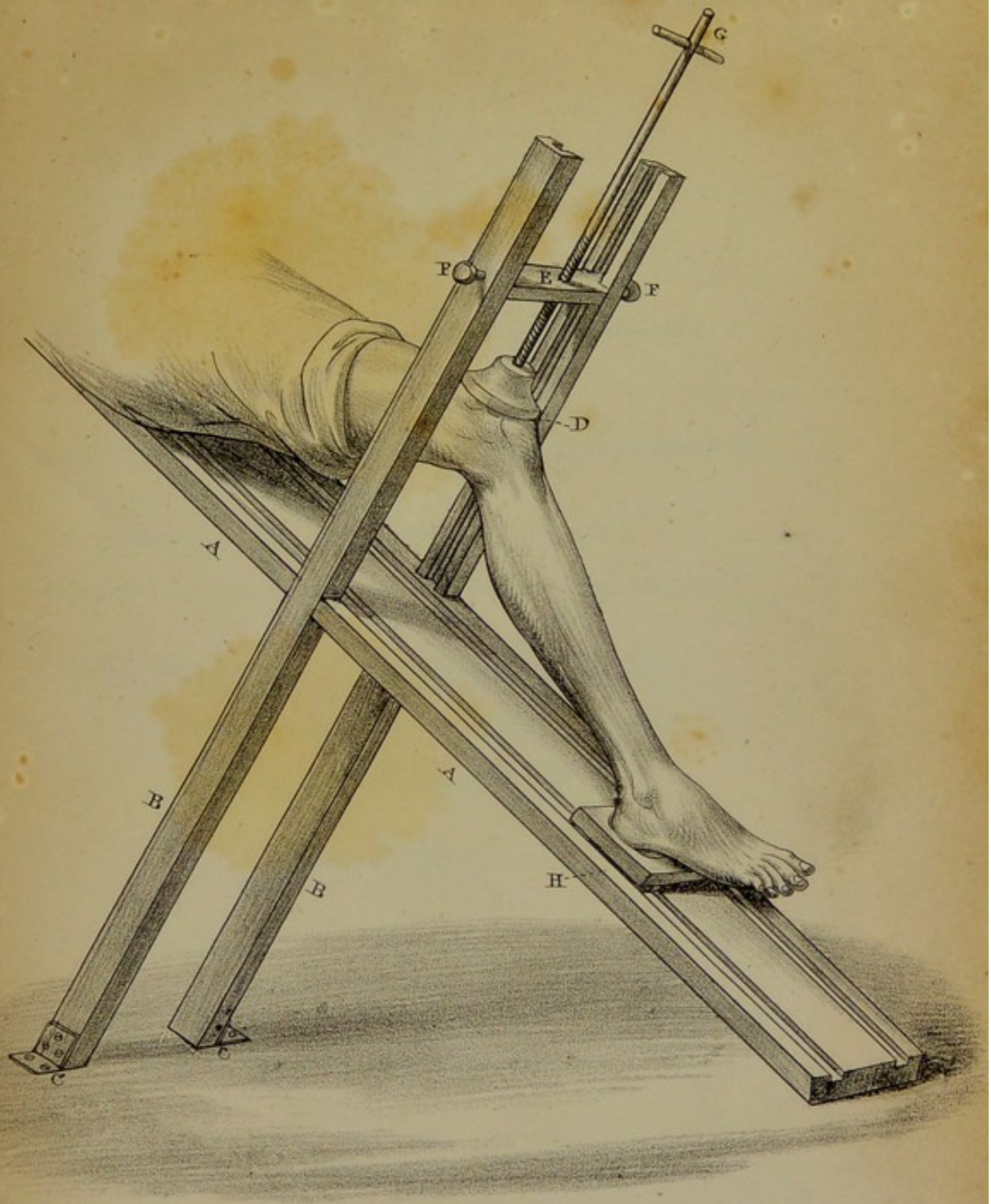
A treatise on a modified application of moxa, in the treatment of stiff and contracted joints: and also in chronic rheumatism, rheumatic gout, lumbago, sciatica, indolent tumours ...with observations on the different remedies hitherto employed in the treatment of diseased joints: and an investigation into the nature, causes, and treatment of spinal diseases / by James Boyle.

G. Scharf del et lithog.

Printed by C. Hullmandel

Plate 2nd.

Representing the contorted Foot described in Case XI.



Scharf del et lithog

Index to Plate 1st

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A.A. *Inclined Plane upon which the Limb is placed.*
B.B. *The feet supporting the Plane &c*
C,C. *Small Hinges for the purpose of securing the Feet to the Floor.*
D. *The excavated and padded piece of wood placed upon the Knee.*
E. *A Transverse Piece of Wood through which the Hand-Screw passes, and which becomes a fixed Point for the action of the Screw upon the excavated piece of wood.*
F.F. *Two small Screws securing the transverse piece of wood.*
G *The Hand-Screw.*
H. *A Piece of wood mounted upon Casters, and excavated to receive the Heel, and carry the Foot downwards, on pressure being made upon the Knee, by turning the Screw.*

A

TREATISE

ON

A MODIFIED APPLICATION

OF

MOXA,

IN THE

TREATMENT OF STIFF AND CONTRACTED JOINTS:

AND ALSO IN

CHRONIC RHEUMATISM,

RHEUMATIC GOUT, LUMBAGO, SCIATICA, INDOLENT TUMOURS,

&c. &c.

ILLUSTRATED BY CASES AND PLATES;

WITH OBSERVATIONS ON THE DIFFERENT REMEDIES HITHERTO EMPLOYED

IN THE

TREATMENT OF DISEASED JOINTS;

AND AN INVESTIGATION INTO THE NATURE, CAUSES, AND TREATMENT OF

SPINAL DISEASES.

Second Edition.

By JAMES BOYLE, Esq.

SURGEON OF THE MIDDLESEX INFIRMARY;

AUTHOR OF A TREATISE ON THE EPIDEMIC CHOLERA OF INDIA; OF LETTERS ON THE PREVENTION AND CURE OF DISEASES PECULIAR TO HOT AND COLD CLIMATES; AND OF A TREATISE ON SYPHILIS.

LONDON:

PRINTED FOR

CALLOW AND WILSON, MEDICAL BOOKSELLERS,

PRINCES STREET, SOHO.

1826.

PRINTED BY G. HAYDEN,
Little College Street, Westminster.

ADVERTISEMENT

TO THE

SECOND EDITION.

Although sufficient time has not elapsed since the publication of the First Edition of this Work, for the practice which it explains and recommends to have become universally known and appreciated, the Author has abundant reason to be gratified with the reception which it has met with, both from the Profession and the Public.

Since that publication many remarkable cases have occurred, and several of them are now added to those previously detailed. They will be found to furnish further satisfactory proof of the unquestionable superiority of Moxa, *as a remedy in some of the most tedious and obstinate complaints to which the human frame is subject. The Author has confined himself to those diseases, with respect to which the new mode of practice has been tried by the test of experience, but it will be obvious to every one, that its sphere of operation cannot be thus limited.*

Besides the additional cases, further observations of an explanatory and theoretic character are introduced into the present Edition—the nature and effects of the remedies heretofore in use are examined more at large—diseases of the spine are much more fully considered—and the whole Work has undergone such correction and alteration as further experience has suggested.

4, Cleveland Square, St. James's,
August, 1826.

ON

THE DERIVATION

OF

THE WORD "MOXA."

"Nullum remedium prestantius est igne."

THE investigation of the original meaning of the term *moxa* is involved in much obscurity, and the opinions of many eminent men regarding it are contradictory, particularly of those who have attempted a precise explanation, according to the *use* to which it was first applied.

Dr. DUNGLISON, in an introduction to his translation of Baron LARRY'S work upon the subject, endeavours to shew, that it derives its origin from the Portuguese voyagers, who, were the first Europeans, that witnessed its application in local complaints.

The derivation of *moxa* is thus given* by Dr. DUNGLISON, on the authority of the *Dictionnaire*

* Introduction, page xxvi.

des Sciences Medicales. "The term *moxa* has been considered, by most authors, as a word of oriental extraction. PERCY and LAURENT, however, are of opinion, that it is to Europeans we owe the application of it to the substance, which forms the subject of this work. They observe, that the Portuguese were the first people, who called this mode of cauterization, of which they were witnesses, in India, China, and Japan, by the name of *moxa*. The people of these countries, they say, rolled or twisted small cords of certain vegetables, almost in the same manner as we prepare tobacco for smoking. Each one was provided with them, and when he wished to cauterize himself, a small piece was cut from the end of one of the cords, which was sometimes applied by the individual himself; but more commonly by regular cauterizers *(Xiu Kieu)*, and to which they set fire, in the same manner as smokers to their tobacco, which caused the Portuguese, who were witnesses to this operation, so novel to them, to observe, that they burnt themselves with a match, and consequently they gave the name of *Metchia*, *Motzchia*, *Moxia*, *Moxa*, *Meche*, as well to the operation itself as to the material which was employed for it.

"The word *moxa*, they elsewhere observed, is not to be found in the works of the Japanese and Chinese physicians, who called it *kieou*, and only use the term *moxa* before strangers, to whom they may wish to make themselves intelligible."

Before proceeding to an examination of the foregoing opinion, I shall observe, that a respectable writer, under the head of Moxa, in Dr. Rees's Encyclopedia, says, that it takes its origin from Japan, intimating, that it is a term used in that ancient nation; but he offers not the slightest explanation respecting its primary signification.

A recent tourist in Scotland has, incidentally, touched upon this subject, in a way rather ludicrous, but still in a manner not quite irrelevant to the point in question.

Dr. M'Culloch, the gentleman to whom the allusion is made, in apologizing to the Highlanders for applying the term *muck* in describing the *dark-coloured filth* around their cabins, offers a consolatory remark, that *muck*, instead of signifying any dark substance, ought rather to be understood, as in the Eastern parts of the world, to signify something *white, like cotton*, thus, "*mok*, or *mokh*."

However well informed on the subject the above writers may appear, it will be more in conformity with the design of this publication to present the reader with an explanation which seems to me, at least, more satisfactory than any of the foregoing, because it touches the subject somewhat more closely.

In a recent edition of Richardson's Dictionary of *Persian, Arabic*, and *English*, edited with great ability (1806) by Dr. Wilkins, in vol. i. p. 881, may be found, "*muhk*, abolishing, cancelling. Burning, being scorched. Not having the blessing

of God." In the next page may also be found, "*mahkuk*," erased, cancelled.

The facility with which the Persico-Arabic language, according to the intonation with which it is spoken, assumes variety of signification, from the slightest change in the oral organs, is universally known; and, as the Portuguese had the earliest communication, in the course of commerce, with the nations in which that language was universally used, it may be supposed, without a great stretch of imagination, that they carried with them some of the most material terms of the language, to serve as a medium of communication with nations further to the eastward. Hence their intercourse with the people of China, Japan, &c. The *muhk* of Arabia or Persia might have served them to express their knowledge of that practice, which they had observed in those countries, substituting their term *moxa* for the Chinese *kieou*. This construction is clearly borne out by the fact quoted in Dr. DUNGLISON'S introduction before mentioned; for it is therein stated, that the word *moxa* is used by the Chinese and Japanese only before strangers, "*to whom they may wish to make themselves intelligible.*" As no such term occurs in the writings of the physicians of China or Japan, the conclusion may be fairly drawn, that the word in question was brought in by strangers, probably by the Portuguese or Dutch.

There is strong reason to suppose, that the word *moxa*, as applied to the use of the material, served

to express the action of intense heat; for the Portuguese, who were witness in China to this operation, observed, that the people *burned* themselves with a match. It may be also observed, that the Arabic *u* is of the same sound as the short *o* in English; hence, whether written *muhksa*, or *moksa*, it is still the same term *moxa*, in pursuit of whose origin I have trespassed so long upon the reader's attention.

HISTORY OF MOXA.

THE word *moxa*,* according to the inhabitants of *China* and *Japan*, designates a cylinder formed of a cottonous species of *mugwort (Artemisia Chinensis)*. The date of its first introduction into notice, as a *therapeutical* agent, is not to be found amongst the records of its history; but at the earliest period to which it can be traced, it was considered an infallible remedy in the cure of many diseases, particularly gout, chronic rheumatism, and nervous disorders.

From China and Japan, *moxa* was introduced into the western part of the continent of *Asia*; thence, amongst the Chaldeans and Egyptians, by whom, in progress of time, its use was in some degree modified. From these ancient nations this remedy was conveyed into Europe, where, occasionally, or rather in proportion to the success of the practitioner who employed it, its virtues have been recognised or discredited. Its efficacy, however, has been acknowledged by almost every nation; yet

* To prevent misconstruction, on speaking of the *application* of *heat, caloric, fire,* or *moxa,* they are all to be considered so many expressions meaning the same thing; as the most ancient writers have not confined the latter word to any specific matter.

the mode of preparing it for use, as well as the manner of applying it, have much varied.

The *Chinese* formed a small pyramid, by rubbing the dried leaves of the mugwort between the hands, for the purpose of obtaining the cotton from the fibrous part; a little very fine tow being made to project from its summit, which latter being lighted, the material was allowed to burn down gently. The Indians were accustomed to form theirs of a species of rush, which was permitted to burn down in the same manner. The Persians employed goats' dung, dried and rolled into cylinders. The Armenians, the agaric of the oak. The Thessalonians made use of a particular moss. The Laplanders employed birch wood, in a rotten and phosphorescent state. The Egyptians, we have reason to believe, were the first who had recourse to cotton, and the civilized nations of Europe have successively adopted this material, with some modifications.

We have the testimony of Hippocrates, that the wandering Scythians were in the habit of cauterizing the shoulders, the arms, the wrists, the chest, the haunches, and the loins, for the purpose of dissipating rheumatic fluxions, which weakened those parts, and lessened their powers in bending the *bow*, or hurling the *javelin*. It is stated by Linnæus, that the inhabitants of Swedish Lapland, having no physicians, had recourse to no other remedy than fire, which was used with particular success in all complaints, accompanied by any degree of external

inflammation. Such, for example, as ophthalmia, tooth-ache, affections of the head generally, and pleurisy. Prosper Alpinus asserts, that the actual cautery is regarded by the Egyptians, and still more by the inhabitants of the desert of Arabia, as a *panacea*. Amongst those people, numerous persons are to be met with, bearing extensive cicatrices, from burns inflicted on various parts of the body; and with them the system is valued as a most important secret; important, because it effects cures in cases which resist all other remedial and medical expedients. In China and Japan *moxa* is in such general use, that, according to Kempfer, those who are careful of their health employ it at least once in six months. Ten Rhyne states, that in those countries the custom is so general, that even the culprits condemned to perpetual imprisonment occasionally enjoy the privilege of temporary liberation, for the purpose of participating in the benefits of the operation. The Japanese, it is said, in general, bear so many traces of the application of this supposed specific to the back, that it appears to have been entirely scorched. Each side of the spine, extending to the loins, is the part ordinarily selected by these people. The same means is frequently practised by the negroes of New Guinea in cases of epilepsy.

Thevenot and Belloni inform us, that the Turks and Armenians attach the greatest importance to *moxa:* and the first historians, upon describing

America, after the discovery of the New World by Christopher Columbus, attest that the employment of fire was not less known to the inhabitants of that vast continent than to those of the old world.

The use of cauterization was almost universal amongst the immediate successors of Hippocrates, who extended the practice in a very signal manner, and thereby obtained the most satisfactory results in the treatment of many maladies, which could not be otherwise controlled. The same practice became general also amongst the Romans at the epoch when the Greeks unveiled to them the mysteries of the arts and sciences, and particularly those of physic.

Celsus recommended the use of fire in a great number of cases, but with that wise circumspection which his writings universally evince; and it was said of him, that he conducted the application of the remedy with a degree of pusillanimity; a circumstance which has been attributed to deficiency of anatomical knowledge.

The modern Greeks, in their different schools, have not neglected to inculcate the burning system. Archigenes, Aetius, Aretæus, Paul Eginea, Tralles, Antylles, and Cælias, Aurelianus, &c. have each called forth merited eulogium, by contributing to perfect the practice.

The art of cauterizing attained the highest degree of celebrity amongst the Arabs, till, by frequent

abuses and misapplication, it at length lost much of its reputation. Albucasis, in particular, speaking of the miraculous powers of heat, says, in seeming extasy, that he considers it a universal specific for all complaints; he enumerates more than fifty species of disease wherein he avers that its employment has been attended with success under his direction. He used more circumspection, however, than many of his compatriots; for instance, Rhagès and Ali-Abbas, in whose methods he points out numerous errors. Cautiously avoiding blind empiricism, he saw the propriety of taking anatomy for his guide in the application of a remedy so singularly efficacious. In the course of his inquiries he made use of the valuable observation, that the direction of this remedy demanded, on the part of the surgeon, address, experience, and an exact knowledge of the constitution of the patient; such as the state, the cause, whether arising from accident or otherwise, and the time when the disease had commenced, and consequently its duration. But, unfortunately, he multiplied to excess the modes of cauterization, and the cases in which it should be employed; and his servile imitators, being deficient in anatomical knowledge, dared not to diminish the number. This inconsistency increased, and the judicious application of fire, in consequence, became less generally adopted. Guy de Chauliac made such constant objections to its use, that it was much neglected in his time; notwithstanding the useful precepts of Am-

boise de Parè, the prudent circumspection of Fabricius de Aquapendente, the efforts of Spigelius, of Scultet, of Glandorp, and finally the remonstrances of Marcus Aurelianus Severius, one of the founders of modern surgery.*

Such was the effect of this change, that the practice of using fire entirely died away, and an epoch arrived when the actual cautery was not known, except as an instrument which attested the cruelty of the ancients.

The celebrated Dionis used every means to suppress this ancient practice in France, and our countryman Sharpe, it is said, was not less active in labouring for its extinction in England. After Dionis had succeeded in his wishes, the mentioning even of fire was offensive, till, Pouteau undertaking to translate Prosper Alpinus, the Egyptian method was introduced into France.

The prejudices, however, which it had to contend against induced its advocates to represent it under the most seducing aspect; exaggerating its virtues, they described it as by no means painful, except when applied to excess: these misstatements were, of course, injurious to the character of the remedy.

In the year 1755, the Academy of Surgeons, in France, with a view of ascertaining the real advantages of fire in the healing art; the cases in which it was most likely to be successful; and the most

* Sydenham was, perhaps, the only man of consequence in this country who made much use of this remedy: he employed flax.

efficient mode of applying it, instituted certain inquiries for the purpose. Professor Percy was elected to report from experiment and practice. Various modes of applying heat, from the concentrated rays of the sun to the actual cautery, were put into requisition; but as a full detail of the measures adopted would be rather tedious than useful, it may suffice to state here, that the investigation was favourable to the reputation and revival of this ancient remedy. Thus was again brought forward the most powerful and successful agent which we possess in the treatment of chronic disease.

In this country, till very lately, *moxa* was known by little more than name—a name too, which, from the impression it conveyed, was not likely to recommend it to general notice. Such indeed is the severity with which the operation is performed on the continent, where the remedy is in common use, that the objections urged against it in England, both by practitioner and patient, are not much a matter of surprise. The circumstance of deliberately and slowly burning a part till an eschar is formed, must ever bear the semblance of rudeness and barbarity, whatever may be the result of the process. This, however, is not the only objection; another of far greater consequence exists, namely, that *moxa*, when applied to the extent and rapidity of a cautery, is not capable of effecting the same or equally important purposes which a gradual or slow process has the power of doing. This idea was conceived

from a physiological consideration of the action of heat on the human body at various temperatures, and gave rise to a modification of practice, in which the author feels borne out by the result of the following extraordinary cases. That many of these cases offered obstinate resistance to every chirurgical agent except the one now under discussion, will perhaps be considered the best proof in favour of the remedy, and of the mode of applying it, hereafter to be explained.

For a more detailed account of the mere history of *moxa*, and the present mode of using it in France, the reader is referred to the *Dictionnaire des Sciences Medicales*, where much labour and research have been bestowed upon the subject; and to DUNGLISON'S translation of BARON LARRY'S work, in which an extensive and interesting account is also given. But as the plan to be exhibited here differs *in toto* from that alluded to, further comment is unnecessary, except by way of occasional illustration.

ON THE

PHYSIOLOGICAL ACTION,

AND

GENERAL NATURE OF HEAT.

PHILOSOPHERS have beautifully illustrated many of the phenomena resulting from the action of *caloric*, under various circumstances of its application to matter, whether of the animal, vegetable, or fossil kingdoms. But it is somewhat extraordinary that this, the most powerful agent in nature, is so little studied as it applies to *pathology*, and the treatment of chronic disease. It is true, our French co-temporaries have given abundant proofs of the practical advantages of heat, mechanically applied to the human body; but they have left entirely unexplored the *physiological* action of this powerful material.

In order to take even a brief and general view of this subject, it is necessary to offer a few observations upon the nature of the muscular fibre and its probable mode of action in the performance of its functions, in which some consideration of the *modus operandi* of nervous influence becomes necessarily involved.

In the investigation of all the more mysterious operations of nature, where truth cannot be fully

established by ocular demonstration, we are reduced to the necessity of inferring from analogy, and thus reconciling the understanding to conclusions which would be more satisfactory if more obvious.

It is acknowledged that the *loco-motive* muscles are under the immediate dominion of the mind, through the medium of the nerves—that sensibility is the direct offspring of the nervous system—and that any interruption to the communication of this important power would be extremely injurious, if not fatal, to the life of the part so deprived of it.

I do not deem it necessary or consistent to enter into a review of the different opinions and hypotheses recorded since the days of the immortal HALLER up to the present period; but simply confine myself to such of the doctrines taught in the schools as apply more particularly to the subject in question.

Without entering into an inquiry as to the immediate arrangement of the muscular fibre that gives rise to the faculty of contraction which is so conspicuous: it is sufficient to state that it is such as to render the fibre peculiarly susceptible of nervous influence—so much so, indeed, that it frequently manifests the effects of that influence for some time after the entire destruction of all nervous communication. The question of importance which presents itself here is, to what should we attribute the communication of that faculty which has thus been acknowledged to be derived from the nerves, and which has obtained the different appellations of nervous power,

nervous force, nervous influence, &c. &c. The opinions of modern date are reduced to a few suppositions, namely, the supposed existence of an etherial spirit in supposed tubes in the nerves, and a consequent undulatory action in such imaginary fluid. Secondly, vibration; and lastly, electrical action. Each of these doctrines has its partizans in the present day; I shall, therefore, offer a few remarks upon them respectively.

With reference to the first idea, it may be remarked, that nerves consist of compact bundles of minute fibres—so minute, in fact, that with the most delicate hands and instruments not the slightest appearance of tube has ever yet been *demonstrated in this country;* nor is the eye capable of following up the division of the fibres to that fractional nicety with which a nerve appears to be arranged; and the use of the microscope is more likely to deceive than assist us in the examination of such minute objects.

The doctrine of vibration is not more tenable. Vibration, in the first place, is an action which can only take place where there is space to afford free motion: it is, in fact, performed by giving motion to some tense pliable material. This motion is impossible in a nerve, cushioned as it is on all sides, and buried, as it were, in soft fleshy matter.

Electricity is the third and last power to be observed upon, as a supposed means of nervous communication; and here I would observe, that no convincing proof has yet been given that this is not the

real and efficient cause of that phenomenon. This hypothesis is not open to any similar objections to those which have been urged against the others, and, therefore, merits further attention.

We are aware of the rapidity with which the will is communicated to a *loco-motive* part—that the communication of an idea, in fact, appears to be simultaneous with the generation of it; and that the evidence of contact between a foreign material and any part of the surface of the body is conveyed to the mind in a like scarcely imaginable time. We know, also, that dead animal matter may be made to exhibit the phenomenon of contraction, by submitting a communicating nerve to the action of electricity or galvanism. No other power is capable of effecting this. It does not appear unreasonable, then, to suppose that a power so peculiar, and at the same time so conspicuous, even after death, should be the direct cause of the faculty observed to exist in the nerves during life; and if this be the case, it does not seem strange that the moderate application of heat should be productive of such signal effects, as will hereafter appear due to it, in the restoration of impaired functions in the muscular fibre.

It has been stated by the chemical physiologists, that nervous communication depends solely upon the free distribution of caloric, and some have maintained, that contraction is entirely owing to the presence of heat. These assertions, however, amount to nothing—heat undoubtedly has much to do with

the phenomenon in question; but it certainly is not to be looked upon as the exclusive cause of contraction, as may be readily proved.

If heat were the exclusive cause of contraction, the natives and visitors of hot climates (if not in a state of constant rigidity) would be possessed of muscular energy to a degree far exceeding that of the inhabitants of colder latitudes; but, as is well known, to those who have had personal opportunities of observing, the very converse is the fact—a fact which may be made familiar by drawing attention to the comparative size of the hands and feet during the extremes of winter and summer. The above parts being remote from the centre of the circulation, and much exposed to external impressions, best exemplify this. In winter, these parts, in many instances, will become so shrunk and diminished in volume from the state observed in summer, that the same shoes and gloves will no longer fit; if these same parts be submitted to the action of hot water, their size will be greatly augmented: and the power of the warm bath in removing spasm by its relaxing nature is too well known to require any comment.

As therapeutical measures, heat is applied to relax and cold to constringe. In *hernia*, both are sometimes employed successively; the one for the purpose of dilating the parts forming the stricture, the other for the purpose of lessening the volume of the part strictured.

In cold weather we find the skin constricted, and

a consequent diminution of cuticular discharge. The urinary apparatus becomes spasmodically affected from sympathy, and this, added to an increased momentum given to the organ by means of the suppressed discharge of the skin, causes frequent evacuations. In warm weather, on the contrary, the pores are open, the surface is moist, and there not only is not the same quantity of fluid determined to the bladder, but from the relaxed state of that organ there is not the same urgent necessity to evacuate.

These are the general effects of heat and cold of which hundreds of examples might be cited.

I am aware, that if a part be submitted to the actual cautery it will certainly and permanently contract. Here the magnitude of the part will necessarily be lessened; structure and actual substance will be destroyed; but this is not the natural or ordinary effect of heat, and cannot fairly be urged in favour of the theory, that heat is the cause of contraction.

A somewhat analogous result to that from the actual cautery may be produced by exposure to the extreme of cold—if a limb be submitted to the action of intense cold during a certain time, collapse of its vessels will take place, and a diminution or total obstruction in the circulation will next follow; and if this be continued for a still longer period, the atony of the vessels will become so great that blood can never again be solicited to the surface; and the

whole of the part, thus deranged, will eventually perish.

From all this, then, it must be evident that heat, far from being favourable to contraction, is productive of relaxation; a consideration which is to be viewed as important in illustration of the principles of practice about to be developed.

It is acknowledged, that every thing in the physical world contains more or less of this material, and that in proportion to the degree of sensible heat present in matter, of whatever nature, the respective terms of hot, warm, or cold, are admissible; more properly as qualifications of the effects produced upon our bodies and our sensations, than of the extent to which such matter may be actually charged.

Some bodies are capable of bearing a higher temperature than others, without suffering decomposition; and all are liable to be differently influenced under different circumstances. Others, again, are affected with more difficulty by excitation, which is one of the means of producing heat; and yet, when excited, attain to an infinitely higher range of thermometrical indication. Some bodies, being bad conductors, are quickly influenced to a limited extent, and are therefore more gradually consumed; whilst, on the other hand, the reverse is the case with good conductors of a more dense texture.

Viewing also, upon inorganic substances, the extraordinary powers of heat in effecting such changes, as fusion, expansion, and even a separation of some

of their component particles, is it not rational to expect an equal variety of results from the action of a varied temperature on organic or living animal matter; and that these results will have a tendency more or less favourable towards the cure of disease, depending on the physiological nature of the part acted upon, the intensity of heat applied, the degree of structural or functional derangement previously existing; and, finally, the happy exercise of that judgment to which a full consideration of the foregoing circumstances will naturally lead?

Many familiar instances might be given of the effects of heat artificially employed in hot-houses; or let this be exemplified by viewing nature in her more simple state, when, from the genial powers of approaching spring, trees change their foliage, the feathered creation its plumage, and all animated nature appears to be re-inspired. With what comparative rapidity man and other animals come to a state of maturity in tropical climates; and, from the same cause, how vastly superior those countries are in point of natural fertility to those in which a less equal distribution of heat is experienced. This element, although it may, from a variety of circumstances, change its effects, is still unalterable in its laws. It uniformly excites a more active circulation of the vital fluids in animal or vegetable matter, and thus contributes to a more healthy and rapid organization of its structure.

It is by attending to these unerring laws that the

horticulturist preserves his tender plants from accident and exposure, which would otherwise destroy them; and that he is enabled to unite many virtues, and produce a variety of fruits from the same tree. The powers of the surgeon are not less conspicuous in the application of these laws to the healing art; as, from his knowledge of the inherent effort in the animal machine to repair loss, he can greatly facilitate regeneration by a wise adaptation of injured parts.

The first result of heat is an increased impulse and vigour imparted to the heart and arteries, which may or may not terminate in inflammation, according to the peculiarities of the subject himself: be this as it may, after a longer or shorter duration of the exciting cause, the same individual becomes less susceptible of fever. A languid circulation, want of energy, and relaxation of all the powers is the consequence; and if, perchance, febrile symptoms afterwards set in, they will ordinarily depend upon topical, not general, excitement.

Cold, in like manner, produces its varieties—varieties which eventually have nearly the same tendency as those of heat.

The first effects of a moderate degree of cold are an increase of energy and vigour; but, if the temperature be lowered, and the period of its application prolonged, the case will be widely different.*

* On the north coast of America, and in the North Seas, a sudden cessation of vitality in an exposed part is common; and

The heart has now to contend with redundant blood, which may destroy life if the cause be long continued; but if Nature, in her struggles, succeed in establishing reaction, then the blood is determined with violence towards that part upon which the cold had longest operated; and there, the resisting power of the vessels being lessened, inflammation necessarily sets in, and assumes a character referrible to the existing predisposition of the subject.

Thus cold, like heat, may produce an increased or diminished action, or both, precisely in proportion to the modifications used in its application, and the period of exposure.

As the first projectors of the utility of heat in the treatment of disease, we are indebted to the untutored Indians, and savage Africans, who have practised its application from time immemorial; but, like every other discovery, not boasting of professional origin, and consequently not generally recog-cognized in civilized nations, a knowledge of its advantages has been but little sought after by the faculty, more particularly in the British empire.

The action of *moxa*, according to the usual mode of applying it in France, has been accounted for by Barons Percy and Larry in their respective writings on the subject. It is imperative on me, however, to state my ideas on the operation of this remedy, since the mode adopted by me differs essentially

mortification, ending in the loss of a limb, or the patient's life, but too frequently occurs.

from those hitherto practised. Indeed, the mode of applying this agent, which has proved most serviceable in my hands, bears almost as little resemblance to the original mode as heat does to cold. It may be questioned, then, with propriety, why the word *moxa* has been retained as expressive of a practice so different in its nature from that which it was formerly understood to imply: this has been to myself a matter of some consideration, and has led to investigations which have satisfied me, that the word *moxa* is very indefinite in its tendency—that, in truth, any substance applied, *therapeutically*, in a burning state to the surface of the body, is entitled to that designation; and that it implies nothing definite with regard to the degree of intensity with which the agent may be employed. A knowledge of these facts then, and a great objection to the introduction of novel words, which might not be less obscure in their meaning than those in use, have induced me to retain the present expression as sufficiently indicative of a practice which, to be perfectly understood, must be more particularly inquired into.

To proceed, then, with a definition of the original plan, Baron Larry, the most distinguished modern author on the use of this remedy, says,

" Les propriètes du *moxa* sont differentes de celles du cautère metallique (fer rouge) dont les effets paraissent se borner au point touché par le feu. Cette partie est desorganisée a des degrés plus

ou moins etendu, selon le volume, l'epaisseur du cautère et la force de son application.

" Elle est accompagnée d'une douleur vive, brusque, que le malade supporte avec peine, et quelquefois elle est suivie de la destruction des nerfs sous-cutanes et d'une suppuration extrememment abondante, tandis que le *moxa* qu'on fait bruler lentement est moins effrayant et que les douleurs sont graduées. Ce moyen d'ailleurs nous a paru communiquer dans les parties, avec une masse relatif de calorique, un principe volatil, tres-actif, que fournissent les substances cottonneusses, lorsqu'elles sont en combustion. L'excitation et l'irritation qui resultent de la combinaison de ces deux produits develloppés par l'insufflation, se propagent de proche en proche jusqu'aux parties les plus profondes, de manière à etablir l'action des nerfs affaiblis ou paralyses, à arreter le marche de la cause morbide établie dans telle ou telle partie. L'orsqu'on ne veut obtenir du *moxa* que des effets superficiels, on peut le laisser bruler sans se servir du chalumeau (c'est la methode de notre honorable colleague *le Baron Percy.)*

" Je tacherai d'expliquer les effets excitans du *moxa* en parlant des causes des maladies pour lesquelles il nous parait indiqué que le premier degré de chaleur cause au malade plutot une sensation agréable que de la douleur, laquelle se propage, se develloppe graduellement, et va ensuite en augmentant d'une manière progressive des dernieres dou-

leurs sont sans doute tres vive; cependant le sujet le supporte d'autant plus courageusement qu'il y est préparé, et qu'il sçait par experience, apres une seule application, qu'elles sont dissipées a l'instant même, par l'application immediate de l'ammoniaque."*

It will appear by this extract, that the favourable results anticipated from the application of *moxa*, by Baron Larrey, are supposed to depend upon counter irritation, and, perhaps, upon the discharge, excited by the manner in which he, and indeed all the surgeons, whose practice I have had an opportunity of witnessing in different parts of the world, are accustomed to apply this remedy. These are the natural conclusions, when the *moxa* is so conducted as to cause discontinuity in the neighbourhood of an affected part. It now stands, however, upon incontestible authority, that the application of this remedy has been successful in removing painful affections of *nerves*, where no surrounding or secondary irritation was produced; and where, consequently, discharge, or counter irritation, could have no particular influence. In my own practice, *the application is so mild as not to cause the slightest abrasion of the cuticle*, and yet it effects cures, after a failure of all the known remedies in such cases; hence it is clear, that counter irritation, or discharge, is by no means a necessary attendant

* Recueil, &c., p. vii.

upon its general employment. It appears to me, that there are cases in which *moxa* may be more serviceable by inducing secondary inflammation than if the application had been mild; but, I believe, that in ninety-nine cases out of a hundred, in which the propriety of that remedy is fully indicated, the supervention of local inflammation would be highly unfavourable to the success of the operation. In truth, when such is the result, it is necessary to discontinue the practice for the time being, and, consequently, there is an end to the fulfilment of Baron Larrey's idea; that a mass of caloric, and a very active volatile principle, which the cottonous substance is supposed to give out, is communicated to the affected part during combustion. When the measure is carried to a still more violent degree, forming a slough, for instance, the powers of the remedy are quite cut off; an obstructing medium being now formed between the caloric and the seat of the disease.

Much appears to depend upon the nature and situation of the part intended to be acted upon. If *moxa* be applied to the chest in cases of consumption, for example, in which Baron Larry has had the most extraordinary success, counter irritation would, no doubt, be serviceable; but such *disease* is widely different in its nature from a local disorder; the lungs may be operated upon in a secondary manner, as from the local excitement, and increased action of the vessels on the

surface, a less active circulation takes place in the diseased organs. It is in these, and in all *visceral* affections of a chronic nature, that the employment of *moxa*, to the extent of a caustic, appears consistent; where, indeed, from the great distance of the part affected by disease, the milder mode of conducting the remedy could not be effectual.* And, on reference to the modifications which I have deemed it right to adopt in the use of *moxa*, it may be stated, that the circumstance of occasionally witnessing failures, in the common mode of applying it in France, induced me to believe, that the means had been carried to excess; and that if it had

* In the case of a late medical friend labouring under consumption in the last stage, and in whose left lung I was led to believe, as well from an examination with the *stethoscope* as from the symptoms, there existed ulceration and hepatization, I was quite convinced that the application of *moxa* to the extent specified above, was serviceable: the sensation of obstruction in the left lung and difficulty of breathing were evidently lessened. Uneasiness on lying upon the affected side and sounder *sleep* were manifestly the result of each application. The patient, however, could not be prevailed upon to continue this, or any other remedy for a reasonable period; consequently, it is impossible to say whether or not further good would have been the result of further trial, at so advanced a period of this fatal malady.

In the case of a young man, a patient of the Middlesex Infirmary, who, eight years previously to application, had a fall from a high gate, and who suffered constant acute pain on each side of the sacrum, in the situation of the ligaments connecting that bone to the pelvis, rendering him at times unable to walk or follow his trade, *moxa*, to the extent of a *cautery*, was of more service than all the numerous remedies resorted to in hospitals and private practice during the above long period.

been so managed as to stimulate or excite the absorbents, without increasing the action of the arteries, the practice would have been more successful.

In the cases which have occurred to me, I have not often considered it necessary, or, indeed, judicious, to go beyond this rule; and experience has now convinced me, that it applies generally. The very rapid manner in which chronic swellings have been observed to subside, after two or three applications of *moxa*, scarcely causing discoloration of the part acted upon, decidedly proves that increased absorption is the sole cause of such change. It appears, under these circumstances, that the heat is just sufficient to dissolve parts recently organized from deposition of coagulable lymph, or morbid thickening of cellular substance, without affecting the circulation: that the absorbents, from the texture of their coats being so much more delicate, and being consequently more sensitive than those of the arteries, are stimulated with greater facility, and will take on a new action from the operation of a cause which would have no influence over the latter.

The number of *moxa* cylinders employed, and the duration of their application, should be regulated by the magnitude of the joint, or other part affected; and also by the particular degree of susceptibility present, and the duration of the complaint. As might be anticipated, *a priori*, much will depend upon the years of the patient—if of a very tender age, it will be difficult to apply this remedy. A

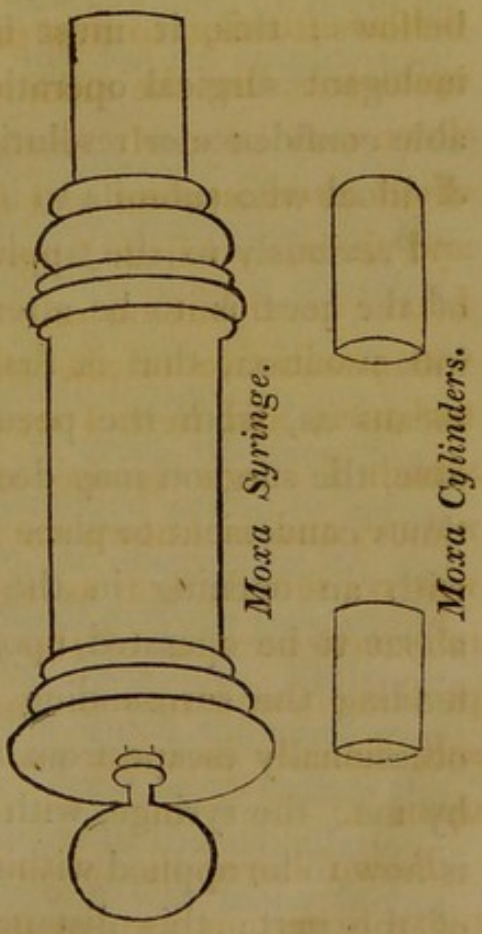
child, in whose case it is applicable, should be old enough to understand the object of its employment, in order to give it a fair chance of success. As the subject advances towards decrepitude, the remedy will have more to contend against from consequent greater rigidity of parts. A knowledge of these circumstances will assist the practitioner in his prognosis, but does not afford reason to interdict the employment of the agent at any period of life.

Another important inquiry regarding the remedy is, whether any particular state of health would properly exclude its employment: I have paid particular attention to this part of the subject, and my opinion is, that the modifications of *moxa* herein laid down may be safely employed during the existence of all circumstances and diseases, except pregnancy and fever, in which I have not deemed it prudent. I have never but on one occasion supposed that it was productive of the slightest constitutional disturbance, and here I was mistaken. The case to which I allude is one of a peculiarly interesting nature, and is known to Dr. JAMES JOHNSON, who was consulted; but as the subject of it is a well informed member of the higher department of the profession, and may be induced to publish it himself, delicacy prevents my making further comment upon it.

Baron Larry has objected to the application of moxa to certain parts or structures of the body, and his objections undoubtedly hold good when the

material is applied to excess; but, according to the mode which I have been in the habit of practising, restriction appears quite unnecessary; I have applied it over tendons and glands (parts to which the Baron has entirely forbidden its use,) and yet not the slightest evil consequence has been observed to arise from such application.

Various instruments have been invented for the purpose of applying *moxa*, all of which appearing inappropriate, I at length invented one, which, from combining simplicity and neatness, possesses all requisite advantages. It consists of a small brass syringe, having a valve so constructed in front as to permit the egress, but not the ingress of the air, by which the *moxa* cylinder, placed in a thimble like apparatus screwed on in front, can be excited at pleasure. The piston of the syringe may be gently pressed forwards and withdrawn without any risk of extinguishing the previously lighted cylinder in returning it for the purpose of admitting a fresh supply of air.



The instruments hitherto employed, besides having a formidable appearance, were otherwise objectionable; for, as the heat from the burning cylinder will vary in intensity at different times, it is necessary to increase or lessen the distance of the material employed, from the part upon which it is meant to act.

In the Parisian hospitals it is customary to employ a piece of tightly folded calico or linen, which, being set fire to, and held upon the part, by means of a pair of nippers, like those of a blacksmith, is kept lighted by a second person blowing from a pair of bellows; this, it must be admitted, is rather an inelegant surgical operation, and requires considerable confidence or resolution on the part of the individual who submits to it.

Previously to the application of *moxa*, the state of the part is to be attended to; and if there be inflammation, that is first to be removed by such means as, from the peculiar circumstances of the case, the surgeon may deem adviseable. It is sometimes convenient to place a piece of sticking plaister, with an opening in the centre, over the portion about to be operated upon, for the purpose of defending the surrounding parts from sparks, which occasionally escape from the composition employed by me; the syringe, with the lighted cylinder in it, is now to be applied within about an inch and a half of the part; this distance being increased or diminished in proportion to the patient's feelings: it

should be so applied as to cause a slight degree of pain, and the *moxa* is to be prevented from losing the necessary heat, by gently moving the piston. The patient will occasionally experience a sensation, as if the heat were actually passing through the centre of the part to which it is applied: sometimes itching or slight smarting pain will follow, which may be immediately removed by the use of a little camphorated liniment.

As regards the success of the remedy, much will depend upon the point selected for its application, and the judgment of the practitioner, in deciding whether the case be a fit one for its employment or not.

It is quite clear that to be uniformly successful in the application of this remedy, according to the modifications now under consideration, a considerable share of anatomical knowledge is absolutely essential; for it may frequently happen in practice that pain will be felt to a great distance from the precise part in which deranged action or actual disease exists. Pressure on, or obstruction to, the communicating power of a small nervous twig would give rise to this sympathetic deception. Violence, applied to a muscle possessing much influence over a joint, might produce such effects as to induce the belief that the mischief existed in the articulation; although the seat of obstruction was many inches distant, as might be the case in the *rectus femoris*, the *triceps extensor cubiti*, and many other such

commanding muscles. As relates to the mere mechanical part of applying this powerfully revulsive agent, no great degree of skill is requisite. Circumstances will occasionally justify changes which are to be determined upon by the judgment of the practitioner, rather than by any rules that could possibly be laid down here.

The diseases to which it is my wish to draw the attention of the profession by the present volume, are *chiefly* those of the joints, and it may appear superfluous, perhaps, to have recourse to much argument to prove, that those diseases, more especially in large cities, are above all others the most common, frequently the most difficult of cure, and always distressing to the mind of the sufferer. By these afflictions the otherwise happy days of youth are but too often rendered days of sorrow, pain, and anxiety; and a gloom is not unfrequently cast upon prospects of a worldly nature, varying in different persons only with the cause which had excited the ambition or hope of the suffering individual.

No part of the community is entirely free from these excessively distressing maladies: indulgence, and an improper mode of nursing, are conspicuous causes of them in high life; whilst poverty, want of care, and consequent exposure to accident, are never-failing sources of mischief amongst the lowest orders of society. Persons in middle life are less frequently victims to joint diseases than those of higher or of

lower rank. They possess all the luxuries necessary for a healthful constitution, and commonly engage themselves in avocations, which, employing both the mind and the body, materially contribute to improve the state of both: and, thus employed, they are not exposed to the equal dangers of excess and idleness, or poverty and inattention.

In bringing forward new remedies for the treatment of particular diseases, it is proper not only to advance strong testimony of their advantages, but to shew also that they are consistent with the principles of science.

The object of the following observations, therefore, will be to support upon system the facts which will be given in detail. The subjects of the cases hereinafter related, having been chiefly in high life, had the means of trying every mode of treatment that was deemed advisable by the first practitioners in this country; and some of them had opportunities of consulting the most eminent surgeons on the continent.

However important a different mode of procedure to the success of this publication might be, I forbear from stating the names (except those of the persons who have particularly authorized it) of the patients whose cases shall be cited; or of the deservedly respected and able physicians and surgeons, under whose management they were. It would, perhaps, be unpleasant to some of the former, and might bear the semblance of invidiousness towards the latter;

with this precaution, the allusion cannot—at least it should not, give offence, since it is only by comparison that the superiority of any remedy is to be decided; or, in other words, it is by employing different means in the same, or similar cases, that we are enabled to judge of their comparative advantages. It is to be hoped, however, that such precautions will soon be considered altogether unnecessary, and that the æra is fast approaching, when science and liberality will go hand in hand. Even now the change is considerable—professional liberality is frequently experienced—industry is the order of the day—and eminence is more fairly contended for. Medical men of genius no longer think it detracting from their dignity to add to their acquirements by the accumulation of useful knowledge, however obtained. The component parts of almost all the quack or patent medicines, have at length been detected, and some of these medicines have been wisely applied by the profession. The treatment of spinal disorders, which hitherto was in a great measure confined to the impostor, is now more taught upon scientific and true physiological principles: and the remedy of friction in the treatment of stiff joints, which only a few years back was held in contempt by the generality of medical men, is now practised by some of the best surgeons in Europe. Thus, the uses and abuses of concealed measures are daily exposed by the more uniform spread of scientific attainments—facts are received, but they are received

scrupulously—dogmas in medicine are giving way to the truths which are daily rewarding more vigilant inquiry—men now wisely borrow from all, yet in this they think for themselves, and cease to be the mere *automatons* of individual teachers. Mere fashion in medicine and surgery is fast losing that influence, which it so long maintained over the public, and thus our profession is becoming more respectable, as it gradually approaches to something like perfection.

CASES

TREATED WITH MOXA.

CASE I.

In 1821, whilst serving in India, Mr. R. H. C. now captain in the Royal Navy, had a severe attack of acute rheumatism, which more particularly affected the right knee. According to this gentleman's very accurate description of the case, there was violent inflammation at the commencement; the symptoms having been great swelling, redness, heat, tension, uncommon sensitiveness, and severe lancinating pain. Various remedies were employed to no purpose; and the frequent application of blisters, it was believed, did much mischief. On his arrival in England, his general health had suffered serious deterioration; the muscles of the leg and thigh were much wasted, and the knee was still enormously swollen. It was supposed, that the local affection depended upon a generally deranged state of his health, and that, by improving the latter, the former would subside of itself; so physicians of eminence were consulted, till at length good health was re-established; but without effecting the slightest improvement in the local disorder. The case being now altogether surgical,

he had the advice of those who in reputation justly stand at the head of the profession; each pursued his particular plan of practice, and each in turn pronounced the case one not to be cured. In addition to all the common, and more probable means of success, *Mahommed*, of Brighton's, shampooing and medicated baths were tried. In this way two years were passed: the chances of recovery being naturally diminished in proportion to the duration of the complaint: last of all, he was advised to relinquish every idea of public service—an advice which distressed him the more, as he was possessed of singular zeal and a laudable ambition to rise in his profession. Such were the outlines of this gentleman's case, and such were his prospects of recovery!

When consulted, I found the knee to be greatly enlarged, painful, and hot to the touch; the enlargement being the more conspicuous, in consequence of great wasting both above and below the joint. There was scarcely any action of the leg upon the thigh, and the patella had no apparent motion, being bound down, I supposed, by thickening and condensation of the cellular membrane with which it was surrounded. On each side of the ligamentum patellæ, immediately under the inferior margin of the patella, a hard mass of substance, about the size of a finger, and having a cartilaginous feel, greatly contributed to the fixed state of that bone; limiting the sphere of its natural action, and rendering its motion impossible. It was believed that a thicken-

ing of the ligaments, but particularly of the capsular, existed; and from the great degree of heat, as well as much sensitiveness, it was concluded that deep-seated inflammation was still going forward. With this impression, twenty-four leeches were applied, and the bleeding was kept up by hot fomentations. On the second day following, the heat of the part being still above the natural standard, twenty more leeches were had recourse to; the fomentations were again used, and on this occasion a large bread poultice was placed round the knee. After this, evaporating lotions were persisted in, till the temperature of the affected part was reduced to par. Fearing now a sudden reflux of blood to the numerous enlarged vessels surrounding the knee, small doses of digitalis were administered; this appeared to answer the purpose effectually, so the application of *moxa* next became the remedy for consideration.

A small quantity of the *Chinese moxa* having been procured, about the size of a hazel nut, compressed between a pair of common dressing forceps, was lighted and held as near the part as could well be borne, till it entirely burned away; and this was repeated three or four times on each occasion of its application, which at first was three times a week, varying a little the part over which it was placed at each repetition. To effect motion of the patella being an object of great importance, attention was more particularly directed to that. In general, therefore, the circumference of the patella was divided

into four portions, which were considered the most favourable for the action of the material under consideration.

After this apparent ordeal, which, in truth, was by no means painful, the knee was rubbed for fifteen minutes with camphorated oil; a flannel bandage was then passed with moderate tightness, for the purpose of keeping up whatever new action in the absorbents and veins the *moxa* might have induced. Finally, manual efforts were used to extend the limb; it being supposed that much of the stiffness depended upon a rigidly contracted state of the fibres of the flexor muscles. In a few days it was satisfactory to observe the advantages of this system; for although the improvement was, at first, so slow as to be scarcely perceptible to the eye, we had assured ourselves of its reality, by applying a scale in the ham, and marking it up to the point gained. The circumference of the knee was soon reduced; but the thickening of the cellular substance in the neighbourhood of the inferior portion of the patella was so indolent, that caustic issues were deemed advisable: these, however, did little except interfere with the more successful course, which had been previously commenced, and were consequently discontinued. Having expended all the foreign *moxa* which could be procured in London, recourse was had to the expedient of substituting a piece of folded calico, which, being lighted, was kept burning by means of a pair of bellows, after the manner in

which this remedy is usually applied in the Parisian hospitals; but this being objectionable, on account of the intense heat which it caused, as well as a most acrid and offensive smoke, a composition, resembling the Chinese *moxa*, was obtained from Paris: this secured the preference, and a similar preparation was continued.

Attention was directed to every part of the knee in which pain was felt, on making extensory motion, but more particularly to the patella, until it had acquired nearly as much freedom as in the natural state; at which time the muscles of the leg and thigh had filled out and flexion and extension were almost complete; in fact, the parts surrounding the knee presented nearly their proportionate form and original pliability: finally, walking, dancing, riding, and the hot baths of Brighton, were practised, as a wind up to the cure. For the last fortnight the *moxa* heat was applied daily, and its influence directed under the patella, by elevating its edge, and moving it as much as possible from its confined situation.

To show that *moxa* was the important agent of cure in this case, it is right to state, that blisters, camphorated mercurial ointments, mercurial plaisters, friction, shampooing, pressure from straps, the occasional application of leeches, and a variety of other well-known measures, had been separately and fairly tried, but without avail.

A few weeks after this gentleman had recovered

the entire use of his limb, he had the gratification to be again employed in the public service; and has since enjoyed the best of health.

CASE II.

Mr. L—— had a stiff knee-joint for nearly seventeen years. On examining it I found that the leg, as nearly as possible, formed a right angle with the thigh; there was not the slightest perceptible motion at the joint, and the patella was drawn up considerably above its natural situation, apparently united to the femur by an ossific union. The muscles of the leg and thigh were considerably wasted, and above the external condyle two extensive cicatrices bore testimony of much former disease.

It was stated, that when the complaint was in its active stage, the health suffered so seriously that life was despaired of, and the removal of the limb was frequently advised. At length, however, a favourable change took place; the health improved, and nature effected a cure at the expense of a stiff joint. Anxious to remove this, Mr. L—— first had recourse to Grosvenor's rubbing system, which was zealously persevered in three or four hours daily for a period of six months; but without its being of the slightest service. Ointments, liniments, and plaisters of various descriptions, the mud baths of Switzerland, and the baths at Brighton, with shampooing,

were amongst the vast number of remedies, which at different times were employed.

But little hope could be given or entertained in such a case as the above; yet, as it was impossible to say whether or not a *true anchylosis* had taken place, it was deemed right to make trial of powerful measures in addition to the application of heat; in furtherance of which I invented an instrument which I have named a *Genu-rector*, that may yet become of great importance with the medical public. And as none such, hitherto brought into notice, appears to possess the advantages of the one in question, namely, pressure without obstructing the circulation, a plate of it (No. 1) is given; and the following outline, descriptive of its mechanism, is deemed necessary:—

A board, about three feet and a half by eight or ten inches, raised superiorly to the height of the patient's chair, having let into its sides, at a distance to correspond with the knee, too strong wooden feet, or stanchions, by which it is fixed to the floor, and kept in that situation; the feet projecting about twelve inches beyond the part of the inclined plane with which they come in contact; and having cut into them, superiorly, a groove for the passage of, first, an excavated piece of wood, for the purpose of making pressure upon the knee; it being padded, to avoid pressure on the patella, and with the intention of throwing the weight equally upon the extreme ends of the bones forming the joint. Into the centre of this, superiorly, an iron socket is inserted, upon

which the extremity of a hand-screw acts ; this being steadied by passing it through a second piece of wood adapted to the groove, in the same manner as the one just described.

About the middle of the inclined plane are two other parallel grooves for the passage of four small brass castors, supporting a carriage, upon which the heel is intended to rest. When the limb is placed within the instrument, and its different parts applied, the patient has only to turn the screw till pressure is effected; at which time, if there be the slightest possible motion in the joint, it will be observable by the heel immediately starting from the force applied.

By the instrument thus composed, the anticipated result was realized in the most satisfactory manner on the first trial. Just as the pressure was increased, so did the heel, in proportion to the limited powers of extension in the knee-joint, gently glide along the plane.

From four to six *moxas*, more particularly round the circumference of the patella, were applied daily; and friction, with camphorated oil, thrice in the course of the day was practised: the limb was submitted to the action of the instrument, immediately after the application of heat, the degree of pressure being regulated by the feelings of the patient—this apparatus was used in general from one to two hours on each occasion of its being employed.

In a few days the patella acquired perceptible motion, which excited a faint degree of hope; enough,

at least, to induce perseverance. In a few weeks the motion of the patella was considerable; that of the knee was increased in suppleness, but in extent very little: this little, however, was of practical utility, as more than half an inch beyond the former mark upon the sole of the boot was now brought in contact with the ground in walking. Latterly, this gentleman, by himself, rigidly pursued the different modes of treatment which have been stated; and, at the expiration of four months from the commencement, the time when last I saw it, the patella was almost as free as in the natural state. The figure of the knee was greatly restored by reduction of its size, from the action of the *moxa*, but there was not sufficient extension of the limb to induce the belief that the case was not one of *true anchylosis; the slight degree of action noticed at the joint, depending, most probably, upon the pliability of the recently-formed connecting bone.*

This case is recorded, not on account of any great good which the patient derived from the use of *moxa*, but because it strikingly illustrates the wonderful powers of that remedy, particularly by giving free motion to the patella, which had been confined *seventeen years*. In my opinion, there is satisfactory evidence, that had this been a case of false, instead of *true anchylosis*, it would have been effectually cured by the means employed; and that cure would have been the result of a more timely employment of these means appears equally probable.

CASE III.

Mrs. S. after lying in, was attacked with inflammation in the lungs, which subsided on the supervention of a violent inflammatory affection of the left knee, to which suppuration succeeded: an abscess burst immediately behind the external condyle of the femur, and immense quantities of matter continued to escape for a great length of time.

When I was consulted, about eighteen months from the commencement of the complaint, the joint had been pronounced *anchylose*, and a surgeon of the first reputation, for whose opinion this lady had come to town, declared, that every effort to cure must be abandoned as injurious or useless, and recommended a high-heeled shoe. This decision, as may be supposed, coming from a man of eminence, greatly distressed this unfortunate lady, who, yet a young woman, and in other respects tolerably healthy, was now sentenced to be a cripple for the remaining part of, perhaps, a long life.

On minutely examining the joint, I could distinguish an extremely slight degree of motion; the patella was drawn towards the outer condyle, very considerably out of its natural situation; admitting, however, of being moved to a trifling extent. On the inner side of the knee there was considerable swelling, arising, most probably, from a condensa-

tion of cellular substance, and thickening of the capsular and internal lateral ligaments. Externally a cicatrix marked the original situation of the abscess, and bound down the flexor tendons, going to form the outer hamstring: this, no doubt, was also the cause of the patella being drawn out of its natural situation. There was no sensation of morbid heat in the knee, but so much sensitiveness in its anterior part, that any sudden concussion caused acute pain; in consequence of which she hobbled about her room but very imperfectly on crutches, being totally unequal to the task of going up or down stairs without being carried. In this case there was an apparent predisposition to increased arterial action, and sudden translation of disease; to repress which it was deemed advisable to administer digitalis, during, at least, the first week of applying heat; and as the stomach was delicate, some antibilious pills were afterwards prescribed. Five, six, and sometimes seven cylinders of the *moxa* were applied daily; after which the knee was *shampooed*, and friction, with a camphorated liniment, was next practised for about a quarter of an hour.

In a few days the limb felt stronger, and the lady could go up and down stairs by means of her crutches. An instrument similar to the one shown in plate 1st, was now recommended, by which gradual pressure, to any extent, could be effected. By using a little force, considerable extension of the leg could be made; great caution, however, was deemed

necessary, lest, from the peculiarity of constitution noticed in the early part of the case, secondary inflammation might be induced. The state of the joint, and the muscles connected with it, were so altered, that in a few weeks this lady was able to move about her room with one crutch, or leaning only upon her servant's shoulder. In this state of progressive improvement, after seven weeks of the above treatment, it was regretted, that, from family arrangements rendering it necessary to return to the country, this patient was lost sight of. I, however, learned, some time after, that motion in the joint continued to increase under the use of the instrument alone. The general health of this lady was undoubtedly improved by the increased action of the limb, attendant upon her treatment.

CASE IV.

Master Frederick Tryon, aged twelve years, had a fall on the 25th of April, 1823, when the right knee was wounded over the inferior portion of the ligamentum patellæ, by coming in contact with a sharp stone. He was immediately attended by a surgeon, but, from the depth of the wound, and the concomitant inflammation, it was not till the fifth week after the accident that he was able to walk out; and even then the support of a splint was deemed necessary.

On this occasion, he unfortunately fell twice upon the injured part, which produced immediate sickness of stomach, head-ache, and acute pain in the knee; succeeded by violent inflammation and high fever, which continued for many weeks.

From this time till the beginning of October, he was confined to bed by the successive formation of abscesses, both above and below the knee-joint; during which period, his health being in a most precarious state, a physician and surgeon were in daily attendance.

The abscesses being now healed, friction was employed till the following March, when he was removed to Hinckley, for the purpose of being nearer Dr. Hill, under whose directions and care he remained till February, 1825, wearing an instrument and using friction all that time to no purpose.

On the 14th of February, 1825, he arrived in town, and Mr. Brodie was called in; who, believing this to be a case for *moxa*, was so kind and liberal as to recommend its being placed under my care.

At this time, the leg formed a right angle with the thigh; the muscles of the whole limb were greatly wasted; the knee was much swollen; and there was no distinct motion to be felt either in the patella or the knee-joint. There was no pain in the limb, unless some violence were applied, when the most painful shock was experienced in the joint. In short, this was a case of anchylosis, such as I

believe most surgeons would have given over, as one for which nothing could be done beyond the recommendation of a high-heeled shoe.

The case, however, proved to be that species of anchylosis, which by medical men is termed *false*, although at first sight there was strong reason to believe that ossific union of the patella with the articulating extremities of the bones forming the joint, (a state which constitutes what is termed *true anchylosis,)* had actually taken place.

The treatment decided upon, in which I had the sanction of Mr. Brodie, was the application of *moxa* to the joint once daily, the use of friction, and the application of steam twice daily: the former continued an hour, the latter half an hour, on each occasion of being used.

This practice was continued for some weeks, when slight motion of the joint was produced, and all sensitiveness and pain on exertion were removed. It was now but too evident that these measures, alone, were not equal to the cure of the limb: I, therefore, suggested the use of the instrument, termed a *genu-rector*.

An interval of a month, from an accidental circumstance, now unfortunately took place between the applications of the *moxa;* the instrument being still in preparation. In the mean time, much of the advantage which had been gained was lost by retraction of the muscles; the only remaining perceptible good from the previous treatment being that

of the removal of all pain and morbid sensitiveness from the joint.

On the 23d of June, the instrument being completed, it and the *moxa* only were used: the instrument thrice daily, an hour each time; the *moxa*, once a day, was applied to the whole track of the articulation, but especially round the edges of the patella.

In a short time, the advantages of the above practice were apparent: the knee became lessened in size, and the muscles of the leg and thigh began gradually to swell out, as the joint became acted upon by the revulsive powers of the *moxa*, and the extending powers of the *genu-rector*. A great evil now was the strong power of contraction which the muscles manifested, on a removal of the above means of temporary extension. To remove this inconvenience, an ingenious instrument, manufactured at Hinckley, and which had been used, previously to Master Tryon's having been put under my care, for the space of twelve months to no purpose, was at this period of the treatment brought into requisition, and proved particularly serviceable by keeping up the extended position, which was gradually obtained by the other more powerful agents, till the limb became perfectly straight.

At this time, it was not a little remarkable that the patella had yet acquired but an extremely limited motion, and that flexion was also proportionately confined. To produce a straight limb, how-

ever, was of the first importance; and, as motion could not be obtained without retarding the first process, the latter object was considered of secondary consequence only: finally, therefore, the Hinckley instrument was only used occasionally, when, in fact, it appeared necessary to counteract the disposition to contract, which still affected the muscles in a slight degree.

For the last few weeks of my attendance, much walking and marching were practised, in addition to the means enumerated; and, last of all, motion was excited in the joint by means of swinging the limb, a heavily-loaded shoe having been appended. Since the commencement of the last process, the return of motion in the joint, though slow, was regular and progressive; a decided amendment being evident on each succeeding day.

The inferior portion of the patella was now quite free; but, from the superior angle being bound down by apparent condensation and thickening of the capsular ligament from former inflammation, a peculiar kind of semi-rotatory motion was produced; the bone turning upon its own axis, as if on a pivot.

I have lately seen this young gentleman, and he now walks so well, that, to the eye of a stranger, no lameness is perceptible; the patella has acquired considerable motion—he runs as fast as most of the boys at his school; and I feel quite confident that the joint, in a short time, will have, if not full, at least sufficient motion for all useful purposes.

In conclusion, I would beg to make one or two observations on the pathology of the knee-joint, which, I think, bear upon an important question relative to its functions, when perfectly free from disease. In the healthy state, it is generally believed, and taught in the anatomical schools, that free motion in the patella is essential to action in the joint; nay, that, if there be any obstruction to the action of the patella, motion in the limb must, in consequence, be rendered impossible. Here, however, we had motion in the joint, when action in the patella, if any existed, was extremely doubtful.

Still the motion of the joint continued to increase, which induced a stricter investigation of this subject. If the leg be moved upon the thigh,—that is, if flexion and extension be alternately performed, it will be found that the patella, contrary to general opinion, is quite passive; that it is only the articulating ends of the femur and tibia which act; that the patella is then a fixed point, and that this bone does not move unless under the circumstance of perfect extension of the limb, when it may be moved in all directions with the fingers. This may be more fully illustrated upon the dead subject, on elevating the leg, by pulling upon the rectus femoris, without materially altering the position of the patella. This being the case, then, it is clear that, if even ossific union should take place between the femur and patella, motion might still be effected by an increased

power in the lateral portions of the capsular ligament, acted upon by the natural contraction of the fibres of the rectus femoris; provided, however, that no similar pathological change existed between the tibia and inferior portion of the patella.

I may be permitted to add, in confirmation of the above statement, that during the interval, already mentioned, between the applications of moxa in the early part of the treatment, Mr. Bacot saw the limb when it was nearly in its most contrated state, and that he has seen it recently, since much of the effect of that treatment has been experienced.

CASE V.

In February last, I was requested to meet Mr. Guthrie in the case of Mr. J. a young gentleman, aged 18, who had laboured under lameness in the right knee-joint, for upwards of five years. All hopes of cure had been long given over, till, having heard of the preceding case, his friends were induced to bring him to town, in order to ascertain what could be done.

On examination, the affected knee was found to be slightly enlarged, and the muscles of the whole extremity were considerably wasted; the leg with the thigh forming an angle of about forty-five degrees, beyond which it could not be extended by manual efforts.

The complaint was stated to be the result of an accident, which brought on violent inflammation and abscesses, that had endangered the life and limb of the patient. The prospects held out, after consultation, were so slight, that Mr. J.'s friends did not then determine on placing him under my care. On the following day, however, I was requested to try what I could do. *Moxa* was forthwith applied, and as soon as a *genu-rector* could be made, it also was put into use. The *moxa* and instrument were applied twice daily; the duration and action of the latter having been regulated by the feelings and effects produced. On the second day, an improvement was apparent, and this increased regularly, till, at the expiration of three weeks from the commencement of the treatment, the limb admitted of being made straight under the instrument; and, in walking, the heel came in contact with the ground, the knee being very slightly bent. At this time Mr. J. returned to the country, where he continued the use of the measures described.*

* Since writing the above account, I have had an opportunity of seeing Mr. J. and of learning from himself, that he had succeeded in bringing the leg perfectly straight, even out of the instrument, but, unfortunately, when the limb was in a state of exhaustion from exertion, he had a fall, which re-produced inflammation, from the effects of which he had not then recovered.

CASE VI.

The introductory part of the following case is the verbatim description of the intelligent young lady in whom it occurred.

"It was in February, 1819, that I first felt pain in both legs, accompanied by frequent cramps and stiffness in the knee-joints, when rising from my chair or sitting down. As I did not meet with any accident, it was supposed to be rheumatism, produced by cold caught after over-exertion in dancing, or from having slept in a damp bed. There was no outward inflammation, swelling, or pain, any where on pressure; but sharp shooting pains from the knee downwards, and always much increased on change of weather. By rubbing the parts affected with opodeldoc, essence of mustard, &c. and removing from Scotland to Clifton, in the month of November of that year, I got better, and continued free of the complaint till February, 1821, when it returned, but was solely confined to the right leg, which, from being frequently sprained at the ankle in my childhood, was always the weakest limb. Since that period it has continued without intermission, and has gradually become worse. I again had recourse to stimulating oils and friction, with sea-bathing in the summer; the pain remained the same, but the leg and foot swelled considerably,

especially towards night, though not the slightest inflammation ever appeared. When I walked I had a good deal of uneasiness in putting the heel to the ground, and consequently always had an inclination to walk on the toe, though at this time there was no apparent contraction of the muscles. In November, 1822, I was recommended by a medical friend to apply a blister to the outside of the knee, which I did, but was not aware of the necessity for keeping the leg extended while the blister was open, and naturally kept it bent as the easiest position: when I again attempted to walk, I found the leg was much contracted, and the heel two inches from reaching the ground. The contraction gradually increased, but the swelling abated; and the medical gentleman who attended me advised my wearing a high-heeled shoe, which I did for eight months, and found it decidedly tended to confirm the contraction. Several of the most eminent surgeons in Edinburgh were then consulted, and it was agreed the high-heeled shoe should be discontinued. Various remedies were now tried, such as hot sea-water bath, shower bath, hot water pumped on the limb from a garden engine, vapour bath, leeches, friction for three hours in the day, &c. but had no other effect than that of injuring my general health, which till this time had been wonderfully good, but I at last became very weak, had severe pains in my arms, and difficulty in keeping myself erect, which led my friends to suspect that a weakness in the spine had

perhaps occasioned all my complaints, therefore a physician in Edinburgh, who is reckoned skilful in diseases of the spine, was consulted, and gave it as his opinion, that the contraction of the leg was entirely caused by weakness of the spine, and as such he accordingly treated it from March till October, 1825, when, finding myself getting still worse, both as to the contraction and the delicacy of my health, my friends determined on my removing to London, in order to consult the most eminent surgeons there respecting my complaints."

On Miss C's arrival in town, Doctors SOMMERVILE and MACLEOD took the advice of Mr. BRODIE, who, believing the case to be beyond all other means, suggested a trial of *moxa;* I was accordingly consulted, when, with the concurring sentiment of those gentlemen, the curative process hereafter to be described was immediately entered upon. The state of the limb was as follows:—the leg formed a right angle with the thigh; the knee-joint admitting of slight flexion, but scarcely any perceptible extension beyond the angle described; and that only on the exercise of force. The knee was considerably enlarged and altered in shape, and the muscles of the leg and thigh were greatly lessened in size; having a particularly soft flaccid feel. There was also a contraction at the ankle-joint, preventing flexion of the foot; so that, on attempting to stand, the point of the great toe only could be brought in contact with the ground. The general health was now

tolerably good, but greatly influenced by the state of the weather, as will appear by the sequel.

On submitting the knee to the action of the *genu-rector*, resistance and pain were more particularly experienced in the tendons of the flexor muscles, forming the outer ham-string to the extent of about two inches; this, therefore, was deemed the part most diseased, and consequently that which demanded most attention in the application of the *moxa*, of which three cylinders were daily employed to the above part alone; others were also applied over the site of the articulation, and over those parts of the knee which appeared most enlarged. At the expiration of about ten days all unnatural appearance of the joint was removed; the sensitiveness, which at first was very considerable, became greatly lessened, and the limb admitted of an increase of extension of several inches, whilst under the influence of the instrument. At this period, unfortunately, an unfavourable change of weather took place, giving rise to severe nocturnal pains, a constant feeling of morbid sensibility, and powerful resistance to the means employed. With much difficulty and perseverance did we now hold what had been gained, further progress, under these circumstances, was evidently impossible.

In consultation with Dr. Sommerville and Mr. Brodie, *colchicum* was suggested, approved of, and afterwards administered at stated periods, but in doses proportioned to the urgency of pain, to which

wet, frost, or an easterly wind, gave rise. This medicine certainly had some effect in lessening the pain; but, as the season advanced in intensity, the interval between the applications of the *moxa* appeared too long to admit of any permanent advantage being obtained from its use; this remedy, therefore, was employed for some time twice, and afterwards thrice, daily, attended with evident good effects in relaxing the joint and permitting a greater degree of extension. The circulation of the limb being now extremely languid, various means were resorted to for the purpose of supplying a great deficiency of natural heat.

During the winter, the unsettled state of the weather, and the frequent occurrence of easterly winds in particular, contributed directly to retard our progress towards a cure. So evident, indeed, was the operation of this last cause, that it scarcely if ever occurred, without a previous recurrence of the well remembered symptoms—a general sense of languor, and a strong disposition in the affected limb to contract, accompanied by more or less pain in the joint. Under these unfavourable circumstances the success of the practice fluctuated considerably, depending upon atmospherical changes, which, though they could not be averted, were with certainty anticipated from the indications above-mentioned. Occasionally, during fine weather, the limb nearly admitted of being extended to a right line under the pressure of the instrument, and strong

hopes were excited of a speedy cure, but they were repressed at intervals by the interruptions which have just been alluded to; frequently requiring two or three weeks to regain a previously obtained position. In this state of anxiety some weeks passed without any further marked improvement, and the cold March winds appeared, if possible, still more effectually to limit our progress. The uniformly good effects of *moxa* being manifest, it was determined that the application should be still more frequent, and, accordingly, on the 15th of March, the agent was applied five times daily, and continued from that time, together with the instrument and some other less powerful auxiliaries, such as *manipulation* and friction, with camphorated oil, &c. At that time, extremely severe weather, with a powerful north-east wind, prevailed, and the young lady was necessarily confined to the house. Such, however, was the result of the more frequent application of heat, that the limb admitted of being extended to a right line for ten successive days; when, from the unavoidable exclusion from air and exercise, a slight bilious attack again retarded our progress.

On the 4th of April, Miss C. took her leave for Bath, where she continued to follow the plan of treatment already described.

The peculiarities of the above case, from first to last, coupled with the result of the treatment, afford an important practical lesson to the medical philosopher. In this case alone, the physiologist, the

chemist, and the astronomer may find abundant materials for speculation, and for the application of their several sciences.

An inquiry into the manner in which an easterly wind produces certain phenomena, certain unfavourable symptoms in particular constitutions, or in persons labouring under particular diseases, led to the adoption of the change of practice in the application of *moxa*, which has been described, and the result of the system followed in this case, is, in my opinion, presumptive proof, at least, of the correctness of the views which I have taken of the subject.

The fact of certain disorders being greatly influenced by the existence of an easterly wind, a moist atmosphere, or the approach of intense cold, is so notorious, that there is scarcely a person, arrived at the years of maturity, who has not noticed it to a greater or less extent; and yet, common as is the acknowledgment of this fact, there is not, as far as I know, a single observation on record that tends in the slightest degree to illustrate its nature.

The ancients observed in their patients certain unfavourable changes, from a state of convalescence, at the approach or during the time of any evident *meteorological phenomenon*. *Sol lunar* influence was for a long period viewed as an important link in the chain of causes of tropical fevers; and many of the writers, who have distinguished themselves on the subject of *lunacy*, have accurately noted aberrations to which the human mind is liable during

any of the revolutions of those heavenly bodies, whose powers and effects are so important and conspicuous. But the nature of these facts not having been demonstrated in such a manner as to impress conviction, their effects have had but passing influence upon the minds of medical men—in short, the importance of the subject, in the philosophy of the healing art, has never been fairly estimated; and it may be shown, I think, that this is attributable rather to the indisposition which is generally manifested to entering upon new and mysterious investigations, than to any certainty of a total failure, should such investigations be fairly, frequently, and judiciously repeated.

To this apathy to minute inquiry we may justly attribute much modern scepticism upon this subject —much of the indifference evinced to every-day occurrences so much attended to by the ancients, yet so little understood, even at the present epoch of modern improvement. Nothing can be more injurious to the cause of truth, or tend more to retard scientific pursuits, than such disregard of the nature of things; for daily experience alone is sufficient to show, that every effect in the physical world has a cause which is at all times open to experiment and investigation; and which, however obscure at first, may be often explained and understood by means of close observation and steady perseverance.

It must be acknowledged, however, that a clear

and convincing illustration of the *precise* manner in which a change of the elements operates upon the animal functions, so as to disturb their natural harmony, is no easy matter: and, I am free to confess, that to do justice to a subject of such magnitude and philosophical intricacy, more time and attention than I could possibly bestow upon it are demanded —more, consequently, than can be devoted to these casual remarks.

In pursuance of my intended brevity, then, I would first observe, that I believe the *balance of health* to be greatly influenced by the state and action of the atmosphere upon the surface of the body—that the nerves of the surface, in healthy individuals, are endued with an inherent power of attracting and assimilating the necessary portion of the essential auxiliary to health; whether it be common heat or electricity. And that this quality may from disease, become greatly or partially deteriorated; whilst, in particular constitutions, it may be observed to be more or less defective from birth; a defect which may create a predisposition to languor, lassitude, lowness of spirits, rheumatism, or perhaps gout.

In examining the effects of the easterly wind, let us first consider the situation which we occupy upon this part of the earth, relatively to those countries which surround us—their relative temperatures, and the cause of such important variety.

For this purpose, it should be borne in mind that,

although every part of the earth, in its annual course, is brought in turn within the same distance of the sun, or nearly so, yet is the influence of that heavenly body upon the *North* and *South Poles* comparatively partial, owing to the oblique direction in which they are visited by its rays. From this circumstance, a proportionately small quantity of heat can be imbibed by either pole, (even during its long day of summer,) where, though the sun never sets for six months, yet it never attains more than an inconsiderable elevation, and during the greater part of the time only skims along the horizon. The result is, that when the tedious night sets in, lasting as long as the long day which preceded it, the climate of this part of the globe is found to be intensely cold. The northern parts of Russia, and the adjacent countries of Sweden and Norway, are considerably influenced by this locality.

It may here, perhaps, be inquired, why, in many parts of America, which is in a more southerly latitude than the most southern parts of England, the cold should be more intense? The explanation is, that the extensive regions of America are comparatively uncultivated, and covered with vast forests impenetrable to the sun, and thus the earth, particularly in the interior, is sheltered from his powerful influence. Another apparently rational cause is, that the vast masses of ice which are known to be formed about Baffin's Bay and the polar Archipelago, and to take a course southerly along the shores of America,

may materially assist in reducing the surrounding atmospherical temperature on the coast.

It must be borne in mind, that the sea, owing to its tides and currents, and the free communication that takes place between all its parts, has a strong tendency to preserve uniformity of temperature. The body of water which to-day forms a part of the Western Ocean, in the course of a few weeks or months is probably flowing about the island of Spitzbergen, or washing the shores of Russia. Not so with the temperature as regards the land—there, changes can only take place through the action of the sun, or that of a warm atmosphere passing over it.

Let us now glance at the immediate situation of England: on the west, it is bounded by a vast ocean, separating it from America; on the north, also, by a great body of water, which divides it from the frigid regions of the pole; on the south, by countries which are comparatively warm and genial; whilst on the east, alone, we are separated by a strip of sea, so narrow as to produce but little effect upon the atmosphere which passes over it from the vast and cold countries of Sweden, Norway, Russia, and Siberia.

Having now considered the effect of localities upon the atmosphere of this island, and the cold nature of an easterly wind, I shall next proceed to investigate the operation of these causes upon the system. This will be readily understood when we recollect the well-known tendency of heat to diffuse itself

equally through the surrounding *media*, and may enable us to comprehend the *modus operandi* of an easterly wind in the production of the feelings and symptoms so generally attributed to it.

If a change of wind to any other quarter but easterly take place, the change of temperature, if any, will be gradual; but, if an easterly wind suddenly set in, a rapid abstraction of animal heat will take place from the surface. This is more conspicuous in some individuals than in others; and affects, in a particular manner, parts in which there had previously been any diseased or deranged action. Hence the injurious effects which are observed to attend the prevalence of such wind in this country, although that wind shall exist in summer: it is, in fact, originally deficient of *comparative* heat, and probably electric matter. Hence it also follows, that situations of a medium temperature are most conducive to the healthy performance of the animal functions—that extremes of temperature are prejudicial to animal life—and that slight changes are occasionally productive of serious mischief in certain constitutions. As examples of this, let us observe the *catarrhal*, *pulmonic*, *rheumatic*, and *gouty* diseases which prevail in the British isles; and still more particularly so in their eastern and northern parts: the truth of this observation may be still further illustrated by contrasting these apparently necessary occurrences, under the above circumstances, with the acknowledged salubrity of the climates of

Italy, the Western Islands, the South of France, and even the West of England. In the West of England the causes of a mild atmosphere are not confined to what might at first strike the imagination—they principally depend upon the pointed extremity of the island being surrounded by the sea, which, as has been explained, possesses a more uniform temperature than the earth. Thus, this extremity is more influenced by westerly breezes than other more central parts of the kingdom, the earth absorbing whatever degree of heat the passing wind indicates beyond its own previous temperature, gradually reduces the heat of this wind as it advances in an easterly or northerly direction: and thus it is that a westerly wind is colder in the neighbourhood of London than in the neighbourhood of Plymouth, or still nearer to the Land's End.

With respect to the effects of wet and moisture, a little chemical knowledge teaches us that such a condition of the atmosphere is unfavourable to the action of electricity or heat, and consequently inimical to health. And, as regards intense cold, the feelings experienced on the setting-in of frosty weather are at first somewhat similar to those arising from the previously described causes, and act upon the same principle; but it may be remarked, that comparatively less mischievous consequences attend a continuation of such weather than that of an easterly wind, which, perhaps, is owing to a deficiency of electric matter in the latter. Upon this

principle it is clear why moist weather should be so evidently productive of diminished energy in the vital functions. These causes, I think, are manifest; and if any one case can be admitted as illustrative of the opinions which I have ventured to offer on their nature, the foregoing may be advantageously referred to—it exhibits not merely the wonderful influence which an easterly wind, a moist atmosphere, or the commencement of intense cold exercised over it, an influence frequently to be observed in practice, but shows also that the only successful mode of treatment was the substitution of a modification of that principle, the deficiency of which appeared so manifest in the constitution of the causes; and, what is not less important, that the good effects of the remedy were evidently increased in proportion to the frequency of its local application.

It may be said, perhaps, that this hypothesis tends to subvert that of *oxygen* being the vital part of the atmosphere; but this is neither its object or necessary effect. The presence of *oxygen* in the atmosphere may be essential to the first impulse by which life and nervous influence are supported; whilst atmospheric influence upon the surface of the body may be considered a modifier of the different vital actions thus excited. I believe further, that there is a peculiar affinity between caloric, electric matter, and *oxygen;* as may be shown by the immense quantity of latent caloric which all

matter productive of *oxygen* contains: a circumstance that strongly corroborates the validity of the observations which I have advanced upon this important and interesting subject. I would, therefore, add a hope, that these brief remarks may lead to the prosecution of an inquiry which, if it contribute but little, immediately to the alleviation of disease and suffering, may ultimately *add to our knowledge of elementary agents, which exert a powerful influence over our animal nature.*

CASE VII.

Mr. M. consulted me on the 16th July, 1824, respecting swelling and pain of the right knee, which had commenced four months previously, accompanied with rheumatic symptoms. Cupping and blistering were first practised; the former lessened the swelling and inflammation, but the latter, according to this gentleman's statement, rather increased than diminished the pain and stiffness. Friction, with camphorated mercurial ointment, was finally adopted, and continued for a considerable time without benefit.

This gentleman was young, and apparently in good *general* health; there was no evident inflammation round the joint—but in its interior, a sensation of obstruction, and acute pain when walking or standing upon that limb. Four, five, and some-

times six cylinders, of the usual composition, were burnt round the site of the articulation, followed by friction, with a stimulating liniment. On the day following, the patient was relieved, and after ten similar and successive, or daily applications, all pain and rigidity of the joint were effectually removed.

CASE VIII.

Elizabeth Osborne (a patient of the Middlesex Infirmary), in consequence of exposure to cold, after *accouchement*, had a rheumatic affection of the right knee, which, after the acute symptoms had subsided, gave rise to considerable swelling, pain, and stiffness of the joint. Six months from the commencement of the attack had elapsed when I first saw it; the limb was then so much contracted, that the toes only could be brought in contact with the ground, and the slightest attempt to extend it beyond that position gave excruciating pain. There was increased heat, but no redness, in the integuments surrounding the joint. Twelve leeches were applied, followed by the use of evaporating lotions, till the temperature was reduced, when the use of *moxa* was commenced. Three, and sometimes four cylinders, were used every second day, for three weeks, when the swelling, pain, and rigidity were greatly reduced. After this period, the *moxas* were applied daily, and friction was practised throughout

the treatment. Strength, action, and natural form were now nearly restored; and the whole foot was brought in contact with the ground, with a trifling limp.

If this poor woman had had the means of procuring a *genu-rector*, I have no doubt her cure would have been more effectual and rapid.

CASE IX.

Adam Anderson, *ætat* 52, a patient at the Middlesex Infirmary, stated, that about two months previous to application on his breaking a stick across the right knee, an extremely painful sensation in the joint was produced, but which went off soon after, and he felt nothing more of it till about a fortnight back, when acute pain at each side of the ligamentum patellæ, as also on the inner side of the knee-joint in the track of the articulation was experienced, rendering motion in the limb excessively painful. There was neither swelling nor external inflammation. Three *moxas* were applied to the affected part, followed by friction with the compound camphor liniment, and the application of a flannel bandage.

On the first application of *moxa*, he expressed himself relieved, and on his return for its repetition, stated, that he had been perfectly free from pain for twenty-four hours, after which the pain returned, but not to the same extent. The *moxa* was again applied, and repeated daily during a week, when he

was discharged cured. In a short time after, however, this patient returned, complaining of similar pain to that experienced before, which he ascribed to much severe labour in his employment as a porter. *Moxa* was again applied on two successive days, when he took his final leave, being then perfectly free from all complaint.

CASE X.

Miss B. a most interesting young lady, aged fourteen years, was put under my care on the 14th June, 1824, for the treatment of a hip-joint affection, and an incurvation of the spine. I had been previously consulted at Brighton, when the following account of the case was given :—

In the latter end of 1819, Miss B. experienced a dull pain in the left hip, passing along the outer side of the thigh, till lost at the knee ; this, at first, was supposed to be a growing pain only, and attracted but little attention. After a little time, however, the face was frequently observed to become suddenly pale ; the bowels became deranged ; the appetite became affected ; and acute pain was felt in the joint, in the erect posture ; on her being placed in the recumbent position, on the contrary, there was no pain. A stimulating liniment was first applied, and tonic medicines were administered, till at length, the complaint having assumed a more

serious form, confinement to the horizontal posture, and a perpetual blister, were deemed advisable. These measures were persisted in, till pain and the symptoms of inflammation were removed, when an attempt was made to walk, but unfortunately this could not be accomplished; stiffness of the hip-joint, and contraction of the knee, with very considerable diminution and rigidity of the muscles of the affected limb, were now the consequence!

Friction, the warm-baths at Brighton, shampooing, and attention to the state of the bowels, were resorted to; the result of all which were improvement in the general health, relaxation in the knee, and a more healthy state of the muscles; but no improvement in the state of the hip-joint. There was not at any time hectic fever, nor symptoms which, in my opinion, characterized ulceration of cartilage, absorption, or caries of bone, nor further structural change of parts than what might have resulted from common inflammation.

In consultation with a medical gentleman, at Brighton, the following were, as nearly as possible, the appearances, and the opinions to which these appearances gave rise.

On standing up, the hips projected very considerably, in consequence of an abrupt anterior curvature of the spine, commencing at the articulation of the last lumbar vertebra with the sacrum, and extending to the first or second lumbar vetebra. The right hip, or that of the sound side, projected much

beyond that of the left; depending on a bent position, forwards, of the thigh upon the pelvis. On Miss B. being placed on her back, the left thigh could be bent to as great an extent, forwards and upwards, as that of the other; and in this position there was no difference in their length, which certainly could not have been the case, had the head of the femur obtained a new situation, either *superiorly* or *inferiorly:* there was rotatory motion, both inwards and outwards; hence it was inferred, that no lateral dislocation or change of position could have taken place. Further, on placing the fingers between the heads of the *pectinalis* and *sartorios*, and making motion with the thigh on the pelvis, the head of the *femur* could be distinctly felt rolling in the ACETABULUM. On attempting to extend the limb, an obtuse angle was formed: on an attempt being made to lessen the angle, whilst placed on the back, the trunk was elevated in proportion, the head of the bone acting as a lever. From all which circumstances it was evident, that no anchylosis existed; that the obstruction was partial; and that it was confined to the anterior superior part of the joint. The muscles were in a perfectly healthy state, but much thinner than those of the opposite extremity, as might be supposed, from having been so much less employed. In walking, Miss B. inclined greatly to the left side, in consequence of the contracted state of the affected extremity; from which the right hip projected laterally,

in an ungraceful manner. This great inclination to the affected side was, no doubt, increased by efforts to avoid the concussion attendant upon suddenly throwing the weight of the body from its perpendicular state, when supported by the healthy limb, upon that, which, from debility, was unable to support it. It was believed, from this investigation, that rigidity, and shortening, perhaps, of the *ligamentum teres*, as also great thickening of the capsular ligament, had taken place, consequently lessening the diameter, and the natural motion of the joint; and that contraction and wasting of the muscles depended, first, upon position during confinement to bed, and comparative want of exercise afterwards; that the spinal curvature was a secondary affection; the balance of power, between the abdominal and dorsal muscles, having been broken, by the greater employment and consequent counteraction of those of the abdomen, in efforts to avoid pain in the affected extremity; and, finally, that the shortening of the limb was only apparent, depending entirely on its bent position.

With these views of the case, I proposed the following measures: exercise, not amounting to fatigue: when tired, to obtain rest by a reclined posture, and thereby prevent the ill effects of the superincumbent weight of the body upon the spine, whilst the dorsal muscles were in a state of exhaustion; and that the daily application of *moxa* should be practised over the head of the femur, for the

purpose of exciting absorption, and relaxing the *probably* thickened capsular ligament, and surrounding condensed cellular substance; *moxa* also, in the same manner, to be applied immediately over the articulation of the last lumbar vertebra with the sacrum; to be followed by friction with camphorated oil over the dorsal muscles, and the flexors of the thigh, in the neighbourhood of the obstruction. Two broad straps were next to be passed round the body, for the purpose of securing it to an inclined plane, and preventing resistance on endeavouring, by gradual pressure, to extend the limb: finally, a swinging motion of the affected extremity, with a heavily loaded shoe on; Miss B. balancing herself upon the right foot, and keeping herself erect, by hanging, as it were, by the left hand, from a brass hook, fitted for the purpose, just within reach, above the head. Thus the whole of the muscles of the affected side were intended to be forcibly brought into action.

This practice having been adopted, and continued for a period of between two and three weeks, an evident improvement was observed; the limb admitted of a greater degree of extension, and the hips were, in consequence, nearly equal in size: half an inch, at least, was cut from the patient's high-heeled shoe, and still the foot could be brought to the ground with equal ease. There was yet, however, much anxiety and doubt as to the result of the case, which being occasionally, naturally enough, height-

ened by private opinions, another consultation was proposed—the question at issue being, whether a dislocation did, or did not, exist.

The gentleman called in, a surgeon of experience, after examination, believed that the head of the femur had acquired a new situation—a change of position *not amounting to a dislocation:* that, in fact, caries and absorption of the external *epiphysis* of the *acetabulum* had taken place; in proof of which, the *trocanter major* was demonstrated as being lower and further back than that of the opposite side. Admitting this appearance, I attributed it to the circumstance of the greater elevation of the inferior extremity of the thigh bone, (bent forward as it was upon the pelvis,) and a consequent depression of its head and *trocanter:* as regarded the state of the brim of the *acetabulum*, it was not easy, except by reference to early symptoms, to prove what it was; so, as the opinion offered was irrelative to the important question, *whether a dislocation did or did not exist*, no particular objection to this opinion was deemed necessary; although a review of the circumstances of the case, and the result of the treatment, assuredly do not justify any such opinion.

In the early stage of the complaint there were neither hectic fever, sleepless nights, nor copious perspirations. And when we consider the magnitude of the head of the femur, and the great convexity of the *ilium*, even if the external *epiphysis* of the

acetabulum had been destroyed *in toto*, it would appear difficult to mistake this for any other position; unless, indeed, so much of the ilium had been destroyed that a new acetabulum had been formed; a circumstance extremely improbable without the usual precursory symptoms. Further, had this really been the case, on Miss B.'s first attempt to walk, a painfully grating sensation would have been experienced by the rough surfaces of the bones having been brought into actual contact.

It having now been finally decided that there was no dislocation, the same plans of treatment were continued, and improvement in every respect rapidly followed: about the sixth week, the change was very conspicuous: and, on the seventh week, when confined to the plane by straps, the limb could be nearly brought to its natural position, by using a moderate degree of force. The high heel was now entirely removed, and the foot could be brought to the ground with a very trifling lateral inclination of the body. The spinal curvature was scarcely perceptible, and there was no longer any disproportion between the size of the hips. At this time, Miss B. returned to school—a person was instructed to conduct the practice—the most rigid perseverance was enjoined—and, although no longer under my immediate care, some further improvement took place, by which she was soon enabled to take lessons in dancing.

CASE XI.

In the beginning of the present year I was consulted respecting a hip-joint affection, of nearly three years standing, in the person of a remarkably fine boy, of about five years of age. He had suffered severely from the necessary treatment adopted to subdue inflammation in the joint. The usual practice of long confinement, caustic, issues, &c. &c. had been employed, and, no doubt, saved the child's life; but, as too frequently occurs in such cases, on his quitting his bed, motion was lost at the joint, the thigh was bent forwards, so that the toe only came in contact with the ground when in the erect posture, the hip projected considerably, there was lumbar incurvation, and the muscles of the affected leg and thigh were greatly wasted. The first advice had been taken and acted upon—still, however, contrary to the opinions given, the little patient, on growing older, grew gradually worse, except as regarded his general health, which was now restored.

Moxa was recommended to be applied daily over the head of the femur, anteriorly, followed by gentle motion with the hands; and, as from the child's youth he could not be prevailed upon to bear the application of the remedy as quietly as could be wished, I planned an instrument for the purpose of keeping up constant pressure towards the extended position. This instrument, which was very satisfac-

torily executed by Mr. Sheldrake of the Strand, consisted of a light spring steel apparatus, accurately adapted to the pelvis, and a steel rod or stem attached to it in front, having a joint over the groin, extending to the lower part of the thigh, which it was made to grasp by what is termed a garter. A fixed point and fulcrum being now established, the situation and force of some moving power constituted the next *desideratum*. To accomplish these, an elastic steel rod, having a resistance equal to fifteen pounds, was attached to the apparatus, in situation behind the *trocanter major*, and having been brought obliquely forward, was hooked on a button affixed to the side of the garter.* The instrument thus completed was securely padded to prevent galling, and was immediately put into operation.

To remove the lumbar affection, an inclined plane was mounted upon a small four-wheel carriage, upon which he was frequently drawn into the open air: and, in order to give occasional exercise to all the muscles of the affected extremity, a small apparatus, mounted on castors, and running in parallel grooves on the plane, was constructed to receive the foot, which the child now willingly put in motion for his amusement. On these occasions, it was only necessary to unhook the elastic rod of the instrument first described, to admit of flexion and extension in the thigh.

* It should be observed, that two or three attempts were made before the exact strength of the moving power was obtained.

By these united contrivances every object was fulfilled, daily improvement was the result, and on my last, of altogether five visits, the foot came down with a slight limp, and the figure was much improved. I have not since had an opportunity of seeing the boy, but I have had the gratification of learning that the improvement has been and continues to be progressive.

CASE XII.

Mrs. B. had a rheumatic fever, which more particularly affected the right wrist, and caused serious injury to that joint.

On being consulted, I learned that the case was of two years' standing, and that almost every surgeon of great notoriety in town had been advised with, respecting it. Various means had been resorted to; even Mahommed's baths; in short, very nearly the same variety of practices was gone through, as in Case the First; and, as in that case as well as many others, the mischievous effects of blisters were here particularly conspicuous.

On examination, I found flexion and extension perfect, but the rotatory motion of the forearm was defective, and action between the forearm and carpal bones was altogether wanting. The muscles were so much weakened from having been long idle, that an empty *tea-pot* could not be raised without

the assistance of the other hand; nor could that particular motion be performed which the use of the spoon requires.

It was now, and it appears with reason, believed, that, independently of thickening of the capsular ligament, the excitement of the blisters, as well as the rheumatic attack, had induced the secretion of an inordinate quantity of coagulable lymph, which, being thrown between the interstices of the neighbouring muscles, greatly conduced to the rigid state of the joint. From this view of the case, it next became a consideration, what muscles were most employed in the motion of the forearm, which was here defective. this brought to recollection the *pronator quadratus* and *supinator radii teres*, as the most powerful in effecting pronation and supination; in addition to which it was ascertained, on inquiry, that, during inflammation, pain was more acutely felt in the direction of the latter-named muscle than in any other part of the forearm. By this the practice was regulated, and the *moxa* was applied to these particular muscles for the purpose of relaxing their contracted fibres, dissolving the probably long-deposited coagulable lymph, and exciting the dormant absorbents. Three or four cylinders of the composition were every day applied, and shampooing was practised for the purpose of restoring the natural rotatory action of the forearm and wrist. Strongly camphorated oil was applied by means of friction, and a small flannel bandage was passed for the purpose of

keeping up the increased action thus excited. In the course of three days an amendment was perceptible; and, at the expiration of fifteen days, the powers of the arm were almost perfect: in short, nothing further appeared necessary to complete the cure but perseverance in exercising the muscles, for which instructions were given; the lady being now going abroad.*

This case strikingly illustrates the importance of *myological* knowledge in the treatment of stiff joints; and very clearly points out, that a mere acquaintance with the relaxing powers of heat is not sufficient for its success in practice. Had this remedy been applied to the wrist only, in the above case, it would have decidedly got into disrepute, through misapplication; and, perhaps, there are not a few who would have directed their sole attention to that part, as being the apparent seat of disease.

CASE XIII.

A LADY of high rank had an arm lame for eight years—the following are the outlines which were given:—

After *accouchement*, a train of symptoms and circumstances, the description of which would be

* I have since had an opportunity of ascertaining that the natural powers of the arm were perfectly restored soon after the lady's departure from England, and that the cure was permanent.

superfluous here, preceded and gave rise to violent inflammation of the arm: the back of the hand, the wrist, and the internal part of the arm, near the elbow, suffered more particularly.

On examination, I found the hand to be bent inwards, upon the forearm, forming an arc of about an inch and a half in depth. And, on passing the fingers along the forearm, in the direction of the *flexor sublimis perforatus*, the centre of that muscle was found to be much contracted, having formed several distinct indurated projections—at its origin there was a mass of contracted fibres. The elbow joint was perfect, but that of the wrist admitted not of the slightest perceptible motion. All the fingers of this hand were more or less stiff; the middle finger was completely so, and was, frequently, a cause of great annoyance, by striking against hard bodies, such as doors, tables, chairs, parts of the carriage, in getting into it, &c. &c. The power of extending the fingers one from another was greatly limited. From these circumstances her harp, which was formerly, to this lady, a source of the greatest delight, had stood quite idle during the long period of the above misfortune; the *piano*, which was less difficult, though less a favourite than its companion, became a substitute in consequence; and was surprisingly executed upon by the increased powers which practice gave to the left hand. From the advantages of wealth and liberality, this case had not suffered want of numerous medical opinions, and

the full trial of varied means of cure in this country, as well as on the continent: where, finally, it was given over as a hopeless case, and had not since that period, a space of six years, undergone any treatment.

The practice commenced by applying daily three or four *moxa* cylinders, at regular distances, in the direction of the *flexor sublimis perforatus*, followed by friction with camphorated oil, and also mechanical extension. In the short period of a week motion was perceptible at the wrist, and the masses of thickened fibres from this time began to disperse. Much friction and shampooing were now had recourse to, as well as the application of the moxa to all the joints of the fingers, and the whole course of the above described muscle. After conducting the practice in this manner for some weeks, cork splints, neatly padded and covered, were brought forward as an additional auxiliary. The other processes having been gone through, they were applied daily, and allowed to remain on for the space of half an hour. These splints had the peculiar advantage of accommodating themselves, in some measure, to the resisting force of the muscles opposed to them; and, being secured by straps, easily admitted of an increase or diminution of the extending power. In this manner the flexor muscles were soon greatly relaxed, and the fingers acquired a proportionate degree of suppleness. The action of the wrist, however, was still beyond the control of the muscles; a certain degree of force being yet neces-

sary to effect the motion which had been thus temporarily acquired.

It was now presumed that ossific union between the articulating extremities of the ulna and radius and the carpal bones had taken place, but that this new bony connexion had only acquired a degree of solidity proportionate to the period which had elapsed since its deposition; thus accounting for the motion at the wrist, which was similar to the elasticity of the bones of children; hence, further attempts to *cure* this joint were laid aside, and undivided attention was directed to the fingers, and those muscles under whose more immediate influence they were in the healthy state. *Moxa* was applied to the respective joints of each of the fingers, followed by friction and shampooing. This system was regularly persevered in, with very few remissions, during a period of five months; at the end of which time, every finger had acquired its long-lost pliability, the arm had restored to it again almost all its former symmetry, and this lady had the gratification of being able, once more, to resume her former favourite amusement in music.

It will be admitted that but little pain was inflicted, when it is stated, that the heat was generally applied during the time of breakfast.

CASE XIV.

On the 19th April, 1825, Miss G. was placed under my care for the treatment of a mysterious affection of the right inferior extremity, which was of thirteen years standing, and productive of much anxiety to herself and friends.

When two years old, this young lady was noticed to limp in moving about, and in consequence timely professional advice was taken. The complaint, however, increased, and finally, considerable swelling and inflammation appeared in the knee. These symptoms were subdued by appropriate means, but, on her attempting to walk about, her heel was several inches from the ground. Friction was now recommended, but soon after abandoned in consequence of its having produced a return of inflammation. After a lapse of several years, a more scientific rubber was employed, and his efforts were attended with some advantage. During the above long period, a variety of measures were tried, at the suggestion of the most eminent men of the day, but without the desired effect of obtaining a complete cure.

On my first seeing the patient, the heel was one inch from the ground, a deficiency, which, although not of very great extent, was yet an impediment of considerable moment to a young person, whose

figure was in other respects perfect. All that appeared to me worthy of attention, in the first instance, was a slightly enlarged state of the knee from thickening of the surrounding cellular membrane, and an apparent contraction immediately behind the heel, occasioned, as I then supposed, by previous inflammation and consequent thickening of the sheath of the *tendo-achillis*. *Moxa* was applied for a few days, and had the effect of lessening the enlarged condition of the knee; but, no extension of the limb following, it was deemed expedient to try the effect of the vapour bath in addition. These combined measures not being attended with successful results, in despair of doing further good, I proposed taking my leave, when the young lady's mother pointed out a small projection in the ham, which, from over delicacy in my first examination, I had passed unnoticed. This evidently consisted in a thickened and contracted state of the fibres at the origin of the gastrochnemious muscle. Satisfied now of having found out the cause of contraction, I applied three or four *moxa-cylinders* to the part, at first on alternate days, and afterwards daily, for the space altogether of between six and seven weeks; at the expiration of which time, the heel of the affected limb was brought to a perfect level with that of its fellow, and has permanently remained so.

CASE XV.

Miss C.* submitted her case to my care, it being a stiff ancle-joint, and rigidity in the knee of the same side, the right, and loss of motion of all the fingers, then of about eighteen months standing, originally induced by a combination of gout and rheumatism.

The foot was turned inwards, as represented in plate the second; the toes pointing so directly downwards, that those parts of the foot only could be brought in contact with the ground. The tarsal bones were much separated by this extraordinary position; the *os cuboides*, in particular, being so conspicuous, and distant from the articulating surfaces of the surrounding *tarsal bones*, that its natural connexions appeared to be entirely destroyed. There was no voluntary action in the joint, but, on using a certain degree of force with the hands, motion, *to a very limited extent*, could be effected in either direction. The muscles of the leg were wasted in a trifling degree, but relaxed and free from obvious disease. It would appear, that, during the inflammatory stage of the complaint, there was spasmodic contraction in the muscles forming the *tendo-*

* This lady's case was deemed, by Mr. Brodie, one in which *moxa* would be advisable, and he, with his usual liberality, recommended it to my care.

achillis, which, dragging the *os calcis* upwards, at the same time pointed the toes; whilst the inclination inwards was caused by the patient's bending the foot in that direction to avoid pain, which attended the reverse of this position. The tarsal bones, thus separated to their greatest possible extent, admitted convenient cavities for the lodgment of coagulable lymph during and after acute inflammation, which, most probably, by blocking up the interosseous spaces, prevented the foot from taking its natural position, even after spasm and inflammation had entirely subsided. The knee was swelled, and deprived of its full power of flexion by, it was supposed, thickening of the cellular membrane, surrounding the *ligamentum patellæ*. The fingers, in addition to being stiff, had a shining glassy appearance, and were rather enlarged at their joints. The appetite was bad, and there was extreme weakness in all the joints. A vast variety of medicines and mechanical measures were tried, and friction was employed nine months: the hot baths of Brighton were supposed to have done much mischief, by causing determination to the head: Harrogate waters were taken without benefit, and the instruments used were ineffectual.

An instrument was planned by me, for the purpose of throwing the foot outwards, and assisting the use of the *moxa*, which was immediately commenced over the capsular ligament, uniting the tarsal bones to the extremities of the *tibia*

and *fibula*. The instrument alluded to, however, was not obtained; first, from the delay of the machinist, and next, because the foot was becoming rapidly straight without its use. *Moxa*, *shampooing*, and friction, were daily practised for three weeks, when the foot, from what is represented in plate the second, had acquired its natural appearance and position; the swelling of the knee and stiffness were reduced, and the action of the fingers was being gradually recovered. But, unfortunately, it became necessary to suspend this treatment, in consequence of the slow approach of a train of nervous symptoms, of a nature similar to former attacks, under which the lady finally sunk, after an illness of about three months.

The physician who attended on this last occasion, has had the kindness to inform me, that *retraction*, to a greater degree than formerly, and *exostosis*, took place previously to dissolution.

It has often been to me matter of great surprise, that no efficient mode of treating the contorted feet of infants and children, whether arising from *malposition in utero*, or after accident, has yet been brought forward: this is more to be regretted, as nine-tenths of the cases which occur without further mischief than that existing at the ankle joint, admit of cure, if early attended to. Some time back, I was consulted respecting a case of this description. Both feet were turned completely in—I planned splints, and so applied them, that there was a slight degree

of pressure outwards constantly kept up; and, in a few weeks afterwards, when I last saw the child, the feet had obtained an almost perfect position.

Further reflection on the nature of such cases enabled me to plan an instrument for the purpose of simplifying the treatment; and this, I think, is calculated to become generally applicable. In many recent cases, it will, I doubt not, succeed alone, and in all it will greatly assist *moxa* and other means.

CASE XVI.

Miss R—— consulted me regarding a painful sensation commencing in the right groin, extending to the toe. The following is a description of the case, which I think right to state in nearly the young lady's own words.

"The first time I felt the pain was about ten or twelve years ago; it came on *then* only after walking, it was not very acute, and generally went off after a short rest. On this occasion a blister to the part, rubbing it afterwards with flour of mustard, quite cured it. The present pain came on about four or five years back; I think I felt most of it at night; when I slept on my right side I was in general suddenly awoke by acute pain, and a cold or numb sensation extending over the whole limb. I had but one posture in bed, in which I was easy, and this was on the left side, inclining

to my face, so that this limb might be quite separated from the other. If I happened to turn in my sleep, the pain awoke me: except on the right side, lying on the back was the most uneasy posture. The pain has always commenced at the upper part of the thigh, descending in the direction of the outer side of the leg till lost at the toes. A tight shoe or boot brings on pain; and pressure on any part of the limb, though not at the instant, brings it on in a minue or two. At times I can feel an enlargement of the muscles in front, particularly after fatigue; the veins are then much more conspicuous than usual; it is only after fatigue that any degree of stiffness is experienced in the limb. I am now subject to head-ach: calomel does not agree with my constitution, remarkably small quantities having induced salivation and ulcers in my mouth. Mercurial ointment caused great irritation, but no relief from pain. *Bella donna* plaister very violently affected me, and I have never, although it is a year since I employed it, quite recovered from the consequences of its use. Three several plaisters were applied; the first caused loss of memory and stupor, which were increased by the second, and the third very nearly deprived me of life, having for the time greatly injured my sight and deranged my intellect; on their removal these symptoms subsided, but lowness of spirits impaired recollection, and head-ache followed. My spirits were naturally good, but, from strong medicines and continued irri-

tation from plaisters and other applications, I have become very nervous, and have felt a great degree of debility ; and when I have taken tonic medicines, they have deranged the bowels so much that I have been unable to continue their use. I have taken many different preparations of bark, of which I do not now recollect the names. The last medicine which I took was *morphine*."

On interrogation, I found that the above description was sufficiently clear to induce that opinion, which from after-examination and inquiry I believed myself to be justified in giving.*

The painful sensation, from which this young lady was so great a sufferer, was entirely influenced by posture, pressure, and exercise, commencing in the groin amongst the inguinal glands, and thence gradually descending in the direction of the *vena saphena*, first to the knee, and, finally, but more irregularly, as to time and course, to the toes. When the leg and thigh were extended, by lying

* "Lorsque les mouvements convulsifs et habituels de certains muscles (ce qui caracterise le tic douloureux) sont devenue chroniques quelle qu'en soit la cause ou sont le resultat d'une cause mécanique qui a affaibli le tissu du nerfs des ses muscles, le moxa est parfaitement indiqué; mais il doit être appliqué le plus pres possible du siege du mal, et sur le trajet du nerfs légés. Cette lesion consiste dans l'engorement chronique et inflammatoire du neúrilème qui envelloppe les nerfs de la partie affectée. Ce reméde porte une excitation sur les organes, opère ainsi derivation salutaire du principe morbide qui en altére le tissu et y rétablit le cours du fluide nerveux."—*Recueil de Memoires Chururgie, par le Baron D. J. Larry*, p. 20.

upon the back or upon the right side, the painful sensations were more acutely felt, and much walking or long standing had also the same effect; whilst, on the contrary, placing the limb in the bent position, by its crossing the other, when lying on the left side, these symptoms, if not altogether removed for the time, were greatly diminished. From a consideration of all these circumstances, there appeared no reason to doubt that an interruption of nervous influence was the cause of the complaint, and that this, most probably, depended upon an enlarged lymphatic gland, or a thickened and indurated state of the cellular membrane, in which the glands of the groin are imbedded, pressing upon the crural nerve, as it emerged from the abdomen. On examination, however, no one of these glands, in particular, could be said to be the cause, or its removal would have been proposed: but it was ascertained, that a swelling in the groin, from cold, had existed for some time previously to the commencement of this complaint, which greatly strengthened the inference, that at first was made, although the immediate cause could not be more precisely pointed out. A trial of *moxa* being agreed to, four cylinders were daily employed, two over the course of the crural nerve, as it descended from the abdominal ring, and two on the site of the great ischiatic in the ham. After the first application, the lady believed she slept better, and that on the following day less uneasiness followed the usual exercise; every day's

experience proved that the result was not imaginary, and at the expiration of sixteen days any position could be assumed without pain. On taking a long walk, a dull sensation only was experienced.

This lady was obliged to return to the country at the time I took my leave of her, and I have not since had an opportunity of making inquiry, as to further result; but I have every reason to believe, that the case has continued to do well, otherwise I should have heard to the contrary.

CASE XVII.

On the 28th of June last I was requested by Mr. Allan, of Leicester Square, to see Francis Hill, a wine porter, aged 33, labouring under *lumbago* and *sciatica*.

The patient's description was, that between six and seven months previously, whilst suffering from a slight attack of rheumatism, and in the act of carrying a heavy hamper of wine, he was suddenly seized with excruciating pain in the loins, obliging him to call for assistance to free him of his burthen and conduct him home. Since the above period, up to the time of my first seeing him, he had never been quite free of pains in the loins and limbs, but his sufferings had so fluctuated as to enable him to follow some light employment for a few successive days at a time. He had taken various

medicines, but had not undergone any regular system of treatment till he consigned his case to the care of Mr. Allan, who had now judiciously made trial of most of the approved remedies. After preparing his patient by alteratives, Mr. A. gave calomel and opium in combination, by which the mouth was affected, and a violent pain, which had been experienced for some time in the region of the left kidney, was removed. Recourse was next had to colchicum combined with opium, and, lastly, with hyoscyamus; leeching, cupping, blistering, and abstinence, having been each also regularly employed. The general affection, however, remained unsubdued. The pains which appeared to commence at the fourth lumbar vertebra passed on either side of the sacrum, and extended in the direct course of the nerves derived from the above parts to the *cristæ of the ilia*, and to the groins, affected, in a still more violent degree, the great ischiatic, particularly in its passage behind the trocanter major, and between the hamstrings; and rendered motion in the leg and thigh most distressing—drawing on the stocking or tying the shoe was quite impossible. The tongue was dry, but very little furred; the bowels were, and had been kept regular, and the circulation was but little excited; the countenance, however, was expressive of much pain and suffering. Six *moxa* cylinders were applied over the origin of the nerves, in whose course pain was experienced, and this had the immediate effect of greatly relieving the patient;

he being now enabled to stoop and bend in various directions. A piece of oiled silk was placed over the part to which the *moxa* had been applied, and all medicine was discontinued.

29th. Had been comparatively free of pain all day yesterday—a slight return in the night, but not so diffuse or severe—this morning he complains chiefly of the left hip and ham ; in addition to the loins, therefore, the moxa was applied behind the trocanter major, drawing the gluteous maximus as far back as possible, and also over the track of the ischiatic nerve, between the ham-strings, attended with a similar emancipation from pain.

30th. Had a better night, and is much relieved, though not altogether free from pain.

1st of July. The pains are now quite removed during the application of *moxa*, returning occasionally, and remaining a short time only—the seat of suffering is also less uniform.

From this time *moxa* was applied every morning to the parts in which pain was experienced—his daily improvement was regular from the first—and on the ninth following he was quite well. Small and frequently repeated doses of bark and soda were prescribed by Mr. Allan to prevent a relapse.

It is worthy of being stated, that each application of the *moxa* was attended with a most profuse perspiration : indeed, this is a general effect of the remedy.

CASE XVIII.

A GENTLEMAN, who had been much exposed to wet and cold during three successive days, was suddenly attacked with *lumbago* and *diarrhœa-biliosa*, accompanied with febrile symptoms; the latter were conquered by appropriate medicines, but the lumbago was so severe that he was confined to bed, being unable to stand or move about. In this state two days were passed without relief from the means commonly practised in such cases; at length *moxa* was decided upon, and three cylinders were accordingly burned over the affected part; when, to the great delight and astonishment of the patient, all pain was effectually removed; nor had he any return of his complaint afterwards.

CASE XIX.

ON the 9th of MARCH, 1825, Mr. W. consulted me on account of an obstinate lumbago of four months standing, the consequence of exposure to wet and cold, after undergoing a course of mercury: there was pain over the whole loins; apparently originating at the articulation of the last lumbar vertebra with the sacrum, and thence extending to the *cristæ* of the *ilia*. Four *moxa* cylinders were successively

applied over the principal seat of pain, by which the patient was directly relieved. All further treatment was unnecessary, except a stimulating liniment and bandage, which were suggested to be used for a few days, merely to prevent a return of the complaint.

CASE XX.

On the 12th of May, 1825, Mr. F. consulted me regarding an obstinate *lumbago* and *sciatica;* the pain of loins had now become very dull, but that in the affected hip, and in the whole course of the *ischiatic nerve,* was exquisitely acute on the slightest motion. *Moxa* was applied over the course of the sacral nerves, as they emerged from their origin; and also over the course of the great *ischiatic,* behind the *trocanter major.* In this case the relief was also immediate, but slight pain remaining on the following day the operation was again repeated: he now took his leave perfectly cured, and much gratified with the result of the treatment.

CASE XXI.

In the month of December, 1825, a friend of mine, who was anxious to proceed to the country on business, was confined to his room for the space of a week

by an attack of lumbago. Calling upon him by accident, I suggested *moxa*, in which he acquiesced. It was accordingly applied, and such was the result, that all symptoms were immediately removed. This gentleman set out upon his journey to the country, a distance of a hundred miles, that very evening, and was not revisited by the complaint.

CASE XXII.

On the 22d of March, 1825, Mr. E. at the suggestion of Mr. Brodie, put himself under my care for the treatment of severe pains in various joints, particularly the right shoulder, both knees and all those of the fingers. The knees were greatly swelled, had an œdematous feel, and the skin exhibited a smooth shining appearance. These joints were particularly weak, and admitted of but little motion without exquisite pain: the hands were altogether enlarged and nearly useless, apparently from arthritic nodosities at different joints of the fingers; some of them were of considerable magnitude. The complaint was of four years standing, was much influenced by certain changes in the weather, and always increased at the approach of evening. The health had suffered as well from the various means of cure practised, as from the disease, which, of itself, was a constant and distressing source of constitutional irritation. In this country, *colchicum*,

guaiacum, and *antimonials*, were successively taken—electricity, shampooing, blistering, warm baths, and friction, with different kinds of stimulating liniments were applied. Various remedies were also tried on the Continent, and all were alike ineffectual.

The application of *moxa* was at once commenced to the affected parts, three or four cylinders being used to each knee, and less in proportion to the size of the other small joints: the parts were afterwards freely rubed with compound camphor liniment, to which was added a very small portion of tincture of Spanish flies, half a drachm of the latter, to an ounce of the former; flannel bandages were afterwards passed round the knees, and such was the effect of this first application, that the patient, on rising from his chair, expressed himself at great liberty in those joints which had so long been crippled; and, on the following morning, he was sensible of a diminution of swelling in the parts to which the *moxa* had been applied. The use of the remedy was repeated during ten successive mornings, at the expiration of which time, this gentleman was obliged to return to the country, being now greatly benefited. He was, in fact, almost entirely free from pain, and in better health than he had been for several years.

Other cases of the above description might be added, in which the employment of *moxa* was attended with effects equally signal and satisfactory;

but, as their character presents nothing essentially different from that of those given, it is deemed unnecessary to introduce them here: it is important to add, however, that I have as yet met with no case of lumbago which has resisted *moxa;* nor have I met with one which has even proved more obstinate under its influence than those mentioned.

I have very frequently applied this remedy to arthritic nodosities of many years standing on the fingers; and always with a degree of benefit far exceeding that of any other means ever employed by the patient: and in the mysterious affections of joints, generally attributed to a combination of gout and rheumatism. I have not once known it to fail of giving relief. Indeed, in every such case in which I have had an opportunity of employing it, a more or less favourable result was invariably experienced on the first application.

In cases of chronic rheumatism, in which the affection is confined to one or a few joints, *moxa* is peculiarly applicable; but if many joints be affected at the same time, the application of that remedy, from being so much more tedious, will be less encouraging.

CASE XXIII.

Mr. T. had been subject to gout for some years, at nearly regular intervals, but for the last twelve months, previously to consulting me, he had been distressed by constant pain at the second joint of the left great toe, which was greatly increased by standing or walking. The constitution was good, and there did not appear to be further disturbance in the health than that which might naturally be expected from so constant a source of uneasiness. On remaining idle even one day, the painful sensations were greatly lessened; but as this gentleman, from the nature of his business, was obliged to be much on foot, such indulgence could but rarely be enjoyed. The toe was somewhat swelled, and had a dark livid appearance; the affected joint appeared to be blocked up by deposition, and any attempt to move it gave exquisite pain, which was described as passing along the whole extent of the extremity, with the rapidity of an electric shock; and leaving, for some little time after, a dull or lifeless sensation in the muscles of the limb. On drawing the finger along the back of the toe, the red colour was for a moment lost, a white line in the course of the pressure appearing in its stead, but which, on removing the cause, as quickly disappeared. After a very long walk the pain was excruciating; more like *tic douloureux*, perhaps, than any other sensa-

tion to which it could be compared. Many remedies were tried; at one time narcotics and soothing applications; at another, topical blood-letting, cooling applications, and low living; occasionally alteratives alone; or good living and stimulating liniments: camphorated mercurial ointment, with friction and blisters, were often used to no purpose, whilst *colchicum* and *eau medicinàle* were equally unavailing.

Believing that the painful sensation described above depended upon the pressure of some extraneous matter, deposited within the joint, upon a nervous twig, it was proposed to apply *moxa*, with a view of exciting the absorbents and veins to increased action, commensurate with that of the arteries; and thus, if possible, restore the healthy functions of the part affected. In pursuance of which three cylinders of the composition were burned as near the seat of pain as could well be borne, endeavouring to avoid raising a blister; camphorated spirit was afterwards used, and a small flannel bandage was passed round the toe. On the second day following, these measures were again resorted to, the patient having experienced considerable mitigation of pain, and slight diminution of the swelling. This practice was continued on alternate days, for three weeks, when, with the exception of a slight induration at the joint originally affected, all trace and symptoms of the complaint were removed.

CASE XXIV.

Mrs. Randerson, No. 44, Brewer-street, came under my care at the Middlesex Infirmary, on the 9th of June, for the treatment of an indolent tumour, which had been for some weeks gradually forming over the *sternal articulation of the right clavicle:* it was about the size of an egg at its most prominent part, had an extended base, felt like cartilage, and was somewhat tender on pressure. The patient was unable to account for the cause, unless by a sudden jerk of the head backwards whilst asleep. Throwing the arm or head back, or in any way exciting the *sterno cleido mastoideus* or *pectoralis major* caused pain. She had taken alterative medicine, and had leeches and tartarized antimonial ointment applied without benefit. Two *moxas* were applied over the part, which was afterwards covered by soap straps.

On the following day the tumour was softer and less prominent, and motion in the head and arm was less painful. The *moxa* was continued every morning till the 8th instant, when all appearance of tumour was entirely removed.

CASE XXV.

——— GOVRAN, aged thirteen, a patient at the Middlesex Infirmary, of a fair complexion, and bearing marks of former swellings in the neck, had a hard tumour, which had been several months forming under the chin. The tincture of iodine was administered, but was unproductive of any marked effects. The tumour, after some time, suppurated in a partial manner, and a small quantity of matter was evacuated—the orifice immediately healed, leaving an indolent enlargement, of about the size of a pullet's egg. *Moxa* was applied, and in a few days had the effect of removing all but a slight induration of the integuments where the tumour was.

Cases of *suppurating glandular tumours* might here be added, in which the *Moxa* had the effect of producing absorption of the matter; but as these tumours were only symptomatic of another disease, the *moxa* merely constituted a part of the treatment: and therefore a detailed account of them would be somewhat out of place here.

I regret to say, I have not yet had an opportunity of applying this remedy in any case of white swelling or schirrus in an early stage, to which I think its operation peculiarly applies. I would suggest a trial to those who have the opportunity of making it.

CASE XXVI.

Mr. F. R. consulted me on account of a painful enlargement upon the index finger of the left hand, which was the consequence of a prick of a thorn, and was the cause of considerable uneasiness.

On examination, I found enlargement and thickening of the tendinous sheath; and a great degree of sensitiveness was experienced on pressure. There was also an enlargement at the articulation of the middle finger with the metacarpal bone, which had rather a gouty appearance, and at times was very painful. To remove both which, a variety of means had been tried, but without effect.

The application of sometimes three, and occasionally four *moxas* daily, for a few weeks, aided by friction, with a camphorated liniment, entirely removed the latter enlargement, and so reduced the former, that it was no longer perceptible to the eye: not the slightest degree of pain remained; yet, on very minute examination, a moveable hardness, about the size of a pin's head, could be felt, and this gentleman, wishing to be perfect, as he jocularly termed it, was desirous of trying any other means which I might suggest for its removal. Thus, blistering, pressure, and friction, were practised, but without producing any further change than that which the *moxa* alone had effected, and which, in fact, was all that comfort, or the appearance of the part demanded.

CASE XXVII.

An extremely obstinate case of *phlegmasia dolens*, occurring in the practice of Mr. Allan, the employment of *moxa* was suggested by that gentleman and myself. The disease made its appearance about the usual period after confinement, and had been treated by the approved means of alteratives, low living, the application of leeches, evaporating lotions, and the recumbent posture. These means had the effect of subduing the symptoms, but did not succeed to remove them. The limbs were now enormously swollen; the skin was extremely tense—hot to the touch—in general transparent—but in some parts slight traces of extravasated blood, or extremely minute vessels, having an injected appearance, were seen. The parts had rather an elastic than an œdematous feel, and there was much pain when in the erect posture, particularly in the groins. The right limb was most inflamed. The only objection to the *moxa* was the possibility of its increasing the subacute inflammation then existing: keeping this in recollection, it was determined that the remedy should be applied, at first, in the most gentle manner, and upon the less inflamed leg only—in a manner, in fact, which was likely to stimulate the absorbents and veins, without the probability of exciting the arteries. Having thus decided, the *moxa* was at

once applied to the ankle and foot, the parts most enlarged, and was immediately followed by a soft pit or depression, and a relaxed appearance of the skin surrounding the part operated upon. After this a bandage was applied, and a most profuse perspiration in both limbs, that lasted for hours, was the result. On the following day the patient expressed herself relieved; the swelling of the limb was evidently lessened; but the pain of groin was still severe. Reflecting now upon the theory advanced by Dr. Davis on the pathology of the disease, *moxa* was applied over the femoral vein in the groin, in addition to the foot and leg; and this also was attended with apparent advantage. On the third day both extremities were submitted to the action of the remedy, and the inflammation and sensitiveness having been then somewhat lessened, flannel bandages were substituted for calico. The effect of applying *moxa* on alternate days was tried, and the result was an invariable increase of pain and swelling on the day upon which the remedy was not used. After having been convinced of this, therefore, the applications were again made once, and finally twice, daily, attended with the same gradual reduction of pain and swelling. And in about three weeks from the commencement of the treatment, the patient quitted town for the benefit of country air; very little swelling remaining in the limbs, and no pain, except after much fatigue, in standing upon them.

This last case, in particular, gives practical illustration of the operation of *moxa* in the curative process—it clearly shows, in fact, that increased action in the absorbents is the result of the modified application of *moxa*, and the immediate cause of the attendant favourable changes which are observed to arise from it.

The joint cases enumerated here, having chiefly undergone almost every possible variety of treatment, are deemed the most appropriate selection, by which to advance a fair comparative representation of the virtues of *moxa;* and the others, though in some respects less important, are equally interesting, in as much as they tend to make known the nature, the advantages, and the general applicability of the remedy. From all it may be inferred, without partiality, that *moxa*, according to the modifications now brought forward, is capable of curing affections of the joints, in which all the other known remedies are ineffectual, or totally useless—that it is at all times less inconvenient to the patient in its use, more simple in its nature, and more mild in its effects, than the remedies usually employed in the cases for which it appears most essential; and, finally, that it appears likely to become a most important auxiliary in the treatment of various diseases.

The number of cases brought forward are considered sufficient to induce men of science and liberality to put to the test of experience a practice,

upon the merits of which time and trial must decide. It is experience alone, which should ever stamp the character of remedies in the healing art. False eulogium is ever to be condemned, from the foundation which it lays of disappointment to the anxious practitioner, and of accumulating evils to the suffering patient. Exaggeration in the powers of a medical or therapeutical agent, which may tend to the exposure or forfeiture of human life, is a crime, I trust, too base to be wilfully practised:—enthusiasm, as to the powers of a recently discovered remedy, is, perhaps, morally pardonable; it is, however, occasionally, in effect, an evil of no trifling magnitude. It is true, that in the present æra of medical improvement, a practice founded in error cannot long escape public detection, and merited reprobation. It must, on the other hand, be admitted, that the effects of unskilful practices do not always admit of correction: and hence we are bound to urge and accept new doctrines with scrupulous caution.

OBSERVATIONS

ON

REMEDIES USUALLY EMPLOYED IN THE TREATMENT OF DISEASED JOINTS, CONSIDERED IN THE ORDER IN WHICH THEY ARE MOST USED.

CUPPING AND LEECHING.

In cases of inflammation, lessening the total quantum of blood in circulation is supposed by some to be all that is necessary; or rather, that one mode of letting blood is equally efficient as the other. There are a few who think that general blood-letting, in cases of topical inflammation, is even better than local abstraction of blood, on account of the depletion being more sudden; but the best practitioners give the preference to topical bleedings, where there is topical inflammation; and there being but little doubt as to the great superiority of the latter over the former, under such circumstances, I shall proceed to consider the value of cupping and leeching relatively.

It may first be observed, that when local inflammation takes place, whatever might have been the

original cause, the proximate one may confidently be said to be mechanical: the dilated and distended arteries press upon the veins and absorbents, or upon the surrounding parts, which has the same effect, and thus obstruct the free return of blood; in such cases local means are to be practised—general blood-letting would, at best, but prevent an increase of the evil—it could not remove it, until, by the abstraction of blood topically, the veins were permitted to act, by which the circulating fluid might again have free access to its original source. Local inflammation may materially vary in its nature; it may be *acute, sub-acute,* or *chronic;* and this again may be deeply seated, or superficial. These two latter states demand consideration as to the comparative efficiency of cupping or leeching. When local inflammation is also superficial, leeches are decidedly preferable to cupping: and, simply, because none of that constitutional disturbance is to be expected from the leech-bites, which would be likely to follow the shock of the scarificator, and the pressure of the cupping-glasses upon an *inflamed cuticle.* When, on the other hand, inflammation is deeply seated, and that there is no redness or discoloration of the surface, cupping maintains the superiority: as by this, the blood is taken from more deeply seated vessels, which are likely to be those upon whose deranged action the disease immediately depends; perhaps, too, the effort which nature makes to fill unoccupied space in the exhausted glass, has a

powerful effect in distending the superficial vessels, and relieving those more profoundly seated. It appears to be upon this last principle solely that dry cupping acts.

BLISTERING.

In the first edition of this work I made some observations upon the abuse of blisters; and as they were entirely at variance with established practice, many were induced to question their correctness. Of those of the profession whom I have had an opportunity of conversing with on the subject however, most have fairly stated that they had never seen any good result from the application of a blister over a joint; whilst they have all borne testimony to the baneful effects which commonly follow the use of this active irritant. The additional cases which I now lay before the public afford further proof of the injurious effects of the remedy, when employed, and but too clearly demonstrate the fact, that in the employment of this remedy medical men have generally fallen into the error of following a system which was fashionable, without pausing to investigate its nature and the principles on which it acts.

Indeed, it is to me a matter of much surprise, that so reprehensible a practice as the indiscriminate application of blisters to joints, whether in a state of acute or chronic inflammation, should so long have

escaped investigation and exposure. An investigation of the practical results will readily show the system to be bad.

In the few observations which I formerly made on blisters, I kept strictly within the limits of my own individual experience; speaking cautiously where I was doubtful, I held practice as my safest guide, and trusted but little to mere analogy. Such I conceive to be the right mode of urging facts which may have to contend with prejudice or long established systems. And in proceeding in my remarks upon a subject so important to practitioners, in particular, and to the community in general, I shall still conscientiously pursue the same course; assured that it is by the proper application of good opportunities, somewhat confined attention to particular subjects, and a scrupulous admission of apparent facts, that science is to be advanced.

On a review of the foregoing cases it will appear, that the above remedy, when practised, was invariably followed by mischievous consequences; and general experience has fully convinced me, that no favourable result should ever be anticipated from the application of a blister *to a joint which is but thinly covered:* indeed, when applied over a moveable part, or a part intended to move, in a great majority of cases, the reverse of the object in view (counter-irritation) will be the result of the practice. When the effect of this remedy turns out otherwise than what is stated in allusion to *joints*, the circumstance

depends on want of power in the blistering material, or on the cavity of the joint being at a great distance from the intervention of muscular parts, as is the case with the hip-joint: but let it be supposed, for example, that chronic inflammation is going on in the knee-joint, the question is, whether a blister immediately over the seat of the affection, or in a depending position somewhat underneath, would be most serviceable? On the very principle on which the remedy was employed, would it not certainly be more advisable at the latter point, as, independently of greater connexion between the vessels of the surface and those in juxta-position, under circumstances of chronic, or sub-acute inflammation, on applying a blister, the distended state of the local vessels, and the pressure of serum, which is a consequence, would materially tend to increase the deep-seated irregularity, both in the exhalents and absorbent vessels? Not so, undoubtedly, when a blister is applied underneath the knee, or the diseased part, because here the connexion of the vessels is not so great; besides which, the accumulation of serum, in consequence of the counter-irritation, is so far distant from the seat of the original affection, that it must divert rather than augment the disease.

Knowing, as we do, that a blister, in addition to its extraordinary effects upon the cutaneous vessels, is sometimes productive of very peculiar constitutional symptoms, is it not consistent to believe, that this irritant does not exhaust its entire influence

at the point of contact—that is to say, at the extremities of the arteries; but rather, that it stimulates, to a proportionate extent, the deeper trunks of the superficial branches, which, if the situation happen to be the *cavity of a joint*, it becomes filled with coagulable lymph. The blistering process, also, is too frequently kept up for an indefinite time; during which, quiet is strictly enjoined; at all events, the part is kept in a tranquil state until the healing of the abraded surface is accomplished; when, if pain had previously existed, it, perhaps, will have been removed; but if the joint be *thinly covered*, motion is too often lessened, or altogether obstructed. During this period of inactivity the deposited lymph accommodates itself to the internal surface of the capsular ligament, and the articulating extremities of the bones forming the joint; whilst, there being no friction applied to the *bursæ mucosæ*, they, on the other hand, cease to secrete their wonted lubricating fluid. This I believe to be the manner in which blisters do mischief, when applied indiscriminately to the immediate vicinity of joints. When perpetual blisters are employed, the muscles in the neighbourhood, from want of action, so completely lose their power, that, when an attempt is made to use them, these muscles are found to be no longer within the government of the mind, and the attempt is painful or nugatory.

Many experienced practitioners in medicine will select the nape of the neck in preference to the

head for the application of a blister, when the latter organ is the seat of disease; and I am quite persuaded that I have, more than once, seen delirium induced from the application of a powerful blister to the head of a patient labouring under a febrile affection. Here direct, instead of counter-irritation, was the result; a practical fact, which, I presume, will be admitted as additionally illustrative of what has been advanced above in regard to the *general* effect of blisters.

On a former occasion, I spoke with caution with respect to the effects of blisters over the hip-joint; indeed, I then admitted this joint to form some exception to the general observations which I offered on the bad effects of blistering. Evident as it is, however, that this part is less exposed than others to the evils of blistering, experience clearly demonstrates that its natural construction does not always secure it. So certain am I of the truth of this, that I can now confidently urge my conviction that blisters are always improper over joints; and that when even in hip-joint disease, no evil results are observed to follow their application, the circumstance depends entirely on the peculiarly well fortified nature of the joint in question, and not on the utility of the remedy. Bad effects, indeed, are too frequently apparent—I have met with several instances; and at the time of my writing this, a well-marked case of the kind is under my care. I have shown why the hip-joint is less liable to

suffer from blisters than other joints, and I have stated that the favourable circumstances described do not altogether exempt it. It remains now to point out the manner in which very serious injuries do occasionally follow the practice in question.

The effect of a blister does not consist in mere local irritation, as I have already shown, by the influence it exerts over the neighbouring vessels to those with whose extremities it comes in immediate contact. On the contrary, the whole of the nervous system of patients, to whom perpetual blisters are applied, is kept in a state of constant excitement; all the muscles of the body are rendered more or less irritable; and those to which the excitant is applied, are, of course, particularly so. To obtain relief, the patient places his whole limb in any position which he finds most convenient; and whatever this happens to be, rarely if ever extended, he dares not to alter it, fearing an increase of his sufferings: certain muscles being thus constantly relaxed, their fibres gradually contract, and accommodate their length to the peculiarity of the position assumed. During this period, another serious pathological change is necessarily going forward; the head of the femur, now deprived of motion, soon becomes firmly fixed by the surrounding spaces of the acetabulum, being filled by coagulable lymph. All pain being at length removed, however, and the inflammatory process consequently subdued, the patient's friends are congratulated on the happy

termination of the case; and the patient, elated with the joyous announcement of recovery, is at length permitted to quit his bed. It is now that the whole mischief arising from blisters presents itself—it is now that the friends and patient are to receive the first shock of disappointment, by witnessing a contracted and wasted limb, the heel not coming within several inches of the ground: unfortunately, the mischief does not entirely end here; one of two errors is yet to be noticed; the choice of this error depends, in general, upon the last advice. If a high heel be recommended, no further improvement is to be expected; the limb, on the contrary, will become still more wasted, and permanent lameness must necessarily be the result. But if, with the hope of avoiding such a termination, no high heel is employed, and the patient be instructed to walk about, a still more serious result may be expected. Appearances may at first excite hopes; but they will almost invariably prove deceptive, as will soon be evident by the gradual formation of a lumbar curvature, presenting a lamentable spectacle of deformity, such as described in cases ten and eleven. In a case similar to these, on attempting to bring the short leg to the ground, the whole of the body suffers a considerable shock, from its being necessarily brought so far and so frequently from a perpendicular line—here the thigh-bone becomes a lever, to which the pelvis is a fulcrum—the head of the femur, presenting backwards, necessarily alters

the position of the pelvis, and directs its superior part inwards and forwards, by which an arch, to a greater or less extent, is formed in the lumbar vertebræ, which are now drawn into action. Thus proceed the causes and progress of common hip-joint disease, in its chronic form; and thus generally terminates one of the most formidable maladies with which I am acquainted—a malady for the cure of which no effectual means have hitherto been laid down.

I shall now proceed to show, (if the digression be admissible) that a more simple and judicious practice than that of applying blisters should be adopted in the first instance.

The following of several cases, treated in precisely the same manner, and attended with similar results, may suffice to illustrate the point.

E. S. —— a delicate girl, twelve years old, was taken from school, in consequence of general indisposition, and having been noticed to walk lame, was brought to the Middlesex Infirmary, in the beginning of the present year, for advice. The history given was, that the lameness came on slowly, and almost imperceptibly, and that pain, which was experienced in the hip-joint, was considerably increased by long standing or much exercise. On placing the child in the horizontal posture the pain was much diminished; but pressure, so directed as to bring the head of the femur in firm contact with the bottom of the acetabulum, had not only the

effect of renewing, but of greatly aggravating, the sufferings of the patient. There was considerable emaciation and debility—the abdomen was tumid, the countenance was pallid—the tongue was slightly furred, and the bowels were constipated: in short, there was every symptom of derangement in the digestive organs, if not diseased action in the mesenteric glands.

Two important objects suggested themselves in the treatment of this case; first, the expediency of correcting the disordered state of the *chylopoietic* organs, and secondly, that of preventing the advance of the hip-joint disease: for these especial purposes, small doses of calomel and jalap were frequently administered, a dozen of leeches were applied in the direction of the joint, anteriorly; and particular instructions were given to the child's parents not to permit her to walk or stand, till fatigue, or pain in the joint, should be induced. After limited exercise, which was recommended for the purpose of improving the general health, she was instructed to confine herself chiefly to the reclining posture. This practice was continued, the leeches having been repeated three different times, and at the expiration of a few weeks all pain and lameness were removed.

Had this girl been constantly confined to her back, and treated by the application of blisters, I entertain no doubt from the peculiarly delicate state of her health, that permanent lameness, if not death, would have been the result.

SETONS AND ISSUES.

Setons and issues differ so little in their mode of action, that a consideration of them under separate heads might appear superfluous. As counter irritants, however, they differ very materially from blisters; and a knowledge of their comparative value is of some importance.

When there is deeply seated sub-acute inflammation, a seton or issue is to be preferred to a blister; first, because its action is of a less local nature: and secondly, because the discharge produced by it is of much more dense consistence. The irritation from either is considerable; but the greater extent of surface, exposed by blistering, and the necessity of the patient's being confined under their application, constitute serious objections to the blistering system, if even a permanent drain be deemed proper.

By a seton or issue, deeper vessels may be affected, which, after a time, becoming much relaxed by the efforts of nature to supply the waste caused by the discharge, the disease, if deeply seated, is, in this manner, more systematically treated than if an application were used which did not form an outlet for the matter it occasioned. What is of importance, also, other vessels than those in the immediate vicinity are not perceptibly excited by this mode of perpetual abstraction. It should be kept in recol-

lection, that the favourable operation of a seton or issue depends upon the discharge which it excites, and a change in the current of blood from the affected part to that whence the discharge proceeds. Hence the propriety of applying such remedy at some distance from the affected part, instead of its immediate vicinity, as is generally practised. Much caution, in the use of these remedies, is necessary, as, when continued for a short time only, they seldom do good; and if, on the contrary, they be employed for a great length of time, their effects are conspicuous in wasting of the muscles, and consequent diminution of power in the limb so acted upon.

Consequences, sometimes serious, indeed, follow the precipitate healing of a seton or issue; as the blood, not being accommodated at the usual outlet, finds its way to some other part, where there is most susceptibility and predisposition to disease; the head, the lungs, the liver, or, perhaps, some less important organ in the vicinity of the now obstructed discharge, will suffer from sudden influx of blood. When such is the case, the topical application should be again made; and great caution ought to be observed against permitting the issue to be prematurely closed.

Mr. Brodie,* in speaking of caustic issues, says, "I have employed caustic issues, and seen them

* See Brodie's invaluable work on Diseases of the Joints.

employed in a great number and variety of instances, and have found them to be usually productive of singular benefit where the cartilages were in a state of ulceration, and to be of much more benefit in those than in the other morbid affections to which the joints are liable."

FRICTION.

ALL substances being susceptible of electricity, it is by a modification of this extraordinary power that the operation of friction induces changes in a diseased part. The remedy is now in such common use, that its effects are generally known; but the manner in which it acts, so as to induce those effects, has certainly not attracted equal attention: a circumstance which accounts for the numerous failures consequent upon its indiscriminate employment by ignorant persons.

If long continued friction be made upon the skin, it becomes red, inflamed, and blistered: effects which depend upon the excitation of latent heat; as when, by the same means, heat or flame is produced in inorganic matter. From this species of electricity the part becomes filled with *sensible heat;* the local vessels and absorbents are excited, by which indurated cellular substance and slightly

thickened ligaments may be relaxed, and the disease, supposing it to be in a joint, and not deeply seated, may be greatly lessened, or altogether removed. A slight rigidity of muscular fibre, such as the sequelæ of rheumatism, or cold, may be benefited by friction; but if there be long-continued contraction, and, consequently, shortening of muscle, or much ligamentous thickening, this remedy will have but little effect. When there is any degree of pain, or a sensation of morbid heat in the part, friction is altogether inadmissible.

A recent author,* observing upon this subject, remarks—"We have only to witness the operations of a professed rubber, to be convinced, that if the practice were superintended by one acquainted with anatomy and pathology, much benefit would result from it, while there would be no risk of the patient's life being endangered by its indiscriminate application."

SHAMPOOING.

The mode of performing this operation differs materially from that of friction, although they both act upon the same principle. Shampooing consists in a succession of movements upon a joint, and is calculated to effect purposes there, which would be

* Shaw on Distortions, &c. &c. p. 153.

beyond the powers of friction. By shampooing heat is excited in the manner already described; in addition to which, the deeper parts of the joint are affected by the articulating ends of the bones acting upon each other. The circulation in the arteries is excited by this increase of motion, and the return of blood is facilitated by the greater action of the muscles upon the veins. The *bursæ mucosæ* are pressed upon, and excited to the secretion of *synovia:* the thickened ligaments are actually elongated, and the fibres of the contracted muscles are necessarily relaxed by the force thus applied to them.

MANIPULATION.

Manipulation differs from the above, and appears to possess peculiar but limited advantages: it is performed by grasping the muscles and fleshy parts between the hands, and making a certain degree of pressure; a process which, in addition to friction, appears well calculated to effect favourable changes in cases of wasted limbs, where, from deficiency of nervous influence, and natural action in the nutrient vessels, that portion of animal heat, which is absolutely necessary to the healthful functions of the parts, is not generated.

As PERCUSSION, KNEADING, and THUMBING, do not appear to possess any particular advantages one over the other, it may be sufficient to describe the mode of performing each; considering them as so many modifications of *friction*, *shampooing*, or *manipulation*.

First, then, percussion signifies repeatedly striking with the ends of the fingers, the hand employed being contracted into the form of a cone;* *kneading* consists in alternate pressure by the knuckles of both hands; whilst *thumbing* has the appearance of going more minutely to work, by alternately pressing with both thumbs.

ELECTRICITY AND GALVANISM.

To comment fairly upon the advantages of any remedy, it is first important to consider the manner in which that remedy operates; and, perhaps, if such consideration be entered into here, it will be evident that there are no means, which, from their peculiar nature, demand more caution in their employment than electricity and galvanism. It is now generally admitted, that these measures are of less consequence in the treatment of chronic disease than was

* Percussion is an important auxiliary in investigating the diseases of organs situated within the cavity of the thorax.

formerly supposed; yet it is not to be inferred from this, that certain cases may not be materially benefited by a judicious application of them; but rather that it is in the knowing how to limit the precise quantity of electric matter to the particular nature or urgency of the case, that the difficulty rests.

In the administration of every class of medicine, the quantity given is carefully considered; and it is in proportion to the quantity given that we are accustomed, from experience, to anticipate results.

Lightning, or a powerful electrical shock, may instantaneously destroy life: experiment and experience teach us, that it is through the medium of the *nerves* that this subtle fluid produces that and all other immediate effects upon the animal economy: and that the reaction, which takes place in the vascular system from electricity, under ordinary circumstances, is a secondary consequence of nervous influence only.

From this cursory view of the physiological action of electricity, it will appear evident, that this remedy, when practised with the caution which it requires, is more particularly applicable in paralysis, and consequent wasting of the muscles from deficiency of nervous influence, and a diminished action in the vessels which should nourish the affected part, than in any other species of chronic disease. And even in the above cases, from the critical nature of an electrical machine, depending upon peculiarities of the weather, and a variety of other causes, the

practice, I fear, will remain uncertain with the scientific electrician, and hazardous when conducted by those less experienced.

EFFECTS OF VAPOUR.

The vapour bath having been highly extolled in the treatment of many chronic diseases, particularly those of the joints, it is entitled to some consideration here. This remedy has been used in different ways, and under a variety of denominations, as medicated vapour baths, &c. precisely as such artifices might appear best calculated to mislead the public, and answer the private purposes of their *Charlatanic projectors*.

The application of vapour or steam, confined to an affected part, from plain boiling water, is certainly a remedy of considerable importance in particular cases of affections of the joints; but it at all times demands the exercise of equal judgment in determining upon the proper period for its application, as in the selection of cases for which its employment may be deemed appropriate. In recent affections of the joints, depending upon mere muscular rigidity, after the entire subsidence of inflammatory symptoms, its effects are sometimes very conspicuous in giving freedom to the parts: and I have occasionally known it to assist other measures

in relaxing muscular contractions of long duration. But in affections which I have believed to be seated in the ligaments or tendinous expansions, I have never known the employment of vapour, unaided by other means, to be of the slightest permanent utility. In some constitutions, it is uniformly attended with bad effects—in all it produces temporary, and in many, lasting debility in the parts upon which it is made to act. It sometimes also predisposes to cold.

PRESSURE FROM STRAPS, &c.

The practice of producing pressure by means of adhesive straps and plaisters, constitutes the important secret of a certain practitioner famed for the treatment of joint diseases. By many, it is supposed that the occasional favourable results from this process, depend upon some specific ingredient which enters into the composition of the application employed, without being aware that it is to a mechanical operation, solely, that favourable results, when they do occur from the above means, are attributable.

There are, undoubtedly, many cases of slight affections of the joints, in which moderate pressure, by means of properly adjusted bandages alone, would prove highly serviceable, by giving support

to relaxed muscles and ligaments, by preventing an accumulation of blood in dilated veins—by exciting the lymphatics to the absorption of serum; and, finally, by lessening the spaces for its deposition in the cellular membrane. Cases also occur, in which the bandage would not succeed, and which would admit of cure or much benefit from oiled silk, from soap straps, from the India rubber spread on any elastic material, such as worsted, or from any other composition which is pliable and not porous. By such applications, other effects besides those which have been attributed to the bandage, are produced—evaporation is prevented, and heat is accumulated, which has the effect of giving a greater degree of excitement to the absorbents. Another advantage is sometimes the result of binding up a diseased joint (the cause of which, I presume, is not always understood, either by the practitioner or patient); namely, that when a joint is bound up, there is less motion in the parts, and less friction on the cartilages covering the approximating bones, than if the joint were subjected to all the motions of the body: and thus quiet, which frequently could not be obtained by advice, is secured by certain and effectual means.

Such are the principles upon which pressure, from the application of straps, bandages, and plaisters, acts. By this explanation, it may readily be perceived that, in extensive practice, numerous cases will occur, in which the employment of these means may be highly useful—but let it be remembered,

that such a treatment is not only generally inefficacious in obstinate contractions, but very frequently injurious, by preventing all motion and obstructing the return of blood by the veins: several such instances have occurred to me.

In conclusion, it will be manifest, I think, that *moxa, friction, electricity, shampooing, manipulation, vapour, pressure from straps*, &c. &c. all operate upon the parts to which they are employed by the heat which they generate; and that each will exhibit its beneficial effects precisely in proportion to the judgment evinced in deciding upon the applicability of the remedy to the nature, seat, and stage of the disease: that, on some occasions, one of these measures will suffice, where a combination of them would be hurtful; on others, a judicious selection of more than one measure will be admissible; and in certain cases, many or most of them may be employed, at the same time, with propriety and advantage.

It would be impossible to lay down any but general rules of guidance, as to the particular cases in which a single remedy might be more serviceable than if it were combined with others, from the constant mutability of circumstances, and the very great difference existing between cases which, at first sight, appear to bear a strong resemblance to each other. It is personal experience alone which must decide these nice points in practice.

AN INQUIRY

INTO

THE NATURE

OF

AFFECTIONS OF THE SPINE; AND THE POWER OF THE MUSCLES, WHICH ARE MORE PARTICULARLY CONCERNED IN THE MOTIONS OF THE TRUNK.

Of the numerous deviations, from the natural and healthy condition of the human body, none, with the exception of *phthisis pulmonalis*, is productive of so much apprehension and alarm, to the more mature and thinking part of the community of this country, as a spinal disorder, whilst to the suffering individual, it is incomparably the most distressing malady that "flesh is heir to." And such are the varieties in its nature, so widely different, and even opposite are the causes which may influence its progress and form, and so short is the period which has elapsed since the pathology and treatment of spinal complaints have called forth zealous investigation, that knowledge upon these subjects is as yet necessarily imperfect.

Much, I admit, has lately been published upon this interesting subject; but, when it is taken into consideration that the respective authors of the day, who have all obtained more or less praise for their labours, have each advocated doctrines which completely differ in their nature and tendency, the conclusion must follow, that the medical world has not yet come to any conclusive opinions upon the subject.

For a proof of this, I would refer to the recent publications, in which it will be found that some authors attribute curvatures of the spine to a disease of the vertebræ, independent of any of the surrounding connexions; others state the cause of spinal diseases, generally, as being in the muscles; others, in the intervertebral cartilages; and some say it constantly depends upon a strumous state of the individual in whom the malady appears.

The treatment consequently varies, with such conflicting opinions regarding the causes and pathology of spinal disease; and thus it is that one practitioner urges the use of the inclined plane without qualification; a second advocates friction; a third insists on the climbing of ropes; a fourth, on the use of oils rubbed upon the affected part, whilst the patient is in a *semi-bent* position, placed upon an excavated bed; a fifth, on the use of perpetual blisters; a sixth, on carrying weights on the head; a seventh on the *gymnastic exercises;* an eighth, on the use of tonic medicines, &c. and, to prevent being tedious

by further enumeration, a ninth, on the administration of the extractum conii!!!

Now surely all these practices, some of them diametrically opposite in their nature, cannot be universally applicable to the same condition; and as we have it upon record that each of the above modes of treatment has proved successful, is it not fair to infer that diseases of the spine are so varying in their character that they admit of means of cure the most opposite in their nature, and consequently, that to assign any one cause as universal in the production of spinal disorders, is not only erroneous, but that the adoption of the same practice in every case will ultimately prove fallacious?

In accounting for the causes of spinal (or indeed any other) diseases, it is astonishing to observe the efforts made by authors to justify the adoption of some favourite theory; selecting all the cases and arguments which are favourable to their doctrines, they too often, whether from scepticism or intention, pass unnoticed, facts which would have a tendency to disprove their particular opinions. Nothing can be more injurious to the cause of science, generally, than this mode of systematizing; and nothing, it must be admitted, tends more to retard medical knowledge, in particular, than such evidently partial mode of investigation.

It has been shown, that the diseases under consideration are now more frequent than they formerly were; and the present system of dress and education

being evidently unfavourable to muscular development, has in a great degree accounted for their acknowledged increase. But the acknowledgment of this fact has led to a very serious mistake with many in the profession, namely, the opinion that all spinal affections depend upon a deranged state of the muscles which act directly upon the spine: whilst the true state of the case is, that these causes are frequently mere excitants to particular predispositions, as well as exclusive agents, as I shall endeavour to illustrate in the course of my remarks.

It is within the last few years, particularly, that medical men, possessed of anatomical and physiological knowledge, have condescended to study the above affections with any degree of zeal; and, strange to say, it is within the last few years, more particularly, that these affections have grown into a serious and threatening evil to the rising generation.

Is it that we are really degenerating? Or is it because knowing more, we actually fear less, and more confidently practise imprudence? Or, finally, is it that indulgent parents, forgetful of the health and future happiness of their incautious children, with unremitting efforts to make them surpass those of their neighbours, impose upon them duties for which nature never intended them? Be the intention what it may, it is quite certain that the present system of education contributes much to the vast increase of spinal disorders amongst young ladies. The fashionable *mania* for a jumble of classical,

historical, and mathematical knowledge, and the violences practised in restraining natural growth, by means of stays, and badly constructed and misapplied instruments, give rise to more cases of deformity than accident and hereditary disease united.

The period of intense application which the above studies demand, is necessarily of such duration, that serious inroads upon the health and constitutions of delicate young females must follow. From the position attendant upon studies of this kind, the superior part of the trunk being inclined forward, and pressing upon the inferior part, curvature of the spinal column is almost a necessary result. The pliable bones, not having yet completed their ossific process, readily give way to the superincumbent weight, whilst, by the delicate ligaments following this motion, the intervertebral cartilages are compressed, and must, in time, accommodate themselves to this unnatural attitude.

The attitude which writing and practice at the harp requires, is more likely to be productive of lateral inclination than of any other curvature in the spine. *Labour* at the *piano*, demanding a still more unfavourable position than even the above-mentioned studies, is still more injurious to the health of young persons; both arms being thrown forward, and in action at the same moment, with the head greatly inclined for the purpose of reading the notes. In the one case the ribs, and consequently the lungs, are compressed laterally: whilst, in the other, the

spine is bent forward, and the lungs are again exposed to pressure superiorly: thus the dorsal muscles, in some degree, lose their contractile power from overaction, whilst those of the chest cease to be useful, from being deprived of all action, giving origin at once, perhaps, to deformity and pulmonic disease.

These are the evil results of the present overweening desire to press knowledge upon the female mind: the constitutions or habits of delicate females qualify them not for such active discipline. But let it not be inferred from this, that those elegant accomplishments, which adorn and grace the youthful imagination, are to be entirely withheld: no; education properly conducted, is a blessing to society: but let it be recollected, that there is such a quality as genius, and that this quality particularly applies to music. One young lady, for example, with the same degree of attention, may acquire more in one hour than another, who is not equally endowed with the essential faculty of musical ear, will do in five. In this latter instance, would it not be cruelty to urge what nature opposes? Perhaps the individual not gifted with musical genius will manifest strong literary talent, and arrive with facility to a degree of perfection in a knowledge of history and languages, which, pressed upon the other, would be harsh and extremely impolitic, from the great length of time that would be necessarily expended in its acquisition.

Almost every one, without prejudice to the constitution, is equal to the task of becoming well acquainted with her mother tongue, and of obtaining a certain degree of knowledge in French, Italian, and music; but even to these acquirements the mind should be applied with caution; regulating the duration of its active state to the mental powers generally—the constitutional peculiarities—and last, not least, to the direct genius or taste of the young person, upon whose early habits so much is at stake. Mothers and governesses cannot think too seriously of these matters; as they form considerations of vast importance to the future happiness of those in whom they are deeply interested.

Over anxiety on the part of a mother, to see her daughter superior in regard to acquirements, is sometimes attended with lamentable consequences; as, from incessant application, amounting to drudgery, a young girl is often rendered a cripple for life, and thus becomes an object of pity instead of admiration to the society in which she moves.

It is important to state, that the foregoing observations apply to persons of delicate constitution only, in whom no hereditary pre-disposition to scrofula exists; and that a cautious discrimination between diseases which resemble the above malady, and those which are in reality of that nature, is of vital importance to the patient, and may greatly preserve the private interest of a whole family. The circumstance, that the very name of scrofula is offen-

sive, clearly points out the necessity of correctness or delicacy in the application of the term. Yet, in the whole catalogue of human afflictions, there is not another disease so incautiously spoken of by the profession; and, when spinal or joint disease resists the usual mode of treatment, the case is commonly pronounced to be one, for which nothing further can be done, as being scrofulous and incurable! Thus the practitioner is at once guilty of subterfuge, to prevent the accusation of want of skill, and of precluding the possibility of cure by further trial.

On the other hand, it behoves him to be wary, lest he in turn be imposed upon; because, from the objections entertained against the idea of labouring under this complaint, a patient who is, *bona fide*, affected with it, and that hereditarily, will, perhaps, *thank God*, that neither he, or any of his family, were pre-disposed to that dreadful affliction the "KING'S EVIL."

The practice of wearing tight stays, and of long continuance in the same posture, the means most generally productive of distorted spine, as has been remarked, are certainly not followed by bad consequences in every case; but if there be a scrofulous tendency in the individual thus exposed, the chances in favour of disease will then be greatly multiplied, and the results, if any, will be of an infinitely more serious nature. When, under circumstances of this double character, curvature does takes place, inflammation, ulceration, or caries is next to be ap-

prehended: the symptoms, however, are so well marked, that no surgeon should risk his reputation by an opinion, which was not founded upon previous minute investigation and inquiry; *bearing in recollection that a curvature of the spine, depending simply on delicacy of constitution, and bad habits, may take place unpreceded or unaccompanied by threatening symptoms; whilst inflammation, ulceration, or caries, which are more generally concomitant with scrofula, will be characterised by serious symptoms*, such as I shall now proceed to explain.

ON THE MORE

COMMON CAUSES, SYMPTOMS, AND PROGRESS

OF

SPINAL DISEASES;

COMMENCING WITH INFANTS.

In the early period of infancy the province of the nurse is important, and should be strictly watched over; persons employed in that duty, happily, have but little to do with the after-habits or practices of children: yet it is melancholy to observe the fact, that the short period of nursing, if this duty be ignorantly or carelessly performed, is sufficient to lay the foundation of incurable lameness, and the most lamentable state of deformity. From bad nursing alone, numbers of promising infants have all their happier prospects circumscribed, if not entirely ruined.

The degree of tightness with which the roller is sometimes passed, is alone a sufficient source of mischief, by obstructing the circulation, or pressing upon some of the soft parts, contiguous to an important nerve; the delicate and but slightly resisting muscles of the abdomen, for example, in juxta-posi-

tion to the bifurcation of the iliac arteries, or the commencement of the great ischiatic or crural nerves, may be the parts acted upon.

When dressing the child, it is a common practice of the nurse to place it between her extended knees, for the purpose of convenience in passing the roller; and to prevent resistance on the part of the infant, she now presses upon its hips and shoulders, and if this be forcibly done, as sometimes it is, the feeble muscles and unossified spine readily give way, and thus is laid, perhaps, the foundation of lasting distress to the child and its parents.

Throwing an infant down in a careless manner, and in a position from which it cannot move, may so act upon the spine, or so disturb the functions of a joint, as to induce curvature in the one, or serious disease in the other; even fatal results undoubtedly do, occasionally, take place from this censurable conduct.

In infants, in whom hereditary pre-disposition to disease exists, that pre-disposition will be readily excited by any of the causes pointed out above; a whole family may have a scrofulous tendency, and yet the disease may only make its appearance in the person of one of many children; such occurrence depending, generally, upon accident or neglect:— sometimes a more delicate state of the mother, immediately preceding, or after the child's birth, will give rise to this striking difference in the health of her family. When there is a liability to the disease

in question, an early and incautious licence to run about is frequently attended with serious consequences; and a total exclusion from every kind of exercise, on the other hand, is not less culpable. A wise medium here is, therefore, of consequence; and the timely advice of a judicious surgeon, at this critical period, may stop the career of a disease, at once threatening the health of a child, and the happiness of its anxious parents.

When an infant is put to nurse, whether fashion or indisposition of the mother be the cause, these evils are likely to be greatly multiplied, consistently with the adage, "out of sight out of mind." It is, therefore, advisable, that every healthy mother should *suckle* her own child, keeping it as much as possible within her observation for the first year and a half: if, on the contrary, she be unhealthy, that circumstance should, undoubtedly, plead for an exception to this general rule; but still, the nurse and infant should be within the control and instructions of the mother.

The most important duties of the nurse are to attend to the general indications of health, such as regularity of bowels, the continuance of appetite, of playfulness, and of vigour and expression in the eyes. If any of these characteristics be wanting, the approach, if not the existence of ill-health, may be suspected: the cause should then be vigilantly sought after; and, if not readily or satisfactorily ascertained, the appearance of the infant, when un-

dressed, should be particularly attended to; the spine and extremities should be minutely examined, and, to prevent the mischief frequently arising out of a rash conclusion, gentle pressure should be made upon the abdomen, to ascertain, if possible, whether flatus or inflammation exist; and, finally, if all the other means of obtaining satisfactory evidence of the cause of indisposition fail, the ears and other external passages should be examined. I have lately, on more than one occasion, found inflammation and the irritation arising from the lodgment of foreign bodies in such passages, produce much derangement of health; and thus satisfied myself, the source of mischief was not in the spine.

When the child begins to walk about, predispositions will be more likely to be excited from the circumstance of more motion in the different parts of the body, as well as greater pressure being produced upon the susceptible parts by means of the erect posture. Even now, the sypmtoms of spinal or other disease will be obscure from want of intelligence on the part of the little patient, they will, however, be less equivocal than in the more infant-like state.

During the earlier period of life, more particularly, constitutional predispositions are wont to show themselves, and that in proportion to the occurrence of exciting and accidental causes.

When, after the capability of walking, this faculty, instead of becoming more perfect, appears to

decline, and that tripping, tottering, and falling, are more frequently observed than for some time previously, attended by paleness of the face and more or less general debility, spinal disease may be supposed to be commencing: and if, on inquiry and examination, the parents, and their children, if there be any, are healthy, and that no glandular swellings are to be seen about the child, or no pain, on pressing upon the different parts of the spine, the complaint will, in general, prove to be solely muscular. But if, in addition to the symptoms described, there be glandular swellings about the neck, axillæ, or groins, *and pain in any part of the spine*, which is to be ascertained by the child's crying, on the application of pressure, the existence of a predisposing cause becomes almost certain, and the case is to be viewed as one of a more formidable character than where such symptoms are wanting. If timely attention be not paid to such case, symptoms of languor and lassitude will appear; the muscles of the lower extremities will become soft, flabby, and thin; the abdomen will generally become tumid; the bowels will be almost always out of order, pain will be induced by the erect posture, and curvature of some kind or other will now be manifest. When the complaint goes to the extent of destruction of ligaments, ulceration in the cartilages, or caries in the vertebræ, the symptoms will become more marked and severe; tumours will, generally, form over the seat of such diseased process—these will frequently

suppurate—sinuses will form—and a dark fetid discharge will escape. The general health will now suffer serious deterioration from hectic fever, loss of sleep, and debilitating nocturnal perspirations; and if the disease, whether through the mediation of nature or of art, does not take a suddenly favourable turn, after arriving at this melancholy crisis, the patient will inevitably sink.

Having, in this brief manner, endeavoured to show the more common and remote causes of spinal complaints, it will be right to treat a little more closely of the precise mode in which these causes operate in their production: and that my explanations and reasoning may be rendered as clear as possible, I shall endeavour to adopt as systematic and brief a plan of arrangement as the nature of the subject will admit: commencing by a consideration of the natural structure and original purposes of the bony fabric of the spine; next the intervertebral cartilages; then the nature of the spinal ligamentous attachments; and, lastly, a more minute investigation into the power and influence of the dorsal, pectoral, *and still more particularly the abdominal muscles:* offering such pathological observations, *en passant*, as the nature of the subject, or this mode of treating it, may suggest.

Regarding the *osteological* part of the subject, it must be clear that, although in a work of this kind, it would be superfluous to enter into an enumeration of every process, depression, and foramen, destined

to the origin and insertion of the smaller muscles, and the passage of minute nerves and blood vessels, it is yet highly expedient to bear in mind the economy of the general arrangement, as well as the more important and conspicuous peculiarities, such as the increasing size of the vertebræ, as they descend towards the pelvis; next, the manner in which each vertebra is articulated one with another; and, lastly, the specific cause of motions which are peculiar to each of the three subdivisions of the spine, namely, the cervical, dorsal, and lumbar portions.

Commencing with the cervical vertebræ, we observe them to be considerably the smallest; their bony structure, however, having a canal or hole for the passage of the spinal marrow, &c. very much larger than that of the others. In the superintendence of this arrangement, nature has watchfully provided for an accommodation of parts, whilst she has as strictly guarded against superfluities: this is particularly conspicuous in the bony structure of these vertebræ, being evidently proportioned in size and strength to the comparatively light weight which they have to sustain; and also in the great width of the passage destined to the spinal marrow; this last being of much greater volume at and near its exit from the brain than elsewhere.

The action of the atlas upon the second cervical vertebra, explains the rotatory motion of the head, whilst the smallness of the articulating surfaces, added to less depth in the oblique processes, and an

independence of all secondary support, clearly account for so much free motion in this part of the spine.

The case is different with the dorsal vertebræ, they being in every respect more firmly secured—here the oblique processes are deeper, and the articulating surfaces are broader; besides which, the ribs afford support laterally, and the thoracic viscera tend to keep the spine erect, by their direct connexion and support in front.

On reaching the lumbar portion of the spine, we find the bony base still deeper than in those of the dorsal vertebræ, and having no lateral support from ribs, strength and security are maintained in them by the inferior oblique processes of each vertebra being locked, as it were, between the superior oblique processes of its fellow underneath. It must be manifest, however, that there is, naturally, infinitely more mobility in these than in the dorsal vertebræ, and that the occurrence of curvature here, is much more probable than in those of the back, which are so powerfully supported by the ribs, &c. But that, when curvature does take place in the dorsal vertebræ, it will be more difficult of cure, than will that of the lumbar portion, from its more firm and unyielding nature.

The original affections to which the bones are liable, are *mollites ossium*, scrofula, and rickets; either of which is capable of influencing all the

agents concerned with spinal motion, so as to establish curvature.

Of the intervertebral cartilages, it is sufficient here to observe, upon their original nature and purposes; namely, their elasticity and intermediate situation, by which free motion is permitted, and friction is prevented, upon the articulating surfaces of the different vertebræ. These cartilages admit of very considerable change from their natural size; absorption, and consequent diminution, following increased pressure, whilst, by relaxation and liberty, they are capable of adding considerably to their volume.

Turning now to the consideration of the ligamentous attachments of the spine, we have first brought to recollection the powerful and extensive ligamentous bands, named *ligamentum anticum communæ vertebrarum*, and *ligamentum posticum communæ vertebrarum;* the one situated anteriorly, as its name implies, and embracing the convex surface of the vertebræ from the superior to the inferior extremity of the spine: the other, situated within the spinal canal, and occupying space to a similar extent. Besides these, there are the transverse, the intervertebral, the interspinous, and the capsular ligaments; all affording a beautiful specimen of the wisdom of nature in giving harmony, strength, and mobility to this complicated union of parts.

It may be considered a general rule, that liga-

mentous disease is only symptomatic of some previous affection, originating either in the bones or muscles.

From this general view of the spine, the intervertebral cartilages, and the spinal ligaments, it is less difficult to comprehend the nature of the different curvatures, of which the connecting medium is susceptible: if, for example, one or more vertebræ or their cartilages, whether from disease or accident, should become of unequal thickness on opposite sides, the spine will of necessity drop to the thinner side, which, now sustaining the greater share of weight, must become compressed, consequently prevented from extending its size in proportion to the other side, which, being thus freed of its natural weight, affords the intervertebral cartilages of that side, the power of enlarging and filling up the now augmented intervertebral spaces, and consequently preventing all natural efforts in the parts themselves, from re-establishing the original state of perpendicularity.

Whether the morbid change alluded to in the cartilage, originate in paralysis, in neighbouring disease, or in certain attitudes, which have been already noticed, causing more or less obstruction, and consequent inequality of vascular distension on opposite sides, is of little moment; the effect will be the same: the parts of that side in which the obstruction exists, being deprived of the usual supply of nourishment, will waste and shrink, whilst those

of the opposite side will become more prominent and full, from the circumstance of increased muscular action, as well as a greater impetus of blood being now directed to it. When, from abscess or caries, there is reason to suspect destruction of any of the ligaments which have been enumerated, such suspicion should regulate the prognosis, and cannot fail to point out the great importance of the view which has been given of the parts in their natural as well as unhealthy condition.

It is of consequence to bear in mind, that ligament, like muscle, is elastic, as is practically exemplified in the ankle joints of the opera dancer, and in all those of the *harlequin* and *stage clown*, without particular exception. In these cases the relaxing process must commence at an early period to enable the future performers to arrive at any thing like perfection. I have seen the foot of a young *aspirante* to opera honours so pulled upon by a teacher in drilling, that the child, on every such occasion, unavoidably cried from the great pain which was thus inflicted upon it.

Such knowledge as this, regarding the property of the ligaments, and that of accidents occurring to the knee-joints, causing fracture of the patella, rather than a division of its ligamentous attachment, may serve to show the nature of those *reputed* cases of lacerated ligaments of which we occasionally hear; and should induce caution against an accommodating acquiescence in any previous professional

opinion which may have been given of the state of the ligaments, founded upon the mere position and appearance of the parts concerned.

If further proof than that already advanced were wanting to illustrate the elastic properties of ligament, and consequent susceptibility of great morbid changes, independent of any disorganization of texture, I might refer to several of the joint-cases brought forward in the first part of this volume for a fuller and more satisfactory development of the point at issue: in the cases alluded to, inflammation, shortening, and thickening of the ligaments, constituted the primary cause of contraction in the joint; whilst wasting, contraction, and rigidity of the flexor muscles, holding control over the motions of the affected limb, constituted a mere secondary consequence of the disordered condition of the ligaments. The same observations apply to the ligaments of the spine, in respect to the intervertebral cartilages. As to volume alone, these last are susceptible of very considerable changes. Undue pressure, continued for any length of time, will promote absorption, as has been before stated, and thus diminish the thickness of the cartilage upon which it is made; whilst that of the opposite side will suddenly add to its size, being now entirely ungoverned and unrestricted in its growth: the ligaments will soon accommodate themselves to this state of things, and a disordered state in them will become a secondary affection to that of the cartilages, just as the affection

of the muscles may become subservient to that of the ligaments in the manner pointed out above. A cartilaginous affection, then, will be followed by a ligamentous affection, and this will be accompanied or followed by a muscular affection; and all will sometimes proceed without apparent cause, with the most insidious, yet uniform and constant pace. The following is a curious case in point:—

An officer in the public service, feeling himself gradually sink on one side, took professional advice; but as, on examination, no deformity was *apparent*, and no other symptoms existing to justify, in the opinion of his medical friend, the above apprehension, the case was regarded as one not of any consequence, if not entirely attributable to a fanciful notion of the patient.

I was first consulted in February, 1825, two years after the commencement of the complaint, up to which time, according to the account given, the evil in question had been gradually gaining ground, but without the slightest pain or uneasiness; nor was there any constitutional symptom to account for this change, except occasional languor, and an eruption of pimples over the face. On examining the spine in the most careful manner, there certainly was no appearance of curvature; but, on a view of the side affected, (the left,) a general concave appearance was visible, and the abdominal muscles were so relaxed from this position, that they formed a loose fold which hung over the crista of the ilium. Supposing

that the intervertebral cartilages of the sinking side were undergoing gradual absorption, and that there was much derangement of the digestive organs, I advised the patient to take rest in the recumbent posture as frequently, after fatigue, as the nature of public duties would permit. Decoction of sarsaparilla, with occasional small doses of blue pill, were prescribed, and the tartarized antimonial ointment was directed to be applied to the affected side of the spine—with these instructions the patient returned to the country. Not finding his complaint give way, however, and being unable to carry the necessary practice into effect, he gave up public employment for the time, and in the beginning of last winter he again came to town for more regular attendance: his general health was now improved, but the local affection had, if any thing, increased. On examination, in consultation with one of the first surgeons in London, no irregularity could be detected in the appearance of the spinous processes of the vertebræ from their original course; nor was there, on the strictest measurement, any evident difference in the length of the lower limbs; the affected side, however, maintained the peculiarity of appearance which has been noticed; and on measuring him, whilst standing on different limbs alternately, the extraordinary difference of two inches, was found to exist; he being five feet six inches upon the sound leg, and only five feet four upon the

other; a high-heeled shoe was now, and had been for some time, worn.

There was still no pain in the back, hip-joint, or limb; but the muscles of the whole side, and still more particularly those of the extremities, were considerably diminished in volume and power. I confess I was at first greatly at a loss to account for such an extrordinary difference in the height of the patient, when placed upon different limbs, particularly as there was no marked curve in the spine, no diminution of length in the limb, or any previous symptom to justify the belief that caries and absorption of the head of the femur, or destruction of the cartilage lining the acetabulum, had taken place. The facts described, however, were visible, although the nature of the causes upon which they depended was not so clear. From every possible view of the case, it appeared to me that the intervertebral cartilages of the side affected were all, or most of them, undergoing a morbid change, from an increased action in the absorbents—that all, or most of them, were undergoing this change, appeared most consistent, from the circumstance of no abrupt or acute angle appearing at any particular part of the spine, as would have been the case had the cause of disproportion, under the circumstances already explained, been confined to a limited number of the intervertebral cartilages. Having thus decided upon the nature of the case, the patient was in-

structed to exercise the muscles of the affected side; those of the arm, in raising a weight of a few pounds, by means of a pulley; and those of the lower limb, by swinging a leaded shoe: the performance of this second process to take place whilst the muscles of the superior extremity were kept in a state of extension, by holding a rope, so placed above the head, as to require some effort to reach it. By this varied motion the whole of the affected muscles were brought into action, and the superincumbent weight of the body was entirely, for the time being, removed from the previously compressed cartilages, and thrown upon those of the opposite side: this was long continued, and frequently repeated, with the intention of consolidating and lessening any new-formed substance which might be supposed to be as yet but imperperfectly organized, from its rapid and unnatural development. After some fatigue in the manner above described, the patient was desired to take rest on a sofa, preserving such a position as would keep the muscles of the affected side upon the stretch, and consequently relax those of the opposite side, and gradually tend to straighten and restore the spine to its natural state; friction was superadded, and strict injunctions were given not to take long or fatiguing walks, and after every occasion of exercise to resume the reclining or horizontal posture. After a few weeks of this treatment the muscles acted upon became fuller and stronger, and the high heel

became greatly lessened by actual wear. At the expiration of four months the concave appearance of the side was removed, the abdominal muscles had lost their loose or folded appearance, the crista of the ilium was again as conspicuous on one side as on the other, and the high-heeled shoe was no longer necessary; the foot coming now in perfect contact with the ground. The patient observed, however, that a long walk had still the effect of causing a slight sinking; to prevent a return of the complaint, therefore, a further continuance of the curative means laid down was strictly enjoined.

Here the muscles, ligaments, and cartilages were all manifestly affected; the two former, however, were effects only of the latter cause.

We now come to the consideration of the power and influence of certain muscles, more particularly, over the motions of the spine; and consequently of the effects of casual occurrences to these muscles in the production of spinal disorders: as, therefore, the myological remarks which I propose to make here are intended to be specific rather than systematic, I do not deem it necessary to enter upon a review of the different hypothetical disquisitions extant regarding this interesting subject; but simply preface my observations by endeavouring to impress upon the reader's recollection the fact, that the muscular system is capable of undergoing more modifications, whether from the operations of nature or of art, than any other system belonging to the animal machine.

The effects of habit and exercise upon the muscles are particularly conspicuous in the legs of the footman and opera-dancer; the neck and shoulders of the porter; the arms of the pugilist and mechanic; and in the limbs and wings of the swifter tribes of animals.

Much has undoubtedly been appropriately said by other writers, on the present subject, upon the importance of muscular motion to the healthy performance of the animal functions; and much attention has been paid to the particular operations of that class of dorsal muscles upon which it is supposed the perpendicularity of the frame chiefly hinges; but I am quite persuaded that the effect is very often confounded with the cause, and that when a spinal affection is entirely attributable to a muscular affection, the abdominal, and not the dorsal muscles are those in which the malady *generally* originates; as I think I shall be able fully to explain.

I have stated that stays, and badly constructed, or misapplied instruments, which are intended to improve the figure, have a strong tendency, on the contrary, to cause deformity: this, it is presumed, will be readily admitted, as will also the general opinion that the abdominal muscles are important agents in the process of digestion; yet every individual, whom those observations concern, may not be acquainted with these circumstances. And even some of those, whose province more particularly it

is to investigate the action of the abdominal muscles over the digestive organs, think that little more than the fact of their influence being through the medium of mechanical action is necessary to be understood. But this is far from being the case, or the practice of pressure, which is here so much denounced, would, above all others, conduce to health.

In considering the influence of these muscles, then, let them be viewed as having a double office ; one, as they relate to the spine, by virtue of their situation and power, in opposition to the extensors of the back ; and the other, as they more directly apply to the stomach and alimentary canal.

First, then, as regards their influence in increasing the power of these parts, let us observe the origin and insertion of each muscle, and, finally, the course, distribution, and arrangement of its fibres individually: it will thence appear that, from some ascending and descending obliquely, others transversely, and those of the *rectus*, alone, being directly longitudinal, the muscles of the abdomen possess a vast variety of power and action. Again, bearing in mind the undoubted necessity of this variety, in the distribution of the muscular fibres, let us just reflect upon the great length of the intestines, and the numerous contortions and circumvolutions which they necessarily undergo in consequence. Observe next, that the excrementitious matters have to descend, ascend, and pass transversely, corresponding to the number of turns or figures which this passage

makes: thus it will appear, that *simple* mechanical pressure, whilst it would be favourable to descent, would effectually obstruct the two other actions, and it may be inferred, that the complex arrangement of parts externally, from a wise provision of nature, constitutes a co-adjutant power to the internal parts, and that they both act simultaneously; the vermicular or peristaltic action of the latter being excited by the egesta in their passage, whilst the former are obedient to the ordinary process of breathing: these natural and combined actions establishing what, in medical language, is commonly called *consent*.

Taking for granted, then, that these powers, free and unrestrained, are of immediate importance in the process of digestion, and that this process, so maintainted, is absolutely necessary to the enjoyment of good health; we can easily be induced to believe, that any thing obstructing the action, or interrupting the functions of the abdominal muscles, whether from mal-position, or improperly applied mechanical pressure, will induce indigestion and ill health;* and that, when this takes place, the patient becomes affected with loss of appetite, lowness of spirits, and aversion to action: in short, the flesh wastes for want of nourishment—the muscles become relaxed for want of exercise—and the spine sinks, or loses form for want of its usual support.

* The pale countenance of the weaver, the shoemaker, or the taylor, whose occupation admits not of free-action to the abdominal muscles, is fully indicative of indigestion from that cause.

It may be urged, that I have attached too much importance to the muscles of the abdomen in the production of distortions, and that I have not sufficiently regarded the action of their antagonists, or those muscles which are more particularly in direct opposition to the *recti abdominis*, namely, the *longissimi dorsi* and *sacræ lumbales*. Here I would just observe, that although these last named muscles, by their counter-action, prevent the spine from dropping forward, and when excited to over-action may do much towards restoring its original shape, yet it is still certain, that very formidable curvatures may take place without any important change being effected in these muscles. If this were not the case, the attitude of tying the shoe, or drawing on the stocking, which puts these muscles infinitely more on the stretch than the position which I have endeavoured to show is so highly injurious to those of the abdomen, would be decidedly fatal to all future contractile power in the extensors of the back. Indeed, when the balance between antagonist muscles is lost, the circumstance does not so much depend upon unnatural extension, as it does upon unnatural contraction—the elongated muscle will rapidly contract, and accommodate itself to any assumed position, when the powers which extended it are removed or drawn into approximation; but the reverse of this is not so easily effected with a contracted muscle. This may be further illustrated by at once referring to lateral curvature, where the patient, whether from

disease, or from bad habit, inclining much to one side, an inverse action of the *longissimi dorsi* and *sacræ lumbales* is the consequence; those on the one side, having their length diminished, whilst that of the others, upon the opposite side, is proportionally increased. Here, remove the cause, leave these two muscles to contend one against the other, and it will be found that the contracted one will still maintain the sovereignty: but excite the elongated muscle, which, by its powerful contractions will become shortened, its antagonist will be proportionally lengthened, and thus may symmetry and the natural balance of power be again, in a great degree, restored.

It has been stated, in objection to the opinion of *lateral curvature* being caused by the muscles of one side of the spine being stronger than those of the other, that, "If the distortion depended on an undue action of the muscles of one side of the spine over those of the other, the curve would be always in the form of a single arch, instead of its being of a serpentine shape, as it generally is, between the points from which the muscles arise, and those into which they are inserted;"* But this, if right, does not explain the nature of the serpentine form, which I believe to be this:—

A child has disease, for which it is confined to bed, continuing in the same position for a great length of

* Shaw on Distortions of the Spine, p. lxviii.

time, during which there is of necessity, from some local irritation, great lateral inclination of the spine; on this side, the muscles at first are relaxed, but from accommodating their length to the same constant position, they contract, and prevent the patient from standing erect when he gets up; thus a single arch is formed.

The patient now, endeavouring to regain his perpendicularity, excites the antagonist muscles, which draw part of the spine to the other side, forming another arch; and that this should be so is not strange, since the cause in either case is different. Nor is it at all extraordinary, that a double curve, or serpentine form, should be produced by a greater action of the muscles of the spine of one side than in those of the other, at *different times;* although I would not be understood to say, by this admission, that one set of antagonist muscles was necessarily stronger than that opposed to it. If a branch of young green wood, or a piece of soft iron wire, be bent into the form of an arch, and, on reversing its position, the same degree of force be applied, still holding it by the extreme ends till it changes form, it does not follow that the material will become straight; the probability is, that some new part will give way, and that another curve in the opposite side will take place, on the extreme ends being brought to right angles.

It is fair to state the opinions of another writer on this subject, more particularly as they are at

variance with those just given. Mr. Bampfield, in "an Essay on Curvatures and Diseases of the Spine," which contains much useful observation, expresses himself thus—"The benefits and effects of mechanical extension and pressure may be partly illustrated in the following manner: although it will strike every body, the analogy between the condition of the spine and whalebone is not a strict one. Take an elastic substance, for instance, a piece of whalebone, of the dimensions and figure of the spinal pyramid in its natural state; bend it into a curved form, retain it in such, or increase the curvature gradually for some months: on removing the retaining power, employ entension by pulling at each end; let pressure be simultaneously applied on the middle of the curve, and the bent whalebone will be reduced to a straight line. After a short period, remove the extending and compressing powers, and the curve will be re-established to a certain degree, less than before, by the elasticity of the whalebone: continue these powers for a long period, and it will appear nearly straight on their removal. To a certain extent the same results follow the same means in curvatures of the spine. In the incipient stage of distortion, the curve can be reduced by those powers to a straight line, and could be retained there, if the patient could bear their constant use; but this he cannot do: in the advanced and confirmed stages, before an anchylosis has taken place, these powers, exerted in

the degree easily bearable by the patient, are unequal to reduce the curve to a straight line at once, but, *gutta cavat lapidem*, in the course of time these powers greatly assist in accomplishing it."

As far as the above observations apply to the whalebone in question, they are undoubtedly just; but, agreeing with their author, that "the analogy between the condition of the spine and the whalebone is not a strict one;" and freely acknowledging, that that between the soft iron wire and green wood and the spine is also rather distant; I would observe, that whalebone, from its elastic nature, and the continued unbroken course of its fibres, bear less comparison to the many-jointed spine, than any other pliable substance with which I am acquainted.

If we bend a piece of whalebone till its extreme ends meet, no perceptible alteration will take place in the structure of the parts which compose it; but if, on the contrary, the spine be bent unnaturally, and remain in that state for any time, some of its joints will be more particularly affected; and, if the moving powers of the spinal column be excited, it will generally happen, that *nature* will partially remedy the defect, and restore perpendicularity by the formation of a slight serpentine figure, rather than by the removal of the original arch. Where there is an inclination only to the formation of an arch, it may be effectually remedied; but when curvature has actually taken place, its removal will be found

more difficult than inducing a change of position in any other part of the spine: as might be conceived from merely reflecting upon the opposite qualities of the parts concerned in its various functions. In a word, muscle, ligament, cartilage, and bone, differ so widely in their nature, that although an affection of the muscles, if continued for any length of time, will extend its influence to the ligaments, the cartilages, and perhaps, finally, the bones and *vice versa* —yet, as well from the state of the constitution as from other causes, such may be the variety in the degree and kind of organic lesion, induced in one or more of these parts from the others, by the same *original* affection, that it by no means follows that counter pressure upon the projecting point, will produce the desired effect of straightening the spine.

In *anchylosis*, which is by no means an uncommon consequence of long-existing spinal disorder, in scrofulous habits in particular, it is manifest that counter pressure can affect nothing but counter curvature, either above or below the anchylosed portion of the spine; in *mollities ossium*, this effect may be daily observed, from the mere operation of the muscles alone: and even where curvature depends upon great contraction of the ligaments, counter curvature will be the result of pressure upon the projecting point, unless the unaffected portions of the spine, be judiciously supported at the same time.

It is asserted, by a respectable author, that affections of different parts of the spine, are attributable

to causes peculiar to themselves—the expressions of the author alluded to, are:—

"My opinion of the curved spine is, that, *in every instance*, it depends upon, and is produced by, a morbid condition of one or more of the vertebræ, their connecting ligaments and cartilages, whether as the effect of scrofula, rickets, external violence, or other causes.

"With respect to the contorted spine (or lateral curvature), my opinion is very different. I consider it to be an affection *totally* independent of any disease or diseased action, either in the vertebræ themselves, or in their connecting ligaments or cartilages, and that it is produced, *in every instance*, by a peculiar affection of the muscles of the back, &c."*

Now, I can have no hesitation in saying, that these opinions will not bear the test to which the unqualified manner in which they are offered, fairly subjects them.

It is undoubtedly true, as may appear from the outline description already given of the anatomy of the spine, that certain parts of the spinal column, the cervical and lumbar portions, for example, are more subject to the mere influence of the muscles, than that composed of the dorsal vertebræ; and that, consequently, lateral curvature, which is found to affect the lumbar portion of the spine chiefly, is more generally attributable to an affection of the

* Dods on Contorted Spine, pages 28, 29, 30.

muscles, than of any of the other parts of the moveable column; but this is the *general state of things only*, depending upon causes which I shall briefly explain.—The cervical and lumbar portions, I have before shown, do not enjoy lateral support, like the dorsal portion, which is proped, as it were, by the ribs, and is less under the immediate control of the muscles; the former, therefore, are more liable to be thrown from the true sphere of their axis at their weakest point; and this is laterally. But it does not, by any means follow hence, that lateral curvature is invariably to be ascribed to a peculiar affection of the muscles, independently of predisposition or other cause.

With respect to curvatures of the dorsal vertebræ, they, of course, on a *post mortem* examination, will usually exhibit more extensive morbid changes in the bones, intervertebral cartilages and ligaments, than do the other vertebræ; and this, not because the fault originally was not in the muscles, but because this species of the complaint, from the nature of the parts affected by it, must always be slow in its progress, and, consequently, of some standing before it is very perceptible: when, therefore, such complaint terminates fatally, or we have an opportunity of examining the precise state of the parts after death, a great morbid alteration of structure will commonly present itself, but this, the result, proves nothing as to the original cause; which may vary in almost every case.

A young gentleman, whose family was scrofulous, had a fall, and soon after experienced pain about the centre of the lumbar portion of the spine; but there having been no external appearances to account for the feelings described, but little attention was paid to the accident for some time. At length, lateral curvature made its appearance, accompanied by a gradually declining state of the health, both which increased in spite of the adoption of various judicious means of cure: he finally became permanently crooked, and the lower limbs, but particularly the one of the side affected, partook of the effects of the general disorder, which undoubtedly was a constitutional affection brought into action.

A very different result was noticed, but a little time after, in the person of a healthy lad, who, in consequence of a blow in the side, from a cricket ball, was confined to bed for several weeks, for the treatment of a muscular tumour, which was the consequence of the accident. From the pain which this occasioned, he naturally kept himself in that position which most relaxed the injured muscles: finally, on the cure of the local complaint, as well as the constitutional symptoms attendant upon it, he was permitted to quit his bed, when his friends were alarmed by the appearance of a formidable looking lateral curvature: the medical gentleman in attendance, supposing that a constitutional peculiarity existed in the patient, was not only dilatory in the application of active measures, but constantly

insisted upon the expediency of tonic remedies alone. Thus the spinal complaint rapidly increased as the patient gained flesh under an improved state of the general health. Second advice was at length resorted to—a systematic treatment of friction, exercise, and a judicious position were recommended, and, in about three months from the commencement of this plan of treatment, the boy recovered his entire and original straightness.

Here, then, were two cases of lateral curvature, which no one, I presume, would deny were of a very different character: in the first, I think, it must be clear that the mischief originated in the lumbar vertebræ, or the intervertebral cartilages, altering the structure and position of those parts, gradually acting upon the neighbouring ligaments, and finally on the muscles, as the last link to complete the chain of disordered action.

In the second case, on the contrary, there can be no doubt that the unnatural action of the muscles alone, during confinement, was productive of the curvature, by causing preternatural pressure upon one side of the intervertebral cartilages, and thus destroying the balance of support in the manner explained, when considering the nature of the cartilages in question.

Besides those mentioned, the lumbar portion of the spine is subject to another species of curvature, depending upon hip-joint disease, in which the muscles, if they are agents at all, are very feeble ones—

in truth, they are only concerned in this case, because their powers of support and resistance are, in time, rendered unequal to the force and influence of the real cause. This kind of curvature is of very frequent occurrence, and yet, I have never met with a single observation regarding it in any of the works devoted to the consideration of spinal disorders. Indeed, the nature and treatment of this formidable malady, taken in conjunction with its cause, the hip-joint affection, appear to have been entirely passed over as irremediable, and consequently unworthy of the trouble of investigation: if this were not the feeling of authors on the subject, surely systematic works would be found to contain some remarks upon a state and position of the human body, the most unseemly and distressing.

Two cases of this affection having been already given in the early part of this volume, (Cases X. and XI.) with accompanying observations upon their nature and causes, it is unnecessary here to reiterate my remarks. I shall only add, that I am perfectly convinced, that nine cases out of ten of those distressing complaints, which have just been described, and which are to be met with every day in London, and all other large towns, will admit of very considerable relief, and in some instances, of complete cure, by the means which I have suggested and practised in their treatment.

We now come to the consideration of curvatures of the dorsal portion of the spine more particularly;

and these, to prevent prolixity, may be considered under one general head; namely, external curvature, including angular projection. In this kind of curvature predisposing causes are more obviously necessary than in any of the other species, from, as I have before explained, the natural powers of resistance, which this part of the spine offers to any undue or irregular action in the dorsal muscles engaged in its motions. Thus it is, that, in the form of the complaint now under consideration, we are enabled generally to trace the pre-existence, if not the continued action, of scrofula or rickets; and thus it is, that this complaint, under ordinary circumstances, is observed to keep pace with the train of constitutional symptoms of which it becomes a part. If we examine the skeletons of persons who have died of *mollities ossium*, we shall find that this affection of the bones varies very considerably in different subjects, and that it sometimes operates with singular activity and intensity upon certain bones, leaving some comparatively, if not altogether, free from its baneful operation. If we carry our investigation still further, we shall find that, although the surface of the diseased bone will have a smooth healthy appearance, yet, by the application of slight pressure, it will break between the fingers, the internal structure being almost destroyed or removed by absorption, and generally leaving behind a few irregular winding passages only, divided by isolated portions of the now remaining honey-comb-like centre, to support

its thin and little walls. From a knowledge of the pathology of this disease, we may easily conceive the danger which the subjects of it incur by practising violent exertions; and we may be enabled to comprehend the cause of the occasional sudden deaths which we hear of in persons apparently healthy; and in whose brain, heart, lungs, or other vital organs, (the spine and spinal marrow unexamined and excepted) not the slightest aberration from the healthy state could be detected by the strictest *post mortem* investigation. The following case is well calculated to illustrate this.

A lady, whose family I have reason to believe was scrofulous, but in whom not the slightest appearance of that complaint had ever manifested itself up to the time about to be noticed, whilst engaged in washing her hands, felt something suddenly give way in the lower part of the back, accompanied by a noise or crack, from which she fell and fainted: this was followed by pain which gradually subsided; but, unfortunately, a similar event soon after took place, and from that time the lady in question was rendered unable to move about without crutches. About two years, I think, had elapsed from the period at which the latter accident took place to that of my seeing her, during the greater part of which time she had been acting under the instructions of some of the first men of the profession, without any amelioration of the complaint, or their having come to any decided opinions as to its real nature. It

should be observed, that the accident was soon after followed by a jutting out of the hip of the painful side, and that this, which was, in my opinion, a mere consequence, materially tended to draw attention from the original cause, which, I think, undoubtedly consisted in a fracture of some part of the inner portion of the last lumbar vertebra, adjoining the commencement of the sacral nerves, and that the displaced portions of bone had come in contact with those nerves, by which the loss of power in the lower limbs, and the attendant affection in the hip-joint, were accounted for.

But to return to the dorsal vertebræ, I would observe, that they, from their less moveable nature, are more favourably arranged than are the other vertebræ, for the operation of certain remote and predisposing causes. Such, for example, as scrofula, syphilis, and their worst consequence, caries. And, as there is here more resistance afforded to external violence, fracture and luxation, are more frequently met with in this than in the other portions of the spine. Any of the causes just named would be sufficient to effect serious morbid changes from the natural and healthy condition of the above part; producing, in some instances, considerable organic lesion, in others, certain decomposition and destruction of bone, and in many the death of the patient, by immediate injury to the spinal marrow; or by offering an insurmountable impediment to the circulation.

When scrofula or syphilis attacks the vertebræ (at an advanced period of life) the consequences are generally of a particularly serious nature; the extent of their course and consequences being ever, under these circumstances, extremely doubtful. If the destructive process be slow, the progressive approach of the curve will be so insidious, as frequently to escape attention till a considerable stoop is established: but if the action, which characterizes caries, be rapid, a sudden sinking will be the result; collision between the points of bone, forming the boundaries of the destroyed portion, will take place; and, if accurate apposition does not happen, pressure upon the spinal marrow, producing consequences proportioned to its degree, sometimes paralysis, and occasionally sudden death, will necessarily succeed. The most favourable termination of this occurrence is angular projection; and in this, the tedious train of symptoms and sufferings are frequently of a truly pitiable character; dyspepsia, dyspnœa, asthma, palpitation of the heart, œdema, and a diminution of power in the lower extremities, bring the more common attendants.

I had a hurried opportunity lately of examining a female, who died from an accumulation of the protracted evils to which this misfortune ordinarily gives rise: in this case, scarcely a trace of the dorsal muscles remained over the curvature, several of the dorsal vertebræ appeared to be engaged in forming the angle externally; but, internally, actual destruc-

tion of bone did not appear to have existed in any but one, and this to a limited extent. The heart was pressed forward considerably out of its natural situation, which was in part occupied by the left lung; and the ascending portion of the aorta was considerably bent upon itself, its natural diameter being materially lessened, and offering consequently much obstruction to the circulation: thus, long previously existing symptoms of derangement in the system were accounted for, such as swelling of the limbs, a disordered condition of the stomach and bowels, difficult respiration, with sudden changes in the countenance, from a pale to a dark livid appearance.

The above causes are those which most frequently give rise to dorsal curvature, hump back, or angular projection; but these maladies, the former in particular, are by no means uncommon consequences of other causes, such as phthisis and rheumatism, upon which I shall offer a few general remarks.

It may be said, perhaps, that phthisis is a complaint so closely allied to scrofula, that the one may be considered a modification of the other, and that it is somewhat inconsistent to treat of them as separate causes. To this I would observe, that *phthisis pulmonalis* is not always an idiopathic disease, and that it is under this view I am about to consider it in this place, as an occasional predisposing cause of curvature. The following is one of numerous cases, which might be added, calculated to explain my meaning, and to supersede the necessity of a more

tedious mode of elucidation. A gentleman with whom I was intimately acquainted from the years of boyhood, and whose friends I knew to be free from all the symptoms of phthisis or scrofula, possessed the indications of a most healthy and sound constitution, as well in the appearance of his features as in his form. On the approach of manhood it became his lot to encounter the vicissitude of the elements, in various climates, by which he was frequently much exposed to disease. After a few years of this sort of life, on suddenly changing from a hot to a cold climate, he was attacked by violent inflammation of the lungs, from which he recovered, but was never after able to raise himself to his previously erect posture—no doubt, from the formation of extensive adhesions. From this time the bent position of the body gradually increased, but without the slightest symptom to justify the belief that disease in the bones existed. The predisposition to pulmonic disease was now formed, and it was frequently brought on by exposure to the same causes which had produced it, till at length he became decidedly phthisical, and, finally, fell a victim to the disease. An extensive curvature had now formed, caused entirely, as was proved on examination, by an altered condition of the muscles and intervertebral cartilages, the latter having, to a great extent, acquired that peculiar uniform appearance which is noticed to result from long-continued pressure.

Rheumatism is, perhaps, a less frequent cause of curvature than phthisis—it is, however, an occasional cause, and therefore merits attention. When this disease is productive of curvature, its situation is necessarily in the pectoral and other thoracic muscles. When these muscles are affected, the arms and head are instinctively brought forward to avoid pain, which would be the natural result of placing the above parts, and consequently the fibres of their connecting muscles, on the stretch. These muscles, under the above circumstances, become mechanically relaxed, whilst the latissimi and longissimi dorsi are stretched to a corresponding extent; and the dorsal vertebræ accommodate themselves to the position of the muscles governing their action. If the rheumatic action be violent and continue for any considerable time, this altered condition of the parts not only establishes itself, but increases, from the effect of the superincumbent weight upon an inclined support, even after the cure of the original disease. I have seen several cases of extensive curvature in the dorsal vertebræ from the above cause alone.

The morbid affections to which the cervical vertebræ are subject, constitute the next and last subject for consideration here. The cervical portion, from circumstances already noticed, is not equally exposed to the same causes which affect the other parts of the spine. It has less superincumbent weight to carry, and having naturally much free motion, a

latent constitutional disorder is not so likely to be excited in it by the mere contact and pressure of the parts. It is in this part of the spine *chiefly* that incurvation takes place; such affection is almost impossible in that part of the dorsal vertebræ which is connected with the true ribs; and but rarely happens *as an original affection* to the lumbar vertebræ, and those to which the false ribs are attached. The cervical vertebræ are susceptible of internal, external, and lateral curvature: the first, if not the most common, is certainly the most serious; we shall, therefore, commence with it.

In the production of incurvation in this portion of the spine, we are capable of recognizing and distinguishing several causes. First, those strictly constitutional, and which proceed without apparent excitement; next, constitutional causes influenced by casual occurrences; and, lastly, those which may be attributed to accident, altogether independent of previous constitutional disease.

Under the circumstances comprehended in the first distinction, the inclination of the head backwards goes on generally in the most slow and regular manner, till, in many instances, the occiput appears to be in contact, and supported by the commencement of the back, the shoulders being raised considerably on either side, apparently for the purpose of affording lateral support. Under the circumstances alluded to in the second division of causes, the constitutional predisposition may be so slight as

to require excitement, such as would result from rheumatism in the muscles of the neck, causing what is commonly denominated *wry-neck*, from cold, causing glandular tumours, or in the lower orders of society, carrying heavy loads on the head. Whilst those understood by the last description of causes may consist in injuries done to the muscles by wounds, by operations, by blows, or by the effects of severe chronic rheumatism. Lateral or external curvature of the cervical vertebræ, or the inclination of the head forward, will be generally found to depend on some one or more of these latter causes alone. External curvature of the dorsal vertebræ, and internal curvature of the lumbar and cervical vertebræ, may be frequently observed to affect the same individual at the same time; the latter very often depending upon the efforts of the afflicted individual to avoid the former, by elevating the head, and throwing it backwards.

ON THE NATURE OF CONTRACTED

OR

CHICKEN CHEST.

In some persons a habit of stooping, depending on physical cause, frequently hereditary, is to be observed; not this, however, but malformation of the chest, arising from diseased action, is the subject for consideration here.

If inflammation of any of the thoracic viscera (but still more so, if in the pleura pulmonalis) take place, the patient, without consideration, being prompted by his feelings, will incline the head forward upon the chest; the internal parts, in this position, having more play from the increased diameter of their boundaries. And, if the disease continue for any considerable length of time, a *suite* of symptoms follows, which are sometimes erroneously attributed to adhesions of the *pleura*, or to some other organic change in some of the viscera.

It is not intended to convey an idea, that adhesions do not occasionally take place; but it is maintained, that the following is an invariable result of long

continuance of the above or similar causes: as, in the attitude alluded to, the *trapezii* and transverse fibres of the *latissimi dorsi* muscles are uninterruptedly put upon the stretch; the *sterno cleido mastoidei*, the *pectorales* major and minor, and the *intercostales* become relaxed to an equal extent. These last, from a long period of inactivity, waste until the appearance of muscle is no longer discernible; the ribs make a nearer approach towards each other, and, with the sternum, cease to be acted upon by the lungs, now only partially inflated, in consequence of loss of power, and mobility in the external parts. To assist in this unnatural change, the arms are brought forward, pressing upon the scapular ends of the clavicles, which reacting and pressing upon the sternum, tend to direct it forward, and establish the nature and character of the malformation; whilst the antagonist muscles, from their fibres being elongated and exhausted, by over-action in the same position, are rendered incapable of direct influence over the comparatively inanimate mass opposed to them. All the diseases, studies, or amusements, which contribute to the above position, tend to cause chicken-chest.

EFFECTS

OF

EXERCISE AND DIET,

AS PREVENTIVES TO

SPINAL DISORDERS.

I HAVE before spoken of the injurious effects of over-exertion in the early acquirement of accomplishments. It now follows, that I should offer some observations upon the injurious consequences of disobeying Nature in her dictates regarding food and exercise. And here I would beg to be understood to confine my remarks, in the present instance, in a great measure, to the child of nature, whose stomach, that all-important mediator between sickness and health, is not supposed to have paid forfeit for past imprudences, nor yet imbibed the seeds of future diseases. My remarks here, therefore, will be more directed to prophylactic than dietetic measures, which latter are more particularly applicable to those over whom Art has commenced her influence, or to the perfect creature of the world, who has long been used to indulge in unnatural and artificial luxuries.

It may appear to many quite superfluous to state, that instinct, that extraordinary principle, which in-

cites the young of every description, from man to the lowest grade of *polypi*, to seek for his first and natural sustenance, should never be denied the gratification of its wants till the sources destined by nature to supply those wants have become either insufficient in quantity or injurious in quality. Yet such is our present state of *refinement*, to make use of a popular term, that the newly-born babe is now generally glutted with some sickening artificial compound for a stated period, rather than be permitted to indulge in the natural desire to suck which is so invariably manifest. The breast is what the infant seeks—it is what Nature destined for its first support—it is therefore that of which it should not be deprived when it can be procured. The period for confining an infant to the breast alone must ever be uncertain, depending entirely upon circumstances, chiefly the state of the mother's health: as a general rule, perhaps, nine months may be considered as a reasonable medium. Weaning is always a trying time for infants—the change from natural sustenance to that of food entirely artificial is a most critical one, and demands discrimination and judgment. At this time the chief care should be to imitate, as closely as possible, that of which the infant has just been deprived; and, for this purpose, milk should at first constitute the principle article; next to this, farinacea; and, last of all, animal food, and that in its most simple form.

Exercise is of vast consequence to the health of

infants as well as that of children further advanced; indeed, if that degree of exercise, which is consistent with instinct and the dictates of nature in healthy children, were permitted, our numerous rules and restrictions relative to diet, at a more advanced period of life, might with propriety be greatly curtailed. If habit and instruction, in fact, did not materially interfere with the more natural desires of the youthful mind, the present system of *dietetics* would be found, if not injurious to health, at least incapable of affording any assistance in an attempt to cure.

The infant in arms should be encouraged in every attempt which it makes to give motion to its limbs and body—it should be frequently danced by the nurse, and exposed as much as is compatible with circumstances to the influence of the open air. As it gains strength, it should be permitted to roll about on a carpet or rug; in this way it will soon find the use of its lower limbs, upon which, however, it should not be prematurely forced to labour in efforts to stand or walk, on account of the mischief which is but too frequently induced in the spine or some of the joints. Perhaps, there is not another exciting cause, which so frequently brings *strumous* predispositions into action, as that of placing infants too early, or keeping them too long, on their feet. It is after this period, that attention to diet is more particularly demanded, and here much difference of opinion prevails.

By some it has been maintained, that as every nation has its peculiarities in cooking, and in the nature of the food cooked, so has experience taught, that the mode of living adopted in every climate is best adapted to its inhabitants; but this, although a general opinion, is not strictly correct, as may be readily shown by referring to any one climate, in which there are various tribes, each having its particular religious creed, and each, in consequence, having for sustenance a particular kind of diet. This error, cannot, perhaps, be better illustrated than by comparing, in India, the abstemious Hindoo with the more indulgent Mussulman, and, in our own climate, the habits of the peer with those of the peasant. By this mode of comparison and inquiry it will be seen, that more depends upon a strict observance of early habit than upon any peculiarity of climate.

Professional men in this country, who have taken a different view of this subject, observe, that the inhabitant of the Continent, whether his general repast be *ragouts* and *fricassees*, or *rice* and *macaroni*, will enjoy better health by continuing their use than if he were to change for the solid and more substantial dishes generally introduced at our tables; an observation which, in an abstract sense, is perfectly correct; but it only proves, that this circumstance, instead of depending upon climate, is the undoubted result of assimilation of constitution to early habits. Hence it will appear, first, that good

health does not much depend upon the kind of food used; and, secondly, that, in disease, the medical practitioner will act wisely in directing his attention rather to the quality and quantity of the usual nutriment, than to any material change in its nature.

A few years back, the practice of recommending a vegetable diet, in almost every description of chronic disease, was so common in this country, that it might then be pronounced *fashionable*; but such mode of living having been inconsistent with the habits of the people, it was found to be unsuccessful, and is now pretty generally condemned; at least by those of the profession, who, instead of *fashion*, will take reason and experience for their guides.

If a reciprocal admission of the importance of attending to early habit, between our brethren of the Continent and practitioners of this country were made, less cause for argument, as to the superiority of medical practice, would exist; and the advantages of the different means of cure employed would be fairly admitted. My opportunities for observation of the treatment in the continental hospitals, compared with what, in different parts of the world, I have seen practised on British subjects, have convinced me, that the simple diluting principle, followed by our professional neighbours on the Continent, in cases of violent inflammation, and attended with a tolerable degree of success, would be almost invariably fatal in similar cases in patients of this

country; whilst the system of copious depletion, so eminently serviceable here, would be altogether inadmissible in those countries wherein an animal-food diet is in less general use.

Thus it will appear, that all rules relative to diet should consist in a judicious and well qualified attention to habit, and an assurance that no specific ordinance, with respect to food, *will universally apply*.

GENERAL OBSERVATIONS

ON THE

PREVENTION AND TREATMENT OF SPINAL DISORDERS.

In considering the treatment of those spinal diseases, which are commonly met with in practice, I may set out by observing, that from the vast number of causes which may directly or indirectly induce changes in the form of the spinal column, no treatment can be laid down as the one in which implicitly and invariably to confide. If it be true, as I humbly think it is, that the muscles destined to effect the various positions which, in a healthy state, the spine admits of, may be either primarily or secondarily affected; that curvature of that pyramid, which supports us in an attitude of dignity peculiar to *man*, may take place preceded or unpreceded by scrofulous diathesis, or disease of the spinal ligaments or intervertebral cartilages. I am then fully persuaded, that the precise nature of each case should be carefully investigated, and that upon the peculiarity of the affection alone is a sound and effectual practice to be founded.

In former days, men started into practice with certain doctrines, which they thought it was their

duty to defend till their last moment, with all the possible ingenuity, interest, and determination of a political partizan, who is ever to be observed taking one decided and unyielding position in the agitation of public questions. In the present day, on the contrary, no individual thinks he ought to be bound down by the shackles of former medical doctrines — improvement is now comparatively rapid; but in the midst of this, as may be expected, errors arise—new causes are assigned to disease; and a specific treatment is often laid down, which will not bear the test of general experience. In the political world, a temporizer, as certain characters are sometimes styled, is held in contempt; but such should not be the case with regard to the medical practitioner; caution and qualification should attend his steps and regulate every practical measure which he suggests.

In order to act upon this principle, as nearly as is compatible with the nature of written instructions, I shall first offer some general observations upon the prevention of spinal complaints in young persons of delicate health, whether from predisposing or other causes, proceeding afterwards to the treatment. This I shall conduct after the manner which I have adopted in the investigation of the causes.

The bowels are at all times, and at all ages, a most prolific source of disease, their condition, therefore, cannot be too closely watched at the approach of a spinal complaint, or in persons apparently predis-

posed to such complaint. Much discretion, however, is requisite in determining on the quality and quantity of the purgative, as well as the fittest period for repeating it. I know of no system of practice which has been more abused than has that of purgation within the last few years particularly: and I have more than once lately seen fatal convulsions follow the excessive use of purgatives in infants.

If a child appear to be drooping from excessive torpor in the bowels, calomel alone, or combined with scammony or any of the other drastics may be administered with great propriety; but such medicine should always be followed by castor oil, or some other purgative equally mild in its action; and should be repeated at very distant intervals only, lest it induce, what is by no means uncommon, a diseased state of the mucous lining of the intestines.

If there be any marks of a strumous diathesis, calomel should be altogether withheld. In such cases, remarkably small doses of blue pill, combined either with rhubarb or antimonial powder, will be most appropriate; and they even will require management—as I have said above, the doses should be very minute, and the period of repetition so regulated as to excite healthy secretions merely. If carried beyond this, the blue pill may affect the salivary glands, and in that case be productive of much constitutional irritation, by quickening the circulation.

In scrofulous children, a dry air, and warm clothing cannot be too strongly recommended; an occasional warm salt-water bath is often serviceable; as are steel, bark, and other tonics, when judiciously administered: and the mere circumstance of change of situation will often be attended with manifest advantages, even where there is no reason to suppose that the atmosphere of the place visited is in any degree more salubrious than that of the former residence.

When, from any of the causes which have been already mentioned, in relation to children or young persons, whether from accident, bad management, or the development of hereditary predisposition, a child is threatened with spinal disorder; when, in fact, there is an inequality in the action of the muscles which govern the motions of the spine, the cause must be studiously sought after; and, if depending upon debility from worms, indigestion, any particular visceral disease, or scrofula, suitable measures for the treatment of that particular complaint are first to be employed for their removal: the consequences are next to be attended to, and, if entirely confined to the muscles, a *modification* of the practice first proposed by Mr. Grant, and afterwards advised by the late Mr. Wilson, of carrying a weight upon the head, may be serviceable. I say a modification of this practice, and which I would confine to the child's being taught to balance some light substance whilst walking about: there

being more difficulty in balancing a light than a heavy substance; a fact well known in experimental philosophy, although at variance with ordinary opinion: besides which, the efforts made to keep the light substance steady are just sufficient to give equal action to the muscles, without overpowering, by excess of weight, those in which action is already defective.

If the patient be arrived at years of discretion, advice will have more avail—it will then be appreciated and attended to; and, under these circumstances, means of cure may be suggested, which would be totally inconsistent with children.

I was lately consulted by a delicate young female, a teacher in a school, regarding an inclination to the left side, which had been gradually coming on for eighteen months—she had been in the habit, whilst superintending the studies of the young persons entrusted to her charge, of resting the right elbow upon a high table, by which the shoulder of that side was considerably elevated above the other. My advice was, that she should immediately adopt the reverse of the above injurious position—that the muscles of the depressed shoulder should be further brought into action by raising a small weight by means of a pulley placed above the head; and that daily friction should be employed to the affected side.

If the disease have gone beyond this, the treatment must be very differently conducted, and must be regulated by its particular nature. Should inflam-

mation of the ligaments, or intervertebral cartilages, for instance, be suspected, which is to be judged of by the symptoms, the patient should never be allowed to walk when there is pain: the superincumbent weight should frequently, in the course of the day, be taken off, by placing him upon his back or abdomen, just as circumstances may appear to demand. If such symptoms exist, and be acute, the occasional application of three or four leeches to the suspected seat of inflammation will be highly serviceable. The horizontal posture is to be frequently, but not permanently had recourse to—not permanently, because of the injurious effects of such practice upon the general health. The patient should be taken into the open air as often as circumstances will admit; whether in arms, (if an infant,) in an open carriage, or, what is still better, upon an inclined plane, mounted upon small carriage wheels. The bowels and general state of the digestive organs are to be strictly attended to: and the food should be nutricious, yet light and easy of digestion. Such early attention to the complaints under consideration will generally supersede the necessity of a permanent drain.

Spinal disorders, in children, particularly, require much watchful attention; as they, unfortunately, on account of their tender years, are not to be looked to for any description or knowledge of their complaints: ordinarily, indeed, a spinal affection is so slow and insidious, that some other person notices it before the little sufferer is aware of any thing being

wrong. The following instance of this is worthy of notice:—Lately, whilst in attendance upon a poor man, I was requested to give my opinion why his youngest child, then nearly twenty months old, should be more backward in walking than his others had been at the same age; this one frequently tripping and falling down on attemping to go alone. I examined the child's back, and found an external curvature, occupying five or six of the superior dorsal vertebræ. On mentioning this as the cause of weakness in the lower limbs, the parents expressed great surprize, having hitherto believed that the above unnatural appearance of the back was a mere peculiarity.

It is after accidental illness, requiring confinement to bed, that these complaints are most conspicuous; the muscles then become relaxed and feeble, and can no longer resist the evil tendency in the spine to form curvature.

When children are naturally healthy, exercise is the best means of keeping them so; but if, on the contrary, children be delicate from birth, attention must be paid to air and exercise, clothing, and the state of the digestive organs.

If a young lady at school, without accident or constitutional disease, become the subject of curvature, and this affection assume a lateral inclination, as, from improper school training, I believe it most frequently does, and the disease be in the muscles only; then the treatment will be simple. The cause, whether long continued exercise at the harp, writing,

or any other practice which engages one set of dorsal muscles more particularly than another, is to be immediately suspended; and the reverse of this position, or as far in the opposite direction as the muscles will permit, is to be frequently assumed, in addition to friction upon the affected side of the spine, and stretching the muscles, which may be conveniently done by appending a weight to the foot, raising another at the same time with the hand: the second weight being attached to a cord, passed through a pulley over the head: and the patient standing upon a footstool, or some such elevation, so that the foot to which the weight is affixed may be swung about to give the muscles action.

At first, muscles thus excited will contract, and resist the force applied to them; but in a short time they will become fatigued, and their fibres will become relaxed and elongated.

I have seen, as nas been already shown, extremities which had been bent for years by muscular contraction, and which afterwards not only admitted of being brought to a right line by certain means of extension, but even beyond the ordinary extent of their natural and healthy condition. And I have observed, that if, during the operation of the above process, the extending power were suddenly removed, the extremity would recoil again to the unnatural position from which it had been relieved. In these cases I have uniformly found, that slight efforts to relax increased rather than otherwise the disposition

to contract; and that, if the relaxing means were continued during a very short period only, the muscular fibre was thereby enabled to contract with infinitely greater rigidity than previously to the application of such insufficient means.

But if, on the contrary, the extending power were continued for a long period at each time, and frequently repeated, not only would the extent of the contraction be gradually diminished, but its recurrence would become less frequent. The contracted muscles may thus be restored to their original length, and in some degree, if not entirely, to the performance of their natural functions: but the period in which this can be accomplished must depend as much upon the age and constitution of the individual affected as upon the degree of the affection, and the time of its duration. I have further observed, and this is still more extraordinary, that muscular fibres thus systematically elongated, and which had been long previously in a perfect state of quiet, will never after manifest the same ready obedience to the will in the production of an angle similar to that of the contraction, as during the former healthy state of the same parts—nay, it will often happen that they cannot, even aided by considerable force, be brought back to the contracted position from which they had lately with so much difficulty been freed: and this fact may be invariably observed, unless the contraction shall have been very limited in its nature. Different affections and different parts will, of course,

demand a different mode of exercise, and all must be subject to the general rule, that whatever be the mode and means employed, if at any time much fatigue be induced, the patient should then be allowed to incline, to prevent the spine from immediately resuming the curved form, as it undoubtedly would do, if allowed to remain long under the superincumbent weight, whilst the muscles were in a state of exhaustion. During such rest in the particular form of the complaint now under consideration, it will be of little consequence whether the reclining plane be inclined, as a certain elevation given to it is termed, or horizontally placed.

When *incurvation*, or the opposite of this, which Mr. Bampfield terms *excurvation*, takes place, the abdominal and dorsal muscles should be called into action by raising weights, as already described, employing both hands at the same time, and increasing the weights as the muscular strength increases. Certain portions of the day should be allotted to the recumbent posture; the facial position being the one to be practised in *excurvation*, and the dorsal position, on the contrary, being proper in *incurvation*.

It is important to add, that the very reverse of the above positions may occasionally be practised with advantage. In excurvation, for example, the patient may be permitted to assume the dorsal position when fatigued by the facial, always placing a pillow, or some other soft support, under the projecting portion of the curvature, by which it will be

directly acted upon from the weight of the head and trunk on one side, and that of the lower extremities upon the other. Such position, however, is not to be attempted for a long period at a time.

In this species of the complaint the inclined plane will rather assist to take pressure off the intervertebral substance by the depending weight of the lower limbs, and the tendency of the trunk to gravitate, whilst the head is secured in the apparatus appropriated to its use. Friction should be superadded; and if any inflammatory symptoms appear, they are, in the first instance, to be combatted by appropriate remedies; but if symptoms still exist, which cannot be ascribed to any particular cause, *moxa* is to be employed; experience having proved to me, that that remedy will do more in relaxing muscle, increasing absorption, and lessening rigidity, than all the other remedies with which we are at present acquainted: whilst it may be so conducted as to act as *a gentle stimulant*, a *rubefacient*, a *blister*, or a *caustic*, as circumstances may appear to require.

In March last my opinion was required, regarding a girl of 15, who had suffered severely during the two preceding years from a dorsal curvature. Whilst at school three or four of the dorsal vertebræ, chiefly the fifth and sixth, were noticed to project. The diseased process was gradual, and was accompanied with pain, which appeared to increase as the affection developed itself. The girl was taken from school, was put

under the family surgeon, and underwent a systematic course of treatment: leeches were repeatedly applied, but not succeeding to remove pain, caustic issues were resorted to; these were kept open three months, and the uninterrupted use of the inclined plane was practised for a space of six months. By these combined measures, added to low diet, and the effects of occasional purgatives, the curvature was very much diminished. The pain, also, was at first lessened, but never quite removed, and was again increasing. Such was the state of emaciation that now presented itself from confinement, loss of appetite, &c. that the life of the patient was very precarious.

I recommended six *moxas* to be applied daily, three on each side of the affected part of the spine, followed by friction, with a stimulating liniment. After this a spinal machine was put on, and the patient, in general, immediately after was carried into the open air. To improve the appetite, and restore healthy action in the alimentary canal, a pill, composed of extract of chamomile, blue pill, and rhubarb, was given twice daily. In a few days after the commencement of this practice, a perceptible alteration for the better took place—the pain of back was scarcely felt, the appetite was improved, the bowels acted twice daily, and the countenance assumed a more healthy aspect. The practice was continued, and in a few weeks after, I learned, by letter, that the patient was able to take exercise on

foot, and that there was not the slighest pain in the back, and but very little projection.

In this case, the mild or modified application of *moxa* undoubtedly affected more than the caustic issues and inclined plane together, whilst its application was unattended with any of the distressing or serious consequences which are unavoidably incurred by the employment of the other means.

When the disease is seated in the ligaments or intervertebral cartilages, it will ordinarily yield in a short time to the mild mode of employing *moxa*—a few applications will at least give such relief, that the patient will almost always feel sufficient encouragement to submit to its more intense action, should that, from previous experience, be deemed expedient. When the situation, and consequently the precise nature of the diseased action, is not perfectly known, the heat is to be gradually increased at each succeeding application, till the removal or reduction of pain be effected.

I had a boy under my care, last year, for the treatment of a severe and almost constant pain in the situation of the three last dorsal vertebræ, arising from a blow received whilst at play about eighteen months previously. In this case there was no appearance of curvature, but the lower limbs being so extremely weak and powerless at times as to threaten paralysis, I believed the mischief to be going on in the *theca vertebrarum*, and likely to be attended with serious consequences, if not soon checked.

Leeches had been frequently applied with temporary benefit only; and the use of blisters and the antimonial ointment, which were also tried, were not more effectual. *Moxa* was applied for the first three or four days in a very gentle manner, and had the effect of lessening the pain. After this, it was so applied as to produce sharp pain and redness on the skin, which were sometimes followed by a small blister. The good effects of this plan were soon manifest, and at the expiration of about three weeks from its first commencement, all pain was removed, muscular strength soon followed, and, when I last heard of the case, three months back, there was no return of the complaint.

Had the symptoms, in the last case, not yielded to the treatment described, I should have deemed it wise to have increased the intensity of the application until the attainment of the object in view.

During the application of *moxa*, or the employment of caustic issues, the injurious consequences arising from constant confinement to the inclined plane may be avoided, by substituting the more general use of the spinal machine. And if the patient be too weak to walk alone, the spring crutches may be employed with advantage—these crutches will materially assist the machine in supporting the weight of the upper part of the trunk, and thus prevent a renewal of irritation at the inflamed or diseased part of the spine.

TREATMENT
OF
PARTICULAR AFFECTIONS
OF
THE SPINE.

HAVING, in the general observations which I have just made, touched upon lateral curvature, I shall have less to say on affections of the lumbar vertebræ, with which I commence, than would have otherwise been the case; this part of the spine being, as I have already shown, more particularly subject to the above form of the complaint. Here, then, I would only further add, that when the complaint presents itself in a great degree, not only must the measures already laid down be persevered in, but others more powerful in their nature must also be brought into action. The erect position, which, from the nature of the complaint, is most favourable to an increase in the curve already formed, should only be assumed as often as may be deemed absolutely necessary to the preservation of the general health, and for the purpose also of bringing into full play those muscles

which were most affected, and which might have been previously excited by an advantageous reclining position. For this latter purpose, the patient should be instructed frequently to place himself upon his side, on an inclined plane, or hard stuffed sofa, a hair pillow being inserted under the convex portion of the spine, and friction, at least twice daily, being applied to the concave side opposite. By this mode of management the contracted muscles and ligaments will be relaxed, and the spine will be powerfully acted upon by the mere weight of the body. The central and projecting portion of the curvature being supported by the pillow. If the case be of long standing, and consequently obstinate in its nature, extension of the affected muscles by means of the swing chair, placing the supporting straps under the arms, may be practised once a day with advantage; but this should be performed with caution, and always, at first, under the immediate *surveillance* of the medical attendant. The old system of stretching the spine, now practised by a modern doctor, by the patient being placed upon an inclined plane, and forcibly dragged at by two men with ropes, previously fastened round the waist and under the arms, is too absurd and dangerous to require any comment but that of mere censure.

Where the curvature in question is not confined to the lumbar portion of the spine, the cure will be more difficult, as well as more tedious, than if it were so limited. In such case it will be advisable to

devise some other means besides those enumerated of contending with the complaint: first, because all practices, when long employed, must become irksome to the patient; and, secondly, because variety of position is calculated to prevent any particular set of muscles suffering from inactivity. When, therefore, long confinement to the reclined posture, which was recommended to take off the superincumbent weight, appears to injure the general health, the patient should be permitted to walk more frequently; and any mechanical contrivance which is capable of taking any portion of weight off the affected parts, without, in any degree, impeding the functions of those with which they come in contact, may now be employed with propriety. For this purpose, a variety of instruments have been invented—the best which I have ever seen is manufactured by Mr. Sheldrake, of the Strand—it is extremely light, and so constructed as to support the whole weight of the arms and head, and that without having attached to it any of the unseemly and inconvenient appendages which make a part of the Hinckley instrument, and others intended for the same purpose.

If the original cause of the complaint be ascertained, the constitutional treatment must be directed to that particularly, at the same time with the employment of the local and artificial measures. As such constitutional treatment, therefore, must be conditional with the cause, it only appears necessary to state, in a general way, here, that occasional mild

purgatives, chalybeates, bark, and other tonics, and the cold, common or shower bath, will, in most cases, be found highly serviceable.

In proceeding to consider the treatment of affections of the dorsal vertebræ, it will be proper to recapitulate, if not to re-consider, what has already been said on the particular nature of those affections. It has been shown, that these vertebræ, from the circumstances of strong lateral support, &c. are less subject to the operation of casual causes than are other parts of the spine—that, when this part is affected, the cause is *generally* constitutional, and, consequently, *generally* also more serious in its nature. From all which it may be fairly inferred, that, in the generality of dorsal curvatures, some specific treatment, in addition to position, &c. &c. is certainly necessary. Those not requiring the additional treatment hereafter to be described, are to be distinguished from those that do, more by the attendant symptoms than by the mere extent of the curvature—it is by the feelings of the patient, in fact, and not by appearances, that we are enabled to judge of the nature and approach of structural disease.

If, in addition to the appearance of curvature, there be severe pain in the back, with hectic fever, and diminution of power in the lower extremities, the case is one which will not yield to any modification of the means laid down for the treatment of common lateral curvature. In this state, exercise

would increase the patient's sufferings and aggravate the disease, instruments would be insupportable, constant confinement to the inclined plane would not cure, medicines alone would be of no avail, and thus the patient would inevitably sink, if some more efficient remedy were not promptly applied.

It is in cases of this kind that the plan of practice adopted by Mr. Pott, namely, that of caustic issues, is so eminently serviceable. To establish a drain in the immediate neighbourhood of the affected part, was the object of this celebrated surgeon, in the application of an issue; and, although caustic was the means generally resorted to, he did not, by any means, attribute specific effects to that preparation, as he says,—"It is a matter of very little importance towards the cure, by what means the discharge be procured, provided it be large, that it come from a sufficient depth, and that it be continued for a sufficient length of time." Our present experience entirely justifies these remarks; and, as Mr. Pott's description of the mode of employing the remedy cannot be superseded by one more simple and clear, I deem it proper to make a transcript of it for the benefit of the reader. He states that, "the caustics should be applied on each side of the curvature in such a manner as to leave the portion of skin covering the spinal processes of the protruding bones entire and unhurt, and so large, that the sores upon the separation of the eschars may easily hold each three or four peas in the case of the smallest

curvature; but, in large curves, at least as many more."

In the Parisian hospitals, I have frequently seen the eschar formed by *moxa* in the kind of spinal disorder now under consideration; and it has certainly appeared to me, that good effects were sooner to be obtained by this practice than in similar cases treated by caustic: and this, I believed, was attributable to the *moxa* having produced a double operation—to its having produced in fact an increased action in the absorbents of the diseased part, as well as a discharge from the surface, which last is the only effect that followed caustic or other issues. By this double operation of the *moxa* the diseased action appeared, in many instances, to be suddenly arrested in its progress by total absence of pain, and a return of power in the lower extremities. But, in giving the preference to this remedy, and the severe mode of employing it, which has been heretofore practised, much difficulty will be experienced in attempting to conquer existing prejudices.

I have but rarely used this remedy to the extent of a caustic—when I have, the result has been decidedly favourable.

Whatever be the mode of forming the issue, the general health is to be particularly attended to during its existence. The diet, throughout the treatment, should be light, nutritious, and easy of digestion; and, when all symptoms of pain and inflammation have been successfully combated, small quantities of good wine or porter, and a more stimulating diet,

may be permitted. And such exercises as are compatible with the patient's strength and state, should now gradually be entered upon. When the patient begins to walk about, mechanical support will frequently be found highly serviceable, but the kind must entirely depend upon the termination of the disorder. If the termination be in anchylosis, for example, temporary support may be serviceable, all further improvement being then at an end, at the anchylosed part; but, if the above change does not take place, much good may be done towards removing curvatures which may have resulted from previous confinement. On some occasions, the steel stays, with elastic sides, will be found to afford much support and service; in others, the spinal machine already spoken of; and, in many, the back-board alone will be essentially useful. In all, however, the choice is of vast consequence, and can only be fairly decided by the peculiarities of each respective case.

In the treatment of affections of the cervical vertebræ, many, if not most of the observations which have been offered upon dorsal curvatures, will strictly apply. Here, however, contrary to preceding opinions, the inclined plane will be less serviceable than if the lumbar or dorsal vertebræ constituted the seat of the disease; and the cause is evident—under the latter circumstances, there is more superincumbent weight pressing on the diseased part than exists in the former, and consequently more frequent and urgent necessity for taking this off by the recumbent

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posture. This mode of practice, however, may be occasionally resorted to, when either the patient or the parts become fatigued by any other more powerful or efficient in its nature. Under ordinary circumstances, the support afforded to the head by the spinal machine, or a moveable apparatus now in use, attached to the common back-board, will be found to answer every purpose when the patient walks about.

When the plane is used, the positions are to be regulated according to the nature or rather the inclination of the curvature, consistently with the instructions given in the treatment of dorsal curvature.

Chicken Chest, I believe, is not likely to occur after the years of childhood, unless from accident, or in persons in whom there was early predisposition. When, however, such malformation does appear to be influenced by the exciting causes which I have assigned as the most common in its production, they are to be immediately counteracted, the dorsal position on the inclined plane is to be frequently repeated in the course of the day, and friction and percussion over the chest are to be practised. The occasional use of dumb-bells or rowing will greatly contribute to increase the strength and action of the pectoral muscles; whilst the *sterno-cleido-mastoidei* may be exercised by causing a weight, placed behind the patient's chair, to be raised by attaching it to the head.

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PRESENT DISCORDANT OPINIONS

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USE OF INSTRUMENTS.

So numerous are the prejudices, and so discordant are the opinions, at present existing, regarding the use of instruments in the treatment of spinal and joint diseases, that I consider it important to offer a few general remarks upon the subject.

It may be said that much has already been brought forward respecting the advantages of certain instruments. To this it may be replied, that much has also been advanced in condemnation of all instruments; and that, under these circumstances, some impartial and conclusive information to those whose experience has not afforded opportunities to judge for themselves, is undoubtedly wanting. With the character of instruments, as with that of medicines, as much will frequently depend on the private interest as upon the judgment of the practitioner. There are many surgeons who make a merit of declaring, that they never, under any circumstance, recommend instruments, as they are only calculated to ruin the health of all who may wear them. Many

others, on the contrary, who have obtained a reputation in the use of machinery, declaim against every other mode of treatment, and carry this to a most culpable and injurious extent. Thus it is, that parents are occasionally met with, who will declare that they would, on no account, permit an instrument to be used with any of their children, whilst others again will as obstinately persist in their conviction that a judicious mechanical contrivance alone is to be depended upon in all cases of deformity or distortion. Like all extremes, these are both prejudicial and incorrect; for, although it would be easy to enumerate cases in which instruments have been seriously hurtful, yet, there would be no difficulty in finding others which remained uncured for want of them.

Much judgment and discretion, in fact, are requisite in deciding upon the propriety of using an instrument. It is not sufficient to be acquainted with the mere mechanism of a joint, and to know that such or such contrivance is calculated to excite its lost motions. To be enabled to determine on the propriety of an instrument, we should be acquainted with the nature of the morbid conditions to which the joints are liable—the pathological changes of which certain accidents and diseases are productive, and also the effects of pressure or other mechanical violence, on such parts during a state of disease and previous excitement. By this knowledge we shall readily come to the conclusion, that a case

demanding the horizontal posture, and the application of an issue to-day, may require mechanical support and change of attitude a few weeks hence—that long confinement to the plane, whilst it is calculated to lessen inflammation, pain, and curvature, is also susceptible of being abused,—of producing, in fact, a dangerous, if not fatal degree of debility; and that, on escaping from the plane, mechanical support, which was previously objectionable on account of the activity of the disease, is not only admissible, but absolutely requisite to prevent relapse. These remarks apply as well to the joints of the extremities as to those of the spine.

It will sometimes happen that the early application of a judicious instrument will prevent the occurrence of inflammation, by giving support to weak predisposed parts, and thus oppose the development of a serious hereditary malady.

In order to apply instruments safely and beneficially, the effects of pressure upon a nerve, an artery, a vein, or any of the superficial and active muscles, are to be borne in mind. Their relative situation and influence upon the parts with which they communicate, are also matters of great importance in the application of instrumental power. In the use of mechanical means for the purpose of extending contracted joints, for instance, the judgement consists chiefly in selecting the least vital part for the operation of the power employed. The object being not merely to produce temporary mo-

tion during the employment of artificial support, but to give strength and mobility to the affected limb, by which such support may, in time, be entirely dispensed with.

In the neighbourhood of the spine, general pressure is not so likely to do mischief as in the extremities, where the blood-vessels and nerves are larger and take a more superficial course: but, undue pressure over the abdominal muscles, whose agency is so considerable in the digestive process, might be, and frequently is extremely injurious; and hence the propriety of so modifying stays, that there shall be more play in their front than in their posterior parts.

It is important to state, that, although an instrument may be peculiarly adapted to remedy a defect in a particular case, yet, owing to some peculiarity in each, it will rarely happen to be strictly applicable in another apparently similar. In all, therefore, the size and the shape of the patient, as well as the assumed form of the part affected, should be particularly attended to in the measurement of the machinist: and the surgeon should always be present when an instrument is first tried, in order to decide on its applicability, or suggest improvements if it should not fully answer the precise purposes for which it was intended. With these necessary distinctions and objects in view, I can safely assert, that instruments will be found a most valuable auxiliary in the treatment of spinal and joint diseases.

WESTMINSTER:
PRINTED BY G. HAYDEN, LITTLE COLLEGE STREET.