A few words on kinesipathy, or Swedish medical gymnastics : the application of active and passive movements to the cure of diseases, according to the method of P.H. Ling, and on the importance of introducing mechanical agency into the practice of medicine / by Augustus Georgii.

A FEW WORDS

ON

KINESIPATHY,

OR

SWEDISH MEDICAL GYMNASTICS;

THE APPLICATION OF

ACTIVE AND PASSIVE MOVEMENTS

TO THE

CURE OF DISEASES,

ACCORDING TO THE METHOD OF

P. H. LING,

AND ON THE

IMPORTANCE OF INTRODUCING MECHANICAL AGENCY
INTO THE PRACTICE OF MEDICINE.

BY

AUGUSTUS GEORGII.

"L'Homme est de glace aux verités,
Il est de feu pour le mensonge."

LA FONTAINE.

LONDON:
HIPPOLYTE BAILLIERE, 219 REGENT STREET.

1850.

"Sanningen har det Evigas bild: den föråldras icke."

Ling.

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" Rien n'est plus beau que de voir briller une idée nouvelle sur l'horizon de l'intelligence humaine ; rien n'est si légitime que de lui faire combattre et vaincre les préjugés, les habitudes, les institutions vicieuses qui lui résistent."

Lamartine.

INTRODUCTION.

The following pages are written in order to direct attention to a method of treating diseases, as yet but little known and practised beyond the country in which it originated.

Being aware of the unfavourable reception usually experienced by every new truth that does not harmonize with preconceived opinions, we expect no sympathy or approbation from the general voice of the medical profession. Therefore, instead of writing an elaborate treatise, we have been induced to limit our subject within the space of a brochure, for the more unprejudiced perusal of the philanthropist and the public. To supply the want of scientific elucidation, which is in some measure indispensable to our subject, in giving a cursory account of the attempts hitherto made towards its propagation in other countries, we shall avail ourselves of the opinion of those persons, or medical bodies, who have had an opportunity of judging of the new method of cure we here advocate.

The honour of having first publicly pointed out Ling's system abroad is due to Dr. Sondén of Stockholm, who, at a meeting of Scandinavian naturalists at

Copenhagen in 1840, read a paper upon the subject.* Being a pupil of LING he had an early opportunity of examining and appreciating the scientific value, and witnessing the benefit of the practical application of his system at the Central Institution of Stockholm. The observations contained in the following quotation from his lecture, may be relied upon as correct, proceeding as they do from a person well acquainted with the subject.

"So far as we have touched upon the *modus operandi* of the medical gymnastics, three principal modes of action will be remarked, viz. *excitation*, *derivation*, and *roboration* (strengthening), though these are not the only ones. It can therefore be employed in all those diseases where any or all of these actions are called for; and it is not too much to allege that their application will be of use in the greater number of chronic diseases; viz. *affections of the nerves* of every *description*, *rheumatism*, *marasmus*, *profluvia* and *suppressions*, *dyscrasias*, *disorganisations*, *even diseases of the skin* and *chronic inflammations*—perhaps indeed it is only contra-indicated in acute inflammations and fevers. Medical gymnastics are, in fact, applied to the extent above indicated at the Central Gymnastic Institution of Stockholm, and a very large number of persons have to thank this treatment for their health.

"It is therefore an important desideratum that the

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* A Lecture on Gymnastics, as a branch of education and medical science, delivered at a meeting of Scandinavian Naturalists, July the 8th, 1840, by C. U. Sondén, M.D. (Stockholm, 1840—pp. 30).

scientific application of gymnastics be regarded with all the serious attention it merits, not only as a means for the improvement of the human race, both mentally and physically, but for the cure of 'all the ills that flesh is heir to,' by the formation of establishments and gymnastic hospitals, where suffering humanity may obtain the cure or relief they seek in vain from ordinary medical treatment. And we think it a duty to mankind at large, to do our best towards spreading a knowledge of this great and successful system, so beautiful in theory, so eminently useful in practice, which merits a better fate than to be buried in a distant corner of Europe."

Ling's system was some years later taken up in Germany by the medical journals, and pamphlets were written upon the subject. Thus after a short visit in Stockholm, Dr. Echart of Berlin gives an account of the Swedish medical gymnastics in one of the medical journals of Berlin;* and Dr. Richter, Professor of the Medical School in Dresden, having visited Stockholm during the summer of 1845, gave a lecture upon this subject on his return, in which he, after mentioning the facts he had the opportunity to witness, says, "If we cast an impartial glance at the Swedish medical gymnastics, we must acknowledge that they are not only thoroughly based on physiology, but that they correspond with the progressive development of the medical science of our epoch."†

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* Berliner Medicinische Zeitung, d. 13 März, 1844 (No. 11).

† Richter. Die Schwedische nationale und medicinische Gymnastik—a paper read in an Assembly of Naturalists. Dresden, 1845.

Amongst the few medical men with physiological knowledge, who have applied themselves to the study and practice of Ling's therapeutical system of movements, we are glad to mention Dr. Neumann of Graudenz.* Animated by the ideas which Ling has brought to light, he has, during the past years, written numerous articles in one of the most widely circulated periodicals in Germany. In one of these, pointing out the great physiological and therapeutical effects of Ling's special movements, he says, "I have for two years applied the Swedish medical gymnastics in my private as well as my hospital practice, and I have tested its effects more and more extensively, especially in chronic diseases." The cases he relates are highly interesting; viz. ulceration of the legs, opacity of the cornea, deviation of the spine, &c. In wishing success to this unprejudiced and talented man, we hope that his example may soon, throughout Europe, produce many followers in the profession.

In the meantime the attention of the Prussian government had been called to Ling's gymnastics, through an article signed R——, which appeared in a literary and scientific journal of that country, and which resulted in two persons being sent over to Sweden to study the new science on the spot, and to give an official report on the subject. It was only last year's political incidents that caused an interruption to the establishment of a Gymnastic Institution

* Casper's Wochenshrift für die gesammte Heilkunde. Berlin, Jahrg. 1847, Nos. 76, 85, 86; 1848, Nos. 17, 18; 1849, Nos. 15, 16, 17, 30, 31.

in Berlin, supported by the government, and on the same plan as that of Stockholm. However, Mr. Rothstein, the author of the last mentioned article, has the great merit of having diffused Ling's system more generally in Germany, by publishing a very complete and enlarged adaptation of Ling's work—"General Principles of Gymnastics." *

About the same time the fame of the Swedish gymnastics having reached France, preparatory negotiations were opened with the Swedish government through the Minister of Public Instruction of France, M. de Salvandy, for its introduction into that country. Being at that time on a scientific journey on the continent, while staying at Paris in 1847, we published a brochure upon Ling's system in order to give a new impulse to this question so highly important to the civilized world.† In the meantime, having been requested to lecture upon Ling's medical gymnastics at the Hôpital des Enfants Malades, and encouraged by the interest taken in our subject by some young physicians, we were induced to undertake the treatment of some cases in order to show

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* *Die Gymnastik*, nach dem Systeme des Schwedischen Gymnasiarchen, P. H. Ling, dargestellt von H. Rothstein. Berlin, 1848.

At about the same period a translation of Ling's work on Movements was published in Germany by Dr. Massman—P. K. Ling's Schriften über die Leibesübungen. Magdeburg, 1847.

† *Kinesitherapie*, ou Traitement des Maladies par le Mouvement selon la Méthode de Ling, suivi d'un abrégé des applications de la théorie de Ling a l'éducation physique. Paris, Baillière, 1847. For more minute details of Ling's System in general than this pamphlet will allow, we refer to this book.

practically the truth of our doctrine, whilst awaiting the results of the negotiations with the French government.* But the revolution of February came, and did away with all hopes of having Ling's system introduced at present into France.

On returning to Sweden we soon began to make new preparations for a longer sojourn abroad. With this object we made an appeal to the Swedish Medical Association for its opinion of Ling's system, which we give together with the answer received from that body, although the latter document is written in such a manner as to draw from us some observations that we deem necessary.

To the Swedish Medical Association.

"Having obtained leave of absence to go to England and France, in order to introduce Ling's system of physiological and therapeutical movements, I feel convinced that the opinion of the Swedish Medical Association on this method of treating diseases, which, although publicly practised and taught in Sweden, is still unknown in other countries, would in a great measure contribute to remove the difficulties which accompany such an undertaking. The Swedish medical gymnastics having taken a large share in the general practice of medicine in our country, and having for the last half-century given undoubted and convincing proofs of its efficacy, both as an assistance to medical and surgical treatment, and as an independent agency in many chronic diseases, I feel no hesitation in thus

* The first four cases we here publish are of this number.

addressing myself to the Swedish Medical Association, as a body which is distinguished alike for its impartiality and for its true scientific researches.

"I do not consider it necessary on this occasion to enter into any theoretical explanation of the specific movements and their relation to the laws of human nature, especially as most of the members of the Association have had opportunities of examining not only the various modes of application of the system of Ling, but also a considerable number of cases which have been cured by this method. I therefore venture to solicit the opinion of the Swedish Medical Association upon the scientific and therapeutic value of the said method, feeling convinced that by such an opinion, this system, of as much importance for the physician as for the philanthropist, would no doubt be viewed in its true light abroad, and its adoption facilitated.

"I should perhaps have hesitated to present this address to the Association, had not the most celebrated physicians of Sweden, Norway and Finland, during the last years prescribed the medical gymnastics to a great number of their patients, and thus had an opportunity of ascertaining by facts the great importance of the therapeutic movements as a part of a more liberal system of medicine, which cannot henceforth be limited to the mere prescribing of drugs.

"A. GEORGII, PROFESSOR,

"*Lecturer on Physiological Anatomy at the Royal Central Institution for Gymnastics of Stockholm.*

"Stockholm, the 4th May, 1849."

Extract from the Minutes of the Swedish Medical Association at Stockholm, the 22nd of May, 1849.

" Professor Georgii, who is on the point of going over to England and France, in order to introduce the system of movements of the celebrated Professor Ling, having applied to the Medical Association of Stockholm for its opinion upon the physiological and therapeutic value of the said system, the Association, appreciating every endeavour tending to bring the valuable discovery of the great Gymnasiarch to a fruitful development abroad as well as at home, certifies:—

" The Association complains of the reserve which has been manifested in not giving a scientific account of the progress of the medical gymnastics of the Institution, notwithstanding its application of the 17th December, 1844, to Professor Branting, the head of the Institution, for an account of the results of the treatment,* by which every doubt of the real

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* The blame attached to Professor Branting by the Association is evidently of a personal description, and may be considered as the expiring effort of that warfare which the new doctrines of Ling have had to sustain from the medical school of Sweden. Otherwise some consideration ought to have been attached to the reply made by Professor Branting to the Association of the 13th January, 1845, in which he invites its members to follow the clinical course at the Institution, and thus to examine on the spot not only the results of the Kinesipathic treatment, but also its application in various diseases. It is also worthy of remark, that Professor Branting, at each annual examination since 1840, has drawn up an account both therapeutical and pedagogical of the proceedings of the Institution. The statistical table, page 50, proves that the data which the numerical method can furnish might have been obtained at the Central Institution.

value of this curative method, praised by some and doubted by others, might have been removed; for which reason it is difficult for the Association *as a body* to give a definite and detailed opinion upon the subject. However, many members of the Association knowing well that the medical gymnastics applied, according to Ling's system, have proved very effective as a curative means, and produced extraordinary and most satisfactory results in many chronic diseases, are convinced that this method, developed with the scientific and practical clearness which is required for the adaptation of new medical systems, and practised in harmony with other medical sciences, under the special direction of or in conjunction with the physician, will take a high standing in medicine.* Although the therapeutic application of Ling's system, alone and independent of any other system, has shown itself not only beneficial for weak and deformed subjects, but has also cured many chronic diseases, chiefly depending on impaired circulation of the blood

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* This appears to imply that the physician, by previous studies, is already acquainted with the theory and practice of Kinesipathy. The Association by thus making a full acknowledgment of the new doctrine, seems to promise a speedy realization of the inventor's most earnest wish; viz. that his medical gymnastics should form a portion of the medical studiés, and take a share in the medical student's examination. The rational principles upon which Ling founded his system, and the scientific and practical development it has received by his learned and zealous successor, Professor Branting, have made the Swedish medical gymnastics not only worthy of such a position, but should, we are fully convinced, unquestionably exercise a powerful and beneficial influence on medical science in general.

and impaired nutrition, it cannot in many instances supply the want of orthopædic treatment, and can only obtain its greatest importance when conjoined with internal medicinal treatment.*

"As to the physiological application of the said system, the Association cannot sufficiently laud its importance and great usefulness, as regards the health and physical development of the rising generation.

"In fidem protocolli,

"G. BÖTTIGER, M.D.
"*Secretary to the Swedish Medical Association.*

"Stockholm, the 29th May, 1849."

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* The real cause for the insinuations respecting the orthopædic treatment made by the Association, and for introducing it at all into the subject before us, is of too intricate a nature for explanation here, and would with difficulty be understood by those who are not aware that one of the members deputed by the Association to compile this paper is himself at the head of an orthopædic establishment in Stockholm. Had the Association had a clearer insight into the nature and resources of Ling's therapeutic movements, we are convinced that its views respecting Orthopædy would have been more in accordance with our own; viz. that orthopædic treatment will soon be restricted to merely surgical operations and applications of special therapeutic movements, and that it will eventually be stripped of its present insignia, the lacing apparatus, stretching couches, &c. which cannot stand any longer before the tribunal of common-sense and sound physiological knowledge.

The opinion expressed by the Medical Association that Ling's system of therapeutic movements, "can only obtain its greatest importance when conjoined with internal medicinal treatment," is opposed to our own experience. During a period of upwards of twenty years, we have had ample opportunity of observing, that not only medicine in infinitesimal doses given to the patient under the Kinesipathic treatment is sometimes too irritating, but that the administration of medicine in large doses in most instances destroys the benefit which might have been derived from either mode of treatment separately.

Ling's system has long since been made known and adopted in Russia by a zealous adept of Ling's school, Mr. De Ron, and the physicians of that country have in general shewn it much more attention and goodwill than in our own. Dr. Bogosloffsky, of St. Petersburg, who had been cured of an illness of many years' standing, in giving a short account in the public journal of St. Petersburg of the results of the mechanical treatment at the institution of that town, says: *

"The benefit several invalids, particularly medical men of my acquaintance, had derived from the gymnastic treatment induced me to give it a trial, being myself seriously afflicted. I will not enter into any details respecting my illness, suffice it to say that for upwards of thirty years I was constantly more or less inconvenienced with hæmorrhoids, in addition to which I had violent spitting of blood, obstinate cough, and a severe asthma; in short, I was reduced to a pitiable condition. My last resource was to give up my daily occupation and to seek a more genial climate. It was in this extremity that I had recourse to medical gymnastics. They commenced by derivating the blood towards the loins, then to the legs and arms. My muscles became animated with new life, and in the space of one month the cough and the asthma had entirely ceased. I felt my strength renewed, and at the present time I feel better than ever. It is not to show my gratitude, but simply by stating facts, that I

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* Journal de St. Petersbourg, No. 122, le 28 Novembre, 1846.

will prove to the public that I justly appreciate the effects of the medical gymnastics."

Having received a copy of the report of the *College of Physicians of St. Petersburg* upon Ling's System, in consequence of the energetic and successful attempts of Mr. De Ron to establish the Swedish gymnastics in Russia, we give the following extract from that document.

The College of Physicians had deputed two of its members to make a careful investigation of this system; the councillors of state, Drs. Spassky and Sagorsky, the former of whom had himself undergone the treatment in the institution of Mr. De Ron. After a further and more minute examination they gave in their report, and the College, after a due consideration, came to the following conclusion; viz. that Ling's gymnastic system should take precedence of those attempts hitherto made to establish this practical science in various countries, and "that Ling should accordingly without doubt be acknowledged as the founder of rational gymnastics, by the establishment of an institution in which those who desire to devote themselves to practising this art might have an opportunity of acquiring the requisite practical and theoretical knowledge of the movements of the human body, and also a full and extensive knowledge of anatomy and physiology, which in Ling's system forms a principal part of the gymnastic studies. He has thus laid a durable foundation for this important branch of education. We should here add that Ling and his successor at the institution of Stockholm have more particularly employed them-

selves with the method of curing various diseases by movement, supported by the physiological fact that different bodily exercises increase and strengthen the muscles acted upon, and must, therefore, not only cure certain abnormities in the muscular system, but must also, by causing a free circulation of the blood in various parts of the frame, remove congestion; or, on the contrary, by an increased supply to various organs, modify their nutrition and consequently the functions dependent thereon, or, in one word, produce on the organism many very important effects."

The College further states that a private institution of Mr. De Ron, for medical gymnastics, has been established on a large scale since 1846, in St. Petersburg, where, under the superintendence of two physicians, Drs. Bogosloffsky and Menofsky, from 2 to 300 patients have been treated annually. "The various active and passive movements, as well as positions of the body produced with or without the assistance of certain apparatus, are all prescribed according to medical principles, and in a very methodical manner, bearing the stamp of a deep anatomical and physiological calculation; and experience has shewn the beneficial results of such a treatment by rational movements on the numerous patients who, in this institution, have been cured of disorders to which the common medical remedies have been employed in vain." The College of Physicians further refers to the foregoing statement of Dr. Bogosloffsky as deserving the most particular attention, he having himself, not only been cured by this mode of treatment, but now "for the last five years

as consulting physician at the institution, having followed the treatment in upwards of 1000 cases."

The College of Physicians concludes by expressing its wish that the Russian Government would pay particular attention to Ling's system as an important branch of education, and take some steps towards its further propagation by means of properly educated professors; to the accomplishment of which the College strongly recommends the "establishment of an institution as in Sweden, where students could obtain a thorough practical and theoretical knowledge of this valuable science, and where skilful assistants could also receive proper instruction, and *above all, where medical men could have an opportunity of making themselves thoroughly acquainted with gymnastics in general, but more particularly with the medical branch, which as an important part of therapeutics, according to the College of Physicians, deserves the most particular attention of the medical profession.*"

Attempts have also been made in England to apply the mechanical treatment according to Ling. And although the pamphlets published upon that subject* by Mr. Ehrenhoff and Mr. De Bétou seem not to have attracted general attention, these gentlemen have, notwithstanding, performed several remarkable cures, which, proving the great influence of the

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* *C. Ehrenhoff.* Medicina Gymnastica; or, Therapeutic Manipulations. London, Masters, 1845.

G. De Bétou. Therapeutic Manipulations; or, a Successful Treatment of various Disorders of the Human Body by Mechanical Applications. Second edition—London, Masters, 1846.

mechanical agency, have procured them zealous advocates for its further introduction in this country.

During a short visit to England in 1847, at the meeting of the British Association at Oxford, we took the opportunity of mentioning the importance of Ling's medical gymnastics; our paper having been read in French, however, it seems to have made but a slight impression on the medical profession represented at the meeting. Every new truth requires time for its acknowledgment, especially where it, as is the case with this, may be looked upon as heretical in the face of the dogmas of the established medical school.

This pamphlet, as an exposition of the Swedish medical gymnastics, though short and incomplete, gives us an opportunity of maintaining fully and energetically, their great importance as a therapeutic agent in many different diseases; our views are supported by the opinion of several distinguished physicians and medical associations, and the sketch we give in the Appendix, of the share that mechanical agency has taken in medical literature, and even in practical medicine, at different periods, is an additional support to our endeavours to procure a place for Ling's system among the medical sciences.

The method of Ling, adds to the usefulness of its object and the solidity of its scientific basis, the sanction of experience. It is then to be hoped that the endeavour to extend its application and advantages cannot remain long unappreciated in a country where every truth is valued, and where every thing of general and practical utility is adopted.

CHAP. I.

Sketch of the recent development of Medical Science.

"Is not truth eternal, even although it may have been discovered but an hour since?"

Hahnemann.

The present time is not only the epoch for social and political regenerations, but almost every branch of science is budding forth into a new life, through the many facts that are brought to light by more extensive researches; and the genius of the human mind, variegated as the solar rays, is frequently illuminating new and unbeaten tracts in the regions of science. The great goal of this is the happiness of the human race, or in other words, the endeavour to get possession of the greatest amount of truth for the benefit of mankind.

The practical part of medical science could not long remain without the pale of this all-penetrating light. The warfare waged against doctrines of more than two thousand years' standing has begun, and is far from ended; doubt of the infallibility of what is old now once being raised must spread itself more and more, till sooner or later it will exercise on the Hippocratic system of medicine an influence, the extent of which can scarcely yet be appreciated.

Although, during the last twenty or thirty years, natural philosophy, chemistry and experimental physiology have contributed in a great degree to give a more exact knowledge of the laws that govern the operations of our organism, and have thus opened to us a wider range for viewing vital phenomena, and consequently have overthrown many a dim hypothesis on which the doctrines of the ancients were founded; still it was as early as the end of the last century that many of the new theories began to take root, and to influence practical medicine in a direct way, thereby giving it a larger sphere of action and a greater scientific and practical certainty.

At the close of the last century the idea of a total reformation in the medical art first suggested itself to the genius of HAHNEMANN. Pointing out the many errors and inconsistencies of the old school, he laid down *a general law of cure* in the well known axiom *similia similibus curantur*, or like cures like. As a condition for the application of a medicine, he *presupposed* a knowledge of its effects upon the healthy organism, and by the concordance between the special and pathogenetic character of the remedy and the form and symptoms of the disease he determined its use. At the same time as he thus, by his fundamental principle, endeavoured to establish a distinct natural law for every application of medicine, he gave us the means of finding the limits of chemical influences on our organism, and, though unknown to himself, he has opened up all nature with its diversified powers to therapeutic researches. The new school in Germany,

represented by the periodical "Zeitschrift für Erfahrungsheilkunde," headed by the octogenarian Rademacher, and advocating the use of only simple remedies, seems to form a bridge between the old and the new school, which latter now counts a vast number of followers and an increasing literature in all civilized countries.

Mesmer again, maintained that he found in an all-pervading subtle fluid the source of a new power, by whose direct influence on the nervous system, not only diseases of that system can be cured, but also other functional disturbances may be brought into a state of equilibrium, in a word, *that by the use of animal magnetism we possess an universal method of curing diseases and preserving health.* The peculiar phenomena which the application of this power produced, the mysticism of its origin, the inexplicableness of its effects, caused with some persons astonishment and admiration, with others again doubt and condemnation. Animal magnetism, now regulated by more determined laws, and nearly related to galvanism and electricity in its mode of action, has in most countries gained numerous followers, at the head of whom stand men distinguished as much for their great moral worth as for their philosophical and medical knowledge. Dupotet, Elliotson, Esdaile, Reichenbach, Gregory, and others, are a guarantee that Mesmer instead of being a visionary, was a creative and observing genius, and that animal magnetism will produce, by continued observations and more perfected applications, results of the highest value in therapeutics.

It was some scores of years later that the natural genius, PRIESSNITZ, appeared in the woody mountains of Silesia. Without any other guide than a never resting talent for observation—without any other teacher than nature and his active inquiring mind, he has founded a curative system by which he, with a physiological exactness of which he himself is unconscious, *applies water in a hitherto undreamt of variety of ways to the cure of the most diversified forms of disease.* As a faithful ally to this natural agent, he makes use of the surrounding healthy mountain air together with varied bodily exercise, and Gräfenberg bids fair soon to rival the most frequented watering places on the continent.* At every spring which gushes forth amid these wild and primeval forests, gratitude has erected monuments in honour of the sagacious founder; and thousands of sufferers, pronounced incurable by other practitioners, return home strengthened and cured by these simple and natural means, bringing with them the spirit of this curative method and its traditional practice. We have in a short time seen the followers of the hydropathic system form branch establishments in almost every

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* We think it will not be out of place to relate here a circumstance connected with the last moments of the great Sydenham. When his friends and the greatest physicians of the day stood surrounding his death-bed, bewailing the loss medical science was about to sustain, he calmly stated that he was content to die since he should leave behind him *three great physicians;* and when those around him hung upon his lips to obtain the dying testimony of the modern Hippocrates, they heard him only utter the following significant words: *air, water and exercise.*

country, and a doctrine which has such writers as Gully, Scoutetten, Lubansky, &c., and is practised by the physiologist, Mayo, has no reason to fear for its future.

Whilst these three therapeutical systems are making their way here and on the continent and daily gaining new partisans, another curative agent has arisen in a more remote part of Europe—an agent which, although one of the most powerful, has hitherto been entirely forgotten or overlooked in the practice of medicine.

At Lund, the second university in Sweden, LING proposed a plan for a general reformation in education, about the beginning of the present century. Regarding man as a dualistic being, in whom body and mind react on each other according to the different conditions of their nature, he sought the perfection of man in the combined harmony of action of these two principles, and planned a great system, at once philosophical and practical, by which the organism is enabled to regain the harmony which either indolence or a too one-sided cultivation of the intellectual faculties might have weakened.

Those branches of natural philosophy upon which Ling founded his doctrine, enabled him soon to give his system a greater development; and by his creative genius he invented *a system of therapeutic movements as varied in their nature as in their modification of strength.* He contrived means to affect, both directly and indirectly, the most hidden internal organs, and thus placed the organism or its general parts under a regulated influence of *motion*, a power the

most general, the most significant, at whose command all the pulses of nature beat, and to whose laws even the vital phenomena are subservient.

Having ascertained by experiments, partly on himself and partly on a small circle of friends, the effects of his system of special movements, Ling at last removed his field of action to Stockholm, where he gained, not without a great deal of opposition, the attention of the Swedish government, from which he received a grant of money for the formation of a Central Institution, in order to confirm, develope, and disseminate his theory. It was here he deposited the fruits of his active life; it was here, after having shown by facts the harmony between his doctrines and the laws of nature, he founded a normal school for modern, rational gymnastics. Taking the ancients as models he endeavoured to give to his system the same enlargement and the same significance as the gymnastic science possessed in the most flourishing days of Greece. He intended it to form a part of general and national education, and also, on account of its physiological effects, to occupy that place in medicine which it possessed in the time of Plato, and under the direct guidance of a Hippocrates and a Galen.*

In the following pages we hope to be able to prove

* The therapeutical application of Ling's system, being at present our particular object, we can but allude to his pedagogical and hygienic gymnastics, in the hope that a more general knowledge of the results of a systematic application of movement will contribute to a speedy and complete acknowledgment of the importance of rational methods of physical education, to which we hope to return in a separate treatise.

that the Kinesipathy of Ling, in scientific clearness as well as in practical results, will stand comparison with any hitherto proposed or accredited therapeutical system.

In the meantime, it is a fact of great interest to observe how these four different therapeutical systems, developed from different elements, appeared almost contemporaneously in different parts of Europe, each headed by men of great genius, who, in opposition to the old system of treating diseases, and fully persuaded of the truth of their principles, regarded themselves as representatives of the most essential if not the only agent for curing diseases. The one making use of bio-chemical means, medicaments in infinitesimal doses, the three others of physical and mechanical applications—all endeavouring to rouse and stimulate the reactive power of the vital forces, and to conquer morbid action by bringing the vital organic functions into harmony and equilibrium.

But before we proceed any further, let us reflect for a moment on the progressive advance which has taken place in the most essential branches of medical science, and which in scarcely more than half a century, with the rapidity and character of a revolution, has brought new truths to light, and raised the veil beneath which nature has hitherto hidden the most important phenomena of life.

By his systematic arrangement and classification of the different products of nature, Linnæus, the modern Aristotle, reduced to order the study of Natural History, and gave a stronger impulse to research; and with the appearance of Berzelius, Chemistry began

to date its greatness. Within the busy laboratories new problems are constantly solved, both in the organic and inorganic world; and how much light have not physiology and pathology already received from the diligent and ingenious cultivation of that science!

Again, whilst Anatomy, the oldest and hitherto most solid of all the auxiliary sciences in medicine, was being enriched with new and important discoveries, CUVIER, surveying with the all-seeing glance of genius the various classes in the animal kingdom, created modern Comparative Anatomy; whilst at the same time, BICHAT laid the foundation of Pathological Anatomy, and in his *Anatomie generale* gave the key to the knowledge of the different organic tissues, which at the present time forms such an important branch of physiological and pathological studies. And whilst EHRENBERG with his microscope discovered a new world of animated beings in a drop of water, other natural philosophers espied the peculiarity, character, and symmetry in the different textures of the living organism, proving the great wisdom and design that obtain even in the most minute elements of creation. The ingenious and feasible theories of SCHLEIDEN and SCHWANN, respecting the formation and renovation of the organic primary-textures by nucleated cells, give us at the same time an insight into the most secret and hitherto hidden phenomena of nature, as they elucidate and solve many a physiological and pathological problem.

Physiological science is no longer a jousting-field for loose hypotheses. Chemistry, natural philosophy, comparative anatomy, microscopy, &c. answer all the questions which the experimental physiologist puts to nature; and the science which treats of life itself and its many phenomena, will soon take its place amongst the exact sciences. The knowledge of the digestive process, of the phenomena of secretion, of sanguification, of the respiratory process, &c. being satisfactorily explained by direct experiment, has thus become enlarged and more accurately determined; and the observations of Sir Charles Bell with regard to the motory and sensitory nerves, opening a new field of research in the phenomena of the nervous system, have been not only corroborated but still further developed by the experiments of Magendie, Müller, Valentine, Flourens, Longet, Bernard, &c.; the law relative to the excito-motory phenomena laid down by Marshall Hall has given rise to a series of discoveries, amongst which, the most recent and perhaps most important, is that of Du Bois Raimond, proving the relation between nervous power and electricity.*

What immense progress, what discoveries are every day made by human genius!—discoveries all tending

* This discovery is of as much if not greater importance for natural philosophy as Oersted's discovery of the relation between the magnet and electricity. Dr. du Bois' experiments, proving that in proportion to the intensity of our volition and the efforts of the voluntary muscles the magnetic needle is made to deviate in the same way as if influenced by the magnet or galvanism, open a new field for the researches of the natural philosopher, and give a new support to the doctrine of the reaction of the therapeutic movements on the nervous system, &c.

to the same object: the knowledge of the phenomena of life. Now nature every day becomes more and more the handmaid of intellect and the auxiliary of true science. And whilst all the fundamental sciences in medicine are hurrying forward with such gigantic strides, and the basis of the old building is thus shaken, who will pretend that practical medicine must continue to move in the narrow limits within which the old therapeutical knowledge has attempted to confine it?

Practical medicine is consequently compelled to renovate itself, and receiving assistance not principally from the chemical laboratory, but as much from the resources a more exact knowledge of all nature offers her, it will open new fields for the cultivation of the healing powers, that the therapeutical and physiological researches of the present time have disclosed.

But we must not forget what the old medical school, the cradle whence have sprung most of those men by whom the medical sciences have been brought to their present high position, has done for the development of practical medicine also. The studies and observations of enquirers having been directed principally to nosography, diagnosis and pathological anatomy, the progress in these directions has been immense; and since the introduction of percussion and auscultation, and the recent discoveries relating to the nervous system, we may justly say that physiology and diagnosis are in most instances synonymous. In these departments of medical science nothing has been left undone; but the eyes of the old school have been

directed to all sides except to the one where the black spot was most visible, therapeutics, a subject than which none are more important, and none more neglected.

Where is the genius to be found who should at one glance combine what is valuable of the old system with all the new discoveries, who, uniting all these different elements, should be able to solve the problems which modern physiology, pathology, and the latest discoveries in therapeutics set before us, and thus unite all for a future system of medicine—a true physiological, healing art?

The opposition of the conservative school of medicine to every new idea which could have any influence upon the healing art, has in all times shewn the same character of bitterness and resistance. The honour of bringing forth a new truth, or even of embracing it with ardour, has in all times been connected with great sacrifices, but it has also immortality for its reward; and the immortal HARVEY,* the humane JENNER, were not less persecuted and run down by their contemporaries of the profession than a HAHNEMANN, a MESMER, a LING have been in our days. The warfare which is still waged against the new doctrines in the medical periodicals shews us plainly the nature and the duration of the purgatory which every truth has to go through before it can conquer all those mean

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* Harvey lost his practice on account of discovering the circulation of the blood. In our days, Dr. Elliotson, when he first embraced and acknowledged the therapeutical influence of mesmerism as a fact, met with a similar fate, by the loss of his appointment at University College Hospital.

interests which are arrayed against it. We anticipate no other reception from that quarter for the science which in this little treatise we now bring before the world, particularly when we reflect upon the fact that it has not yet conquered all prejudices in its native land, after a hard fought battle of forty years. Notwithstanding this, there is no profession wherein we meet with more distinguished, more talented, and nobler men than in the medical body; no profession has produced individuals with more learning and skill, combined with more benevolence and self-sacrificing disinterestedness. But corporations never take the initiative in reforms, and they never voluntarily sacrifice the privileges of authority.* However, let us hope that this opposition will become less powerful and imposing by the many discoveries, by the scientific movements, and by the power of the ever active, progressive spirit of our days.

In an epoch in which thought flies with the velocity of light from one end of the globe to the other, let us not doubt of the great power which intellect will exercise over prejudices. Let us then do full justice to the time in which we live—it is a wonderful and great epoch, and the nineteenth century will not only be the most brilliant in the pages of the history of science, but it will also exhibit the spectacle of the substitution of the power of reason for the domineering influence of prejudices.

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* Les actes héroiques viennent de cœur, et les parties n'ont pas de cœur; ils n'ont que des interêts et des ambitions; un corps c'est l'égoisme immortalisé. (Lamartine, Histoire des Girondins.)

CHAP. II.

The development of Ling's system in Sweden, and the mode of action of specific active and passive movements.

The individuality of Ling, his philosophy and literary pursuits, belong so exclusively to his country and have so entirely the character of the north, its history and natural scenery, that he would scarcely be understood beyond the Scandinavian peninsula. They are, however, so intimately connected with his natural philosophy, his illustrations of the motion of the human body, for which he laid down new general laws, and with the extensive physiological and therapeutical application he gave to his system, that we cannot forbear dwelling a few moments, in this place, on this extraordinary man.

Great moral and physical energy, combined with high powers of eloquence, electrifying and poetic genius, with a philosophic reflective mind, made Ling a powerful instrument for the creation and carrying out of new ideas, and gave great influence to his philosophical and practical illustrations of the phenomena of the motions of the human frame.

Born in 1777, he was from early childhood surrounded by the wild and romantic scenery which

characterize his native country, and which gave the first nourishment to those poetical feelings which made him rank amongst the most distinguished poets of his country. From the beginning of this century, when he first started and brought forward his theories, until his death in 1839, his life was a constant struggle to establish and develop the science of which he was the founder; only now and then interrupted by the poetic outpourings of his ever creative mind, when he delighted to celebrate the great events of the past.*

Thus he recorded the most important occurrences of the political life of the Scandinavian people, detected new laws for determining the various movements of the human body, and originated a system of several thousand movements, the effects of which he closely examined. His poetry will ever secure him one of the first pages in the history of the literature of his country, and his system of movements, the rational course and development he has given to modern gymnastics, rank him amongst the greatest benefactors of mankind.†

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* Thus he produced at different periods two epic poems: *Gylfe* (in 15 songs); *Asarne* (in 30 songs, with historical notes); a series of historical plays, viz. *Eilif den Göthiske*, *Ingiald Illråda*, *Ivar Vidfamne*, *Styrbjörn Starke*, *Visburs Söner*, *Agne*, *Den heliga Birgitta*, *Riksdagen* 1527, &c. His last poem was *Tirfing*, or *the Sword of Death*, finished the year before his decease.

† Ling's manifold engagements and delicate health during his last years, did not permit him to give to the public a detailed treatise on his system. He, however, laid down the chief points of the philosophy of gymnastics, in a work entitled *General Principles of Gymnastics*, Upsala, 1834-39, p. 239, (*the publication of which was requested by*

This system, whose object is to invigorate the corporeal and mental powers, once generally known and admitted, will make the name of its inventor not only cherished and appreciated wherever his art is practised, but will also make his memory sacred to the sufferer whose health has been restored by the simple and natural means he brought to light.

The stubborn opposition which ignorance, interest, and even the powerful weapons of intrigue at first opposed to his ideas of rational gymnastics and to the introduction of therapeutic movements as a part of the healing art, has gradually given way before the arguments of facts, and Ling lived to see his native country acknowledge the truth and value of his work,* and adding his glory to her own, she will always reckon

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an Act of the Swedish Parliament). This work, which was never fully completed by the author, was, in compliance with his last will, published after his death, by Dr. Liedbeck of Stockholm, and the author of this pamphlet.

* This acknowledgment was given not only by several votes of the Swedish Parliament, by the sympathetic expressions of the most distinguished literary and scientific names of the epoch in Sweden; viz. Gejer, Tegnér, Berzelius, and Atterbom his successor in the Swedish Academy, but we also find the fair sex (in the person of a well known Swedish authoress) adding their meed of praise in the following lines: "Comptons parmi les hommes célèbres du siècle P. Ling, fondateur et directeur de la gymnastique à Stockholm. Savant éclairé, bienfaiteur de l'humanité, homme intrépide et actif, ses connaissances profondes du corps humain et de l'anatomie ajoutent à la perfection de son institution, et jamais la Suède ne pourra assez reconnaitre tout ce qu'elle doit au grand art de Ling. Original en tout, sa tête ardente, son imagination lumineuse, savent embrasser à la fois les sciences, les arts, et lui donner de la reputation comme auteur." (Madame Ehrenström, *Notice sur les beaux arts en Suède.* Stockholm, 1826.)

him amongst the noblest and most distinguished of her sons.

The more Ling proved by facts the truth and reality of his doctrines, the more the school he founded in Stockholm, and for which he had obtained as early as 1813 a grant from the Government, was enlarged and better supported. The preservation of this institution, as a starting point for his system of therapeutic movements and physical and moral development, became now his highest aim, and was even when dying his last earthly care. The following address not only proves what difficulties he had to overcome, but gives at the same time his views with regard to his system of gymnastics, the importance and difficulty of maintaining it in accordance with the great and scientific plan he had laid down, and expresses the anxiety he felt lest his system should be ruined from want of proper support, protection and scientific practice.

"Often misunderstood and without any means, I have worked for 35 years at a subject to which I have devoted my life without any hope either of immediate or ultimate reward. The King and Parliament have assisted me in my struggles from time to time, but my health was then already sacrificed, having only a few assistants to aid me in carrying out my plan and pursuing the gymnastics in all its branches, according to my original idea. Death is about to put an end to my activity, and all I have done may vanish like a bubble, should the King and Parliament refuse to listen to the supplication of a dying man for support in the development of the Institution, according to the scheme I have

laid down. Out of nearly a hundred pupils I have tried to educate as gymnasiarchs, there are only two who are able to carry out my true scientific idea, and these two are in delicate health.* Should they depart before others are educated to take their place, the real object of the Institution will be lost. Support must come soon, else it will be too late."

The Swedish Government did not forget Ling's last request. The Royal Gymnastic Institution of Stockholm, having received further assistance, is now able to receive 500 persons daily, about 200 of whom are treated for various chronic diseases. Besides this, the science is publicly taught in conjunction with lectures on anatomy and physiology, and every year a certain number of pupils are examined, who devote themselves to the teaching and practice of pedagogic gymnastics in the public schools throughout the country.

Ling fully tested the therapeutic agency of movements by repeated observations and experiments. He thus found that movements were of different natures, that they acted differently according to the different organs influenced by the movement, and that the phenomena they occasioned were in some measure comparable to the effects of internal medicines. He further observed, that by the application of general mechanical laws to those of the organism, we are able to affect any organ by movements, and by adopting a rational course for their application, due regard

* Professor Branting, the head of the Central Institution of Stockholm, and the author of these pages.

being had to the relation and state of the various organs, it will be easy to regulate and determine the requisite strength of this kind of influence. Thus, by regulating, modifying and localizing movements, he gave to them an importance hitherto unknown, and made of them one of the most powerful therapeutic agents.

It is generally known that in proportion to the amount of exercise taken, so are the muscles developed, and strength and health transmitted to all parts of the body. Rest or prolonged inactivity produce on the contrary looseness and relaxation of the organic tissues, and a continual pressure produces even atrophy of a part, which is thereby obstructed in its natural functions and movements. Some classes of workmen are more subject than others to certain affections which may be attributed to an unequal development of parts in the first instance, and ultimately to a reaction on the circulation of the blood, congestion to internal organs, &c.

Facts like these furnished Ling with many important hints, and led him to observations upon the influence of muscular movement and external applications, such as pressure, friction, &c., on internal organs. He was thus able to shew, by direct experiments, how to effect, for instance, a congestion in a part as well as to remove it at pleasure, how to develop one part of the body singly, &c.

But before entering into a more minute description of Ling's proceedings, we will consider some of the principal points of his physiological and therapeutical views.

"The vital phenomena may be arranged into three principal or fundamental orders, viz.: 1. *Dynamical phenomena*, (manifestations of the mind, moral and intellectual powers); 2. *Chemical phenomena*, (assimilation, sanguification, secretion, nutrition, &c.); 3. *Mechanical phenomena*, (voluntary and organic motion, viz. locomotion, respiration, mastication, deglutition, circulation, &c.)

"The union and harmony of these three orders of phenomena characterize a perfect organization, and every vital act is accomplished under their combined influence.

"The different share these phenomena take in a certain vital act, gives it its peculiar character. If any derangement occur in any of these phenomena the result is always a disturbance of the vital functions, which we call disease.

"The state of health depends accordingly on the equilibrium and harmony that ought to exist between the functions of those tissues or organs in which these three orders of phenomena occur.

"When this harmony is deranged, in order to re-establish it, we should endeavour to increase the vital activity of those organs whose functions have a relation to that order of phenomena whose manifestation is decreased or weakened."

Ling reckons also, as a corollary to the foregoing, among therapeutic means, three different kinds of influences on our organism, viz.: 1. *Chemical agencies;* 2. *Physical and mechanical agencies;* 3. Those influences he has named *Dynamical, and which are moral or intellectual*

"The physician has accordingly to regulate, not only the medicine and food requisite for the sick, (chemical), but also exercise, position during rest, &c. (mechanical), and the manner in which the irritable mind is to be calmed, &c. (dynamical). Due attention to all these matters is necessary to constitute a rational treatment of disease." *

We can here only allude to Ling's theory of the special application of these agencies in therapeutics. Experience and direct physiological experiments being in our opinion the only rational manner of finding the effects of a therapeutic agent, we refer to the statistical table and the cases which we here publish.

As regards the influence of the mechanical agency,

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* Ling's *General Principles of Gymnastics*, p. 3 to 33, and from 130 to 151.

In admitting these three principal varieties of vital acts, and, as a consequence, so many corresponding modes of physiologically affecting the organism, each of which is in its sphere of equal importance, we consider the therapeutical system incomplete in which all these powers are not taken into consideration. Another question not less important is the establishing of a law for the therapeutical application of these different powers. The living organism can no more be considered merely as a chemical retort, where we are able to produce at pleasure the same phenomena as in a laboratory, than it can be held to be a mechanical production, on which we are allowed by mechanical pressure to efface an elevation on the surface or alter its form, according to the same principles as we straighten a crooked stick. If the reactive phenomena of life are not taken into due consideration, the treatment must fail—the result be injurious. "A course of mercury" or iodine, &c. is accordingly, within the chemical sphere, as opposed to the laws of reaction, as an orthopædic treatment continued for years, is within the mechanical sphere.

The law of reaction is a law of nature. According to its principles the organism creates new powers where they are demanded. Not

(active and passive movements, &c.), their applications are founded on one of the fundamental principles of our organism. The law of movement is a natural law. No chemical act can be effected within the organism without the participation or assistance of the mechanical acts, which are expressed by voluntary or involuntary movements, and the whole frame is organized accordingly. So, for instance, oxydation of the blood (chemical act) cannot take place without the movements of the thorax by the action of the inspiratory and expiratory muscles, (mechanical act); digestion, assimilation, &c. (chemical acts), cannot properly be performed without the propelling movements of the stomach and intestines, the pressure of the abdominal muscles, &c. (mechanical act). The blood cannot be thrown to every part of the organism—here to be purified, there to nutrify, to stimulate, &c. (chemical acts) without a proper performance of the alternating move-

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only the educability of man in moral and intellectual, as well as in physical respects, depends on this law, but the same principle prevails also in the pathological state of the body, and must accordingly be taken into consideration in therapeutics. Thus, with regard to our subject, we observe that the physical powers of the organism are increased by corporal exercises, just because, a consumption of power taking place in consequence of every physical effort, the reproductive powers of the organism are compelled to increased activity. The self-sustaining power of life, the "*vis medicatrix naturæ*" depends on these principles. Exercise in proportion to the reactive powers of the body is strengthening, promotes sleep, appetite, easiness of mind, continued beyond these limits it produces fatigue, restlessness, heat, pain, sleeplessness; carried still further, alteration of the blood is produced, and death is lastly the consequence. It would require a larger space than a note to give these important questions the development they deserve. (See *Kinésitherapie*, pp. 3, 24, 43, 121, 122, 123.)

ments of contraction and dilatation of the heart, (mechanical acts). The whole organism is the most wonderful machine in which motion produces motion. The conditions for molecular changes are thus ensured. The machinery repairs itself; it is stimulated to action and communicates an increased power.

If, therefore, in accordance with these laws of nature, we can by the application of special movements increase the power of the mechanical means by which the organism performs its chemical functions; viz. respiration, sanguification, assimilation, secretion, &c. the result must, by producing an increase or a modification of these vital chemical acts, powerfully react on the whole organism. Experience justifies this theory. The strengthening effects of bodily exercises, and their great influence on the form and development of the whole frame, are generally known and appreciated in Hygiene.*

The organism is a complete unity in which a determined sum of power is distributed. This sum remains always the same, whether the distribution of the power be uniform or not, and consequently the increased activity of one organ, presupposes a diminution of the action of other organs. Now we can localize movements, and thus increase or diminish the vital action of any organ,

* The effect of regular training for a certain object, during which hygienic principles and repetition of certain bodily exercises are empirically attended to, is proved in a short time by considerable changes in bodily development and strength, and is one fact out of the many which in every-day life illustrate the beneficial results which may be expected from a hygienic method of treating diseases in which movements take a principal share.

we can promote or regulate movements in the whole frame or in any of its parts.

Thus the mechanical agent can, by promoting or arresting molecular motion and changes in the organs and tissues where those functions are to be fulfilled, on which the maintenance and conservation of life depends, produce many effects analogous to those produced by certain medicinal agents; or, to use medical phraseology, it has its stimulative, its sedative, its tonic, its diaphoretic, its purgative, its derivative, &c. effects: and can accordingly, in most instances in chronic diseases, be applied as a valuable substitute for most of the drugs of the pharmacopœia.

Ling, when young, was afflicted with a pulmonary disease, and having tried in vain the usual resources of medicine, he, by closely watching the effects produced by applying certain movements to himself, found the means by which his life was saved. In the meantime, he observed that certain movements excite giddiness, others cause vomiting, others increase the animal heat even to the strongest perspiration, while others on the contrary produce a sensation of coolness. He further stated, that certain movements excite palpitation of the heart, while others diminish the quickness of the pulse. Violent bodily exertions are known to cause faintness, perspiration, restlessness, &c., while moderate exercises induce liveliness of mind, and promote sleep, appetite, &c. "Although most of these effects," says Ling, "are generally known even to the ignorant, yet professional men

have taken no notice of them, the chemical agent alone having absorbed their whole attention."

These facts once established, it became a matter of great importance to study the characters of different movements; viz. of those of volition (muscular movement), and of those which independent of our will are transmitted to the organism or to any of its parts by external forces. The former are called *active*, the latter *passive movements*. Another not less important object was to find means to enable the physician to direct the movement to a certain part of the body, and to limit its action to a certain organ. For it is evident that a movement acting only on the lower extremities, and consequently modifying the innervation and the distribution of blood in these parts, must act differently with regard to its effect on the circulatory and vital phenomena of the internal organs, than a movement which is directed to act on the liver, the lungs, the bowels, &c.

In Ling's system the following passive movements are adopted: *pressure*, *friction*, *percussion*, *vibration*, *rotation*, *ligature*, *movements and positions which may either prevent a congested state of an organ or promote a transient stasis*, &c. &c.

In order to know the resources of these different means of transmitting an external action on internal organs, and to derive all the benefit which may be obtained from such an application, it is necessary to ascertain the state of elasticity of the various organs, their relative situation, &c. Thus by placing the body in certain postures, by altering the position

on the relative situation of the different parts of the body, we may according to circumstances promote an increase or decrease in the greater or less resistance which the integuments oppose. These postures, called *starting positions*, are standing, sitting, lying, &c. according to the effect intended to be produced.

Without entering into any more details with regard to the passive movements, which our limited space will not permit, we may only mention, that a vibration or percussion gently applied to the integuments of the head is transmitted to the brain and its tissues, a fresh impulse is thereby imparted to its capillaries, the pressure of the venous blood removed, and its course towards the heart facilitated. If a similar percussion be applied to the thorax, the effect will be transmitted to its viscera, and the activity in the veins and absorbents of the lungs or of the heart increased. Pressure or friction may be applied to the abdominal organs, the stomach or its nerves, the liver, the spleen, to the nerves of the bladder, rectum, &c. or to a main blood-vessel, artery, or vein, or merely to the surface of the skin.

The effect of the regulated *passive movements* is in general to accelerate the passage of the blood through the capillaries, and to increase the action of the absorbents. They act as a sedative when applied to an organ which is in a congested or irritated state; but may also assume the character of a derivative or excitant, if applied to organs which bear any relation or antagonism to the suffering parts, &c. Besides very different results are obtainable by the same means,

when applied to different organs, corresponding to the physiological functions of the organs which have been acted upon.

To obtain analogous special actions from active movements, to provoke contractions only of certain muscles or groups of muscles, in order to circumscribe the action to more or less limited groups of capillary vessels and ramifications of nerves, other observations and researches were requisite. In taking a general review of the movements of the human body, we soon observe that some articulations admit of a greater mobility than others; that some of them only admit of flexion and extension, while others permit a rotatory motion. Some parts act as starting points and are fixed, others act as levers and are moveable; in fact we detect that general mechanical laws regulate the movements of our organism.

A glance at the skeleton will further convince us, that the structure of the various articulations are in accordance with the direction and extent of the movements they are intended for. The muscles, consisting of infinitely small and contractile fibres, act on these movable levers in the direction of the muscular fibres, stimulated to action by our volition through the motory nerves.

Every motion is a mechanical problem, in which the different parts of the body represent weights, to be adjusted and determined by the muscular power. Localisation of active movements is dependent on the increase or diminution of these weights, according to the purpose intended to be

effected; and an increase or decrease of their power is under the control of the physician by observing general mechanical laws. Nature has, in the symmetry of the mechanical arrangement of these powers and of the bony framework, made the adjustment of the different weights possible, and capable of being effected with the least loss of time or power. The many levers and the great number of muscles explain in some measure the great variety of the simple and associated movements of animal mechanics, and give a hint as to the great influence and physiological importance of motion: in fact there are more than 200 different segments of bones composing the human framework, in a manner most ingeniously arranged as to form and purpose, and put in motion by more than 400 different muscles, each composed of millions of fibrils, which are brought to unity and symmetry in their actions by a network of nerves. The play and exchange of action in the acting, auxiliary and antagonistic muscles, which characterize even the most simple of our movements, are effected by these means.

The nerves and the vessels are interspersed through the whole machine; the finest needle cannot be stuck into any part without producing blood and occasioning pain. The uninterrupted process of waste and repair, the continued composition and decomposition, are carried on by these numberless vessels, not more different in their size and combination than in the functions they are destined to perform. Every act of our volition by which the muscles are contracted, or every communicated movement reacting on the func-

tions of all these nerves and vessels, modifies the process of composition and decomposition of parts. If we can preserve equilibrium in these phenomena by maintaining the equilibrium of the circulation, we preserve health, or restore it when lost. Specific active movements act as one of the most powerful agencies on the harmonization of these vital phenomena within the organism.

Every active movement is promoted by the contraction of the muscular fibres, and reacts on the nerves and capillary vessels belonging to them. In order to regulate and determine the contractions in the voluntary muscles, and to transmit the action of a movement to a single muscle, or to a certain number of muscles, Ling invented and applied movements in accordance with the structure of the various articulations and the course of the muscular fibres.

These active movements are: *flexion*, *extension*, *torsion*, *rotation*, *tension*, &c. Their action is modified and transmitted to certain parts by giving the body different positions, as starting points for the various movements. Thus we reckon more than a thousand special active movements; by the application of which we are enabled to increase and regulate the innervation, circulation and nutrition, within any part of the system, especially where the voluntary muscles are predominant.

The active as well as the passive movements are regulated as to time and direction. They are always uniform; and the strength of their application can be regulated in the most minute degree, and may

directly or indirectly be applied to act on any organ whatsoever. Thus determined with the greatest accuracy, both with regard to their quality and quantity, we call them *specific active* or *specific passive movements.*

A few examples will suffice to shew the mode of applying the specific active movements, and the result which may be expected.

For instance: if we wish to increase the activity of the arterial vessels of the foot, in order to augment the animal heat principally in that part,* the patient should be placed in the reclining position, his leg resting on the knee of the operator, who is then to make a uniform rotatory movement of the foot, with his hand placed on the sole of the foot. The movement should be kept up for one or two minutes, with short intervals, and its action will soon be manifested by the sensation of increased warmth in the foot and lower part of the leg. This movement, and several

* According to the researches of Brechet and Becherel on animal heat, the temperature of a muscle is augmented during its contraction, in general about 1° Fahr., and to double that amount when the exertion is kept up for several minutes. Without examining whether these phenomena belong to molecular friction, or to the increased action of composition and decomposition of nucleated cells, as a consequence of the active state of the muscular fibre, we shall only allude to the following positions of Grove, according to which, "*Heat, Light, Electricity, Magnetism, Chemical Affinity,* and *Motion,* are all correlative or have a reciprocal dependence; that neither, taken abstractedly, can be said to be the essential or proximate cause of the others, but that either may, as a force, produce or be convertible into the other," &c.—(Grove, *On the correlation of Physical Forces.* London, 1846.) These observations show our question in another light, and give an increased importance to the effect of our active and passive movements.

other applications of active movements which especially react on the innervation and the arterialization of the muscles of the lower extremities, act as a powerful derivative in cases of congestion of the head, lungs, or in other diseases, especially when they are accompanied with cold feet and legs.

Rotatory uniform movements may be applied to the joints of the thigh, shoulder, neck, loins, &c., in fact to all parts whose articulations admit of such action. The physiological effect is varied and modified according to the physiological action of the different nerves and vessels which are thus acted upon, whether they belong to a diseased part or any other which may be in close connexion or in antagonism with these nerves and vessels. Thus a rotatory motion applied to the neck, by acting on and facilitating the return of the venous blood towards the heart, is used in congestion of the brain accompanied by giddiness. A similar movement applied to the loins, will restore the normal action of the bowels, facilitate the secretion of the bile, increase the arterial activity and innervation to the organs within the pelvis, &c.

If the patient being placed in a sitting posture, on a chair for instance, with the feet firmly held to the ground, the operator, standing behind the patient, pulling the upper part of his body uniformly backwards until it has reached the horizontal position, whilst the patient opposes a moderate resistance, we have a movement which acts upon all the abdominal muscles, and more especially on the recti. The tone

of these muscles is thus increased, and consequently they are enabled to act in a more powerful manner in stimulating the propelling action of the bowels, and in supplying these parts with arterial blood it may assist the evacuation of the bowels, &c. Amongst the several kinds of movements which can be directed to these parts of the body, we may mention the twisting movements, which, according to circumstances, may be made to act directly on the small intestines, the colon, the liver, &c.

In persons with a stooping habit, whose head and back are inclined forwards from want of nervous energy and development of the muscles of the back, and especially of those of the neck, in order to restore the equilibrium, the operator, standing behind his patient and placing one hand on the neck, (the forearm resting along the spine,) should oppose a moderate resistance, whilst the latter, from a stooping position, is trying to regain the erect posture, by gradually and uniformly moving his head and body backwards. By this and other muscular movements, directed to localize their action to certain parts of the spine or to one of the shoulders, curvature of the spine, in its incipient stages, and other distortions are easily corrected.

For a narrow and contracted chest, among the many movements to be applied to enlarge the cavity of the chest and to develop the organs of respiration, the following movement may be mentioned. The patient being seated on a chair, sofa, &c. with both his arms stretched upwards above his head, the physician is to stand behind the patient, and by taking hold of his

hands he is to oppose a resisting power, whilst the patient is directed to bend his arms by pulling them down towards his side. During the movement a slight pressure is applied to the patient's back by the knee of the operator. By continued application of similar specific movements to this part of the body, we may in a short time effect an increased development, which is proved by an augmentation in the circumference of the chest, often of several inches.*

In considering the general physiological effects of the mechanical agent represented by Ling's analytic movements, we observe: 1st, that the effect of these movements may be transferred to any part or organ of our organism; 2nd, that the strength of the movements may be modified and regulated from the most feeble to the most powerful; 3rd, that *passive movements* in general affect the sensitory and excito-motory phenomena of the nervous system and of the absorbents, and increasing thereby the absorption, advance the retro-metamorphosis (waste) of the organic textures (shorten the periodical cycles of duration of the nucleated cells constituting the tissues?); 4th, that *active* movements augment the activity of the arteries and the innervation of the motory nerves; 5th, that they increase the animal heat; and 6th, that they advance and support the progressing metamorphosis

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* In order to supply the defective manner in which these movements have been explained, we refer to the general laws which have been laid down in our French publication, *Kinésitherapie*, chap. 1, pp. 29, 35.

(repair) of the textures (increase the deposition of nucleated cells to constitute new tissues?).

By these general effects, whose character is the regulation of waste and repair, functions which are continually going on in the organism, the results of the application of specific movements are modified in proportion as they are directed to organs with different physiological functions. Thus, some movements expand the thorax, others facilitate the oxydation of the blood and its course through the lungs; some may be made to act on the absorbents of the head and brain, whilst others may be directed to act on the lower extremities in order to increase the supply of arterial blood. Some movements again, increase the activity of the alimentary canal, whilst others diminish its irritability, &c.

Means like these, which take so large a share in the phenomena of life, and whose relation to the laws of nature is expressed in the formation and transformation of the organism, means which are supported by the latest physiological and pathological researches, and whose effects we may calculate with nearly mathematical certainty, as regards their influence on the phenomena of nutrition and reproduction, give us a right surely to regard them as one of the most important means known for re-establishing and preserving health.

We might here give a few rules for the therapeutical application of the specific active and passive movements, in order to prove how it varies in different diseases and according to the individual wants of

different patients; we might also shew how the active movements interchange with the passive; likewise the order which must be observed among the movements to produce certain effects, but these details the object of our pamphlet forbids, we must limit ourselves to merely giving a numerical statement of the results of the treatment in the various diseases to which it has been applied during the foregoing year, in the Central Institution in Stockholm.

We only mention, en passant, that as the length of time before a diseased organ can be acted upon by direct applications in order to assist and modify the re-organization of its textures, varies in different individuals, so the time required for a kinesipathic cure varies very much. This depends partly upon the patient's regenerative powers and other constitutional causes; but from two to four months may in general be considered sufficient; indeed, it is an exception when a patient does not feel considerable improvement after two or three weeks' application of this treatment. The temper becomes more even, the eye clear and lively, and a gradual improvement in both the physical and mental condition, particularly characterizes this mode of treatment when applied rightly and to its full extent, and the patient feels stronger, in better spirits, and experiences a greater sense of the pleasure of existence than previously.

Tabular view of the Patients treated at the Central Gymnastic Institution of Stockholm, from July 1st, 1848, to July 1st, 1849.

DISEASES.	Admitted.	Cured.	Relieved.	Interrupted treatment or discharged unimproved.	OBSERVATIONS.
Asthma	26	10	9	7	
Emphysema pulmonum.	8	3	2	3	Case 10 belongs to these
Atrophy of the heart ..	9	3	5	1	
Cold in the head (chronic and habitual)	17	9	3	5	
Cold feet	92	35	36	21	Symptoms belonging principally to the diseases of the lungs, the heart, the brain, &c.
Cold hands	8	3	5	..	Principally belonging to diseases of the heart and lungs
Congestion of the head..	55	21	22	12	Including facial congestions. Cases 9 and 12 belong to these
Congestion of the lungs.	7	4	3	..	Case 11 belongs to these
Congestion of ovary....	2	1	..	1	
Constipation of bowels..	51	19	22	10	
Disease of the valves of the heart	5	2	2	1	
Dislocation of elbow joint	4	4	..	..	
Distortion and curvature of the spine	28	9	9	10	
Dyspepsia and heartburn	20	7	4	9	
Delicate and deformed chest	20	9	11	..	
Epilepsy	3	..	2	1	
Expectoration of pus ..	23	9	10	4	Belonging to the cases of pulmonary consumption and asthma
Giddiness	36	12	16	8	
Green sickness.....	12	6	5	1	Cases 6&7 belong to these
Hæmorrhoids	36	12	14	10	
Hypertrophy of the heart	8	2	4	2	
Inflammation of eyelids.	3	..	2	1	
Menstruation profuse ..	5	2	2	1	
,, diminished	9	2	3	4	
,, suppressed	10	6	2	2	
Nervous debility	4	2	1	1	
Palpitation of the heart.	50	20	18	12	
Palsy	5	1	..	4	
Pulmonary consumption (1st and 2nd stages)..	21	7	9	5	Case 8 belongs to these
Rheumatism	22	8	10	4	1 rheumatism of the heart
Scrofula	10	3	5	7	
Spinal irritation	15	5	3	7	Cases 5 and 13 are among these
Spermatorrhœa	12	7	3	2	
Spitting of blood	15	8	4	3	Symptoms belonging to the cases of pulmonary consumption
Stooping position (from weakness of the muscles of the back.....	16	6	5	5	All females but one
St. Vitus' dance	3	1	2	..	
Sleeplessness	13	6	1	6	
Sore throat	2	1	1	..	
Weakness of joints	7	2	5	..	
Total	693	266	261	166	

CASES.

CASE I.—*Dyspepsia and General Debility cured in four months.*

Mr. T., of Paris (14, Rue Castiglione), aged 41, of lymphatic temperament, had been a sufferer for the last twenty years from dyspepsia, which, when he consulted me, Jan. 1848, had reached a fearful intensity. The patient being utterly reduced in flesh and strength, suffered from constant nausea, and was not able to retain either fluids or solids on the stomach; his bowels never acted without aperients, and he suffered continually from griping pains. From his childhood he was subject to cold feet and headache, and now after meals the headache becomes insupportable, accompanied with flatulence and eructations. The pupils in general excessively contracted. After some days' application of the treatment the bowels began to act, the feet became warmer, and the head was considerably improved within the first month. The patient, thus convinced of the influence of the specific movements, was induced to continue, and in four months he was cured of this malady which after twenty years' duration had brought him to the brink of the grave. With the exception of derivative and roborative movements, the treatment tended in the beginning to soothe the irritated state of the mucous membrane of the stomach and duodenum. Amongst the movements which proved of the greatest influence, we may mention a vibratory movement directed toward the stomach itself, (left infracostal-vibration) and a friction in the direction of the colon, the body being placed in a half-lying position and the lower extremities approached towards the pelvis, which two absorptive movements gradually lowered the irritability of the mucous lining and regulated the contraction of the muscular coat throughout the intestinal canal.

CASE II.—*Eruption of the Skin and Palpitation of the Heart.*

Baron de R., of Germany, aged 29, sanguine temperament, had for several years had a disease of the skin, and for which he had consulted the most celebrated physicians on the continent without result, and had been subjected to the most various modes of treatment.

The benefit one of his friends had experienced from the kinesipathic treatment induced him to consult me, Jan. 1848. I found the whole face covered with large pimples, especially on the forehead. The eruption, which in general came on periodically, was also abun-

dant on different parts of the body, especially on the chest and the thighs. The patient suffered besides from violent palpitation of the heart, was narrow chested, and had constant pains in the left side of the abdomen (flexura coli sin.); constipation and cold feet had been present for several years.

Although the course of treatment was not continued for a sufficient length of time to restore this complicated illness, the principal symptoms; viz. constipation, palpitation and cold feet were removed; the complexion lost its copper-like appearance and was gradually becoming more transparent, and the eruptions less frequent.

The diameter of the chest was increased during the first month by one and a half inches, and the treatment lasted two and a half months, when the patient left Paris for his native country considerably ameliorated.

Case III.—*Chronic Bronchitis cured in five months.*

Countess de —, who consulted me in Paris, during the winter of 1847, was in a very debilitated state, and on the verge of becoming consumptive in consequence of a bronchitis, which had gradually assumed a chronic character and was accompanied by profuse expectoration.

Being told by her physician that no alteration in her state was to be expected until the arrival of the summer, or by an immediate change of climate and abode, she made up her mind to try this new method of treatment.

The patient, aged 35, and of a nervous temperament, suffered from slight night perspirations, and though she had been for several months confined to her room and almost constantly in bed, she was affected by the slightest change in the temperature. There was some pain between the shoulders, especially under the right one. A deep inspiration excited cough, and in the morning there was abundant expectoration. Auscultation proved the middle lobe of the right lung to be impermeable to the air, and various mucous râles were heard in the back and lower part of the right lung. There was but a very slight amelioration during the first six weeks; however, the patient was even at the expiry of that time enabled to take a short airing every day, the expectoration was less and the night perspirations ceased. The amelioration began then at a quick rate, the patient gained in flesh, the cough ceased gradually, and the cure was complete in five months.

The treatment was in the beginning, with the exception of a few sedative movements directed to the thorax and trachea, of a derivative nature, but the cure was afterwards principally effected by a compression directed to the pneumogastric nerve, and a vibratory movement applied to the trachea and the recurrent nerve, (standing laryngeal-vibration), alternated with slight and divergent percussion on the back of the thorax, which transplanted to the capillaries of the mucous membranes of the air tubes, produced an increased activity in the absorbent vessels of the lungs.

CASE IV.—*Slight deviation of the Spine, cured in one month.*

Miss M. de —, the daughter of the last mentioned lady, a girl of eleven years, had for some time manifested a disposition to deviation of the spine. I found, on examining her, a slight deviation of the four first dorsal vetebræ and a fulness of the right shoulder, which was above an inch higher than the left one. Besides which, she was inclined to stoop. As this want of harmony in the form and muscular development was only in its first stage, the treatment shewed its effect in a very short time; and in less than a month the left shoulder, to which the movements principally had been directed, had assumed the same development as the other. Other movements directed to localize their action on the posterior muscles of the neck, soon increased their innervation and strength, and enabled the patient to support the head in an erect and natural position.

CASE 5.—*Spinal irritation cured in three months.*

A. L—, a girl ten years old, of a very delicate constitution, was laid up with a severe typhus fever last spring, preceded by a long and protracted ague. During the last illness the *last cervical vertebræ* and *the first dorsal* had become exceedingly tender when touched, and continued in that state ever since. The present symptoms are: *Pupils very dilated;* palpitations of the heart, with pains in the præcordial region; coldness in the head; flatus after meals; cold feet, particularly in the afternoon; black specks before the eyes which prevent the patient from reading any length of time, and make small print not readable; *somnolency;* swelling of the glands of the neck and throat. She was subjected to a course of Kinesipathic treatment, and at the expiry of three months was perfectly cured.

CASE VI.—*Green-sickness cured in nine months.*

Miss O. T—, age 22, scrofulous; has suffered from weak and delicate health ever since childhood, and after the measles two years

ago, the last scrofulous ulcer in the face was healed. For the last six years she has been a sufferer from green-sickness, accompanied with palpitations of the heart, at times so violent that she was unable to lie on her left side; great lassitude throughout the day, and at the least attempt to move the patient experiences pain in the heart and dyspnœa; she also suffers from vertigo at times; headaches, more in the left side of the brain, and in moving the head; throbbing in the temples; humming in the left ear; weak vision, with a smarting sensation in the eyes; shivering along the spine; the feet cold and warm alternately, and in the evening tremor of the nerves, accompanied by involuntary jerkings of the extremities. Menses generally irregular; they had been suppressed for the last two months. The body is in a state of great emaciation. After nine months of the Gymnastic treatment, this patient was completely restored.

CASE VII.—*Green-sickness cured in nine months.*

The Hon. Miss C. v. B—n, a lady of 16 years, has been chlorotic for the last two years; continued *lassitude* and headache, principally at the top of the head, and in the temples; buzzing in the ears; vertigo of a transient nature; continued palpitations of the heart; the walls of the heart atrophied; bruit du diable in the jugular vein; now and then a cough without expectoration; sharp pricking pains in the parenchyma of the heart; cold sensation all over the body; slow temperament; dulness of eyes; she has not yet menstruated. As in the preceding case, nine months of the treatment sufficed for her recovery.

CASE VIII.—*Pulmonary Consumption cured in six months.*

—R—, Esq. 31 years old; when a child, of a strong constitution. In 1834, in consequence of a severe congestion to the head, a mental disturbance took place, which disappeared for some years, but it reappeared in 1840, and then continued for half a year. During the years 1846 to 1848, the patient's health became considerably weakened from severe study, and on the 28th January, this year, he was taken ill with a *copious spitting of blood*, for which he was bled, and the spitting of blood became diminished, but the expectoration continued to be mixed with coagulated blood, and the patient's strength was reduced to a fearful degree—in fact, he has now all the appearance of a dying man. Among other symptoms, there are—vertigo, which at times causes the patient to fall to the ground; bad taste in the mouth; cold hands and feet; constipation of the bowels in con-

sequence of having gone through a course of acetate of lead, &c. Six months of the Kinesipathic treatment sufficed for the removal of these severe and threatening symptoms.

CASE IX.—*Congestion to the head cured in three months.*

Mr. L—, 48 years old, suffers from vertigo which, at times, causes darkness before his eyes, and obliges him to lie down immediately; strong and continued buzzing in the left ear, often so severe that the patient becomes deaf of that ear, which affection originated in an exposure to a current of air at night in February of this year. He never feels hungry; the bowels are rather constipated; when the paroxysm of vertigo comes on he suffers from cold feet. These symptoms all yielded permanently to three months of Kinesipathic treatment.

CASE X.—*Emphysema of the lungs, and deformed chest, cured in six months.*

R. S—, a boy of 13 years, from early childhood suffered from hoarseness and cough, which terminated in *emphysema.* Thorax deformed, particularly the inferior part of the breast-bone. The patient is at the present time afflicted with headaches; difficult breathing, sometimes accompanied by a severe pain in the region of the colon ascendens (upper curvature); bad taste in the mouth; hoarseness, particularly of an evening. Six months sufficed to complete the cure of this interesting case.

CASE XI.—*Dyspepsia, with congestion of the lungs, cured in three months.*

Mr. Ch—, aged 48, had a very severe attack of typhus fever last February. The symptoms at the present time are—stiffness in the neck, soreness across the chest and between the shoulders; buzzing in both ears; congestion of blood to the head; inflated abdomen, with pricking pains; bowels constipated every second day: scybalous excrements; and for several years past, constant eructations and dragging pains in the pit of the stomach; generally cold feet, &c. After a treatment of three months his recovery was perfect.

CASE XII.—*Cerebral congestion and apoplectic fits cured in six months.*

Baron F— was afflicted three years ago with severe rheumatic pains in the head, for which he was ordered douche baths on the

head; the pains disappeared, but the patient became afflicted with gall-stones. Leeches, venesections, and cataplasms having been applied in vain, Belladonna was given with some success. A fortnight afterwards the patient had an apoplectic fit, affecting the right side, the sensibility of which was lost, as well as the vision of the right eye. Leeches were then applied, and a metastasis to the left side was the result. The patient went to Carlsbad and Tœplitz, and returned unimproved in health. His physician then recommended the use of the medical gymnastics, but no results having been obtained after some months, this treatment was discontinued. *The patient had simultaneously made use of internal medicines.* The following summer (1848), the waters at Homburg were used with great and immediate benefit; but some months afterwards, new fits reduced the patient again to his former state of debility. He suffered then from severe constipation; giddiness; anxiety of mind; the pupil of the right eye exceedingly contracted; legs and feet always cold. Placing himself wholly under the care of Professor Branting, the patient then, after six and a half months' mechanical treatment, and some hydropathic applications, was so entirely cured, that he was enabled to resume active military duties, which, during the previous two years, he had been obliged to relinquish.

Case XIII.—*Spinal irritation cured in six months.*

D. M—, a tall and slender girl of 10 years, with inclination to stoop. Last summer, in June, she felt pain coming on in the hip, which was considered merely accidental, and caused by a sprain. Cold baths were recommended, but they increased the pains; some time afterwards a severe diarrhœa appeared, accompanied with pains in the back. The Spine being at last examined, it was found not only that two dorsal vertebræ were more prominent, but at the same time that a lateral curvature existed, and the patient was recommended to go through a course of Gymnastic medicine, whereby the health and the shape of the body were thoroughly re-established in six months.

Case XV.—*Dyspepsia and palpitation of the heart.*

J. M—r, Esq. aged 27; nervous temperament; has been affected for the last three years with violent palpitations of the heart, which are produced by the slightest bodily exercise, mental anxiety, and invariably after meals; now and then pains along the left arm, and

throbbing of the jugular veins: the acoustic phenomena announce a dilatation of the right side of the heart, with hypertrophy; heaviness and uneasy sensation in the præcordia after meals, as well as flatulency. The patient is rather constipated; the eyelids red and swollen; legs, feet and hands cold. He is almost totally devoid of moral and physical energy, and the muscular system is in general atrophied. Having in vain, during the two first years of his illness, tried various medical treatment at home and abroad, the patient at last found relief from a few simple hydropathic applications; but the above-mentioned symptoms, though in some measure lessened, were still sufficiently violent to prevent the patient attending to any occupation. After two months' Kinesipathic treatment there is now a decided improvement in the general health; the patient feels himself stronger and livelier: although the palpitations still exist, they are neither so easily brought on, so violent, or of so long duration. The bowels act regularly; the inflammation about the eyelids has entirely disappeared, and the lower extremities are warm. The patient is still continuing the treatment.

Case XVI.—*General weakness and deviation of the Spine cured in two months.*

G. M—r, the son of this gentleman, 7½ years old, was, in consequence of an illness six months ago, during which he was several times leeched, brought to a state of excessive weakness, so much so that he was scarcely able to keep himself upright. The abdomen large and expanded, especially after meals; the chest narrow, measured twenty inches in circumference; the right shoulder half an inch higher than the left; both shoulder blades very prominent, especially the lower angles, and a left lateral curvature of the second degree already formed; now and then, especially after any quick movement, palpitation of the heart.

The general appearance of the boy began, after the first week, to change for the better; and I found, after a month's treatment, on examination, the traces of the curvature almost vanished, at the same time the circumference of the chest had increased above one and a half inches; the same mode of treatment was continued. Examined again at the end of the second month, every trace of the deviation had disappeared, the circumference of the chest measured twenty-two inches—liveliness and health were expressed in the features of the little boy.

The average of time required for the cases discharged cured, has been three or four months; for those on the contrary, which have only been relieved, or are under the head of discharged unimproved, the time has not been noted here, many patients having interrupted the cure, either by whim, by want of time, or other circumstances. The results of the numerical method can accordingly in this instance be merely approximative.

Of the preceding cases, the first are a few results of our practice in Paris in 1847-48; the following nine belong to those which are included in the statistical table, and the two last have been obtained from our practice in this country on the present occasion.

If these few cases, from among the many thousands that have been treated in the Central Gymnastic Institution of Stockholm during the 36 years of its existence, and elsewhere, suffice to shew that Ling in his system of gymnastic medicine has disclosed an inconceivable variety of means for the successful treatment of diseases, many of which have hitherto been deemed incurable, or at least only to be cured by internal medicines, it would be superfluous to say any thing more to prove that Kinesipathy is a subject of vast importance, and deserves to rank high in a scientific point of view. May the new page in medical literature, unfolded by Ling, be adorned with many a name worthy the great master, and may the science he founded be still further developed, and its practice still more extended, to the great benefit of suffering humanity!

APPENDIX.

Facts collected from different Authors, and from various periods, proving the therapeutical effects of mechanical agency.

"Chassez la nature,—elle vous revient au gallop."

TAKING a cursory review of ancient and modern literature we find in the facts which are related, or in the opinions which predominate during the different periods, with regard to the mechanical agent, a further support of our opinion for the necessity of its introduction into therapeutics. In the first place we meet with the historical fact that in ancient Greece active and passive movements, medicinally applied, constituted a part of a great philosophical system of general and national education,* and that in many parts of the country there were establishments under the direction and superintendence of persons especially trained for the purpose, who took charge of the health of their pupils, and who "appear to have undertaken the treatment both of accidents, which occasionally occurred in their establishments, and also, when necessary, *of internal diseases.* These Gymnasiarchs, as they were called, must have acquired a certain degree of information respecting the nature of disease, and seem to have been considered as among the most skilful practitioners of the age in which they lived."†

Without entering into an examination whether Herodicus was the founder of the gymnastic medicine in Greece,‡ we observe that Hippocrates ascribed to himself the honour of having perfected the method. He doubts "whether diet has the advantage of exercise, or exercise of diet, or whether they mutually agree," and his expression "Exercise gives strength and firmness to the body and vigour to the

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* *Mercurialis* de arte Gymnastica.

† *Plato*, De Repub., passim. and De Leg. lib. vii. *Bostock*. Sketch of the History of Medicine, p. 24.

‡ *Le Clerc*, Hist. de la Médecine.

mind,"* shows further that he did not overlook the general salutary effects of regulated gymnastic exercises. And if "the Father of medicine," in the way in which he explains the various effects of friction, viz: "*That frictions, if violent, harden the body; if gentle, soften it; if plentiful, extenuate; if moderate, increase the bulk,*"† be rather too hypothetical, yet his observations prove the high position such operations must have held in the therapeutics of the ancients. This is further proved by the known fact that among the Greeks there was a class of physicians called "Iatrolepta," whose principal, if not only, practice consisted in the treatment of diseases by frictions, and inunctions.‡ As a popular medicine in Greece, there are still some traditional remains of ancient usages. Thus by a trustworthy authority we are informed that for swelling and pains in some part of the body, the hand or knee for instance, a ligature is for some minutes applied above the place affected; for numbness of the legs, percussion is used upon the kneepan; for headaches, pressure upon the temples; for hysterical fits, nervous anxiety, &c., pulling of the fingers, and longitudinal frictions of them, &c. §

Celsus is one of the ancient authors who gives us the greatest number of proofs of the use of active and passive movements in the treatment of the most various diseases, before the chemical school became the predominant in medicine. But we need not here enter into any lengthened exposition or criticism of the proceedings of the ancients, and shall merely restrict ourselves to the following summary. Speaking of Asclepiades, according to whom "it is the duty of a physician to effect the cure *safely*, *speedily*, and with *ease* to the patient," Celsus mentions how this author, in his book of *general*

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* Hippocrates de dieta III. Sat. 12.

† *Cornelius Celsus*, of Medicine, translated by *James Grieve*, London, 1838, p. 78.

‡ Dictionnaire Médicale. Paris.

§ The following lines, being an extract from a letter we received from Dr. Thypaldo, Librarian at the Royal Library of Athens, acknowledging in the name of the medical faculty of Greece, the acceptance of a copy of our publication upon Ling's system, show fully that there are still in the country which once was the cradle for European gymnastics, sympathies for rational gymnastics:— "J'ai reçue avec reconnoissance votre savant ouvrage intitulé *Kinésithérapie*, ouvrage réellement très précieux pour nous, tant par sa valeur scientifique, confirmé par l'expérience de tous les jours, que par un intérêt nationale; car il fait revivre, pour ainsi dire, la philosophie médicale du vieillard de Cos, enrichi de tous les progrès des sciences physiques de notre siècle."

remedies, advocates only three things; viz. *friction*, *wine*, and *gestation*, and dwells more particularly upon *friction*, regarding himsel as the inventor of it. It is to be regretted that this work is no longer extant, as "it cannot be doubted," says Celsus, "that Asclepiades has been both full and clear in his directions when and how frictions ought to be used."

Active movements were generally confined to *walking* (either in a straight line or round about) *running*, *swimming*, *riding on horseback*, *playing at ball*, *reading aloud*, &c. Now and then we observe attempts were made to localize the movement to the upper or lower extremities, as for instance, "exercises that employ the hands;" others in which modification of the respiration was observed ("take exercise, keeping in the breath"), and in some cases the temperature was a matter of consideration ("exercises in the shade or in the heat of the sun, &c.").

Among passive movements *frictions* and *inunctions* held the first place; then *rubbing* and "*taking hold of the skin in many parts, to draw it out*," *gestation*, *brushing*, *ligatures*, *dry cupping*, *&c.* were also used. A great distinction was observed between inunction and friction, and the following extract from Celsus shows how frictions were used in many of their modifications:—*

"Friction may be used in the decline of an illness, yet it is never to be practised in the increase of a fever. It is also to be performed sometimes over the whole body, as when we would have an infirm person to gain flesh; sometimes in particular parts, either because the weakness of that part itself, or of some other, requires it. For both inveterate pains of the head are mitigated by the friction of it (yet not during their violence), and any paralytic limb is strengthened by rubbing it; but much more commonly, when one part is in pain, a different one is to be rubbed; and particularly when we want to make a derivation from the upper or middle parts of the body; and with this intention we rub the extremities. And those people are not to be regarded who indicate the exact number of times a person ought to be rubbed, for that is to be estimated by his strength. Thus if one is very weak, fifty times may be sufficient; if of a more robust habit, it may be done two hundred times, and then in different proportions betwixt these two, according to the strength. Whence it is also requisite that the motion of the hands in friction be less frequent in a

* Celsus, B. II, Ch. xiv.

woman than a man ; less frequent in a boy or an old man than a young man ; lastly, if particular parts are rubbed, they require much and strong friction, for the whole body cannot be quickly weakened by a part, and there is a necessity for dissipating as much of the matter as we can, whether the intention be to relieve the part we brush or another by means of it. But when weakness of the whole body requires this treatment all over, it ought to be shorter and more mild, so as only to soften the surface of the skin, to render it more apt to receive new matter from new nourishment."

Although these prescriptions are but very general, they indicate, nevertheless, a variety of applications with regard to localization, particular wants, &c., which can only be the result of prolonged observations, and multiplied experiments. We find, according to Celsus, how the ancients applied these resources in the most different diseases.*

A few examples will suffice here to show how the mechanical agent was thus applied. For instance, *in cases of spitting of blood*, Celsus says, " Erisistratus made many ligatures on the legs and thighs and arms of such patients. Asclepiades was so far from thinking this useful that he even judged it hurtful, but a number of experiments proves that it often answers very well.† Nevertheless there is no necessity for making ligatures in many places, but it is sufficient to do it below the groins, and above the ankle, and near the top of the shoulders, and the forearm ; besides, rest and silence are necessary. The patient's head, when he lies, should also be high. Frictions are prejudicial unless when the bleedings have entirely ceased ; then indeed, he may begin with the arms and legs, but not touch the chest."

In flatulency he says, " Exercise must be used ; at first gentle,

* In Books III and IV of Celsus we find different modes of application of active and passive movements " in coldness of the extremities preceding fever, in shuddering before fever, in tertian and quartan fevers, in several kinds of madness, in cardiac disorders, in dropsy, in several kinds of consumption, in epilepsy, in jaundice, in elephantiasis, in epileptic fits, in palsy, in pains of nerves, in tremor of nerves, in internal suppuration, in pains in the head and hydrocephalus, in palsy of the tongue, disease of the neck, difficult breathing, in coughs, blood-spitting, disorder of the stomach, in pains in the sides, peripneumonia, disease of the liver, disorder of the spleen, in coeliac distemper of the stomach, in distemper of the small and large intestines, in lientery and simple purging, in disease of the womb," &c. &c.

† For the results of the application of ligatures in hæmoptysis in recent times, we must refer the reader to our already cited work *Kinésithérapie*, p. 51, note.

and afterwards stronger, especially such as may move the superior part, which kind is most proper in all disorders of the stomach. Exercise should be followed by inunction and friction." *If the stomach be affected with an ulcer*, he recommends "Exercise and friction of the lower part to be practised;" in *peripneumonia*—"if the patient can endure it, gestation in order to dissipate; if he cannot bear that, moving him gently within the house; the use of friction longest upon the shoulders, a little shorter on the arms, feet and legs, gently over the lungs; this is to be done twice a day."

We abstain from making, in this place, any commentaries upon this mode of treatment, or comparisons with the more developed and physiological method of Ling, but what we have adduced shows that among the ancients there existed a diversity in the use of the mechanical agent which was employed according to a definite plan, that may be so far traced as in some measure to serve as a guide in our own day. But while many medicines of the ancients, and the indications for their administration, have been preserved, scarcely a vestige of the mechanical agent is retained in modern medicine.

Galen, whose rank in the medical world has been compared to that of Aristotle in the domain of science, gives us several proofs of mechanical medicine not being less estimated as a therapeutic agency than it was in the time of Celsus, or a century previous. He adopted frictions of different degrees, and had himself invented and recommended a system of exercises which occupied the body and mind simultaneously. Doubting "whether the preservation of health belongs more to the healing art, or to gymnastics," he approves of and recommends moderate exercises as an essential part of medicine, but strongly opposes the athletic and other violent exercises into which gymnastics, even in his days, had begun to degenerate, and which were the forerunners of the decline of the art among the Greeks and Romans. "*If the lower extremities be kept warm by action, it produces a free circulation over the whole body*," is an observation which shows that Galen had a clearer conception of the phenomena of life than many professional men of our days, who in spite of their more exact knowledge of anatomical and physiological facts, look to drugs only for aid.

During the period of barbarism that followed the fall of Greece and Rome, we miss all traces of the application of the mechanical agent in medicine, at the same time the influence of the schools of the Arabs as well as that of Paracelsus gave to the scientific and

practical exercise of medicine a more and more chemical direction. However, at the end of the sixteenth century a new doctrine arose within the medical school, "the Iatromechanic," with Borelli at its head, which undertook to explain the phenomena of life from a mechanical point of view. Whilst this distinguished mathematician explained the mechanical action, especially of the muscles, Bellini and others extended this explanation to all functions and actions of the body, both in health and disease.*

Although this school has hitherto had but little influence on the therapeutical department of medicine, it has had all the more influence on physiology, and this we may observe in every one of the great physiological works of our days. Bartez, Maissiat, Barclay, Weber, &c., explain in their works the phenonema of muscular action in the various motions of the human body, whilst experimental physiology refers to mechanical and physical laws for the explanations of the functions of life. From the elaboration physiology thus obtained, the mechanical agency receives its chief support as a therapeutic means.

It was Fuller who, in the latter part of the seventeenth century, in his "Medicina Gymnastica,†" first demonstrated, with a rare clearness, the power of exercise in curing several disorders; but as the exercise he recommends is principally riding on horseback, it could be only of very limited use; however he asserts that by that means he cured himself of the itch, and refers, besides, to some cases of consumption, dropsy, hypochondria, nervous diseases, &c., which have also been thus cured. In the ninth edition (1777) of this work, a series of rythmical movements for the extremities is recommended by an "eminent physician," which it is alleged "conduce much to an easy respiration, prevent asthmas, promote perspiration and other excretions from the blood, &c."

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* Sprengel. The most eminent writers of the Iatro-mathematical school are, in Italy, Borelli, Bellini, Castelli and Guglielmi; in France, Sauvages; in England, Pitcairne, Churleton, Keill, Jurin, Mead and Freind, (Bostock, Hist. of Med.)

† Fuller, Medicina Gymnastica; or Every Man his own Physician. London.

We cannot forget on this occasion the following Authors on Gymnastics, during the past period; viz. Mercurialis, 1569; Castagnas, Rome, 1591; P. S. Faber, Lugd. 1592; but these works being principally of interest in an historical point of view, we need only mention them here. The same may be said of the works of Gerike and Boerner, both published 1778 (in Lat.). Krause, E. H. *Die Gymnastik und Agonistik der Hellenen*, Leipzig, 1848, may also be consulted for its historical and archæological interest.

Some years later Wilkins,* Hundertmark,† and de Frenes‡ show, in special dissertations, the usefulness of frictions, and advocate their re-adoption in the healing art; and Tissot, in his work on medical gymnastics, although he recommends only general exercises; viz. walking, leaping, running, dancing, hunting, fencing, riding, swimming, playing at ball and shuttlecock, &c.—yet he makes at all events an attempt to treat his subject scientifically. The exercises he recommends being of a too indefinite and heterogenous effect, cannot be employed but exceptionally as therapeutic means. Considered merely as amusements or pastimes and not carried to excess, and when performed in the open air, these exercises obtain a hygienic importance. Even later, as in Drs. Kock's, Londe's, and Foisac's works upon the subject, we find ideas advanced in favour of medical gymnastics; but they had only a nominal existence till a method was found by which the localization and regulation of the movements was attainable.

The first who mentions and advocates *special* muscular movements is Mr. Pugh, an anatomist of the latter part of the last century.§ He considers himself to have made in this a "lucky discovery," which had been already hinted at in the following lines, which he professes to quote from Winslow:‖—"Muscular action has very much tortured the brains of many philosophers, and *hitherto* no instance can be found, either in natural effects, or in those of art, by which we can regulate and determine to a given degree the space, velocity, and duration of any artificial motion. Till some *lucky discovery* is made, the utility of muscular action will be but a mere hypothesis," &c.

As far as we may judge from his book, the method was limited to some few movements or postures; it was, however, recommended by several eminent physicians of that time (J. Hunter, Baker). Contractions of joints, paralytic weakness of the extremities, gout, &c. are a few out of the many cases he refers to, with testimonials of their cures.

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* De Frictione utilitate in medicina, Disp. med. inaug. 4o. Lugd. Bat. 1716.

† Diss. de singulari usu frictionis et unctionis in curatione morborum. 4o. Leipz. 1740.

‡ Diss. inaug. med. de frictione (in Coll. Diss. med. minus cogn. Aenoponti).

§ John Pugh. A Treatise on the Science of Muscular Action. London, 1794.

‖ This quotation is not verbal, although the same meaning may be drawn from the expressions of the celebrated anatomist, James Winslow: An Anatomical Exposition of the Structure of the Human Body; transl. by Douglas. London, 1734, page 9, sect. III.

About the same time a Mr. Grosvenor,* anatomical surgeon of Oxford, had "rendered himself justly celebrated throughout the kingdom by the application of friction to lameness or imperfections of motion, arising from stiff or diseased joints." According to Mr. Cleoburey, who had adopted the method of Mr. Grosvenor, frictions are indicated "in contractions of joints, where there is too great secretion of the synovial fluid in the joints—after wounds in ligaments, in paralysis, in chorea, in violent strains of the joints, in incipient cases of white swelling, in various cases of dislocation of the joints, in weakly and rickety children, in most cases where the circulation is languid," &c.

In describing the method of Mr. Grosvenor the author says—"That the frictions were applied principally with the palm of the hand, taking long strokes, one hand ascending as the other descended; keeping both hands in motion the whole time, &c. The friction was at first continued for one hour daily, and gradually increased till the patient could bear to be rubbed an hour at a time three hours a day (observing always to rub by the watch).—After every period of rubbing, however unpleasant and distressing it was to his patient, he invariably obliged him to put the limb to the ground, and make efforts to walk, &c. From these attempts, repeated after every rubbing, the genial warmth produced by the friction has enabled the patient to do something more towards walking every day; and innumerable instances have been known of persons *perfectly lame*, and using crutches, throwing them aside in a fortnight or three weeks, when the friction was suited to the disorder," &c.

The more we advance towards the present time, the more facts offer themselves in support of our opinions. There is scarcely one out of the many medical journals published in every part of the civilized world, but which contains rich materials for proving the efficacy of the mechanical agency in therapeutics.

Dr. Balfour, of Edinburgh,† shows much acuteness and rare physiological judgment in the application of compression and percussion in the case of rheumatism, gout, and debility of the extremities, spasms, &c.—His work is replete with the clearest and most striking

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* Cleoburey. A full account of the system of friction in cases of contracted joints and lameness, &c., by the late eminent surgeon, John Grosvenor, of Oxford.—Oxford, 1825. 3rd edition.

† W. Balfour, M.D. Illustrations of the Power of Compression and Percussion in the cure of Gout and debility of the extremities, and in prolonging health and longevity. Edinburgh, 1819.

reasoning, in advocating the superiority of these means to those adopted in practice, and whose "employment and adaptation in therapeutics are opposed by ignorance and prejudice." It contains upwards of thirty different cases in which cure, or considerable amelioration, was effected. Claiming "the honour of having discovered and introduced into practice the power of percussion," he thus finishes:—"But percussion is not confined to rheumatic affections alone—it is applicable with the best effects to many other complaints that occur every day. It is capable of removing, in a very short time, that general distress and uneasiness arising from an unequal distribution of the fluids, occasioned by cold, or by cold and fatigue combined. It removes pain from the stomach—it cures heartburn—it promotes digestion—and in fine, it conduces to health, by promoting the action of every organ;—and the time is not distant, I trust, when percussion will be acknowledged as a power, in all cases equal, and in many superior, to electricity."

Dr. Gower, describing an instrument called *the Pulsator*, for the percussion of various parts of the body, says:—"It has been an established *practice*, traceable from a period as ancient as that of Hippocrates, to give aid to such parts of the human body as are enfeebled or under suffering by *mechanically propelling the languid circulation of the fluids*."*

Dr. Sarlandière recommends also the use of muscular percussion in rheumatic pains.† He observed, that continual slight percussions decreased the temperature of the part thus exposed. This method and the "massage" are mentioned in the treatise on Therapeutics by Trousseau and Pidou.

The case of Admiral Henry Ravelden, of Kent, is well known. By the application of friction (?) with small pieces of bones covered over with leather, he cured himself of "rheumatic pains, gouty dispositions, spasms in the face, and cataract of the left eye."‡

From Capt. Cook, and other travellers,§ we learn that in India, China, Egypt, &c. modes of treating disease exist under the names

* Auxiliaries to medicine, in four tracts, by C. Gower, M.D. London, 1819.

† Traité du systeme nerveux par Sarlandière. Paris, 1840.

‡ Not having the pamphlet at hand which has been published by the late Admiral himself, we cannot ascertain the full correctness of the details of these statements which we have from a German medical journal.

§ P. Osbeck's Reise nach Ostindien und China, nebst Toréns Reise nach Surette a. d. Engl. Rostock, 1765;—J. H. Grose Reise nach Ostindien a. d. Franzöz. 1775;—Hawkesworth's Geschichte des Englischen See-Reisen, &c. Berlin,

of "*shampooing*," "*massing*," "*flagellation*," &c.; and that these manipulations hold in the East an important position in the treatment of rheumatic and other external disorders, and in some measure also, in internal diseases. Besides frictions, these manipulations are at least mentioned in most of the systematic works on Therapeutics now-a-days. It seems as if certain individuals in this country as in France, have acquired a practical skill in the application of these manipulations, and thus effected several cures of sprains, rheumatic pains, &c. Amongst these, a Mr. Harrup in Brighton, we have been told, has performed very remarkable cures by inunctions and frictions, and the success of the notorious St. John Long was owing to his employment of the same means.

In alluding to these facts, we wish only to call attention to the curative power of these external applications which have hitherto been left in the hands of charlatans or empirics, but which, under the control of science, and adapted in accordance with physiological laws, would disclose a new field of therapeutical resources.

In adopting the mechanical agent as a curative means, and physiological laws to explain its effects, the success of those men who bear the name of "bone-setters," &c. in curing certain external, local diseases, is easily found.* Notwithstanding their rude and unscientific mode of practice, we must acknowledge that they have often succeeded, whilst regular practitioners have failed in giving relief from pain after dislocations, sprains, &c.; and we perfectly agree with Dr. Balfour when he says, "Did surgeons in cases of luxations and sprains, apply frictions, percussions, and bandages from the beginning according to circumstances, practising at the same time

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1775. B. I. p. 33; Forster's Reise um die Welt. Berlin, 1784; Leben des Captain James Cook von Andrew Kippis a. d. Eng. Hamburg, 1789. B. II. p. 371.

In consequence of those records, Shampooing was long ago proposed to be introduced in the treatment of diseases by several German physicians.—(Unzer's Arzt. B. VI. p. 561; Baldingers neue Magazine für Aerzte B. X. p. 248.) Beneficial results from its application have been observed in "Oedematous swellings, profuse perspiration, induration of glands, and rheumatic affections."—(Weinholt's Heilkunde, B. I. S. II.; B. II. pp. 67—175; B. III. pp. 168—193; and Burdach's Physiologie, p. 277.)

* We quote the following lines from the *Lancet*, of the 30th June, this year:—

"A drunkard finding his wife dying of Cholera, had the cruelty, whilst in a state of inebriety, to beat her violently. This rough usage, far from destroying her, as might be expected, roused her, brought on a powerful reaction, and saved her. This reminds us of the flagellations recommended in cases of poisoning by Opium."—*(Sequel on the Cholera in Paris, 1849.)*

the natural motion of the part, the celebrity of bone-setters would be heard of no more."

This opinion is further supported by the following lines which we borrow from a dissertation of Dr. Callaway, upon dislocation of the clavicle and shoulder-joint:—"In dislocation of the tendon of the long head of the biceps muscle," the author says, "I should elevate the shoulder and direct the patient to flex and extend the forearm, at the same time rotating the humerus. At the end of a fortnight or three weeks I should recommend passive motions, so as to enable the parts to adapt themselves to their new positions," &c. In rupture he advises the same plan. "Fomentations, rest, and afterwards passive motion, would be all that the surgeon could advise."*

Dr. Perry, of Paris, having himself for a considerable time been a sufferer in consequence of a severe sprain of the ankle, and being cured by application to a "rebouteur" in a very short time, compares the quick influence of these mechanical proceedings with the effects of certain specific medicines and thus describes the former:—"*The cure of sprains by the means used by bone-setters (rebouteurs) is composed of two essential elements—pressure upon the main nerves and veins connected with the diseased articulation, and certain movements applied to the joint itself. The pressure upon the nerves causes a cessation of the morbid sensibility, and the exercise restores the normal pliability and the functions of the articulation.*"†

But that the influence of the application of frictions, pressure, &c. is not restricted to external affections only, is proved by the following facts:—"I had the opportunity," says Dr. Wolffsheim, of Brunswick, "to observe the extraordinary effects of friction, gentle pressure, and kneading in a case of constipation of long standing. A man, 84 years old, suffered from constipation, for which I had in vain prescribed the strongest medicines. His complaint had already lasted eight days, and the symptoms were—abdomen much distended; constant nausea; weak, soft pulse and great prostration of strength. All these symptoms disappeared in a few hours, the bowels being moved by the application of slight pressure and frictions on the abdomen, and the patient was thus saved."‡

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* Th. *Callaway*. A Dissertation upon Dislocation and Fractures of the Clavicular and Shoulder Joint, being the Jacobsonian Prize Essay for 1846.—(The *Lancet*, Oct. 13th, 1849.)

† Journal de la Médecine Homœopathique. Paris, 1480.

‡ Casper's Wochenschrift, 1847; No. 26.

The effects of *compression* are more generally known in surgical practice to produce absorption in cases of oedema, swelling of glands, &c.* In the Dreadnought Hospital at Woolwich, the principal treatment of phimosis and paraphimosis consists of frictions and pressure applied by the aid of small sticks, and by which absorption and a gradual expansion is promoted. Isaac Brown's† observations on the treatment of ovarian dropsy by pressure are facts we only can allude to here as proving the absorbent effects of compression, &c. Compression (tight binding) of the abdomen has been recommended for spasmodic cough ;‡ also binding round the articulations in asthma millari.§ Dr. Eisemann, in Casper's weekly journal, gives some valuable observations on the curative effects of the application of pressure to burns.‖

Dutros¶ has also made some observations of great interest upon the effects of the compression of nerves in general, and especially of the facial nerves, from which we extract the following: 1. The most intense tic douloureux and hæmicrania are removed, often instantaneously, by compression of the facial nerve between the angle of the inferior jawbone and the mastoid process; 2. Pains in the occiput are alleviated by pressure applied to the neck, in the chink formed by the splenius and complexus muscles, as also pains between the shoulder blades; 3. Pains in a decayed tooth are removed by pressure of the part of the gums whence a tooth has been extracted, and compression of a painless tooth, not decayed, sometimes alleviates the pains in another; 4. Fits of syncope, eclampsia, epilepsy, and hysterics are often suppressed by pressure upon the facial nerve.

Dr. Liedbeck, of Stockholm, and Dr. Kallenbach, of Berlin, have made several interesting observations on the effects of compression of the carotid arteries,** and Dr. Melhius, in a severe otitis, having applied compression for some minutes to the carotid artery on one side, found that the pains ceased, and other symptoms of inflammation abated.†† The same means were used successfully by Dr. Petel, of

* Dictionnaire des sciences medicales, l'art. *Compression.*

† On Ovarian Dropsy treated by Pressure, &c., by I. Brown.—(*The Lancet*, July 7, 1849.)

‡ Oester. Wochenschrift. (Neuste folge) 3 h. p. 557—9.

§ Oester. Wochenschrift. (Neuste folge) B. II.

‖ Casper's Wochenschrift. Dec. 1846.

¶ Compte-rendu Hebdomadaire de l'Academie des Sciences de Paris. Juillet 1843.

** Medicin. Jahrbücher für specifische Heilmethode: B. iv, p. 277. Berlin, 1841.

†† London, Medical Gazette, July 9, 1835, and Frorieps Not. 1836, No. 1080.

Paris, in subduing convulsions in a boy three years old; and in a case of neuralgia of the supra-orbital nerve, a perfect and durable cure was thus effected.*

The effect of a change, apparently insignificant, in the relative position of some of the parts of the body, is sometimes very remarkable. Dr. Negrier, in making the experiment on himself, observed, that by keeping his arms above his head the bleeding from a wound on his lip ceased, and he inferred from this observation, that epistaxis would thereby be stopped; and he gives cases in which, by directing his patients to keep their arms above the head for two or three minutes, bleeding from the nose ceased.† It is easy to convince ourselves of the efficacy of these simple means.

The following observations can in some measure explain the foregoing facts. "If the arms are kept stretched above the head in a vertical position, it sometimes produces faintness. The heart has thus to conquer the resistance of the gravity of the blood in the arteries of the upper extremities, and the consequence is a diminution of the power of the blood in the arteries of the brain."‡

Hemicrania, (Migraine), says Dr. Turenne, "is a pain in the head resulting from the compression of the tri-facial nerve, and more particularly of its ophthalmic branch, caused by accumulation of blood in the sinuses on the base of the cranium, and especially the cavernous sinuses." By physiological reasoning, facts and experiments, he proves that certain positions of the head facilitate the flow of the blood towards the heart. "It is fully proved," he says, "that by paying attention to the position, direction and inclination of the sinuses, to their communications with each other and with the veins outside the cranium, we can arrive at a precise knowledge of the position and movements calculated in many instances to prevent an attack of hemicrania, in all to render it less intense, and sometimes to dispel it altogether. I have never failed in obtaining the above results when I have requested the patients to place themselves in certain positions, in which they could remain during an attack, without experiencing acute pain." Dr. Turenne proposes, therefore,

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* Revue medic. Janv. 1838. p. 261, 263.

† Archive Gen. de Medicine. Juin, 1842, from Allg. Rep. d. d. m. ch. Journatistik. Nov. 1842. p. 191.

‡ Borrough, Beobacht. über die Krankh. d. cerebral. Blutkreislaufes, deutsch v. Dr. Pomer, Wien, 1847. p. 49.

"borrowing the means of gymnastics, to obtain these effects by certain movements and positions of the head."*

Among recent discoveries in physiology, perhaps none is more capable of proving the transmission of external action to internal organs and even supplying us with direct facts, than that of Dr. Marshall Hall, of the excito-motory phenomena. Having already stated this opinion in our previous publication, we are glad to find these views supported by the authority of the celebrated Professor Bock, of Leipzig, who, in his *Pathological Anatomy*, speaking of these phenomena, says: "The above mentioned reflex motions must also be observed in therapeutics, in order that by irritation of the sensitory and motory nerves, reflex and associated movements be produced, especially in the respiratory, circulatory and digestive organs. *The cure of many diseases by the medical gymnastics in Sweden, depends on these circumstances.*" †

We borrow the following "practical applications of the physiological principles of the excito-motory phenomena," with regard to the treatment of choking, &c., from the sagacious discoverer; the means he proposes being exclusively mechanical.‡ "The danger (from a morsel of food remaining in the pharynx) arises not from mechanical pressure on the larynx or trachæa, but from a reflex action closing the glottis. The remedy must be *immediate*. Now, this is what should be done. Pressure being made on the abdomen, to prevent the descent of the diaphragm, a forcible blow should be made by the flat hand on the thorax. The effect of this is to induce an effort *similar* to that of expiration; the larynx being closed, œsophageal vomiting takes place, and the morsel is dislodged. If this plan fail, not an instant being lost, the pressure should be kept up on the abdomen, the finger should be introduced into the throat, and the same smart and forcible blow made on the thorax as before. By the irritation (mechanical) of the fauces the cardia is opened, and, by the blow on the thorax (the pressure being made on the abdomen) an effort similar to that of expiration with a closed larynx, is made, and a direct vomiting occurs," &c.

We refer also to another out of the many experiments of this active physiologist, which directly affords both proof and illustration

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* Auzias Turenne, Theory on the production of Hemicrania. Translated by Dr. Bateman, (from the *Lancet*.)

† Carl Bock, Lehrbuch der Pathologischen Anatomie. Leipzig, 1847. p. 572.

‡ Marshall Hall on the Diseases and Derangements of the Nervous System. London, Baillière, 1841. p. 79.

of the influence of a mechanical external irritation upon internal organs; viz. that made on a turtle, mentioned in the article on "morbid action of the rectum and bladder, and of the sphincters,"* by which the effects of pressure directed to act on the nervous plexus of the rectum (through the relaxed integuments of the abdomen), and which passive movement has proved itself efficacious in the kinesipathic treatment at the institution of Stockholm, in some forms of constipation, is explained.

The treatment of metrorrhagia by the application of the tourniquet, is mentioned by Dr. Bretty. According to this author, it has proved itself better than any other hæmostatic means, and stops not only the slow flux from the womb, but also violent and profuse hæmorrhage, and prevents, accordingly, the lingering weakness and slow convalescence, stops the after-pains, &c.†

The following extract from a case of uterine hæmorrhage after delivery, by Dr. Tyler Smith, proves further the effects of mechanical agencies.‡ "The *peristaltic* uterine action was *stimulated by immediate irritation of the uterus by external and internal pressure, and by cautious digitation upon the internal surface.* The flow of the blood was arrested *mechanically*, in the first instance, by the abdominal pad and bandage, (tourniquet?) and afterwards more successfully by the hand in the uterus acting as a plug, and an auxiliary to external pressure. In the peculiar condition of the uterus, nothing could have compensated for the temporary mechanical arrest of the flux."

We mention here only *en passant* the application of the "tampon," in placenta prævia, which was long ago applied, principally as a means to excite labour, &c. Dr. Harnman, in the hospital of Loursine, in Paris, lauds this application as remedying fluor albus, erosions on the cervix uteri, and also in blennorrhagia from the rectum.‖

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* Op. cit. p. 241.

† Bretty, Über die behandlung der Metrorrhagien mit besonderer Rücksichtigung d. anwendung des Tourniquets. (Allg. Rep. der Deutsch. Med. Chir. Journalistik. Aug. 1842. p. 198.)

‡ Tyler Smith, a case of uterine hemorrhage after delivery; the Lancet.

§ T. Schöller. *Tampon*, neues erprobtes und einfaches Verfahrung zur Veranstaltung der künstlischen Frühgeburt; allgem Repert. d. deut. m. ch. Journalistik. Sept. 1842, p. 162.

‖ Jahresbericht 1841, p. 333.

Dr. Recamier, of Paris, has introduced in his practice (according to the French medical journals), a movement which he calls, "massage cadancé," and the application of which he recommends as preferable to any other means in cases of prolapsus ani.

Dr. Velpeau, of Paris, spoke in his clinical lectures, during the summer of 1847, of a kind of *magnetic manipulations* (*?*) consisting of frictions on the abdomen from below upwards, and from right to left, the application of which (by a midwife), had in three weeks cured a case of complicated inflection of the womb accompanied with severe symptomatic pains, in which he had himself completely failed.* The celebrated surgeon of the hôpital de la Charité, probably not admitting the effects of animal magnetism, and not aware of the effects of external movements upon internal organs, acknowledged himself rather puzzled to find a scientific explanation of this fact, "considering these frictions to have acted on the excited imagination of the patient, as well as the nervous system in general."†

Dr. Canzler cured an obstinate "cramp in the hand while writing," by the daily applications of gymnastic exercises, by which the extensor muscles of the arm and hand were put in action, whilst the flexors

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* Dr. Sköldberg. Travelling notes, Hygiæa, a Swedish medical journal, p. 481. Aug. 1848.

† The part animal magnetism may take in the effects produced by the application of our specific movements is for us a question of the greatest interest. Our own observations in this respect are still not sufficiently numerous to allow us to lay down a theory, but we hope that the future may give us opportunity of treating this subject with the great care and development it deserves.

Ling has only approached the question in saying, "In acknowledging the effects of magnetic manipulation to act beyond the sphere of the patient, how can we then disbelieve in the action of movements which directly touch the body? But even in giving no credit to the former, we cannot deny the latter, for how should we otherwise perceive or feel a pressure, a blow, &c. Animal magnetism is a dynamic agent through an external mechanical vehicle."

The ancients, in their medical practice, making an ample use of long and continued frictions could not fail to make remarks on this point. Celsus seems not only to hint at a different effect when frictions are applied by the patient himself, or by other persons, but gives also some directions with regard to the age and sex of the operator. The following lines from that author seem clearly enough to prove what we are here alluding to:—"*On several kinds of madness and their cure:*" "Asclepiades advises that the first day the patient should abstain from meat, drink, or sleep; in the evening water should be given him to drink, then *friction should be used so gently that even the hand that rubbed should scarcely feel it;* the day after, all these things being repeated, in the evening gruel and water should be allowed him and *the friction again repeated, for by this we would*

were left entirely in a passive state. In some months the patient was cured of this disease, which had continued for a year.*

Dr. Gondret, of Paris, maintains that the application of a dozen or two of cupping glasses, without scarification, on either side of the spine cures intermittent fever, provided the dry cupping be used at the very onset of the cold stage.†

But we have already passed the limits of this little pamphlet. The different physiological and pathological facts we have here collected from persons holding the most different opinions in medicine, and which have been observed independent and in ignorance of the many observations which, during 36 years, have been made on this subject at the *Central Institution of Stockholm*,‡ will convince the unprejudiced of the power of mechanical agency, as well as of its great influence when systematically regulated by general laws. It gives to the healing art a character of mathematical certainty, and brings our anatomical and physiological knowledge into repeated play and practical application.

But if anything further was wanting to increase the value of the

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procure sleep. This sometimes happens, for as he himself expresses it, *too much friction may even cause lethargy.*" We have no intention to advocate animal magnetism in this place, but should not regret to acknowledge that this powerful agency, under certain circumstances, may associate itself to the bio-mechanical influence of our movements.

* Vierteljahrschrift für die practische Heilkunde, 1848. Vol. 3, p. 76.

† Traitement de la fiévre intermittente, mis à la portée du public. Par Dr. J.T. Gondret. (From the Lancet, 1849. Nov. the 10th.)

‡ Some of these observations are mentioned in my Kinésithérapie page 78—105. See also Dr. Neumann, in Casper's weekly journal. There are scarcely any authors on physiology of our day, of any consideration, who do not give an ample support to our ideas regarding the influence of active and passive movements. See Müller's Handbuch der Physiologie, B. I, pp. 53, 359, 631.; B. II pp. 251, 275. Todd and Bowman, The Physiological Anatomy and Physiology of Man, pp. 179, 183, 184, 188, 192, 194, 235, 335, &c.

Bock, Lerbuch der pathologischen Anatomie, pp. 476, 478, 480, 481, &c.

Zehetmayer, Herz-krankheiten, p. 162.

Dr. Goschen, in Smidt's Jahrbücher der gesammten Med. 1847, No. 8.

Dr. Reinbold, in Rust's Magazin, B. II. p. 61.

C. Gluge, Das passive Gehen als Heilverfahren bey Erschütterung des Hüftgelenkes, (Med. Zeitung für Heilk. in Preussen IX Jahrg. 1842, No. 3).

As a proof that the German physicians take an increasing interest in our subject, we may mention Dr. Hartwig:—Die peripatetische Heilmethode, oder die Bewegeungs-Cur; Düsseldorf, 1847.—Dr. Friedrich, Das Turnen als Schutz und Heilmittel; Reutlingen, 1847, &c., &c.

above-mentioned facts, which date from the very origin of the healing art until the present time, we could, referring to the opinions of the most eminent leading men of the medical profession, as regards the hygienic and therapeutic value of movements and corporal exercises, quote the names of Ætius, Baglivi, Blackmore, Boerhave, Cœlius Aurelianus, Cadogan, Cavenhill, Cornaro, Cheyne, Gregori, Paulus of Ægina, Pitcairne, Sanctorius, Steno, Stahl, Sydenham, Wrother, Wainwright, Wallis, &c.

Thus we observe that from the most ancient times the medical art has repeatedly felt that it might derive effective assistance from the employment of active and passive movements; although the isolated attempts made at different periods by eminent physiologists and physicians to introduce them into their medical practice, show at the same time the want of a rational method which might permit and facilitate its application for every indication. *The therapeutical movements of Ling will henceforth fill this gap in medical science, thus realising in therapeutics the physiological principles and theories of the Iatro-mechanical school.*

The loss of the proceedings of the ancients in their application of therapeutical movements is probably one of the principal reasons of the want of development of the mechanical agency in the therapeutics of our time, and of the very limited share it has hitherto been allowed to take in the treatment of diseases. The scientific development and practical value of Ling's method ought to preserve it from the same fate. We dare to hope therefore that the medical bodies, in accordance with the progress and demand of the physiological sciences of our days, will not neglect its adoption into practical medicine, and henceforth give to the mechanical agency the support and protection of science.

THE END.