medicine:—Six grains of rhubarb and six of hyd. c. cretâ every night, and ten drops of the tinct. ferri mur. three times in the day. She maintained a strict recumbency; frictions and extensions were employed daily, with a view of overcoming the extreme rigidity and contractions of the muscles and ligaments of the spine. After this plan of treatment had been pursued some time the health improved, and she was enabled to use active exercises. Although much perse-

verance was displayed on the part of the patient and her friends, it was nearly two years before the deformity could be said to be materially diminished, and it will be necessary to continue the system of exercises until the period of growth has ceased, or we shall have a recurrence of some degree of distortion.

Remarks. This was a case in which we should have gained little ground without extension; exercises alone might have removed the curvature, but so rigid were the contractions, that I have my doubts whether so complete a recovery could have been effected without mechanical extension.

Case VIII.

Miss ——, aged 18, tall, thin, fair complexion, lively, and apparently enjoying excellent health. She appeared to stoop, but otherwise there was no external indication of deformity. On examining the vertebral column, I found no less than four small curvatures in the back and loins; there was no very sensible inequality in the height of the shoulders, but the right scapula was more prominent than the left—this appearance, however, by muscular exertion could be removed, as well as the upper dorsal curve; and so long as the exertion was maintained, the upper part of the spine was straight, but the curvature returned on its discontinuance.

This young lady had always been in the enjoyment of excellent health, had lived in a healthy part of the country, had not been much confined to study, and, being of a lively disposition, was disposed to, and did take considerable exercise. One cause to which the distortion might be assigned was rapidity of growth, the patient having increased in height several inches within the year ; another, and in my mind a more effective one, was tight stays.

On applying my extending apparatus, the whole of the curvature could be effaced without the slightest pain or inconvenience, proving that the case was curable, and that if the vertebral column could be kept erect for a time, until the muscular power had increased in the same ratio with the length of the bones, no fear need be entertained for her future form. The indications in such a case clearly were, to prevent the curvature from becoming fixed ; this was effected by occasional extension during the day, the intervals being occupied by particular exercises and the recumbent position. In all these cases, before they are of long standing, during the period of exercise, while the muscles are in full action, the curvatures disappear, and it is only after sitting or standing some time that the superincumbent weight again produces them ; it follows, therefore, that if possible no such opportunity should occur—the moment the exercises are finished, that instant the recumbent posture should be resumed, and, during

meals, the spine must be kept erect by a stool with crutches, or a mechanical apparatus adapted for this purpose. Such an apparatus, in some cases, will so effectually support the spine, that there can be no objection to the practice of music and other studies during the period of cure.

This treatment was continued for some months, with the most gratifying results; the muscles of the back increased in power, and were enabled to support the spine without assistance, and there remains but a slight curvature in the loins, which is hardly perceptible, and which is not likely to increase while proper exercise is continued and the erect position is not maintained for too long a period.

Remarks. This was an example of curvature purely from mechanical causes, as much so as the bending of a beam too slight to support its superincumbent weight. During the period of growth the bones are soft, and the cartilages and ligaments very flexible and extensile, and it is only by the action of muscular power that they acquire, in due time, their proper density and elasticity. The bones appear the first to elongate during growth, the muscles are stretched by the more distant separation of their respective insertions; and during this time, where growth has been very rapid, the muscles are very slender, and not endowed with much force. It is at this period of life that danger of lateral cur-

vature exists, and tall, thin girls are most frequently the subjects of it—those in whom the expansion of the muscles keeps pace with their elongation, are in much less danger. When a curvature appears under these circumstances, the recumbent position will alone prevent its increase, and it would probably be a wise precaution to oblige all growing girls to lie down for at least an hour during the day. This seems to be one reason for the comparative freedom of the women of hot climates from spinal curvatures—their frequent indulgence of recumbency; the warmth of the clime, and the habits of the people, conducing to make this more common than with us. Certain it is, women in these countries are much more free from spinal distortions than in our more bracing climates, where, à priori, we should expect, from the laxity of their frame, and the lassitude induced by the heat, that the vertebral column would more frequently give way. I believe stays are not so generally worn in tropical climates—most assuredly the body is not so impacted in them as in this and other European countries.

Case IX.

Miss ——, aged 18. She was apprehensive of mischief in the right breast, which was apparently enlarged. She had been long troubled with a cough, and with that periodical difficulty of breathing

which has been designated spasmodic asthma, and which most commonly occurs in girls of a lax frame and debilitated health: it is always sympathetic of derangement of the alimentary functions, or of those of the nervous system: in this instance it proved to be sympathetic with pressure or other affection of the spinal marrow, or nerves connected with the dorsal region of the spine. Six of the upper dorsal vertebræ forming a curve, the convexity of which was to the right—the right breast appeared enlarged, and the scapula of the same side was rather elevated. Extension removed all appearance of curvature, but like many other patients of this class, she had not patience to go through that system of exercise and recumbency so essential to the cure of the distortion—she was persuaded to wear a steel support, which has unquestionably been of service, for at this moment there is little or no appearance of deformity, and her age is 20.

Remarks. The circumstances deserving of attention in this case are, 1st. the fullness of one mamma being so remarkable, as to be considered by the friends as the only prominent feature of disease, and cases of this sort have occurred when repeated leechings and other means have been adopted to reduce the supposed tumefaction of this part—shewing the necessity of accurate diagnosis. The 2d remark is the benefit derived in this instance from wearing a steel support; some advantage resulted from the

exercise and rest employed, but they were not persevered in beyond two or three months—the instrument was so contrived, that while it supported the spine it allowed considerable motion, and this young lady, being of an active and lively disposition, did not fail to take plenty of exercise while using it. Thus the spine being to a certain degree supported until growth had ceased, the bones, ligaments, and cartilages of the spine acquired such a proper degree of density, that, after the age of 20, she was enabled to dispense with any farther artificial support, nor is the slightest deviation in the spine now to be perceived.

Case X.

Miss ——, aged 29, had been long subject to attacks of headach and vertigo, with palpitation of the heart—she complained of pain at the pit of the stomach; her appetite was capricious, and her bowels constipated. These attacks had now occurred for several years, her health being never good, even in the intervals of freedom from these affections. She lived in the country, and took on principle daily exercise, but became more and more incapable of her usual walks, was excessively fatigued, and obliged to remain the greater part of the day in the recumbent position.

On examining the spine a curvature was evident, beginning at the lower cervical vertebræ, which were

inclined to the right, the whole of the dorsal to the left, and the upper lumbar again to the right. Extension had but little effect on this case, the distortion being of many years standing, and growth having long ceased; the bones and their connexions were so accommodated to the new state of things, that any material alteration of the curvature was hopeless—still after this period of life distortions increase, and therefore it is always right to adopt means, if possible, to prevent it. In this case, after two months repose, during which the digestive functions had recovered their action by a regular system of diet, alteratives, aperients, and tonics, especially quinine, the sympathetic affections of the head and chest subsided; she was now recommended to wear stays, constructed to bear a portion of the weight of the upper part of the body, and she has, since this period, for a twelvemonth, enjoyed better health than for many years before.

Remarks. There is nothing very remarkable in this case, but it clearly proved to my mind the utility of steel supports, after the lapse of that period of life when a radical and permanent cure can be effected. With this state of deformity very tolerable health may be enjoyed, as I have witnessed in many instances, provided a due share of exercise is taken, and the alimentary functions particularly attended to. Such persons should consider themselves permanent invalids, and should neglect no-

thing that will enable them to preserve their health; they should live regularly, their diet should be simple, they should take daily exercise, never keep late hours—their minds should be employed in some occupation or rational study. It is astonishing by strict attention to such means, how great a degree of health may be enjoyed in chronic diseases. By such a plan, I have known a constitutional disorder kept off for years, and a state of health established, which at one period of life could not have been contemplated. Gout, rheumatism, and even consumption, may thus be kept at bay for many years. But to return to our spine case. When steel stays have been employed under the circumstaces related above, they can never be dispensed with without danger of increasing the curvature, and renewing those sympathetic affections which always accompany spinal distortion. Many ladies who, in their youth, have had a good figure by bracing and lacing, lose it in middle age, when they relinquish that attention to such matters, which at a more youthful period they considered of more importance.

Case XI.

Mrs. T, aged 40, had been subject for many years to attacks of pain under the left breast, more severe on some occasions than on others; they were generally, but not always, accompanied with palpitation

of the heart; sometimes she was simultaneously troubled with a cough. On the first two or three attacks she had been leeched, cupped, and blistered, without any relief, and subsequently she has done nothing but take simple aperients, and has submitted to the evil as one that was irremediable, finding that the pain subsided after a few days continuance, without materially injuring her health. These attacks occurred at different intervals, from a few weeks to some months. On the last occasion the pain was seated about the sixth rib, and was occasionally extremely severe, and darting backwards towards the spine; the countenance expressed suffering—the complexion was sallow, the tongue was furred, the appetite bad—the bowels were regular—the pulse quick, but soft. On examining the spine, there was considerable sensibility on pressure of the fifth dorsal vertebra; and on enquiry it was ascertained, that uneasiness and a sense of heat had frequently been felt in this part of the spine. Cupping was ordered, and on the two following days leeches were applied to the part; an embrocation containing ant. tart. was afterwards used to keep up a counter-irritation; the bowels were evacuated by rhubarb and calomel; under this simple treatment the recovery was complete, and the patient has been longer free from pain than at any former period.

Case XII.

Miss A. S. had been frequently attacked within a year, by a sense of suffocation, difficulty of breathing, faintness and violent pain across the epigastrium, apparently arising from violent spasmodic action of the diaphragm. I have been summoned to her at all hours of the day and night, her friends having repeatedly fancied her to be on the point of death. She was a young lady of extreme sensitiveness, was eminently nervous, starting at all times at any unexpected circumstance: her heart would beat violently on the most trifling excitement: occasionally the paroxysms terminated in a fit of laughing or crying. Although her friends were informed of the nature of the complaint, and that it was one totally devoid of danger, they could never entirely dispel their fears, and various eminent practitioners were consulted to no purpose. After having repeatedly been subjected to the usual treatment of such cases, it was suggested that counter-irritation should be tried in the dorsal and lumbar region of the spine, although there was no very marked tenderness on pressure. The recumbent position was enjoined; several successive blisters were employed, and on two occasions mustard cataplasms, but the suffering was so great that these could not be long borne; and after the blisters had healed, stimulating

liniments and friction were employed with much perseverance. Under this treatment the symptoms gradually gave way, and after some time large doses of quinine were administered. She has since been at the sea-side, and has been hitherto free from any repetition of the complaint.

Case XIII.

Mrs. G——, aged 35, married, the mother of four children, had been subject, since the weaning of her last child, to attacks of violent pains in the left breast, during the paroxysms she could not bear to have it touched, and the slightest pressure of her dress irritated it; the pain sometimes darted through to the back, and extended upwards to the head. These attacks of pain in the breast occurred generally at the menstrual period, which was regular, but attended with uterine pains; at other times she was much troubled with leucorrhœal discharge, which occasionally assumed so purulent a form, that an eminent physician in this town had given his opinion that the uterus was diseased. The pains in the breast became by their increase the source of much alarm, more especially as they now always extended to the back, &c. Pressure on the lower cervical and upper dorsal vertebræ caused some pain in this part of the spine; and, as the disease had proved obstinate

under all the treatment yet adopted, it was determined to treat it as a case of spinal irritation. Leeches were applied to the spine, and the bowels were kept free by repeated doses of warm cathartics: several blisters were afterwards applied to the spine, the pain in the breast gradually subsided, and for more than one year there has been no return.

Remarks. These three cases were supposed to be dependent on spinal irritation; many others might be enumerated in which the seat of mischief appeared to be in the spine, but enough has been said to fulfil the object I have in view.

Three Varieties of Club Foot.

Plate I.

Varus

Valgus

Pes Equinus.

ON

DISTORTIONS OF THE LEGS.

DISTORTIONS of the Legs may be divided into those which are congenital, depending on some cause which influences the formation or the development of the embryo, and those which take place after birth. At present it is my intention to make a few observations on the latter, referring for information with regard to the former to the chapter on club-foot in my Treatise on Deformities; but I shall take this opportunity of impressing on the minds of the parents of children born with such deformities, the urgent necessity of resorting to means of restoration at the earliest possible period. There is no case of club-foot, however bad, which may not be remedied, and but few which cannot be altogether cured, by proper means employed immediately after birth. The earlier the period when these malformations are treated, the more simple are the means necessary for their removal; and, by great perseverance, these deformities may often be cured before the period

arrives when the child should walk. It is a disgrace to civilized society, in the present advanced state of science, to witness the cases of distorted feet which present themselves in this town; for there are not ten cases in a hundred that might not have been during infancy entirely cured, and in the rest the deformity might have been considerably diminished. I never pass a day without observing adults with various degrees of club-foot, from a slight inflection of one foot to those cases of great deformity where both feet are contracted and turned inwards; every one of which might have been removed, if properly treated in the early part of life. They may be alleviated at any time before the growth of the body has ceased; but, of course, the longer the treatment is delayed, the more difficult it becomes: after the age of 10 or 12, a perfect cure rarely takes place, and the earlier means are adopted for relief the better. I have introduced a plate of the three varieties of club-foot, the cases represented are by no means the worst, infinitely more aggravated ones than these having been entirely cured.

The above remarks apply to congenital malformations, but the most frequent distortions of the legs in children occur after birth. Improper food, or any other cause which induces a depraved state of the organs of nutrition, thus impeding the process of dentition, and the secretion of the phosphate of lime generally, in consequence of which the bones are too

soft to bear the weight of the upper parts of the body. Teaching children to stand before the time when their own feeling of strength dictates to them the power of doing so, is another cause of distortion, inducing weak knee and ankles. It may be some satisfaction to parents of children affected with those distortions which are subsequent to birth, to learn that permanent deformity seldom results from them, but that after the age of three years, such children, by proper attention to their health, recover their strength and acquire a correct form, almost universally without the aid of instruments, while those deformities which begin before birth, are never removed without mechanical aid.

Nothing is more common than to observe in children from the age of 1 to 3 a tendency to curvature in the bones of the legs, and weakness in the joints of the knee and ankle. There are few children in this and other large towns, who are not either backward in the period of walking, or who are not retarded in their progress after they have began to walk, in common language are taken off their legs. Most children thrive and do well in early infancy, but soon after they are weaned their health deteriorates, they lose their strength, and if they are allowed to stand, their legs bend. It is a common opinion that this is the consequence of teething, and there is doubtless some truth in this as well as in many other common opinions; but dentition is only one among

many causes which act either separately or conjointly, and according to their single or united power, so is the state of disease to which the child is reduced. We will endeavour to trace some of these causes, and give to each its due share in the effects produced.

This tendency to deformity begins from the age of one to two: how frequently we see a child about this age in attempting to walk waddling and throwing about its arms to retain its equilibrium, while its little legs are bending under the weight of the upper parts of the body—how anxious and alarmed, in consequence, have we seen mothers listening to every hint, adopting a variety of means to strengthen, and too often resorting to such as, far from relieving, increase the mischief. It will calm such anxiety, to be made acquainted with the fact that, if the treatment is at all rational, there is no danger of future deformity, that with proper management all will be well, and that before the age of five the limbs will be strong and straight; and this without the use of instruments, which in such cases are often pernicious, not only increasing the present evil but actually inducing deformity in the knee-joint or other parts. I could enumerate several instances where in-knee has been produced by instruments intended to cure curvature of the leg-bones.

If we observe children at this age, we shall find but few who can be said to walk really well, either

the ankles or the knees are weak, the bones of the legs inclined to bend, or that there is debility in the muscles of the loins, &c. I will venture to assert that there are five out of every ten children in this metropolis more or less defective in these particulars, and yet how few adults comparatively are misshapen—some undoubtedly there are, and some who are very weak on their legs, but many of these owe their infirmity to improper means employed in their early age to remedy these defects; to bad instruments, improper food, &c., given with a view to strengthen the system, and that strange perseverance in teaching and encouraging children to walk when common sense points out that they should be kept off their legs. I think it is quite clear that, if this tendency to deformity became permanent, we should see more frequent examples of it in youth and adults; but the truth is, that these distortions are removed by Nature herself in the progress of growth, provided her laws are not much interfered with, and the functions of nutrition are kept in proper order. Bandy legs and bakers' knees, although not uncommon, are by no means so frequently seen in adults as one might be led to expect from their common occurrence in children before the age of three; and if children were not permitted to stand or walk when symptoms of weakness in the limbs appear, such cases would be still less frequent. Among the more important causes of these distor-

tions may be mentioned weaning, errors in diet and clothing, teaching children to bear on their legs too soon, teething, &c.

Weaning may be mentioned among the primary and predisposing causes of that debility of frame which induces weakness of the lower limbs, curvature of the leg-bones, &c. The tender stomachs of infants are with difficulty reconciled to the change of food consequent on weaning, and the powers of digestion mainly depend on the well-being of the functions of respiration. In this and other large towns, children are from necessity too much confined within the house; and when they do breathe the open air, it has not that purity which is perhaps of greater importance at this early age than at any other. The digestive system not being supported as it should be by the respiratory, the stomach of an infant which could digest the already animalized food received from its mother, is incapable of extracting nutriment from a more crude aliment; the consequence is, that there are few children who do not suffer more or less from this change of diet. The most general rules that can be given with regard to the diet of infants are, that for the first five or six months after birth, they should have nothing more than the milk of a healthy nurse; that about this period they should have in addition some light farinaceous food, as arrow-root, baked flour, powdered biscuit, &c. The stomach is thus gra-

dually prepared for the total separation of the child from its mother, which should always take place from the age of nine to twelve months. When the child has teeth it should have some of its food in a solid state, but as a general rule, until it has all its primary teeth, animal food should not be allowed; although there are exceptions to this rule, and especially in large towns, where the digestive organs are not strong enough to extract adequate nutriment but from animal food; and not long since I met with a case in point. A child from the period of weaning until the age of two did not thrive, acquired no muscularity, the limbs were soft and flabby, the excretions from the bowels deviated extremely from a proper appearance: its general diet had been farinaceous, broths and jellies had at times been resorted to, but always produced fever and intestinal irritation. Under these circumstances I advised the trial of small quantities of solid animal food; an evident improvement immediately took place, the child has since daily partaken of the same diet, and now, at the age of three, he is as healthy a boy as any parent would wish to have.

In all weakly children, or those in whom there is a tendency to any acquired or hereditary constitutional disorder, the most minute attention should be paid not only to the kind of food, but to the regularity of its meals. So far as health is concerned, the stomach is the most important organ of the body;

every disorder of early age begins with derangement of this organ, and these occur at the very earliest moment of its existence. Even before birth the health of the child may be injured: if the mother's mode of living has been injudicious, the child will be born weakly, and the stomach, partaking of the general debility and being the first organ to be called into action, will show signs of derangement as soon as it takes in its supply of food. Hence the flatulence, screaming fits, &c. of infants; and a pretty fair conclusion can be drawn of the future health of the child from the circumstances of its earliest infancy; but it is rather to the period of childhood than of infancy that I should direct my remarks.

Children are often taught to stand at an earlier age than they would attempt to do so, if left entirely to their own feelings; the consequence is that, in heavy children and in those where the phosphate of lime has not rendered the bones sufficiently solid, the legs bend, and the child becomes more or less bandy. When the bones do not bend to the weight, the ligaments connecting the thigh and leg give way, and the child becomes knock-kneed; or the ligaments of the ankle-joint are stretched and the foot becomes unnaturally flat, so that in some instances the inner ankle rests on the ground. I am acquainted with several children more or less affected with deformity of the legs, in whom I could attribute them to no other cause than that of being in-

structed to stand and walk too early; their health has been uniformly good, nutrition has apparently gone on as it should do, and yet about the age of 12 or 18 months, their legs have began to shew signs of weakness and deformity. They are generally heavy children, with no other fault in their state of health than that of being too fat, a circumstance which is far from desirable, although a certain degree of rotundity is natural to the age. But some children from superabundant and fattening food are allowed to become mere masses of fat, and such are frequently the subjects of distorted legs. When there is this aptitude to fatten in children, so far from being taught to stand at an early age, every means should be adopted to retard them. It is a good rule to allow children to teach themselves to stand or walk; let them be placed on the floor, and use their own pleasure with regard to locomotion; as soon as they feel the capacity to do so, they will raise themselves on their feet, and the danger of future curvature in the bones of the legs will be less than if they are held up by the arms, and taught to stand at an earlier period.

The solidity of the bones and the firmness of their connecting ligaments, depend on the action and development of the muscular system. In animals of powerful muscular frame the bones possess greater solidity than in those possessing less muscular power; the firmness of the bones bears a relative proportion

to the exercise of the muscles. In men the bones are harder than in women ; in porters, draymen, and others, who require great muscular power, the bones acquire much greater solidity than in those mechanics and handicrafts who are confined in close manufactories, and whose work demands skill rather than labour.

The vigour of the muscles depends on the proper action of the organs of nutrition; these again depend on the function of respiration, and we are thus led, in considering the solidity of the bones, to speak of the air we breathe. The more pure the atmosphere the more perfect will be the operation of the system of digestion on the aliment ; and, if proper exercise be at the same time employed, the greater will be the development of the muscular system, and the more perfect will be the growth and formation of the bones. It is needless to live in a pure atmosphere if it be only enjoyed at short intervals without doors : a weakly child should be constantly in the open air, an hour or two daily is not sufficient ; the whole of the intervals between its meals should be spent without doors, in all but the severest weather.

The functions of the skin sympathize greatly with those of respiration, and together with these have great influence on the due action of the organs which prepare the nutrient principle, for the support and growth of the body. In children more especially it is important that the secretions from the skin should

be duly performed; ablutions night and morning should never be omitted, and where it can be accomplished, that of the morning should be immersion in cold water, at least during the warmer months. There is, perhaps, no one means more conducive to the strength of children than cold bathing; there is no one means more necessary to preserve a firmness of muscular tissue, and consequently a proper form to the bones than cold bathing. Many cases of bandy legs and bent knees have been entirely removed by cold sea bathing, and proper attention in keeping the child from bearing on its legs. Although I am not directly treating on the management of children, yet the strength of the limbs is so dependent on that combination of circumstances which constitute what may be called the management of a child, that every thing appertaining to its health must be taken into consideration, it is therefore necessary to say a few words on the subject of clothing. In this variable climate where we have the temperature of Summer and Winter on the same day, we should protect the skin from such vicissitudes, every part but the hands and the face should be covered. Innumerable cases of enlarged glands and pulmonary complaints have their origin entirely in this absurd custom of exposing the arms and chests of children. Why is consumption more frequent in its ravages among girls, but from this custom of exposing the skin to the vicissitudes of cold

and heat. The dress of children should reach up to their throats and down to their wrists. Health is of too much importance to be sacrificed to the vanity of exhibiting a beautiful neck, or a round pair of arms.

I must refer to the earlier part of this tract for some observations connected with the health of children who are the subjects of spinal curvature. These distortions of the legs occurring from the age of one to three, often originating in the same state of constitution as those cases of spinal curvature which occur very early in life; they are both dependent on that condition of the health, which neglected, would terminate in rickets, and the same remarks apply to both kinds of deformity.

THE END.

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A

TREATISE

ON

DEFORMITIES;

EXHIBITING

A CONCISE VIEW OF THE NATURE AND TREATMENT

OF THE PRINCIPAL

DISTORTIONS AND CONTRACTIONS

OF THE

LIMBS, JOINTS, AND SPINE.

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"A work of this kind has long been a desideratum in the English language, for, with the exception of a few detached papers in the medical periodicals, we know of no author who has written syste-

matically on this subject. Often have we thought while contemplating the many deformed objects that throng our streets, that much good might have been done by timely and judicious perseverance: and that he who would devote his time and talents to such a work, would not only acquire fame as a professional man, but also merit the thanks and gratitude of a very large portion of society. Mr. BEALE has undertaken the task, and the present volume bears ample proof of the industry and research with which he has executed it."—*Scots Times.*

" This is the first work in the English language which professes to treat generally of these maladies, and we must say that it is creditable at once to the talents and philanthropy of the author. We consider the work a useful accession to medical science, and likely to be useful to many suffering under the distressing maladies of which it treats."—*Edinburgh Lit. Gazette.*

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