# SPONDYLOTHERAPY SIMPLIFIED

*A compendium of the science of spinal concussion and sinusoidalization and the technique of their administration; the specific centers of nerve origin through which we control the function of various viscera; the results of stimulation of the different spinal centers of nerve origin, what affected and how, and directions for the correct application of those methods in the treatment of diseases amenable to them*

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To earnest investigators and progressive practitioners who are seeking advancement, and who are interested in more efficient and expedient methods of treatment, this book is affectionately dedicated

***By the Author.***

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## PREFACE

This brief work, Spondylotherapy Simplified, is offered to the practitioners of the healing art with the sincere desire to increase their efficiency, their welfare, and their knowledge of an important auxiliary method of treatment.

It is not our intention to mitigate against the merits of any conventional method, but on the other hand, to advance a composite system of practice embracing all that is helpful in obtaining the best and most expedient results in the treatment of disease.

We claim but a limited amount of original information in this composition and desire to give full credit to some progressive physicians, who have developed much along the line of spinal therapy, and especially are we indebted to Albert Abrams, M. D., whose works we followed almost exclusively in our experimental work and have consulted most often in the preparation of this book.

Our object in the preparation and distribution of this work is to present to progressive practitioners a competent, practical knowledge of the science of spinal concussion and sinusoidalization in a clear, concise and comprehensive manner, so as to free these methods from the hindrance of previous abstruse writings, and to make them available for the practical use of the readers of this work.

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We are sure the reader will appreciate the handy arrangement of the contents of this brief work, and that you will find it a very convenient reference book during your busy practice, as well as interesting and instructive matter for your hours of research and general reading.

In the first chapter of this work there is presented a general treatise upon the fundamental principles of these methods and brief directions for their application; in the second chapter is contained a brief compendium of the various nerve centers and the effects of their stimulation; in the third chapter is given directions for effecting dilation or contraction or stimulation of all the different viscera and parts of the body by concussion or sinusoidalization; and in the fourth chapter is given an alphabetical list of the diseases which are benefited by these measures of treatment, and specific directions for their application.

We beg the reader's indulgence for shortcomings and for omission. We know mistakes will be more abundant in writing on a science so recently being developed, and which is advancing so rapidly.

ALVA EMERY GREGORY, M. D.

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# INTRODUCTION

Careless seems the Great Avenger,
History's pages e'er review,
That death grapple in the darkness,
'Twixt old systems and the new.
Truth forever on the scaffold,
Wrong forever on the throne,
Yet that scaffold rules the future,
And behind in the deep unknown,
Standeth God within the shadows,
Keeping watch above His own.

Error cannot be sanctified by age. Truth is sacred and abiding, and though crushed to earth, will rise again. This is an age of earnest investigation—of idol smashing and of discoveries of truth.

The prestige of the majority of non-progressives, the sanction of approval of multitudes of the laity, and the assistance of protective legislation—even oppression or persecution—in behalf of conventional methods, cannot always prevent the advancement of new and important therapeutic discoveries, and the adoption of more rational methods of treatment of disease.

Dear reader, you, and all observing physicians, know, who have had an opportunity to observe, that there is much good which may be accomplished in the treatment of disease by the use of spinal concussion and sinusoidalization.

Millions of people are now confiding in, and depend upon, physical or drugless methods, and the number is increasing rapidly, because of the

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wonderful cures, which are being accomplished by the use of rational physical methods, in cases where conventional methods of internal medicine and surgery have failed.

Dear reader, stop, think and reason, for you, and every progressive practitioner, must reckon with these physical methods and with the growing demand for these methods of treatment, or be left behind. Why not investigate now?

To acquaint yourself with these methods, and to use them when indicated, and when no other treatment will reach the case, is your duty and your only protection for your professional integrity, versus the many who are more progressive than you, if you close your eyes.

These rational physical methods belong to the progressive practitioners and should be a part of your armamentarium, and should not be left exclusively to the use and benefit of other practitioners, who are your competitors.

Will it not be wise on your part to be truly progressive, to keep abreast of the times? To do so, you must obtain a working knowledge of the methods recommended in this work. To do this, will increase your own confidence in your professional work, will multiply your patronage, and will greatly enhance your financial income. This has proven true in many cases. Why not in yours?

This course on your part, and on the part of all progressive practitioners, will help to maintain the dignity of your profession, will redound to the good of your clientele and will prevent multitudes of patients from drifting away into the hands of

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competitive practitioners. Why not reckon with this matter now? Keeping abreast of all advancement in the healing art is very necessary to the maintenance of your dignity in your professional avocation.

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## Chapter I

# EQUILIBRIUM OF FUNCTION

Normally there exists a perfect equilibrium of the amount and efficiency of the nerve impulses and the consequent vital energy generated by and originating within the various nerve centers contained in the brain and spinal cord.

Under normal conditions there is no interference with the generation of vital energy in the nerve centers, or with the transmission of vital impulses by motor nerves, from the brain and spinal centers where they originate, outward to the various viscera or parts which these transmitting nerves ramify and supply.

Vital phenomena and essential functional activity are constantly maintained, under normal physical conditions, in the various parts of the organism as a result of the efficient generation of vital energy or impulses within or by the nerve centers, and of the perfect transmission of the vital impulses by the efferent spinal nerves, to the ganglia of the sympathetic system and to the various parts of the body which they ramify.

Such normal conditions will produce the fundamental conditions of perfect health and efficient autoprotection, which will maintain health during the continuation of these normal physiological conditions.

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Franck, in the "Dictionnaire Encyclopedique des Sciences Medicales" observes, that when one considers the normal functions of the nervous system, he finds that there exists a necessary equilibrium between the different parts of this system.

This observation is true of the normal physiological condition which must be present, and continue, to maintain normal functional phenomena which constitutes perfect health.

It is the existence and continuation of the normal equilibrium, and of perfect co-ordination and reflex action, which maintain perfect health, and it is the existence of some variation and loss of the perfect equilibrium of nerve action which engenders derangement of function, and the resulting in co-ordination, and their consequences, which is disease.

## DISTURBANCE OF EQUILIBRIUM

The existence of the normal equilibrium of nerve impulses may be disturbed, and it is always altered or destroyed in case of any temporary or continuous derangement of function, associated with disease.

The abnormal functional activity or the consequent organic alterations in the different organs or parts of the body may be due to an excessive action or to a diminished function in the generation and discharge of vital impulses by the spinal centers or to derangement in the transfer of afferent impulses to efferent nerves.

The derangement of function in the different organs or parts of the organism may be due to an

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interference with nerves causing a depression and consequent failure in transmission of the vital impulses to generate the normal amount of vital energy.

A condition of over excitability of the transmitting nerves, especially if associated with an over excitable state of their centers of origin or reflex, will produce and maintain an over action, even from normal stimulation.

The deviation from the normal equilibrium of function associated with disease, in the organs or parts supplied, may be due to a depressed condition, or to an over excitability and action of the reflex centers, which will cause an altered and abnormal reflex phenomena, which is due to the fact that the normal or automatic stimulus will fail to produce the normal reflex functional response, due to the altered excitability of the reflex centers.

## RESULTS OF FAILURE OF EQUILIBRIUM

The prominent or excessive over action of certain centers, in the spinal cord or in the brain, seem to divert, and to contribute to their own use, an excessive amount of vital energy, and in this way there is caused a diminished activity of the other spinal centers in the generation of impulses.

The excessive use or waste of nerve energy, which is necessary to overcome refractive errors of the eyes, and pathological conditions of the orifices of the body, as of the rectum or genitalia, may and do materially affect the integrity of the brain and nervous system, and consequently the different viscera and parts of the body.

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There is generated normally within our bodies, by the nervous mechanism from the nourishment we take, sufficient vital energy to maintain the integrity of the vital phenomena in all parts of the organism and an excessive consumption of nerve energy, to overcome refractive errors of the eyes or overcome the results of orificial lesions, will rob other parts of the organism of their due portion of nerve energy and consequently the weaker portions will suffer.

All the different functions of nerves may be influenced by disturbance or alteration of the normal equilibrium of the activity of the different nerve centers, as for example the functions of mentality, thermogenic action, trophic supply, inhibition, excretion, secretion, and muscular action, in short, all forms of derangement of function may ensue, and infectious and contagious disease may successfully invade, owing to deficient autoprotection in certain zones.

## FUNCTION OF NERVE CENTERS VARY

The function of the nerve centers in the brain and spinal cord differ very materially in the vital phenomena which they excite, and in the functions which they maintain in the organs and parts they supply.

There are certain centers in the spinal cord which exert special or specific influences upon the different organs and parts, and there are other centers which exert counter influences, and these various centers are situated in the different portions of the spinal cord.

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There are centers of nerve origin which initiate nerve impulses of constriction, which are transmitted by the efferent nerves to the parts which they supply; there are centers which cause dilation; there are centers which produce inhibition or depression, and also centers which excite an acceleration and stimulation, of the vital functions in the parts which they supply.

For every variety of function produced in the different nerve centers of the spinal cord and brain, there is produced a counter function in some other center thereof.

We may stimulate a spinal center, and excite the impulses of contraction or constriction of a certain organ or zone, by concussion or by the application of the sinusoidal current, but we will find it necessary to apply stimulation to an entirely different center, to excite the counter reflex or impulse of dilation.

From the results which we obtain, by spinal stimulation, we learn that the different spinal centers exert different and opposing influences upon the different organs or parts supplied, and practitioners of spinal therapy should understand this subject.

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## REFLEX ACTION VARIES

Owing to a deficiency of the nutritive elements, or to an interference with the circulation of the vital fluid within the spinal centers, there may be a diminished or an increased excitability and action of the spinal reflexes.

The integrity of the excitability of the spinal reflexes, and of the sympathetic reflexes or automatic action, is very essential, since all the commerce of the body, as salivation of food, deglutition, digestion, peristalsis of the intestines, and all the eliminative processes are directly maintained and controlled by the automatic reflex nerve phenomena.

By a general concussion and stimulation, along all or most all of the spinal column, we will stimulate impulses and also counter impulses, which may nullify each other, and for this reason we may fail to secure specific results.

Spinal concussion, or stimulation of the spinal centers by any other means, should not be used by any one who has not a competent knowledge of the specific influence of the impulses which may be excited in each spinal center upon each and every organ which they supply or in any way influence.

Every practitioner of spinal concussion, or of any other method of spinal stimulation, should be competent in physical diagnosis, so that they may be able to discern what is advisable and desirable to be accomplished by the spinal stimulation, otherwise they may produce ill effects and discomfort to the patient.

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To stimulate the subsidiary centers of vaso-constriction, in a case where there is vaso-motor competency, would excite headache and distress, and such an unprofessional mistake is apt to be made when concussion is administered empirically.

It is the object of this booklet to make the subject plain, concise and comprehensive, and to give you a competent knowledge of this subject, and to assist all who may read, understand and avail themselves of these most potent auxiliary methods of rational therapy.

Those who read, understand and profit by this our humble contribution and effort to make this matter plain and comprehensive, and those who put these methods into intelligent use will certainly profit greatly thereby, while those who for any reason doubt and fail to profit thereby, must bear the misfortune of dealing with less competent methods in the treatment of many forms of disease or functional derangement.

## IMPORTANT CONSIDERATION

We beg to call to the reader's attention some very important considerations in the use of spinal therapy, and some self-evident truth of material worth.

No one method of treatment embraces all that is beneficial, either in the line of medical or in surgical methods, nor can any one method of treatment pre-empt the entire field of therapeutic art to the exclusion of all others.

Spinal concussion, nerve pressure, sinusoidal stimulation and freezing over or near the spinal

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exit of tender nerves, are by no means the only beneficial methods of spondylotherapy. Some of the best and most efficient methods are not used by those who depend wholly upon the above mentioned methods.

These measures of spinal treatment, freezing excepted, are administered to stimulate the spinal centers of the origin of nerves, and to increase the nerve impulses and consequently the functional phenomena produced in the parts supplied, and to overcome any failure of the normal equilibrium of the energy which is being generated in the spinal centers, or of the vital function which is being produced in the different organs or parts supplied.

## WHY CONCUSSION IS NEEDED

The need of this concussion stimulation and increase of function in the parts supplied, is due to a diminished functional activity of the spinal center of nerve origin, which we find it necessary to stimulate to greater activity, or to some interference with the transmission of the nerve energy from the spinal center to the zone which is supplied.

This is a self-evident fact since normal, vital impulses amply generated and perfectly transmitted, will maintain normal functional activity in the organs and parts supplied. *This is axiomatic.*

There must exist some interference with nerves, either in the generation or transmission of vital energy, or else there would be efficient nerve supply and a perfect equilibrium of the vital phenomena produced in the parts supplied.

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## CAUSE OF NERVE INTERFERENCE

Nerves are usually interfered with, by pressure upon the nerve sheaths, where they make their exit, or pass between the pedicles of the vertebrae, from the neural canal in the spinal column on their way to the zone which they ramify.

The nerve sheaths, containing the spinal nerves, where they extend or pass through these spinal foramina, between the pedicles of the adjacent vertebrae, are surrounded by bone tissue, which is hard and resistant, much more so than nerve sheaths and the nerve fibers, and if any contraction of the spinal musculature occurs, causing an approximation of the vertebrae, there will occur physical, structural interference with the spinal nerve sheaths, and the nerves which they contain.

These spinal nerve sheaths, extending through the intervertebral foramina, contain arteries passing to the spinal cord, veins which drain the neural canal, and lymphatic vessels supplying nutrition to the nerve centers, besides the spinal and sympathetic nerve fibers.

If the musculature of the spinal articulations contracts, and becomes permanently contractured, causing approximation of the vertebrae, the nerves become impinged or the vessels of circulation occluded, and either will interfere with the integrity of the function of the nerves or nerve centers involved, and consequently of the parts supplied.

Occlusion of the arteries will cause anemia of the spinal centers which they supply, and this will retard or destroy their excitability and dimin-

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ish the generation of nerve impulses, and will also derange or destroy the reflex transfer action in the spinal centers.

Obstruction of the lymphatic supply, to the spinal centers, will cut off the nutrient supply to them and thus interfere with their histological or structural integrity and their functional activity.

Obstruction of the veins will cause a congestion to occur in the corresponding spinal centers, and this will cause an alteration of the generative power and reflex action in the centers involved.

A decided contraction of the spinal musculature will cause a closer approximation of the vertebrae, which may impinge the nerve trunk where it passes between the pedicles, and this will cause pain of a greater or less degree, according to the amount and severity of the impingement.

This pain is not felt at the spinal intervertebral foramen, where it is caused, but it is referred to the terminal endings of the nerve which is impinged, and is felt in the organs of its terminal ramification.

## A SELF-EVIDENT TRUTH

We must concede that there is some interference with the integrity of the nerve supply, causing deranged conditions, before we can contend for the necessity of concussion or any other means to stimulate, to alter or increase the function of nerve centers or to correct derangement of function, or to create a balance of equilibrium of nerve impulse generated by the different nerves or spinal centers.

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Which is the more rational, to stimulate the action of depressed nerves, or to remove the interference which prevents their normal action? Spinal adjustment will relieve contractured conditions of the spinal musculature and overcome interference with spinal nerves.

We fully believe that both methods, spinal adjustment and spinal concussion, are excellent, but that a combination of the two methods is the most rational and efficient procedure, and experience has convinced us of this fact, since many cases recover from the use of both methods, which have failed to respond to either of these methods alone.

For the latest, best, and most efficient, and least painful methods of spinal adjustment, to relieve interference with nerves, the reader is referred to "Spinal Treatment, Science and Technique" (Gregory), which work is well illustrated and is clear, concise and comprehensive.

We fully believe that those who advocate, exclusively, the use of the methods of stimulation of the spinal centers to greater activity, have failed to give the subject of spinal treatment intelligent and unprejudiced consideration, or they could readily appreciate the rationality and necessity of measures to remove the interference, which mitigates or in any way alters the function of the nerves or nerve centers.

## RATE AND FORCE OF CONCUSSION

It has required a great amount of empirical work, and no doubt much more will be necessary,

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to determine the proper rate of the speed and the amount of the force of the spinal concussion blows, necessary to accomplish the most in obtaining the desired results.

There is a very different result obtained by using rapid concussion blows or the rapid sine, than what is obtained by the use of the slow rate of concussion and the slow alternations or breaks of the sinusoidal current.

There is a different effect produced by nerve pressure which is applied for a brief space of time than that which is produced by continuous nerve pressure for a considerable length of time, and it is necessary for us to understand the rate, the force and the time of the continuation of our treatment in order to obtain the best results by the use of stimulating or depressing methods of spinal therapy.

## IMPORTANT CONSIDERATION

In this connection, there is one very important consideration or matter to which I would call the special attention of the reader, and that is the difference in the force of the concussion stroke, and amount of stimulation which is required when giving treatment after giving spinal adjustment as compared with the amount of concussion stimulation which is necessary to be administered when we do not first remove all interference with the nerves by spinal stretching or by spinal adjustment.

There is a very material difference in the

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amount of the force of the blow and in the continuation of treatment, or in other words in the amount of stimulation, which is required in giving efficient treatment following proper spinal adjustment, compared to what is necessary when giving treatment by spinal concussion when spinal adjustment has not been previously given.

There is a very material difference in the amount of the impulses, stimulated by concussion, which are conducted by an afferent or motor nerve which is free from interference, than by one which is interfered with so that its conducting power is diminished.

The reasons for these facts are self-evident and obvious to even a casual observer or a superficial reasoner, and this question should be considered intelligently by all physicians who would use spinal concussion, sinusoidal stimulation, or nerve pressure as methods for spinal therapy.

If the spinal nerves are free from any interference, and if the nerve sheaths are free from impingement, and if the vessels of the circulation, supplying nourishment to the spinal centers and furnishing open channels of drainage are normal in size, then spinal concussion, or other modes of stimulation of nerve centers will not be needed or indicated, except in cases where the interference has been recently removed, and an extra amount of work is to be done, in the part supplied, by the nerves in question.

If there is retention from failure of proper elimination and structural alteration occurring during the existence of the nerve interference, we

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may restore the normal nerve supply, by removing the spinal nerve interference, and still need more than the normal nerve supply of nerve energy to restore the normal condition.

We may by spinal concussion applied to a nerve center, after that center and the nerve originating therefrom are freed from all interference, cause the generation and transmission of double the amount of normal energy which is a most efficient and expedient healing agency.

If because of interference with the nerve in the transmission of the impulses, or if because of interference with the spinal center of origin of that nerve, we have a long continued, diminished and inefficient amount of nerve energy to maintain health in the part supplied, then will concussion and other methods of spinal stimulation be indicated to augment or hasten recovery, and spinal treatment, to overcome the spinal interference with the nerve or of its center of origin, will be first indicated to obtain the best results.

*A Comparison*

For example, let us suppose that because of interference with a nerve or with its center of origin, only one-half of the normal amount of nerve impulses are generated and transmitted to the parts supplied. We will then have but 50 per cent of the normal vital energy and functional phenomena performed in the zone supplied.

Stimulation of the center of origin of this nerve may readily double the amount of impulses which are generated by its center of origin, and

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this will raise the vital energy in the parts supplied to 100 per cent instead of 50 per cent.

Now if we first remove interference with a nerve, or with its center of origin, which has been furnishing only 50 per cent of the normal amount of energy, then it will, because of the removal of interference, furnish 100 per cent of the normal amount of energy.

If we now, when the nerve is furnishing 100 per cent of vital energy, stimulate its center of origin as above we will cause it to produce 200 per cent of energy, which will be conducted to the part supplied. We will then have double the amount of the normal energy which is a most potent and efficient agency for the hasty restoration of the normal condition, and normal functional activity which is health.

We can look at this matter from another angle. If we apply spinal concussion to a spinal center of nerve origin, from which the nerve is transmitting but 50 per cent of the nerve energy generated, it will require a great deal more stimulation and more vigorous concussion to increase sufficiently the nerve energy supplied to the diseased zone, than if the nerve conducted 100 per cent or all of the nerve energy, which is excited in its center of origin by the concussion or other stimulation.

We obtain results by adjusting the spine and overcoming contractions, and by removing interference with nerves, because by so doing we restore their conducting power to 100 per cent or to a normal amount, and we may obtain better and quicker results by using spinal concussion also to furnish

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a still greater amount of energy, which will more quickly rejuvinate and reconstruct the hystological or structural alterations, which have occurred as a result of long continued functional derangement.

*Continuation of Effects*

The permanency of the effects, obtained by the stimulation of any part of the nervous system, is an important item for our consideration.

The natural and almost universal rule, concerning the continuation of the effects of stimulation, is that the increased action, which is excited, is transient, and that it is only manifest for a short time after the application of the stimulus, and it is generally true that a corresponding period and amount of depression follows the use of temporary stimulation.

It appears to the casual observer that the effects of spinal concussion, which is excitation or stimulation, would prove but transient in effect, and of no great permanent efficiency, but this does not prove to be the case in clinical practice or has not done so in the experience of the author.

We firmly believe that settling of the spine, or contraction of the musculature from direct or reflex causes, does engender the necessity of spinal stimulation by concussion and that the immediate cause of their diminished functional phenomena should be corrected in order to accomplish permanent results.

We can conceive how the musculature may be affected favorably by concussion, provided the application is vigorous and severe, for then will it certainly affect the musculature and cause some re-

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laxation which is indispensably necessary to the continuation of the result of the stimulation caused by concussion.

It is also necessary for the concussion to be given with sufficient force to adjust the musculature which is a more disagreeable method of relaxing the spinal musculature than are methods of spinal adjustment or spinal stretching.

## RATE OF APPLICATION

As a general rule the rapid sine or the rapid and interrupted concussion strokes or brief applications of nerve pressure, are more excitable or more stimulating than continuous and excessive applications, and will produce the most decided constriction or contraction of the viscera.

The slow sine and the slow but interrupted concussion strokes are sedative in their influence and act, as well or better than rapid treatment, when applied to spinal centers for the purpose of inducing dilation or inhibition of function or action of glandular viscera.

The slow sinusoidal interruptions are more efficient in stimulating and in exercising and strengthening the muscular tissue.

Nerve pressure applied for a brief space of time, consisting of about 30 seconds, acts as a decided stimulus, but long continued pressure acts as a depressant and a sedative, and inhibits the action of the nerve to which it is applied.

Concussion applied interruptedly for a short time, from three to seven or ten minutes, is exciting or stimulating in its effects, while long contin-

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ued concussion or concussion without interruption will soon produce a sedative and temporary paralytic condition of the center which is treated.

The most effective time for applying spinal stimulation by concussion, for the purpose of excitation of the centers of nerve origin, is to apply the concussion after the spinal adjustment to remove all interference with the nerves or with their spinal centers.

The most efficient manner of stimulation is to apply the rapid concussion strokes, from ten to twenty per second, for 30 seconds and then rest for 30 seconds, and then again use the concussion and periods of rest for 30 seconds each and continue in this manner for from five to ten minutes at each daily seance.

If two or more different centers are to be concussed, we may then easily secure the necessary interruptions by concussing first one segment and then the other segment, and by this rotation and alteration secure the proper interruptions.

If from over use, the stimulating action of concussion is exhausted, the sinusoidal current may be substituted, and the excitation may thus be continued and the results increased and continued.

## SPINAL CENTERS

*Definition*—A spinal center, or segment of the spinal cord, is a certain portion thereof which gives rise to a certain pair of spinal nerves, and it is the reflex center of sensory impulses and the source of origin of the central impulses of that pair of nerves.

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The spinal centers or segments are not clearly defined or differentiated from each other, for the reason that there is a close relation and a more or less intermingling of the grey cells of the adjacent segments or centers of the spinal cord.

There are thirty-one pairs of spinal nerves which are given off from the spinal cord, and there are therefore thirty-one nerve centers or segments contained within the spinal cord. The different pairs of spinal nerves, which are given off from the spinal cord, are given off from different regions or divisions as follows:

Cervical region ------ 8 pairs of nerves
Thoracic region -----12 pairs of nerves
Lumbar region ------ 5 pairs of nerves
Sacral region ------- 5 pairs of nerves
Coccygeal region----------1 nerve only

By way of comparison, we note quite a difference in the location of the spinal centers of origin of nerves, and the spinal exit of the nerves.

The center of origin or the reflex center of a pair of nerves is always situated above the point or level of the exit of the nerves, and variation in the distance in which the nerve passes downward in the neural canal, to where it makes its exit, increases from above downward.

In the cervical region the nerves pass out from the neural canal but a very short distance below the location of their centers of origin. In the thoracic region there is a greater variation between the level of the site of the origin of the nerve, and of

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the point of its exit, which is below, and this variation increases as you pass from the upper to the lower portion of the thoracic division.

There are centers of origin of the spinal nerves contained in the different divisions of the spinal column, as follows:

Cervical Division ____10 centers of nerve origin
Thoracic Division ____20 centers of nerve origin
Lumbar Division ____ 1 center of nerve origin

We have therefore the centers of origin of all of the cervical nerves and of the upper two thoracic nerves in the neural arches of the cervical division of the spinal column.

We have the origin of all of the thoracic spinal nerves except the first two, and of the lumbar and sacral nerves, situated in the neural arches of the thoracic division of the spinal column.

In the lumbar region, and within the arch of the first lumbar vertebra, we have the center of origin of the coccygeal nerve. There are no centers of origin of spinal nerves situated below the neural arch of the first lumbar vertebra.

For your convenience, we publish (p. 36) a table showing approximately the relation of the location existing between the spinal centers of nerve origin, or reflex centers, and the spinous processes of the vertebrae.

## GENERAL SUMMARY

As a summary of the relative locations of the exits of the spinal nerves, and of their centers of origin in the spinal cord, we give you the following outline:

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The first four or upper pairs of cervical nerves originate in the spinal cord in that portion of the neural canal formed by the neural arches of the first and second cervical vertebrae, and just above the level of the top of the neural arch of the third cervical vertebra.

The lower four cervical pairs of nerves have their origin in that portion of the spinal cord, situated within the neural arches of the third, fourth, fifth and sixth cervical vertebrae and above the upper plane or within the arch of the sixth cervical vertebra.

The upper or first six pairs of thoracic nerves originate within that portion of the spinal column situated in the neural arches of the seventh cervical and the first, second, third and fourth thoracic vertebrae.

The lower thoracic pairs of nerves, from the seventh to the twelfth inclusive, originate in the spinal centers or segments of the spinal cord, located in the neural arches of the fifth to the eighth thoracic vertebrae, inclusive.

The five lumbar pairs of nerves have their centers of origin in that portion of the spinal cord contained within the neural arches of the tenth and eleventh thoracic vertebrae.

The five sacral pairs of nerves have their centers of origin in that portion of the spinal cord located within the neural arch of the twelfth thoracic vertebra principally, the lowermost portion extends into the first lumbar neural arch.

The coccygeal nerve has its spinal center of origin within the neural arch of the first lumbar

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vertebra and this nerve also receives fibers from the arachnoidal and myelin sheaths of the spinal cord, which coverings are a continuation and an enlargement of the nerve fibers originating both in the pineal glands and the pituitary bodies, at the base of the brain.

The coccygeal ganglion, which is situated within the rectal sphincters, contain the terminal endings and the commissural fibers of the downward stream of the white rami communicantes, and also the grey rami communicantes of the gangliated cords of the sympathetic system which are contained within the terminal portion and commissural union of the gangliated cords of the sympathetic system or in the coccygeal ganglion.

Now that you may be able to locate easily each spinous process, and in this way locate the different spinal centers, we will give you some special tables of directions for locating them readily and with certainty.

## SPECIAL TABLE

*Approximate Relation of Spinal Centers of Nerve Origin to the Spinous Processes*

| *Spinous Process* | *Center of Nerve Origin* |
|---|---|
| Arch of Atlas | 1st Cervical Origin |
| | 2nd Cervical Origin |
| 2nd Cervical Spine | 3rd Cervical Origin |
| | 4th Cervical Origin |
| 3rd Cervical Spine | 5th Cervical Origin |

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| | | | |
|---|---|---|---|
| 4th Cervical | Spine | 6th Cervical | Origin |
| 5th Cervical | Spine | 7th Cervical | Origin |
| | | 8th Cervical | Origin |
| 6th Cervical | Spine | 1st Thoracic | Origin |
| | | 2nd Thoracic | Origin |
| 7th Cervical | Spine | 3rd Thoracic | Origin |
| 1st Thoracic | Spine | 4th Thoracic | Origin |
| 2nd Thoracic | Spine | 5th Thoracic | Origin |
| 3rd Thoracic | Spine | 6th Thoracic | Origin |
| 4th Thoracic | Spine | 7th Thoracic | Origin |
| 5th Thoracic | Spine | 8th Thoracic | Origin |
| | | 9th Thoracic | Origin |
| 6th Thoracic | Spine | 10th Thoracic | Origin |
| 7th Thoracic | Spine | 11th Thoracic | Origin |
| 8th Thoracic | Spine | 12th Thoracic | Origin |
| 9th Thoracic | Spine | 1st Lumbar | Origin |
| 10th Thoracic | Spine | 2nd Lumbar | Origin |
| | | 3rd Lumbar | Origin |
| 11th Thoracic | Spine | 4th Lumbar | Origin |
| | | 5th Lumbar | Origin |
| 12th Thoracic | Spine | 1st Sacral | Origin |
| | | 2nd Sacral | Origin |
| | | 3rd Sacral | Origin |
| | | 4th Sacral | Origin |
| | | 5th Sacral | Origin |
| 1st Lumbar | Spine | Coccygeal Segment | Origin |

In the above table we have, in the left-hand column, named the spinous processes, and in the right-hand column, we have named the spinal center that is situated directly under each spinous process.

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## HOW TO DETERMINE THE LOCATION OF THE SPINOUS PROCESS OF ANY VERTEBRA —LANDMARKS

*First Cervical or Atlas*

The first cervical vertebra or the atlas has no spinous process. The location of the posterior arch of the atlas is approximately midway between the lower portion of the occipital bone and the first or uppermost spinous process or marked prominence, which is the spine of the axis.

*Second Cervical Spine*

The spine of the second cervical vertebra or atlas is large, thick, strong and prominent, to which are attached many imporant muscles. This large or prominent spine is easily recognized and located as it is the first spinous process palpated below the occipital bone.

*Third Cervical Spine*

The spine of the third cervical vertebra is difficult to palpate when the head is in the normal position. This is because this spine is covered under the large heavy and prominent spine of the axis. To palpate the third cervical spine, flex the head and neck sharply by dropping the head forward with the chin upon the breast.

*Fourth Cervical Spine*

This spinous process is the second one which is palpated below the occipital bone when the neck

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is in a normal position. This spine is the first one palpated below the second cervical spine except when the head is flexed forward so as to enable the palpator to detect the third cervical spine, then the fourth becomes the third cervical spine which is palpated.

*Fifth Cervical Spine*

This spine is the first spinous process below the fourth cervical spine and it is the third spinous process above the first thoracic spine or the second above the spine of the seventh cervical, when counting from below.

*Sixth Cervical Spine*

This spine is the second spinous process below the spine of the fourth cervical vertebra, and it is the first one above the spine of the seventh cervical or the second spine above that of the first thoracic. It is located on a level with the upper commencement of the esophagus and opposite the cricoid cartilage.

*Seventh Cervical Spine*

(Vertebra prominens.) This spine is distinguished by its prominence and by its length, and it serves as a guide for counting the processes which are immediately above and below it. Some times the sixth cervical spine is also quite prominent and may be difficult to differentiate, for this reason, from the seventh cervical spine. The seventh cervical spine is on a level with the apexes of the lungs.

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*First Thoracic Spine*

This spinous process is on a level with the superior portion of the spine of the scapulae and it may be detected and located by placing the thumbs in a line with the fingers when they are placed above the spines of the scapulae on both sides.

*Second Thoracic Spine*

This spinous process may be most easily determined by first locating the first thoracic spine and then by finding the one immediately below this spine which is the second thoracic spine.

*Third Thoracic Spine*

The location of the spinous process of the third thoracic vertebra corresponds to the level of the inner edge of the spines of the scapulae and it is the second process palpated below the first thoracic spinous process.

*Fourth Thoracic Spine*

This spinous process is best located by first differentiating and then counting from the first thoracic process above, or by first locating and counting from the seventh thoracic spinous process below.

*Fifth Thoracic Spine*

The fifth thoracic spinous process is best located by first differentiating and counting from the seventh thoracic spinous process below, or it may

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be located by counting from the first thoracic spinous process above.

*Sixth Thoracic Spine*

The sixth thoracic spinous process is best located by first determining the location and counting from the seventh thoracic spinous process below.

*Seventh Thoracic Spine*

The seventh thoracic spinous process is on a line with the inferior angles or points of the scapulae when the patient is standing, and this spine is a finger's breadth below a straight line connecting the lower points of the scapulae when the patient lies prone upon a treatment table with the arms hanging down. This spine is easily located by placing the forefingers of the two hands immediately below and against the lower angles of the scapulae on both sides, with the thumbs on a line between and they will then fall upon the seventh thoracic spine.

*Eighth Thoracic Spine*

The spinous process of the eighth thoracic vertebra is most easily located by first determining the seventh thoracic spine. The eighth thoracic spine is directly opposite the lower level or border of the heart and of the central tendon of the diaphragm.

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*Ninth Thoracic Spine*

The spinous process of the ninth thoracic vertebra is most readily determined by first locating and counting from the seventh thoracic spinous process. The ninth thoracic spine is situated on a level with the cardiac opening of the stomach.

*Tenth Thoracic Spine*

The spinous process of the tenth thoracic vertebra is about a finger's breadth below the attachments of the last two ribs, and it may be determined by the prominence of the tenth pair of ribs in the axilary line by following them to the spine. The tenth spine may be located by counting downward from the seventh thoracic spine. The tenth thoracic spine is on a level with the lower border of the lungs.

*Eleventh Thoracic Spine*

The spinous process of the eleventh thoracic vertebra may be located by counting downward from the seventh spinous process above, or it is the spine immediately below the tenth. The eleventh spinous process marks the level of the lower border of the stomach and of the upper border of the right kidney.

*Twelfth Thoracic Spine*

The spinous process of the twelfth thoracic vertebra may be located in the same manner as the eleventh thoracic spine or it may be located by counting from the fourth lumbar below.

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*First Lumbar Spine*

The spinous process of the first lumbar vertebra is most easily located by determining and counting from the fourth lumbar spinous process below. The first lumbar spine is on a level with the renal vessels and pelvis of the kidney.

*Second Lumbar Spine*

The spinous process of the second lumbar vertebra is easily and quickly located by first determining and counting from the fourth lumbar spinous process below. The second lumbar spine is situated directly opposite the third portion of the duodenum and of the receptaculum chyli.

*Third Lumbar Spine*

The spinous process of the third lumbar vertebra is best and most quickly located by counting from the fourth lumbar spinous process below. It is situated on a level with a plane just above the umbilicus.

*Fourth Lumbar Spine*

The spinous process of the fourth lumbar vertebra is on a straight line between the highest points of the crests of the ilia, and this spine may be located by first palpating the sacrum and the fifth lumbar immediately below. Placing the thumbs on a straight line midway between the fingers resting upon the crests of the ilia on both sides. This fourth lumbar spine marks the level of the bifercation of the aorta and of the crest of the ilia.

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*Fifth Lumbar Spine*

The spinous process of the fifth lumbar vertebra is easily determined by palpating the sacrum below or by first determining the first lumbar spine immediately above. This spine is on a level with the points of spinal exit of the fifth pair of lumbar nerves.

## RELATIONS OF SPINES AND NERVES

The following directions are given to give the reader a definite idea as to the level of the spinal origin or the spinal exit of the spinal nerves from the neural canal as they pass out to the different parts or organs which they supply.

In the cervical region we have omitted any summary of the general relation of the spinal exit of the nerves to the level of the spinous process of the cervical vertebrae, for the reason that this is not so important and, for the further reason, that the spinal exit of the nerves varies but little from the same level of the location of the spinous process of the same number.

This table varies very materially from that table in which we give a summary of the approximate relation of the location of the spinal centers of origin to the location of the different spines. We believe, however, that this table will be of considerable interest, especially to those who are more rational in their views and believe in relieving that interference with nerves which necessitates concussion and other stimulation and the administration of these methods of the stimulation to the spinal centers.

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*The first thoracic or dorsal spine* is on a level with a point about midway between the points of spinal exit of the first and second pairs of thoracic nerves.

*The second thoracic spine* is nearly on a level with, but a little above, the points of exit of the third pair of thoracic nerves.

*The third thoracic spine* is situated on a level with the spinal exits of the fourth pair of thoracic nerves.

*The fourth thoracic spine* is situated on a level with the spinal exits of the fifth pair of thoracic nerves.

*The fifth thoracic spine* is situated on a level with the spinal exits of the sixth pair of thoracic nerves.

*The sixth thoracic spine* is situated on a level with the spinal exits of the seventh pair of thoracic nerves.

*The seventh thoracic spine* is situated on a level with the spinal exits of the eighth pair of thoracic nerves.

*The eighth thoracic spine* is situated on a level with the spinal exits of the ninth pair of thoracic nerves.

*The ninth thoracic spine* is situated on a level with the spinal exits of the tenth pair of thoracic nerves.

*The tenth thoracic spine* is situated on a level with, or just a little above, the spinal exits of the eleventh pair of thoracic nerves.

*The eleventh thoracic spine* is situated on a level with a plane just between the level of the

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spinal exits of the eleventh and twelfth pairs of thoracic nerves.

*The twelfth thoracic spine* is situated on a level just below the level of the spinal exits of the twelfth pair of thoracic nerves.

*The first lumbar spine* is situated on a level with the spinal exits of the first pair of lumbar nerves.

*The second lumbar spine* is situated on a level with the spinal exits of the second pair of lumbar nerves.

*The third lumbar spine* is situated on a level with the spinal exits of the third pair of lumbar nerves.

*The fourth lumbar spine* is situated on a level with the spinal exits of the fourth pair of lumbar nerves.

*The fifth lumbar spine* is situated on a level with the spinal exits of the fifth pair of lumbar nerves.

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## Chapter II

## VISCERA AND THEIR CONTROL

In this portion of this condensed work, we wish to give you the centers which influence each and every viscus and part of the body, and to mention briefly the nature of the influence exerted by each of the different spinal centers or segments upon the parts which they supply.

For convenience to the practitioner, we have arranged and described the treatment of the different viscera and parts in alphabetical order so that this work may serve as a ready reference to the doctor who is busy in his practice.

### ADRENALS

*Centers for Constriction*

The adrenals or suprarenal capsules of the kidney may be constricted or dilated by spinal concussion or by the use of the sinusoidal current or other methods of stimulation.

Concussion or the sinusoidal current over the fifth and sixth thoracic spinous processes or the spinal segment contained therein will cause constriction of the adrenals.

Sinusoidalization or concussion over these centers especially constrict the parenchyma of the adrenals.

Concussion over the spinous or transverse process of the seventh cervical or of the first, second

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and third lumbar will cause a decided vaso-constriction of the suprarenal capsules, especially of the blood vessels thereof.

*Centers for Dilation*

Concussion over the spinous or transverse processes of the tenth and eleventh thoracic vertebrae will cause vaso-dilation of the blood vessels and dilation of the parenchyma of the adrenals or suprarenal capsules.

## AORTA

The aorta may be constricted or it may be dilated by concussion, applied over specific centers, or by other methods of stimulation.

*Centers for Constriction*

Concussion or sinusoidal stimulation applied over spinous or transverse processes of the seventh cervical vertebra will cause the most decided constriction of the musculature and vessels of the walls of the thoracic and abdominal aorta.

Concussion or sinusoidal stimulation applied over the spinous or transverse processes of the second to the eighth thoracic vertebrae inclusive, will produce constriction of the abdominal portion of the aorta and the same treatment applied to the first, second and third lumbar vertebrae, will cause vaso-constriction of the vessels of the walls of the abdominal aorta.

*Centers for Dilation*

Dilation of the aorta may be caused by concussion of the ninth to twelfth thoracic spines or transverse processes.

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*Centers of Dilation*

Concussion or sinusoidal stimulation applied to the spinous or transverse processes of the ninth, tenth, eleventh and twelfth thoracic vertebrae will cause dilation of the heart and the aorta.

## ANEURYSM

In the treatment of aneurysm rest is very essential to success. Exertions of any kind and exercise to any extent is very detrimental to recovery.

*Centers for Constriction*

Concussion or sinusoidal stimulation applied over the spinous or transverse processes of the seventh cervical vertebra excites the most efficient vaso-constriction of the heart and aorta, and is the most potent means of overcoming aneurysm.

Concussion is a more potent and efficient method of treatment than is the sinusoidal stimulation for aortic aneurysm.

Concussion and sinusoidal stimulation applied over the second to eighth thoracic vertebrae inclusive, in addition to the seventh cervical concussion will assist greatly in overcoming abdominal aneurysm.

Concussion and stimulation of the sinusoidal current, applied over the first, second and third lumbar vertebrae inclusive, causes constriction of the vaso-motor system and parenchymatous tissues of the abdominal contents and this measure will also assist and hasten recovery from aneurysmal enlargements of the abdominal aorta.

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*Centers for Dilation*

Concussion or sinusoidal stimulation over the spinous or transverse processes of the ninth, tenth, eleventh and twelfth thoracic vertebrae will cause vaso-dilation of the vessels and parenchyma of the abdominal viscera, and increase the size of an aneurysm and augment its symptoms. Concussion to excite dilation of a supposed aneurysmal tumor is an important diagnostic procedure.

## APPENDIX

*Centers for Constriction*

The appendix may be caused to constrict by concussion or sinusoidal stimulation applied to the seventh cervical vertebra.

The seventh cervical treatment may be augmented by concussion or sinusoidal stimulation applied to the upper three lumbar segments which portions contain the centers of origin of vaso-constrictor nerves supplying the appendix.

These measures of treatment will increase the symptoms of appendicitis and are therefore diagnostic.

Concussion or sinusoidal stimulation over the eighth and ninth thoracic vertebrae will cause contraction of the parenchyma of the appendix and adjacent tissues.

*Center for Dilation*

Concussion and other stimulation applied over the eleventh dorsal or thoracic spinal segment will

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cause decided dilation of the appendix and adjacent tissues and allay the cramps and spasms and distressing symptoms of appendicitis.

Stimulation of this spinal segment causes dilation of the bowels generally and aids greatly in relieving appendicitis without an operation.

## THE BLADDER

*Centers for Constriction*

The rapid sinusoidal current applied to the first or to the fifth lumbar spinal segment will excite contraction of the muscular walls of the bladder.

Concussion given to the spinous or transverse processes of the upper three lumbar vertebrae will stimulate the bladder walls and the blood vessels thereof.

Concussion applied over the transverse processes or spine of the ninth thoracic vertebra will stimulate the spinal center or origin of the first lumbar pair of nerves and thus stimulate the musculature of the bladder walls.

## BLOOD VESSELS

*Centers for Constriction*

Concussion applied vigorously to the seventh cervical vertebra will produce the most decided vaso-motor constrictor impulses of the blood vessels generally in all parts of the body.

Concussion applied to the spinous or transverse processes of the thoracic vertebrae, from the

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second to the eighth inclusive, will excite stimulation and vaso-constriction of the splanchnic regions.

Concussion given to the upper three lumbar segments of the spinal column produces vaso-constriction of the blood vessels and of the parenchyma of the viscera of the abdominal cavity and also of the pelvic cavity.

The use of the sinusoidal current applied over the spinal segments mentioned above will stimulate contraction to a less degree than will the vigorous concussion.

### *Centers for Dilation*

Concussion applied, by rather slow but firm and strong concussion strokes, to stimulate the nerve centers contained in the spinal cord and within the neural arches of the ninth, tenth, eleventh and twelfth thoracic vertebrae, will cause a dilation of the blood vessels generally, and especially of the abdominal cavity or contents.

## CENTERS CONTROLLING BLOOD PRESSURE

### *Decreasing Blood Pressure*

High blood pressure, due to cardiac weakness, is best relieved by concussion over the spinous or transverse processes of the seventh cervical vertebra.

High blood pressure is usually and most easily reduced by concussion, nerve pressure or sinusoidal stimulation, applied to the spinous or transverse

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processes or between the transverse processes of the third and fourth thoracic vertebrae.

*Increasing Blood Pressure*

Concussion and other stimulation administered to the upper three lumbar segments of the spinal column will excite contraction of the blood vessels of the splanchnic regions which will act mechanically on the blood pressure to increase it.

Concussion applied to the third and fourth cervical segments of the spinal column will, by stimulation of the centers of origin of the phrenic nerves, effect an increase of the blood pressure.

## THE BRAIN

*Centers for Constriction*

The blood vessels of the brain may be caused to contract by the administration of concussion to the seventh cervical vertebra.

Concussion over the second cervical vertebra will also effect stimulation and contraction of the blood vessels of the brain substance.

## THE BREASTS

*Centers to Stimulate*

The secretion of the mammary glands may be easily and readily increased by the use of spinal concussion or sinusoidal stimulation applied to stimulate the spinal centers situated in the neural arches of the third and fourth thoracic segments of the spinal column.

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*Centers for Constriction*

Concussion administered to stimulate the centers of origin of the second pair of thoracic nerves situated in the neural arch of the seventh cervical vertebra will excite contraction of the blood vessels of the mammary glands. This measure will diminish the secretion of lacteal fluids.

## THE CARDIA

The cardia is the upper orifice of the stomach and it is subject to spasmodic contraction in some patients, under certain conditions when swallowing food.

*Centers for Constriction*

A contraction of the cardia may be caused by stimulation of the spinal origin of the second and third thoracic pairs of nerves by concussion or the use of the rapid sinusoidal current.

Concussion applied to the fifth thoracic spine will cause dilation of the pylorus and contraction of the cardia.

Nerve pressure upon the right side of the fifth thoracic spine will cause dilation of the pylorus and contraction of the cardia.

*Centers for Dilation*

Concussion or sinusoidal stimulation, affecting the spinal origin of the fifth and sixth pairs of spinal nerves, by being applied over the third

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spinal segment of the spinal column, will cause dilation of the upper orifice of the stomach.

This will readily relieve choking attacks.

## THE COLON

*Centers to Stimulate*

Concussion or sinusoidal stimulation, applied over the spinal nerve centers of origin contained in the neural arches of the thoracic vertebrae, from the second to the eighth inclusive, will stimulate the splanchnic nerves and the viscera which they supply, among which are the different portions of the colon.

*Centers for Constriction*

Concussion or sinusoidal stimulation, applied to the upper three segments of the lumbar portion of the spinal column, will cause a decided contraction of the colon and intestines, more especially is this true of the treatment applied to the second lumbar segment.

*Centers for Dilation*

Concussion given over the spinous or transverse processes of the eleventh thoracic vertebra causes a general dilation of the abdominal viscera.

Nerve pressure applied to the spinal nerves or near their spinal exit will cause dilation of the colon, and the sites for the application of pressure have been established according to Abrams as follows:

Bilateral nerve pressure on the sides of the

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tenth thoracic vertebra will cause dilation of the duodenum.

Bilateral nerve pressure by the side of the eleventh thoracic vertebra will induce dilation of the sigmoid flexure.

Bilateral nerve pressure by the side of the twelfth thoracic vertebra causes dilation of the ascending colon, also of the cecum and attached ileum.

Bilateral nerve pressure by the side of the first lumbar vertebra causes a dilation of the descending colon.

Bilateral nerve pressure by the side of the fourth lumbar vertebra causes dilation of the transverse colon.

## THE DIAPHRAGM

The diaphragm may be stimulated and will become more prominent at its borders, on one or both sides of the epigastrium, under the costal borders, when intermittent pressure is applied between the second and third cervical vertebrae. The best results may be obtained when the patient is recumbent with the knees flexed.

This phenomenon is due to stimulation of the origin of one of the spinal branches of the phrenic nerve.

## DUODENUM

See centers mentioned under heading of the colon, page 55.

## THE EARS

The vagus tone may be increased by intermit-

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tent concussion of the seventh cervical vertebra and this will augment the acuteness of the sense of hearing.

Concussion of the second cervical vertebra will stimulate the auditory nerves through branches of the cervical nerves joining them.

Nerve pressure applied in the interspace between the third and fourth thoracic spinous or rather transverse processes will in a short time diminish vagus tone and this will diminish the acuteness of the sense of hearing.

## ESOPHAGUS

### *Centers for Constriction*

Concussion of the seventh cervical vertebra, or the use of sinusoidal stimulation upon the nerve center of origin contained in the neural arch thereof will cause a contraction of the esophagus. And so will nerve pressure applied at the sides of the interspace between the spinous processes of the seventh cervical and the first dorsal spines.

A similar result may be elicited by concussion or sinusoidal stimulation of the upper three dorsal segments or by nerve pressure applied to the first three pairs of spinal nerves at or near their spinal exit from just below the upper three thoracic vertebrae.

Pressure in the paravertebral spaces between the third and fourth thoracic vertebrae produces dilation of the cardia and contraction of the esophagus.

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*Centers of Dilation*

Stimulation of the fifth segment of the thoracic portion of the spinal column by concussion or sinusoidal stimulation will cause dilation of the pylorus and at the same time contract the cardia which phenomenon is associated with dilation of the esophagus.

## THE EYES

The eyes may be affected by spinal treatment which will stimulate spinal nerves which send communicating branches to the cranial nerves and the terminal ganglia of the sympathetic nervous system connected therewith.

*Centers for Stimulation*

Concussion or sinusoidal stimulation of the first and second cervical segments affects the eyes because of the consequent stimulation of the vagal nerves, and also because of the effect of the stimulation of the optic nerves through the channel of branches from first cervical nerves, joining the optic and other cranial nerves.

Concussion or sinusoidal stimulation of the seventh cervical segment of the spinal column increases the acuteness of vision which is due no doubt to the effect upon the capillary circulation.

The same treatment applied to the upper thoracic segments from the second to the fourth inclusive, causes dilation of the pupils of the eyes.

Spinal treatment or stimulation, given to the lower thoracic vertebrae, from the sixth to the

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tenth, affects the pneumogastric nerves, because of the connection of the spinal nerves from these segments with the terminal afferent fibers of the pneumogastric nerves.

Nerve pressure applied to the first pair of lumbar nerves at or near their spinal exit, especially on the right side, will affect the eye-lids and secretion of tears.

## GALL BLADDER

*Centers for Contraction*

Concussion, nerve pressure or sinusoidalization, administered to the ninth and tenth thoracic segments of the spinal column, will cause dilation of the gall bladder.

The same treatment applied to the upper lumbar portion of the spinal column, including the first, second and third segments, will excite contraction of the gall bladder.

*Centers for Dilation*

Concussion, nerve pressure or sinusoidalization, administered to the ninth and tenth thoracic segments of the spinal column, will cause dilation of the gall bladder.

## THE HEART

Spinal concussion is perhaps one of the most potent and effectual methods of immediately affecting the action of the heart that has ever been discovered or used by practitioners of the healing art.

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We may readily and easily cause contraction, dilation, inhibition or acceleration of the heart's action by stimulation which is best excited by spinal concussion.

The action of the heart may be started after fainting, paralysis from chloroform or resuscitated from drowning or from asphyxia from different causes, and the action of the heart may be greatly increased in strength and in a quick and expedient manner by the use of spinal concussion.

*Centers for Restoration of the Heart's Action*

Rapid concussion of the seventh cervical vertebral spinous or transverse processes will start the heart to action after syncope of brief duration almost instantaneously, and the marked characteristic of the heart's action, when so started, is the strength of the beat.

Spinal concussion or other stimulation, especially adjustment, of the fourth thoracic spinal segment will also excite cardiac action, after most forms of asphyxia, very quickly and the heart's action when so started seems to be under perfect inhibitory control.

Concussion of the middle cervical vertebrae, especially the third and fourth, or the use of other methods of stimulating the phrenic nerves, will resuscitate a failing heart very quickly, and at the same time greatly accelerate the cardiac action and consequently the rate of the pulse.

Concussion or sinusoidal stimulation of the first and second segments of the cervical portion of the spinal column will initiate the heart's action

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after syncope and also strengthen and inhibit its action, because of its influence upon the vagal nerves.

*Centers for Contraction*

Spinal concussion or sinusoidal stimulation of the seventh cervical spinal segment will cause the most decided contraction of the cardiac walls and blood vessels, and this is the center depended upon for results in treatment in cases of cardiac dilation and valvular insufficiency and syncope or asphyxia.

*Centers for Dilation*

Spinal concussion or sinusoidal stimulation of the lower segments of the spinal column from the ninth to the twelfth inclusive, will cause decided dilation of the cardiac wall and the thoracic and abdominal aorta, and are the chief centers for cardiac dilation.

*Centers for Acceleration*

Spinal concussion or sinusoidal stimulation or paravertebral nerve pressure applied to the third and fourth cervical segments of the spine will accelerate or quicken the rate of the cardiac action and consequently the pulse rate.

*Centers for Inhibition*

Stimulation of the centers of origin of spinal nerves contained in the neural arch of the second thoracic vertebra, by means of concussion or sinu-

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soidal currents, seem to increase the inhibitory control of the vagal nerves over the rate of the action of the heart, therefore the second thoracic is the center for inhibition according to the best authorities.

If the rate of the heart beat is due to compensory action, on account of weakness of the heart, then the rate of the cardiac action may be reduced by concussion or other stimulation of the seventh cervical segment of the spine.

## THE INTESTINES

### *Centers for Constriction*

Spinal concussion and other methods of stimulation applied to the upper three lumbar segments of the spine cause contraction of the intestines.

Stimulation of the middle dorsal segments of the spine from the second to the eighth inclusive, by concussion or sinusoidalization, will stimulate the peristalsis of the entire splanchnic area.

Concussion of the seventh cervical spine, or transverse processes, will augment diminished splanchnic tone due to subnormal vagus tone.

### *Centers for Dilation*

Concussion of the eleventh dorsal spine or stimulation by paravertebral nerve pressure or the sinusoidal current will cause dilation of the intestines, and this is an excellent measure in the treatment of spastic constipation and in the treatment of appendicitis.

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## THE KIDNEYS

### *Centers for Contraction*

Concussion of the seventh cervical spine or transverse processes, which stimulates the spinal centers of origin of the second thoracic pair of spinal nerves will produce the most decided vasomotor constriction of the blood vessels and an anemic condition of the kidneys and thus cause a decrease of the kidney excretion and a constriction of the size of them.

Rapid concussion or sinusoidal currents applied to the sixth, seventh and eighth thoracic segments of the spine, will induce contraction of the parenchymatous tissues of the kidneys and thus cause stimulation of them.

Concussion and other stimulation of the upper three lumbar segments of the spine will cause contraction of the blood vessels and the parenchymatous tissues of the renal organs.

### *Centers of Dilation*

Stimulation of the tenth and the eleventh thoracic segments of the spine, by nerve pressure, spinal concussion or sinusoidal stimulation will cause dilation of the parenchyma and of the blood vessels of the kidneys, and this will increase their action and cause the appearance of albumen, if continued, in the secretion of a kidney which is in normal condition until after the beginning of the treatment.

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## THE LARYNX

*Center for Constriction*

Rapid spinal concussion of the seventh cervical spine or transverse processes will induce a constricted feeling and contraction of the tissues of the larynx and will relieve laryngeal catarrh and hyperaenemic conditions by relieving the capillary engorgement.

Nerve pressure, or the sinusoidal current applied so as to affect the same nerves, will produce no doubt the same or similar results to those obtained by the rapid concussion.

## THE LIVER

*Centers for Contraction*

The liver may be constricted by rapid intermittent concussion of the seventh cervical spine or the transverse processes which causes a vaso-motor constriction of the portal circulation.

Stimulation of the middle thoracic segments from the second to the eighth by intermittent sessions of concussion will stimulate the entire splanchnic zones, but when the treatment is confined to the fourth thoracic spine or transverse processes the stimulation will then directly affect and contract the hepatic organ.

Concussion, rapid but intermittent, applied to the upper three lumbar segments of the spine will cause constriction of the blood vessels and of the parenchyma of the liver.

Nerve pressure or sinusoidal stimulation af-

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fecting the same nerves will produce similar results upon the hepatic organ.

*Center for Dilation*

The eleventh thoracic vertebra is the center for dilation of the liver, and the phenomena of dilation of the vessels and tissues occurs when the centers of origin of the nerves of this segment is stimulated by the use of concussion, nerve pressure or the sinusoidal current.

## THE LUNGS

*Centers for Contraction*

Concussion over the third, fourth and fifth cervical segments of the spine will cause a contraction of the longitudinal fibers of the pulmonary air passages and other tissues of the lungs, because of the stimulation of the centers of origin of the phrenic nerves.

Sinusoidal stimulation of the fourth and fifth cervical segments will prove very efficient in exciting contraction of the lungs.

Concussion of the seventh cervical spine or transverse processes will cause diminution of the amount of blood in the pulmonary tissues, and will produce an anemic condition, which is favorable to the development of tubercular infections, if too persistently used and continued too long.

*Centers for Dilation*

Stimulation of the middle third of the dorsal portion of the spine, from the fifth to the eighth

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inclusive, by concussion or sinusoidalization will cause dilation of the lungs and an increase in the amount of their vascular contents. This is due perhaps to the contraction of the splanchnic zone and consequent mechanical pressure of their vascular contents into the lungs.

Concussion of the first and second cervical vertebrae will affect the lungs also because of the influence of communicating branches which are given to the vagus nerves.

## NASAL CAVITY

*Centers for Constriction*

Concussion of the seventh cervical spine or transverse processes will cause vaso-constriction of the capillary circulation of the lining of the nasal mucous membranes. And this is an excellent auxiliary remedy in the treatment of reflex nasal asthma, nasal catarrh, both acute and chronic.

The sense of smell is modified by concussion of the seventh cervical spine or by any other method of increasing or decreasing vagus tone.

## THE OVARIES

*Centers for Contraction*

Concussion of the spinous or transverse processes of the seventh cervical vertebra causes constriction of the blood vessels of the pelvic organs generally.

Concussion stimulation of the upper three lumbar segments of the spine will cause a decided contraction of the parenchyma of the ovaries.

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Rapid sinusoidal stimulation of the centers of origin of the nerves originating in the tenth, eleventh and twelfth thoracic segments will cause stimulation of the tissues and musculature of the pelvic viscera, and a return of the ovaries, which are prolapsed, to their normal situation.

## THE PANCREAS

### *Centers for Contraction*

Rapid but intermittent concussion applied to the spinous or transverse processes of the fourth, fifth and sixth thoracic vertebrae, especially to the fifth, will stimulate the centers of origin of the nerve supply to the pancreas.

### *Centers of Dilation*

Stimulation of the centers of origin of spinal nerves contained within the neural arches of the tenth and eleventh thoracic vertebrae by spinal concussion or by use of nerve pressure or rapid sinusoidal currents, will cause a decided dilation of the blood vessels and of the parenchyma of the pancreas.

### *To Increase Pancreatic Juice*

An increase of the secretion and supply of the pancreatic fluids may be obtained by concussion of the tenth thoracic spine or transverse processes, which will increase the capacity and quantity of the blood therein, and thus cause increased cellular or glandular secretions.

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Alternate intermittent concussion of the fifth thoracic segment to constrict and the tenth thoracic vertebra to dilate the pancreas will cause the greatest secretion and flow of the pancreatic fluid.

## THE PHARYNX

*Constriction Center*

Concussion of the spine of the seventh cervical vertebra or of the transverse processes thereof will cause constriction of the capillary vessels of the mucous surfaces of the pharynx.

Sinusoidal stimulation applied to the paravertebral areas beside of, and adjacent to, the spine of the seventh cervical vertebra, will produce constriction of the capillary circulation of the pharyngeal mucous membranes.

Nerve pressure given to the nerves exiting on either side of the seventh cervical spine will also cause vasoconstriction of the pharyngeal mucous membranes.

*Centers for Stimulation*

Concussion stimulation applied to the upper two cervical vertebrae will increase the nerve impulses of the nerves of the cervical plexus and thus we may stimulate the tissues of the pharynx which they help supply.

## PROSTATE GLAND

*Constricting Center*

The prostate gland, in a great percentage of men of sixty or more years, will become hyper-

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trophied and obstruct the passage of the bladder contents.

Concussion of the spine or transverse processes of the twelfth thoracic vertebra will cause contraction of the prostate gland.

The rapid sinusoidal modality applied by placing one electrode over the twelfth thoracic vertebra and the other over the sacrum, or by placing an electrode on each of the two sides of the twelfth thoracic vertebra, will elicit perceptible contractions of the prostate gland which the palpating finger will readily distinguish.

## THE PYLORUS

### *Constricting Centers*

Nerve pressure, concussion or sinusoidal stimulation applied between or over the third and fourth thoracic vertebrae will excite contraction of the pylorus.

### *Center of Dilation*

Nerve pressure by the side of, or the paravertebral application of the sinusoidal current to the fifth thoracic, will cause the stomach to assume a more vertical position, with the cardia contracted and the pylorus dilated.

Raising the hyoid bone will produce a more marked phenomenon of the same nature than will the nerve pressure or use of the sinusoidal current.

Concussion of the fifth thoracic will also dilate the pylorus and empty the stomach's contents into the duodenum.

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## THE RECTUM

*Stimulating Center*

The rapid sinusoidal stimulation of the fifth lumbar pair of nerves is one of the most efficient and potent means of increasing the tone and removing pathological conditions of the rectum, except in cases where operative procedure is needed or truly indicated.

## THE SCALP

*Stimulating Center*

The circulation and cellular activity of the scalp may be best and most decidedly stimulated by concussion or by the use of the sinusoidal current applied to the first and second cervical segments of the spine.

Vibration of the scalp will produce decided stimulation thereof when applied vigorously and repeatedly from day to day.

## THE SCROTUM

*Constricting Centers*

The scrotum may be constricted and contracted, and very decidedly so, by the use of the rapid sinusoidal stimulation or vigorous spinal concussion applied to the upper three lumbar segments of the spinal column.

Concussion of the seventh cervical spine will cause a general vasoconstriction which will prove an auxiliary measure of treatment when wishing to contract the scrotum.

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## THE SPINAL CORD

### *Center of Dilation*

To dilate the vascular supply to the spinal cord, we apply vigorous but intermittent spinal concussion to the eleventh thoracic spine or transverse processes, which will cause a dilation of the blood vessels of the spinal column and this measure is very helpful in the treatment of paralysis.

## THE SPLANCHNIC ZONES

### *Constricting Centers*

Stimulation of the thoracic segments, or the centers of spinal nerve origin contained therein, from the second to the eighth inclusive, by intermittent concussion, by the use of nerve pressure or by the use of the rapid sinusoidal current, will stimulate the entire area of the splanchnic portion of the abdominal cavity of the body.

Measures to stimulate the vagal nerves will exert a very marked tonic effect upon the abdominal viscera.

Concussion or other stimulation of the upper three lumbar segments of the spinal column will cause decided contraction of the abdominal cavity and the splanchnic zones.

### *Dilating Centers*

Spinal concussion or the sine current applied to the tenth and eleventh thoracic segments will cause dilation of the splanchnic zones.

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## THE SPLEEN

### *Constricting Centers*

Concussion or sinusoidal stimulation of the upper three lumbar segments of the spine will cause constriction of the spleen. These measures cause fever in cases afflicted, at present or during the past, with malaria, because of the contraction of the spleen causing squeezing of the plasmodium of malaria out into the circulation.

Concussion to excite action of the splanchnic nerves will stimulate the action of the spleen and the most marked results will be obtained when the concussion or sinusoidal stimulation is confined to the second, third and fourth thoracic segments or alternated between the third thoracic and the seventh cervical segments, and the upper lumbar segments.

Concussion of the seventh cervical spine, or the transverse processes, will cause constriction of the circulation in the spleen and stimulate the same because of its action or influence upon the pneumogastric nerves.

### *Center for Dilation*

Concussion or sinusoidal stimulation or the use of nerve pressure to the eleventh thoracic segment will excite dilation of the circulation of the spleen and will also dilate the cellular tissues of this viscus.

For the greatest increase in the activity of the spleen, I would recommend alternate rapid concussion of the second lumbar and the eleventh thoracic

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vertebrae, or the alternate concussion of the eleventh and the third thoracic vertebrae.

## THE STOMACH

The stomach is the receptacle of all we impose upon it, and it is expedient that we know how to affect its integrity, and to empty its contents, when so desired.

### *Constriction Centers*

The size of the stomach may be reduced by causing contraction thereof by means of spinal concussion, sinusoidal stimulation or nerve pressure affecting the seventh thoracic, the second thoracic, or the upper three lumbar segments of the spine.

### *Dilation Centers*

Rapid spinal concussion, paravertebral nerve pressure, or sinusoidal stimulation, applied to the eleventh thoracic spinal segment will cause decided dilation of the stomach wall and a descent of this organ in its position.

Irritation of the nasal mucosa by the use of anaesthetics or otherwise will cause dilation of the stomach.

Concussion or other stimulation of the third thoracic, especially paravertebral nerve pressure, will cause contraction of the pylorus and dilation of the cardia of the stomach.

Spinal concussion, sinusoidal stimulation or paravertebral nerve pressure affecting the spinal

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nerve centers of origin situated within the neural arch of the fifth dorsal segment of the spinal column will cause the stomach to assume a more nearly vertical attitude with the pylorus dilated and open and the cardia constricted, which causes an emptying of the contents of the stomach into the duodenum.

This maneuver will cause distress in cases of catarrh, ulceration or any inflammation of the duodenum in a few moments' time and is an excellent physical means of diagnosis.

Raising the hyoid bone, which is best done as you stand behind a patient, will excite this phenomenon of emptying the stomach better and more effectually than stimulation of the fifth thoracic spinal segment or the nerve centers of origin contained therein, according to the claims of Dr. H. Jaworski.

## THE THYROID GLAND

### *Constricting Centers*

The most potent center for constriction of the thyroid gland is the spinal segment contained in the seventh cervical neural arch of the spinal column which may be best excited by rapid but intermittent concussion strokes applied to the seventh cervical spine or to the transverse processes.

Concussion of the middle cervical segments from the third to the fifth inclusive, will stimulate the centers of origin of the cervical nerves which directly ramify and supply the thyroid gland.

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The rapid sinusoidal treatment to the second cervical vertebra will affect the thyroid through the vagus nerves, and concussion will also constrict this gland when applied to the fourth and fifth cervical segments because of impulses transmitted directly to the thyroids by the phrenic nerves.

## THE TONGUE AND TONSILS

Concussion, rapid and intermittent, of the seventh cervical spine will cause constriction of the vascular system and especially the capillary circulation of the mucous coverings of the tongue and tonsils, and of the tissues of these organs.

## TEETH AND GUMS

*Center to Stimulate*

Concussion or sinusoidal stimulation of the second segment of the cervical region of the spine will cause direct stimulation of the nerve supply to the teeth and gums because of the communicating branches of the nerves originating in this segment, which join the trigeminal nerves which supply these organs.

*Center to Constrict*

The same treatment applied to the seventh cervical spine will constrict the vascular supply to the teeth and gums.

## THE UTERUS

*Center to Constrict*

Rapid but intermittent concussion of, or rapid sinusoidal stimulation will cause the most decided

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contraction of the uterine walls and of the blood vessels thereof.

Rapid sinusoidal stimulation applied to both sides of the spine of the fourth lumbar vertebra will, through the stimulation of the fourth pair of lumbar nerves, where they make their exit from the spine, cause stimulation and contraction of the uterine organ.

Sinusoidal stimulation of the tenth thoracic segment of the spine will cause dilation of the cervix of the uterus and this measure is said to cause childbirth to become almost painless.

## THE VAGINA

### *Constricting Centers*

Binasal sinusoidal stimulation will excite vasoconstriction of the capillary circulation of the mucosa of the vagina and of the musculature of the vaginal walls.

Concussion or sinusoidal stimulation of the upper three lumbar segments of the spine will cause the most decided contraction of the musculature of the vaginal walls and give tone to, and will assist greatly to overcome conditions of catarrh and leucorrhea.

## THE VAGUS TONE

### *Centers to Increase Vagus Tone*

Concussion of the seventh cervical spine will stimulate and increase vagus tone and concussion of the upper two cervical segments will also stimu-

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late the vagus tone because of a branch from an ansa between the first and second cervical pairs of nerves which join the pneumogastric.

Concussion given to the spines of the second and fourth thoracic vertebrae or nerve pressure to or near the spinal origin of the fourth pair of thoracic nerves will cause greater stimulation of the vagus nerves and their inhibitory control than will the same treatment applied elsewhere.

Dropping the head back as far as possible and raising the hyoid bone will also greatly increase vagus tone.

The rapid sinusoidal stimulation given to the same centers as is recommended for concussion above will stimulate and increase vagus tone.

Rectal dilation is a very efficient method of exciting and stimulating both vagus and splanchnic tone.

## VASO-MOTOR TONE

There are subsidiary nerve centers in the spinal cord that control the vaso-motor tone and that cause constriction thereof, and there are other centers which control the dilation thereof and it is an equilibrium between these dilator and constrictor influences that should maintain the normal amount of tonicity.

### *Constricting Centers*

Concussion, sinusoidal stimulation or paravertebral nerve pressure of the seventh cervical segment of the spinal column will cause decided vaso-motor constriction by the excitation of doubtless

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the chief vaso-motor constricting center in the spinal column.

The same treatment applied to the upper three segments of the lumbar portion of the spinal column will excite vaso-motor constriction of the vessels of the abdominal and pelvic cavities.

*Dilating Centers*

Concussion or sinusoidal stimulation applied to the lower four thoracic segments of the spine will cause general vaso-motor dilation which is most marked in the abdominal and pelvic viscera.

The eleventh thoracic segment or center of nerve origin contained therein when stimulated will produce the most specific impulse of dilation of any of the lower thoracic segments.

## THE VEINS

*Constricting Centers*

Concussion of the seventh cervical spine will prove the most efficient treatment for venous paralysis and concussion or sinusoidal stimulation applied to the upper three lumbar segments is an efficient auxiliary measure to concussion of the seventh spine in the treatment of venous congestion and varicocele conditions of the lower extremities and of venous engorgement in the pelvic and abdominal viscera.

Concussion or sinusoidal stimulation of the middle thoracic segments, from the second to the eighth, will stimulate the splanchnic areas but will

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not constrict as decidedly as stimulation of the upper three lumbar segments.

*Dilating Centers*

Rapid spinal concussion or sinusoidalization of the ninth, tenth, eleventh and twelfth thoracic segments will cause general relaxation and dilation of the blood vessels and veins.

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## Chapter III

## SPINAL CENTERS

The spinal segments, or the centers of origin of the spinal nerves which are contained in the spinal cord, within the neural canal of the spinal column, originate nerve energy, and also act as reflex transfer stations for all the different varieties of nerve impulses, excited by stimulation of the terminal endings of sensory nerves.

The nerves originating from the different nerve centers in the spinal cord vary quite materially in the nature of the vital impulses or energy which they receive, and which they conduct to the parts which they supply.

In this chapter it is our wish to consider the influences which the various nerve impulses, generated by the different centers of nerve origin, have upon the many viscera, organs and parts, which they supply.

We also wish to consider the results which may be obtained by concussion, when it is given to the spinous or transverse processes of the different vertebrae; the effects of sinusoidal stimulation when administered to the various spinal segments, containing the origin of the spinal nerves; also what may be accomplished by nerve pressure when applied in the paravertebral spaces, or to nerves at or near their spinal exit.

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The results obtained by the nerve impulses, excited by the above mentioned method of stimulation when applied to different nerve centers, vary quite materially in the nature of the vital phenomena produced within the different viscera and parts of the human organism, hence the great importance of an understanding of this very interesting subject.

It is in many cases rather difficult to study, separately, the effects of the stimulation of a special spinal center, independent of adjacent ones, because of their very close relation or their juxtaposition within the spinal cord and also because of their similarity in function. For this reason, we, in many cases, consider two or more centers of origin of spinal nerves collectively, and in many cases we study them both individually and collectively.

## FIRST AND SECOND CERVICAL SEGMENTS

In the neural arches of the first and second cervical vertebrae, are situated the centers of origin of the first four pairs of cervical nerves.

Stimulation of these two segments will excite the centers of origin of these four cervical pairs of spinal nerves and will affect all of the cranial nerves, to which they give off communicating branches.

We notice the effects of stimulation of the upper two cervical segments in the head region and in the organs of the special sense as the eyes, ears, teeth, gums, etc.

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Stimulation of the upper two cervical segments will influence the vagus nerves, because communicating branches are given off to them from a loop or ansa formed from the first and second cervical pairs of nerves, whose centers of origin are in the neural arch of the atlas.

Excitation of these upper two cervical segments, or centers of nerve origin, will also stimulate the phrenic nerves, because their principal centers of origin are contained in the neural arch of the second cervical vertebra.

Because of these facts, concussion or other stimulation of these segments or nerve centers of the spine will influence, to some extent, all the viscera supplied both by the phrenic and pneumogastric nerves.

Concussion, sinusoidal stimulation or nerve pressure, applied to these upper cervical segmental centers of nerve origin, will produce very decided effects as follows:

1 Stimulates the origin of the upper four cervical pairs of nerves.

2 Stimulates visual acuteness through communicating branches from the fourth pair of cervical nerves, which join the optic nerves.

3 Stimulates the cervical nerves, the branches of which join the auditory nerves.

4 Stimulates and affects the rapidity and regularity of the heart's action by exciting the centers of origin of the phrenic nerves, which are located in the neural arches of the axis and of the third cervical vertebra.

5 Stimulates the centers of origin of the re-

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current meningeal nerves and this affects the circulation and metabolic integrity of the brain substance and its covering membranes, which inclose and which supply nourishment to the structural tissues of the brain.

6 Stimulates the functional phenomena of the viscera of the trunk generally, because of the increase of vagus tone, engendered by the stimulation of the centers of origin of the communicating rami joining the vagi from the upper cervical nerves.

Loosening up the articulation between the second and third cervical vertebrae, or continued nerve pressure between the transverse processes of these vertebrae, will relieve or allay pain in the liver, spleen, gall-duct, pleura or pericardium due to phrenic involvement. Relieving interference with or stimulating the origin of the fourth pair of cervical nerves in some cases, is an effectual treatment for paralysis of the diaphragm, and this also improves the function of vision and also helps to regain or maintain the normal health of the gums and teeth.

## THIRD CERVICAL SEGMENTS

In the neural arch of the third cervical vertebra, is located the centers of origin of the fifth pair of cervical nerves, and also some of the cells of the centers of origin of the fourth pair of cervical nerves.

Stimulation of the third cervical segment has a very decided influence upon the phrenic nerves,

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as well as upon the fourth and fifth pairs of cervical nerves, and consequently upon the parts which they supply.

Stimulation by concussion, by the sine current or by nerve pressure, applied to the third cervical segment, will produce decided results as follows:

1 Excites myomotor action in the heart's muscles.

2 Will initiate heart action after syncope from different causes.

3 Will accelerate the rate of cardiac action and consequently increases the rate of the pulse.

4 Stimulation of this segment will increase the vaso-motor tone of the pulmonary organs.

5 Since the nerves from this segment control, to a great extent, the rythm of the heart's action, stimulation will abort arrhythmic paroxysms.

6 Stimulation of the centers of origin of the nerves in this segment will increase visual acuteness to some extent, and the health of the teeth and gums.

7 Stimulation applied to the third cervical segment will cause a similar effect to excitation of the centers of origin of the cervical nerves originating in the neural arch of the second cervical vertebra.

## FOURTH AND FIFTH CERVICAL SEGMENTS

The neural arches of the fourth and fifth cervical vertebrae contain the centers of origin of the fifth, sixth and seventh cervical nerves.

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Stimulation applied, by use of concussion, the sine current, or nerve pressure, will affect the origin of the contributory branches to the phrenic nerves, which are given off from the fifth cervical nerves, and also stimulates the centers of origin of communicating branches to the middle and inferior ganglia of the cervical sympathetic, which furnish branches to the cardiac ganglion of the sympathetic. The cardiac ganglion supplies the sympathetic and automatic nerve fibers to the thoracic viscera.

Mechanical stimulation, affecting the centers of origin of nerves located in the neural arches of the fourth and fifth cervical vertebrae will induce results as follows:

1 Stimulate the vaso-motor tone of the blood vessels of the lungs.

2 Cause contraction of the longitudinal fibers of the air passages of the lungs.

3 Will check pulmonary hemorrhage from tubercular or other lesions of the lung tissues.

4 Will correct the physical conditions of the air passage of the lungs associated with emphysemic asthma.

5 Will excite cardiac action, following temporary syncope, and will accelerate the rate of the cardiac cycles of action.

6 Concussion of the fourth and fifth cervical segments is an auxiliary measure in the treatment of goiter, especially exopthalmic goiter.

7 The adrenals may be stimulated to secrete a greater quantity of adrenalin by stimulation of the second, third and fourth cervical spinal seg-

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ments, which will increase the phrenic nerve impulses to them.

## SEVENTH CERVICAL SEGMENT

The seventh cervical spinal segment contains a very important spinal center, which is located within the neural arch of the vertebra prominens.

This center contains the cells of origin of the second pair of thoracic nerves, which have a very potent influence or control over the heart and the vaso-motor tone of the vessels of the general circulation.

Stimulation given by spinal concussion, nerve pressure, or the sinusoidal current, to the spinous or transverse processes of the seventh cervical vertebra, will excite and increase the generation and giving off of vital impulses by the centers of origin of the first, second and third pairs of thoracic nerves and more especially will these measures affect the action of the second thoracic pair of nerves.

Stimulation of centers of nerve origin contained within the neural arch of the seventh cervical vertebra, will induce decided and phenomenal influence over the vital and functional activity in all parts of the human organism, and we enumerate briefly as follows:

1 Increases cardio-motor action.

2 Increases the temperature of the body.

3 Increases the temperature of the extremities.

4 Causes contraction of the muscles of the heart.

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5 Causes a very decided and general vaso-constriction.

6 Overcomes dilation and valvular lesions of the heart.

7 Will relieve angina pectoris which is due to cardiectasis.

8 Reduces and cures exophthalmic goiter surely and very rapidly.

9 Increases tone of the arterial walls and accomplishes symptomatic cures of aneurysm.

10 Acts as an auxiliary treatment for pertussis and controls the paroxysms of coughing.

11 Acts as auxiliary treatment in cases of hay fever or hay asthma and nasal catarrh.

12 Increases the secretion of hydrochloric acid and is an auxiliary treatment for hypopepsia.

13 Will restore cardiac action when stopped by fainting, drowning or by chloroform inhalation.

14 Constricts the blood vessels of the nose, ears, eyes, lungs and kidneys and the mucous membranes of the nasal cavities.

15 Is an auxiliary treatment in cases of deafness, asthenopia, amblyopia, cataracts and tachycardia due to diminished vagus tone.

16 Is an auxiliary treatment of great value in the treatment of all diseased conditions of viscera and parts which are due to lack of vaso-motor or vagus tone.

17 Concussion of the seventh cervical will stop sneezing, abort bad colds, overcome parox-

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ysms of chills, equalize the circulation, dispel local congestion, and overcome vaso-motor paralysis and restore varicose veins to normal.

## FIRST AND SECOND THORACIC SEGMENTS

There is contained within the neural arches of the first and second thoracic vertebrae the centers of origin of the third and fourth pairs of thoracic nerves.

Spinal concussion, or the sinusoidal current, applied to the spinous or transverse processes of the first and second thoracic vertebrae, or nerve pressure applied to the paravertebral spaces by the side of the spinous processes of the second and third thoracic vertebrae, will stimulate the nerve or vital impulses of the spinal centers of origin of the third and fourth thoracic pairs of spinal nerves.

Special phenomena will occur as the result of stimulation of these nerves, and we briefly enumerate them as follows:

1 Will inhibit the heart's action.

2 Will strengthen the cardia motor action.

3 Will constrict the ciliary muscles of the eyes.

4 Will stimulate the parenchyma of the lung substance.

5 Will increase the tone of the sigmoid flexure of the colon (Abrams).

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## THIRD THORACIC SEGMENT

In the neural arch of the third thoracic vertebra is located the centers of origin of the fifth pair of thoracic nerves.

The fifth pair of thoracic nerves help to form the great splanchnic nerves, and are the first and uppermost pair of nerves which join into the formation of the solar plexus, which supplies the abdominal viscera.

Stimulation of the spinal centers of origin of the fifth pair of thoracic nerves, by the application of concussion, nerve pressure, or sinusoidal current, to the third thoracic segment will elicit results as follows:

1 Will stimulate the parenchyma of the stomach.

2 Will stimulate the tissues of the throat region.

3 Will cause contraction of the walls of the esophagus.

4 Will cause dilation of the cardiac end of the stomach.

5 Will cause contraction of the pyloric end of the stomach.

6 Will overcome spasms of the cardia and paroxysms of choking.

7 Will increase the symptoms of hypertrophic stenosis of the pylorus.

## FOURTH THORACIC SEGMENT

In the neural arch of the fourth thoracic vertebra, is situated the nerve centers of origin of the sixth pair of thoracic nerves.

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The sixth pair of thoracic nerves join in the formation of the great splanchnic nerves, but the white rami which are given off by the sixth thoracic pair of nerves, after joining the gangliated cords of the sympathetic, divide into two divisions, one of which joins the upper, and the other the downward stream of white rami communicantes, and for this reason, the sixth thoracic nerves are considered the central division point of the twelve pairs of the thoracic nerves.

Stimulation of the spinal center of origin of the sixth pair of thoracic nerves by the application of concussion, nerve pressure, or the sinusoidal current, applied to the fourth thoracic segment, will elicit results as follows:

1 Will stimulate the parenchyma of the spleen.

2 Will stimulate the central spinal nervous system.

3 Will excite an inhibitory influence upon the heart.

4 Will stimulate the heart muscle through the fourth thoracic nerves.

Nerve pressure applied in the paravertebral spaces, between the third and fourth spinous processes, if sufficient to cause sedation, will affect the integrity and action of the pneumogastric nerves, and will diminish the vagus tone and the functions of the viscera of the trunk, which are innervated by the vagi as follows:

1 Increases dilation of the heart and aorta.

2 Increases symptoms of abdominal congestion.

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3 Increases the symptom of diminished vagus tone.

4 Will cause dilation of the cardia of the stomach.

5 Will cause constriction of the pylorus of the stomach.

## FIFTH THORACIC SEGMENT

In the neural arch of the fifth thoracic vertebra are contained the nerve centers of origin of the seventh and eighth pairs of thoracic nerves.

The seventh and eighth pairs of thoracic nerves enter into the formation of the great splanchnic nerves, and they are responsible, to a great extent, for the integrity of the solar plexus.

Stimulation of the centers of origin of the seventh and eighth pairs of thoracic nerves, by the application of the spinal concussion, or the sinusoidal current, to the fifth thoracic segment will elicit the following results:

1 Will stimulate the parenchyma of the liver.

2 Will stimulate the secretion of the pancreas.

3 Will contract the parenchyma of the pancreas.

4 Will contract the capacity of the gall-bladder.

5 Will dilate the pyloric opening of the stomach.

6 Will cause the stomach to assume a vertical position.

7 Will overcome pyloro-spasm but does not affect stenosis or carcinoma.

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When pyloro-spasm or continued contraction still remains after the stimulation of the spinal centers contained in the neural arch of the fifth thoracic segment, then this must be due to stenoses, carcinoma or to some chronic condition of induration of the musculature of the pylorus.

## SIXTH, SEVENTH AND EIGHTH THORACIC SEGMENTS

In the neural arches of the sixth, seventh and eighth thoracic vertebrae is situated that portion of the spinal cord which contains the spinal centers of origin of the ninth, tenth, eleventh and twelfth pairs of spinal nerves.

The ninth pair of spinal nerves enter into the formation of the great splanchnic nerves and also affect the supra-renal capsules of the kidneys.

Spinal concussion or sinusoidal stimulation will stimulate the parenchyma of the adrenals and the secretion of adrenalin.

The ninth, tenth, eleventh and twelfth pairs of nerves collectively furnish all the spinal nerves which enter into the formation of the lesser or second splanchnic and the third or least splanchnic nerves.

Stimulation of the spinal centers of origin of the ninth, tenth, eleventh and twelfth pairs of spinal nerves by the use of spinal concussion or sinusoidal stimulation applied to the sixth, seventh and eighth thoracic segments and nerve pressure applied to these nerves at or near their spinal exits will excite the following phenomena:

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1 Will stimulate the parenchymatous tissues of the kidneys.

2 Will stimulate the lower two splanchnic nerves and the parts which they supply.

3 Will excite dilation of the lungs because of their connection with the phrenic nerve terminals.

4 Will cause general constriction and will increase the tone of the lower splanchnic zones generally.

5 Concussion of these centers alternated with concussion of the tenth and eleventh thoracic segments will increase kidney action.

## NINTH THORACIC SEGMENT

The first pair of lumbar nerves originate from a spinal nerve center of origin which is situated in the neural arch of the ninth thoracic vertebra.

Stimulation of the ninth thoracic spinal segment or the center of nerve origin contained therein, by the use of spinal concussion or sinusoidal stimulation, will elicit some phenomena as follows:

1 Will cause dilation of the gall-duct.

2 Will cause dilation of the gall-bladder.

3 Will stimulate the centers of origin of the principal nerve supply to the bladder.

4 Nerve pressure to the ninth thoracic nerves will stimulate the action of the adrenals.

5 Will relieve paroxysms of asthma due to a condition of atelectasis of the lungs.

Spinal adjustment to loosen up the articula-

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tion between the ninth and tenth thoracic vertebrae, and to thus relieve interference with the ninth thoracic pair of nerves, will reach some stubborn cases of asthma which will not respond to the ordinary adjustment.

## TENTH AND ELEVENTH THORACIC SEGMENTS

The second, third, fourth and fifth lumbar nerves originate from the spinal segments or centers of nerve origin, which are contained in that portion of the spinal cord, located in the neural arches of the tenth and eleventh thoracic segments.

These lumbar nerves ramify and supply the pelvic contents and therefore will stimulate the action and affect the integrity of the pelvic viscera, when they are excited to increased action by the ordinary methods of stimulation, applied to the tenth and eleventh thoracic segments, which contain the centers of origin of the lumbar nerves.

The principal and most important phenomenon excited by the stimulation of the ninth and tenth thoracic segments, or the centers of nerve origin contained therein, is the dilation of the vascular system especially, and also of the parenchymatous tissues, of the viscera of the abdominal cavity and vessels of circulation of the splanchnic zones.

Stimulation of the tenth and eleventh thoracic segments and consequently of the spinal centers of origin of the second, third, fourth and fifth lumbar pairs of nerves, by spinal concussion or sinusoidal stimulation, will excite the following phenomena:

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1 Will cause general vaso-motor dilation.

2 Will cause dilation of the heart and aorta.

3 Will accentuate the symptoms of an aneurysm.

4 Will increase the secretion of the intestinal lining.

5 Will increase the peristalsis of the alimentary canal.

6 Will excite dilation of contents of splanchnic zones.

7 Will increase the number or quantity of red blood cells.

8 Will increase the blood volume contained in the splanchnic zones.

9 Will increase the myo-motor or visceral tone, of the duodenum.

10 Will cause dilation of the liver, spleen, bowels, stomach, pancreas and kidneys.

11 By causing dilation of the spleen we may cause an increased production of red blood cells.

12 Will cause an increase of nutrient supply to the pancreas and increase its action.

13 Will overcome cases of spastic constipation by increasing the vascularity and secretion of the intestinal mucosa.

## TWELFTH THORACIC SEGMENT

The neural arch of the twelfth thoracic vertebra contains the spinal centers of origin of all of the sacral spinal nerves.

Spinal concussion or sinusoidal stimulation applied to the twelfth thoracic segment, which contains the centers of origin of the sacral nerves will

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stimulate the pelvic viscera or organs supplied by them.

One of the most noticeable of the phenomena excited by stimulation of the twelfth thoracic segment, is the contraction of the prostate.

Concussion or sinusoidal stimulation of the twelfth thoracic segment will also increase the tone of the cecum.

The twelfth thoracic segment, when stimulated, will also assist in the dilation of the organs of the circulation because of the connection of the nerves which are stimulated with the terminal endings of the pneumogastric nerves.

Sinusoidal stimulation applied to the twelfth thoracic segment will affect and increase the tonicity of the sphincters of the bladder and will assist in overcoming cases of incontinence of urine.

## THIRD TO EIGHTH THORACIC SEGMENTS COLLECTIVELY

Within the neural arches of the vertebrae, from the third to eighth inclusive, there is contained that portion of the spinal cord in which are situated the spinal centers of origin of all the spinal nerves furnishing contributory branches which enter into the formation of the solar plexus and of the splanchnic nerves.

Stimulation of these segments from the third to the eighth inclusive, which contain the centers of nerve origin of the thoracic nerves, from the fifth to the twelfth inclusive, by spinal concussion or by sinusoidal stimulation, will affect the entire

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splanchnic zones and general results may be observed as follows:

1 Will cause dilation of the pulmonary organs.

2 Will cause contraction of the splanchnic viscera.

3 Will increase the visceral tone of the entire splanchnic zone.

4 Will mechanically force blood from the splanchnic zones into the lungs.

5 Will overcome splanchnoptosis or tendency thereto from diminished splanchnic tone.

6 Will overcome any tendency to inguinal hernia and super-imposed weight upon the pelvic viscera.

7 Will overcome tendency to excessively large, fatty accumulation within the abdominal walls.

## THIRD TO FIFTH THORACIC SEGMENTS

In the neural arches of the third, fourth and fifth thoracic vertebrae, are contained the spinal centers of origin of the fifth, sixth, seventh and eighth thoracic pairs of nerves, which enter into the formation of the great splanchnic nerves.

Stimulation of these segments or the spinal centers of nerve origin contained therein, will cause stimulation and contraction of the viscera supplied by the great splanchnic nerves directly, and affects in this manner the following visceral phenomena:

1 Stimulates and contracts the liver.

2 Stimulates and contracts the spleen.

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3 Stimulates and contracts the stomach.

4 Stimulates and contracts the pancreas.

5 Stimulates and contracts the upper intestines.

6 Increases the amount of the circulation in the lungs.

## FIFTH TO EIGHTH THORACIC SEGMENTS

In the neural arches of the fifth, sixth, seventh and eighth thoracic vertebrae, are located the spinal centers of nerve origin of the ninth, tenth, eleventh and twelfth pairs of spinal nerves.

These nerves furnish all the spinal nerve rami which enter into the formation of lesser or second and of the least or third splanchnic nerves.

Stimulation of the fifth to the eighth thoracic segments, containing the origin of the ninth to the twelfth pairs of spinal nerves, by spinal concussion or sinusoidal stimulation, will cause certain results as follows:

1 Will stimulate pelvic organs.

2 Will stimulate and contract the kidneys.

3 Will stimulate and contract the omentum.

4 Will stimulate and contract the mesentery.

5 Will greatly increase the pulmonary circulation.

6 Will dilate the pylorus and contract the cardia of the stomach.

7 Will increase the tonicity of the lower splanchnic zones generally.

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## NINTH TO TWELFTH THORACIC SEGMENTS

In the neural arches, included in that portion of the spinal column consisting of the ninth, tenth, eleventh and twelfth spinal segments, are contained the spinal centers of nerve origin of all of the lumbar and of all of the sacral nerves.

These nerves ramify and supply the lower portion of the intestines and lower colon, and they are distributed to, and constitute the principal nerve supply to the pelvic organs or viscera and to the lower extremities.

Stimulation of the segments from the ninth to the twelfth thoracic segments inclusive, which contain the spinal centers of nerve origin of the lumbar and sacral nerves, by spinal concussion, sinusoidal stimulation, or by nerve pressure applied to the lumbar nerves at or near the points of their spinal exit will affect the integrity or vital function of all the parts which these nerves directly ramify and supply.

Another important consideration, in the application of stimulation to the lower four thoracic segments, which will cause stimulation of the lumbar and sacral nerves, is the connection which these lumbar and sacral nerves have with the terminal endings or afferent fibers of the pneumogastric nerves.

While the influence of stimulation of the lumbar nerves is to stimulate the lower bowels and pelvic organs which they directly supply, they have quite a different influence, when stimulated, or ex-

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cited upon the viscera which they supply directly, than upon the organs which they influence in a reflex manner.

The spinal centers contained in the lower four segments of the thoracic portion of the spine contain the chief subsidiary centers of dilation contained within the spinal column, and the dilation which is excited by stimulation of these spinal segments, affects both the parenchymatous tissue and vascular system of practically all of the viscera of the abdominal cavity.

Alternate and interrupted stimulation of the ninth, tenth, eleventh and twelfth thoracic segments, by the use of sinusoidal stimulation, or by the use of spinal concussion, applied either to the spinous or transverse processes of the lower four thoracic vertebrae, will cause the most decided dilation of all the organs of circulation and of the viscera of the upper two-thirds of the abdominal cavity.

Alternate and interrupted concussion of the lower four thoracic segments of the spine:

1 Will cause decided dilation of the heart.

2 Will cause decided dilation of the aorta.

3 Will cause dilation of the vaso-motor system.

4 Will cause an increase of the symptoms of aneurysm.

5 Will increase the area of aneurysmal dullness.

6 Will increase the murmurs from functional cardiac weakness.

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7 Will increase the visceral tone and the dull area of the duodenum.

8 Will excite dilation of the liver, spleen, stomach, kidneys and intestines.

## FIRST, SECOND AND THIRD LUMBAR SEGMENTS

The spinal centers of nerve origin are situated above the upper plane of the neural arch of the second lumbar vertebra, for this reason spinal concussion applied to the spinous or transverse processes of the upper three lumbar segments of the spine, does not affect spinal centers of nerve origin except in case of concussion of the first lumbar segment.

Empirically we find that by concussion or sinusoidal stimulation applied to the second lumbar segment, so as to stimulate the nerves coming from that portion of the spine, we excite the most decided and powerful constricting influences and contraction of the abdominal and of the pelvic viscera.

The influence of constriction, which is excited or engendered by concussion of the upper three lumbar segments of the spine, causes contraction of the vascular system or blood vessels and also the parenchymatous tissues of the viscera and organs of both the abdominal and pelvic cavities.

The chief center for spinal concussion or for sinusoidal stimulation to effect a general vasoconstrictor and parenchymatous contraction of the abdominal and pelvic viscera is the second lumbar segment.

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Concussion of the upper three lumbar segments will produce results as follows:

1 Will excite uterine contraction.
2 Will overcome atonic constipation.
3 Will overcome uterine hemorrhage.
4 Will excite contraction of the liver.
5 Will excite contraction of the spleen.
6 Will excite contraction of the stomach.
7 Will excite contraction of the intestines.
8 Will increase the tone of the colon and intestines.

## FOURTH AND FIFTH LUMBAR SEGMENTS

The fourth and fifth lumbar vertebrae contain no spinal centers of nerve origin within their neural arches, but they contain a portion of the divided ends of the spinal cord.

No doubt the effect produced by concussion of the fourth and fifth lumbar segments is due principally to stimulation of the lumbar spinal nerves where they make their spinal exit.

Stimulation of the fourth and fifth lumbar segments by sinusoidal current, by spinal concussion, applied to the spinous or transverse processes, or nerve pressure applied to the fourth and fifth lumbar nerves at or near their spinal exits, will cause contraction of the tissues and capillary circulation of mucous membranes of the bladder and this will overcome an atonic condition due to myo-motor insufficiency.

In closing this chapter in which we have briefly and incompletely given you a general outline of

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the results obtained by spinal concussion, sinusoidal stimulation or by nerve pressure applied to the vertebrae either separately or collectively, we would now like to make one suggestion which we believe if accepted and applied will be of much use to you and increase the efficiency of your work in spinal therapy.

Whenever it is desired by you to increase the functional activity of glandular structures of any of the organs or viscera it is best to apply stimulation, alternately and interruptedly, to both the centers which dilate and constrict the organ which you are treating.

By dilating the blood and lymphatic vessels of an organ, we increase the nourishment and liquid supply upon which the glands act and from which they secrete or excrete.

By exciting an alternate dilation and contraction of the blood vessels and parenchyma of a glandular organ we will furnish an increased amount of nutritive material, and by the stimulation of spinal centers of nerve origin we will increase the vital energy and functional activity of the cells of secretion and excretion and thus enable them to make more use of the increased nutritive supply.

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## Chapter IV.

In this brief chapter, we wish to consider very briefly those special ailments or functional derangements which may be benefited by the use of spinal concussion, nerve pressure or sinusoidal stimulation. We omit purposely those diseases which cannot be helped by these methods of treatment.

We would refer the reader, who is seeking information concerning the best method of treatment for diseases, which are not mentioned in this chapter, to a set of works by the author, consisting of two books, Spinal Treatment, Science and Technique, and Disease and Rational Therapy, published recently by the author of this work.

We take up the different troubles which we consider in this chapter in alphabetical order, so as to make this work a handy reference for the busy practitioner, and usually confine our suggestions to directions for the use of concussion and of the sinusoidal current, to the exclusion of other and often more efficient methods, for which see Spinal Treatment and Rational Therapy, by the author.

### ABDOMINAL INSUFFICIENCY

*Cause.* Diminished tone of the nerve supply to the abdominal walls and their visceral contents is the cause of the pendulous abdomen, and of the frequent splanchnoptosis, which is so common in people of middle age or subsequently.

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*Treatment.* An artificial abdominal support will relieve the symptoms of diminished splanchnic tone, by relieving the prolapsed condition of the viscera, but it will not effect a permanent cure. In fact, an artificial support engenders weakness of the muscles which should normally support the abdominal walls and their visceral contents in a comfortable poise.

The sinusoidal electrodes applied to the central thoracic segments, one on either side, from the third to the eighth inclusive, or more definitely to either side between the sixth and seventh thoracic segments, will contract the visceral supports, and also the walls of the abdomen.

The constant use of the sine current, and the exercise produced thereby, will strengthen the musculature of the abdominal walls and increase the strength of the ligaments which support the abdominal viscera.

Massage and kneading of the abdominal walls will assist in the dissipation of the accumulated fat beneath its integument. Exercise is also an important matter in the treatment of men of sedentary habits, which are more prone to corpulency and pendulous abdomens.

## ACID CONDITIONS

*Treatment.* The anode or positive pole attracts oxygen from any local zone. Oxygen is an acid maker, hence removing it, will relieve pain.

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## ALBUMINURIA

*Definition.* Albuminuria is due to filtration of the soluble proteids through the glomerular tufts of the kidneys and to degeneration of the epithelial cells of the renal tubules, and is a result of an associated hyperaemic condition and general dilation of the parenchyma of the renal organs.

*Treatment.* The elimination of albumen may be stopped by the application of concussion or of sinusoidal stimulation over the seventh cervical spinous or transverse processes, which will constrict the parenchyma and also the circulation of the kidneys.

Concussion or the sine current applied over the seventh cervical and the upper three lumbar segments alternately will produce a more decided constriction of the capillary circulation and parenchyma of the kidneys, and will prove a more effective treatment than stimulation applied to either of these centers alone.

Concussion or sinusoidal stimulation applied to the spinous or transverse processes of the sixth, seventh and eighth thoracic vertebrae of the spinal column, will cause constriction of the parenchyma of the kidneys, and this treatment may be applied in connection with that which is recommended in the former paragraph.

*To Increase Symptoms.* We may initiate the elimination of albuminuria from the normal and healthful kidneys by the use of concussion or other stimulation over the tenth and eleventh thoracic segments. This treatment will excite dilation of

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the parenchyma and of the vessels of the circulation of the kidneys, which will cause a condition which will permit the filtration of the soluble proteids.

To accomplish best results in the treatment of Bright's disease or any other pathological condition in which there is decided derangement of the functional and histological alterations of the renal organs, the writer would recommend the methods of treatment described in Rational Therapy (pages 173 to 177).

## AMBLYOPIA

*Definition.* Amblyopia is a condition of dimness of vision, which is often due to diminished vagus tone.

*Treatment.* This condition may be helped and overcome by spinal concussion or by sinusoidal stimulation applied to the seventh cervical spinous or transverse processes, as this will increase the vagus tone, and consequently the visual acuteness.

## AMENORRHEA

*Definition.* Amenorrhea is an absence of the monthly menstrual periods, and this condition is present normally during pregnancy and after the menopause, and may result from different pathological conditions.

*Treatment.* Amenorrhea, which is due to anemia, may be overcome by stimulation of the nerves which supply those organs, which will increase the volume of the blood and the number of red blood cells.

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1 This may be accomplished by concussion applied to the origin of the nerves, which will cause dilation of the tissues of the blood-making organs, and which also will cause general dilation of the vascular system.

2 To accomplish both an increase in the number of the blood cells and in the volume of the blood stream, apply concussion or sinusoidal stimulation to the tenth thoracic segment of the spinal cord

3 A more decided effect may be produced by concussion or by use of the sine current, when it is applied alternately to the tenth thoracic vertebra to excite dilation, and then to the second lumbar vertebra to cause constriction of the blood-making organs.

4 We may still further enhance the efficiency of our treatment by using concussion or sinusoidal stimulation over the third, fourth and fifth thoracic segments, which contain the centers of origin of the nerves which directly supply the blood-making organs, in addition to the measures of treatment mentioned above.

*Anemic Amenorrhea.* When this condition is due to chronic and wasting diseases, relief may be obtained by the application of rational methods of treatment for the restoration of health and freedom from the chronic form of disease, which is the cause thereof.

Neiswanger recommends the following: "Negative galvanism is a vaso-motor dilator, bringing increased blood supply to the parts. Apply vaginal electrode within the vault of the vagina with the positive pad over the abdomen. Use forty ma. ten

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minutes every second day. The result in one month will restore the normal condition."

## ANEMIA

*Definition.* Anemia is a condition in which there is a deficiency in the amount of the blood corpuscles or some other element or elements or constituents of the blood.

*Treatment.* The measures recommended above for the treatment of anemic amenorrhea are the best and most efficient methods of treatment for anemia by any one depending exclusively upon spinal stimulation, but there are auxiliary methods and better methods for the treatment of this condition. (See Rational Therapy, page 133.)

## ANEURYSM

*Definition.* Aneurism is a pathological condition of an artery in which there is diminished myomotor tone of the arterial walls and a consequent dilation thereof, forming an aneurismal sac.

*Treatment.* Spinal concussion or sinusoidal stimulation applied to the seventh cervical spinous or transverse processes will increase the tone of the musculature of the arterial walls and will effect a symptomatic cure.

Much better results may be obtained in the treatment of aneurysm by first adjusting the second thoracic vertebra to relieve all interference with the second thoracic pair of nerves, after which the concussion will prove more efficient, and less vigorous concussion will be required to accomplish results.

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The sine current or concussion stimulation applied to the upper three lumbar segments of the spine will excite decided vaso-constriction and myomotor action which will affect the blood vessels of the abdominal cavity, and will assist in restoring to normal the abdominal aneurysms.

## ANGINA PECTORIS

*Definition.* This is a spasmodic paroxysm and a very painful affection of the heart, and is symptomatic of different cardiac affections. Anginoid pains may be due to aneurysm, and in this and in other cases, the angina pectoris may not be associated with cardiac affections.

*Treatment.* Concussion or sinusoidal stimulation applied to the seventh cervical spine will effect a cure, or will relieve the symptoms of angina pectoris due to cardiac weakness.

The same methods of stimulation, when applied to the third and fourth dorsal spinous or transverse processes, will produce excellent results in the treatment of angina pectoris, which is due to spasms of the cardiac muscles.

## ANIMAL PARASITES

*Etiology.* Animal parasites are due to a lack of strength and activity of the digestive ferments of the alimentary tract.

*Treatment.* The rational treatment for animal parasites by the use of spondylotherapy is to relieve interference with the spinal nerves, supplying the digestive glands, by spinal adjustment and to

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stimulate their centers of origin, and thus increase the impulses which they supply to the glands which secrete and furnish the digestive ferments of the alimentary tract.

Concussion or sinusoidal stimulation should be applied to the thoracic segments from the third to the eighth inclusive, as the neural arches of this portion of the spine contain the centers of origin of the nerves which supply the splanchnic zones.

## ANKYLOSIS

*Definition.* Ankylosis is a solid union of one or more of the synovial articulations of the skeletal structure or frame-work of the body.

*Treatment.* For efficient and successful methods of treatment for ankylosis, see Little Ailments, (Burgess) or Rational Therapy (Gregory).

## APHONIA

*Definition.* Loss of power of speech.

*Treatment.* For cases of simple aphonia, use the galvanic current. Place a positive felt covered electrode, three or four inches in length, at back of neck. Bend a flexible electrode over the larynx so that it will cover both sides. Wet both sides with sodium bicarbonate solution. Give fifteen ma. and treat ten minutes. Next apply the negative electrode on one side and positive on the opposite side of the larynx. Regulate the current so as to cause strong contractions of the vocal apparatus for a few minutes.

After five or six treatments with the galvanic

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current, use the slow sinusoidal and increase the current from zero until strong, sensible and painless contractions are secured. A duration of the entire treatment should be about ten minutes and should be repeated three times per week.

## APPENDICITIS

*Definition.* Appendicitis is an inflammation of the vermiform appendix, but in surgical operations it proves more often to be an imaginary trouble.

*Treatment.* When there is spasm or cramp of the appendix or of the abdominal viscera, which sometimes extends to the abdominal walls and to the lower extremities, the symptoms may be quickly relieved by concussion applied to the eleventh thoracic vertebra. This will produce a decided dilation and relaxation of the tissues involved in the spasmodic phenomenon, and will relieve the pain and distress.

Concussion of the eleventh thoracic segment, together with an adjustment thrust applied to the second lumbar vertebra, will readily relieve a great majority of the cases of acute or chronic appendicitis in from one to ten minutes' times, and these measures of treatment have accomplished cures which have proven to be permanent in a great majority of the cases which have come under the treatment and observation of the author.

## ARRHYTHMIA

*Definition.* Arrhythmia is an irregularity of the action of the heart, which may be due to dimin-

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ished vagus tone and consequent loss of inhibitory control, or it may be due to an interference of the accelerator nerves of the heart.

*Treatment.* Concussion of the middle or third cervical will accelerate the heart's action. Concussion of the seventh cervical will usually increase the inhibitory control by stimulation of the vagus tone. Concussion or pressure applied briefly to the seventh cervical segment will decidedly stimulate the vagus tone and give relief in these cases.

## ASCITES

*Definition.* Ascites is an effusion of the sanguinous elements of the blood into the viscera and into the surrounding tissues of the abdominal cavity.

*Treatment.* First increase the vaso-motor tone by stimulation of the subsidiary centers of vaso-constriction, the chief of which are situated in the neural arch of the seventh cervical vertebra, by the use of concussion or sinusoidal stimulation.

The application of concussion or sinusoidal stimulation to the upper three lumbar segments will also stimulate the vaso-motor tone of the splanchnic zones. See Rational Therapy for better and more efficient methods of treatment for ascites and its complications.

## ASTHMA

*Treatment.* Asthma may be relieved, when due to cardiac weakness, by concussion of the seventh cervical spinous or transverse processes to increase the tone of the heart.

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Asthma, due to an emphysemic condition of the pulmonary organs, may be relieved by concussion applied to the fourth and fifth cervical vertebrae, which will cause constriction of the lungs.

Asthma, associated with atelectasis of the lungs, is best relieved symptomatically by concussion or sinusoidal stimulation applied alternately to the sixth, seventh and eighth spinous or transverse processes.

*Bronchial asthma* may be relieved by excitation, causing contraction of the lungs. Apply the rapid sinusoidal current by using one electrode over the spine of the fourth and fifth cervical vertebrae, and the other electrode over the sacrum.

The treatment should continue from fifteen minutes to one hour each day. For better and more efficient and expedient measures for the positive cure of asthma see Rational Therapy, by the writer.

## ATAXIA, LOCOMOTOR

*Definition.* Locomotor ataxia is a disease of the afferent or sensory tracks of the spinal cord associated with slight but an increasing loss of the power of locomotion.

*Treatment.* Spinal concussion or sinusoidal stimulation applied to the tenth and eleventh thoracic segments of the spine will excite vaso-dilation, and will increase the nutrition of the spinal cord, and these measures will prove excellent auxiliary methods in the rational treatment of this disease.

The sinusoidal stimulation and the muscular contraction which is produced thereby, is an excellent measure in restoring and maintaining the nor-

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mal tonicity of the musculature. For other and more effective methods of treatment of locomotor ataxia, see Rational Therapy and also Spinal Treatment, by the writer.

## BEARING DOWN PAINS

*Definition.* This is a heaviness or sense of weight which is felt in the splanchnic zones, and more especially in the pelvic organs of the female.

*Treatment.* This symptom may be overcome by stimulation of the splanchnic vaso-motor and nervous mechanism. In case of bearing down pains in the pelvis, the symptoms may be relieved by stimulation of the upper three lumbar segments of the spine.

Sinusoidal stimulation may be applied by placing the electrodes upon each side and between the spinous processes of the sixth and seventh thoracic vertebrae, which will excite and stimulate the nerve supply of the splanchnic zones.

## BLOOD PRESSURE

Blood pressure may vary from the normal, and there may be a decreased or increased blood pressure, which may be due to hypertonic or hypotonic conditions of the vaso-motor system.

*Treatment.* Hypertonic, or increased blood pressure, may be relieved by stimulation of the third and fourth thoracic spinal segments, which will tend to increase the inhibitory control of the vaso-motor apparatus.

Hypotonic conditions, associated with subnor-

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mal blood pressure, may be relieved by the different methods of stimulation applied to the seventh cervical spinal segment, and this measure of treatment will also reduce blood pressure which is produced because of the failure of the normal strength of the action of the heart. Hypotention of the circulation may be overcome by stimulation of the vaso-motor mechanism by concussion of the seventh cervical spine or the second lumbar segment.

## BLOOD CORPUSCLES

*To increase number of red cells.* The red cells of the blood may be increased by concussion applied to the tenth thoracic segment of the spine, which will dilate the spleen and other blood-making organs.

A still greater increase in the number of red blood cells may be produced by alternate stimulation of the tenth thoracic and the second lumbar segments of the spine, by means of which maneuvers, we alternately increase and decrease the blood supply in the cell producing organs.

A further stimulation and increase in the formation of the red blood cells may be induced by adjustment of the sixth thoracic vertebra, and by stimulation of the centers of origin of the sixth thoracic nerves, by the application of stimulation applied to the spinous or transverse processes of the upper three lumbar vertebrae.

The volume of the blood may be increased by the same measure as will increase the formation of the blood corpuscles.

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## BRADYCARDIA

*Definition.* Bradycardia is an abnormal and slow action of the heart.

*Treatment.* Bradycardia may be symptomatically relieved or cured by concussion of the second and third cervical segments of the spine, which will stimulate the centers of origin of the phrenic nerves which exert an eccelerating influence upon the action of the heart.

## BRIGHT'S DISEASE

*Definition.* This is a disease of the kidneys associated with marked cloudy swelling of the renal organic tissue structures, and one of the chief symptoms is albuminuria.

*Treatment.* The symptom of the elimination of albumin by the kidneys and also the renal enlargement may be relieved by concussion applied to the seventh cervical spine, and the effects of the treatment may be enhanced by alternate concussion of the second lumbar segment of the spine.

Concussion applied to the sixth, seventh and eighth thoracic vertebrae will stimulate the centers of origin of the nerves directly supplying the kidneys, and this measure will constrict the parenchyma of the renal organs.

The alternate concussion of the seventh cervical, and of the sixth, seventh and eighth thoracic, and of the upper three lumbar vertebrae, will produce the best results in controlling both the condition of the kidneys and the elimination of albumin.

Much better results may be obtained in the

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treatment of this disease by the use of spinal adjustment first to relieve interference with the nerve supply, which will influence and maintain the renal action, in connection with the stimulation of the spinal centers to control the symptoms. (For description and illustration of improved methods of adjustment, see Spinal Treatment, by the writer.)

## BRONCHITIS

*Definition.* This is an inflammation which is usually associated with an excessive excretion of the mucous membranes of the bronchi.

*Treatment.* Concussion of the seventh cervical spinous or transverse processes, or the application of the sinusoidal current to this segment will constrict the capillary circulation of the mucous membranes of the bronchi, and will thus relieve temporarily the excessive secretion and inflammation.

Adjustment of the second thoracic vertebra is much more effective in accomplishing permanent results in the treatment of this ailment.

The sine, one electrode over the spines of the fourth and fifth cervical vertebrae, and the other over the sacrum, fifteen minutes to an hour every day, is also a helpful measure of treatment for bronchitis and bronchial asthma. (Abrams.)

## CALCULI BILIARY

*Treatment.* The spasm which is produced by the passage of biliary calculi or gall stones may be relieved by exciting or stimulating the ninth thoracic segment, which will dilate both the gall

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bladder and the gall duct, and facilitate the passage of the gall stones.

Spinal adjustment, to relieve interference with the nerve supply to the liver, will prevent the formation of gall stones, and will also relieve the pain arising from the passage of them.

## CALCULI RENAL

*Definition.* Renal calculi are concretions which are formed in the kidney tubules and in the pelvis of the kidney.

*Treatment.* The spasmodic pain excited by renal calculi may be readily relieved by stimulation of the tenth and eleventh thoracic segments of the spine, which will excite dilation and relaxation and relieve any spasm of the renal organs.

Diagnosis of the presence of renal calculi may be made certain by causing an alternate contraction and dilation of the kidneys, which will also engender alternate paroxysms of pain, especially prominent when the contraction of the kidneys is produced and there is relief from pain when the dilation of them is caused.

## CARDIOPTOSIS

*Definition.* This is a condition in which the heart is prolapsed slightly from its normal situation.

*Treatment.* Concussion or sinusoidal stimulation applied to the seventh cervical spinal segment will constrict the walls of the heart and its supporting tendons, and will draw it upward into its normal position.

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Adjustment of the second and fourth thoracic vertebrae will produce more permanent results than will the concussion, in restoring the efficiency of the principal nerve supply to the heart which will maintain the integrity of this organ and its supporting tissues.

## CARDIOSPASM

*Definition.* Cardiospasm is a spasmodic contraction of the cardiac end or upper entrance into the stomach, which condition is associated usually with dilation of the esophagus, and these phenomena are associated with choking attacks.

*Treatment.* Immediate relief from cardiospasm, or from choking attacks, may be obtained by concussion of the third thoracic spinal segment or by nerve pressure applied to the fourth pair of spinal nerves, which are beside of and even with the third thoracic spine.

## CATARACT

*Definition.* Cataract is a condition of opacity of the chrystalline lens of the eye.

*Treatment.* Concussion or other stimulation applied to the upper two cervical segments will stimulate the centers of origin of the upper cervical nerves which enter into the formation of the cervical plexus.

The cervical plexus gives off communicating branches to the optic and other cranial nerves. Stimulation of the upper two cervical segments,

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therefore, will assist materially in the treatment of cataract.

Concussion of the seventh cervical spinous or transverse processes will also assist materially in clearing up the condition of opacity of the chrystalline lens which obstructs the vision.

## CATARRH

*Treatment.* Catarrh of the nasal passages may be relieved symptomatically by concussion of the seventh cervical spinous or transverse processes, or by sinusoidal stimulation of this segment, which measures will reduce the capillary circulation of the mucous membranes of the nasal cavities, and consequently check the catarrhal discharge therefrom.

The electrodes of the sinusoidal apparatus may be applied to the middle cervical region, so as to stimulate the origin of the third and fourth cervical nerves, and this measure will assist in the treatment and cure of nasal catarrh.

## CHANGE OF LIFE

Change of life or the menopause is a marked period or change in the life of all women reaching that age or period of life, from forty to forty-five years of age.

*Treatment.* Excessive hemorrhage, the rather common pathological symptom of this period, may be quickly and easily checked by concussion of the second lumbar vertebra, or by stimulation of the upper three lumbar segments alternately.

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Sinusoidal stimulation of the second lumbar and of the middle thoracic segments will tend to overcome the splanchnoptosis due to the lack of visceral tone, which is common at this age of life.

For more rational and more efficient methods of treatment for complications in connection with the change of life, try spinal adjustment, which is more efficient in affections of this nature than is spinal concussion. (See Spinal Treatment, by the author.)

## CHEST EXPANSION

*Treatment.* The lack of proper expansion of the chest may be due to failure of expansion of the upper parts of the lungs. This condition may be relieved by stimulation of the fifth, sixth, seventh and eighth thoracic segments, which will cause dilation and expansion of the lungs, while at the same time this measure will cause constriction of the splanchnic zones. This will aid mechanically in squeezing the contents of the addominal cavity into the thoracic cavity.

## CHILL

*Definition.* A chill is a nervous condition, associated with an external subnormal temperature and an internal congestion, and usually there is internal fever present.

*Treatment.* A chill or chilliness may be quickly relieved by concussion of the seventh cervical spinous or transverse processes, which will increase the temperature of the body and which will

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also equalize the circulation. For other potent, efficient and more expedient methods, see Rational Therapy.

## CHOKING ATTACKS

*Definition.* Stoppage of food in its passage through the esophagus because of dilation thereof in connection with cardiospasm.

*Treatment.* Choking attacks, which are due to cardiospasm, may be quickly relieved by nerve pressure or by spinal concussion applied to the spinous or transverse processes of the third and fourth thoracic vertebrae.

## CHOLERA INFANTUM

*Definition.* This is a disease in which there is an inflammatory condition and excessive secretion of the intestines, which is associated with purging and with vomiting.

*Treatment.* Relief of this condition may be obtained by concussion or other stimulation of the upper three lumbar segments which will stimulate, and which will also constrict and overcome the hyperemic condition, and the glandular secretions and the consequent discharge from the intestines.

This trouble is easily and quickly overcome in children by physical methods such as spinal adjustment or rapid concussion applied to the second lumbar segment, when medicine will fail to accomplish any satisfactory or permanent results.

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## CHLOROSIS

*Definition.* This is an anemic condition more common with girls before or about the time of reaching the age of puberty.

*Treatment.* Concussion or other stimulation applied alternately to the tenth thoracic and second lumbar segments, to increase the number of corpuscles and the volume of the blood, will overcome chloro-anemia. There are other measures which will assist in the rational treatment of this trouble. (See Rational Therapy.)

## CIRCULATION SPLANCHNIC

*To increase circulation.* Concussion of the tenth and eleventh thoracic segments will increase the congestion and the circulation of the splanchnic zones.

*To decrease circulation.* Concussion of the seventh cervical and the second lumbar vertebrae will constrict the splanchnic circulation.

*To stimulate circulation.* Concussion or other stimulation applied to the middle thoracic region, from the third to the eighth thoracic segments inclusive, will cause constriction and decided stimulation of the entire splanchnic areas.

## COLD EXTREMITIES

*Treatment.* Concussion of the seventh cervical spine will tend to equalize the circulation and thus warm the extremities, and this measure will also increase the temperature of the body.

Much better results may be obtained by other

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measures of treatment for cold extremities. Try the use of the measures recommended in Rational Therapy, which are quickly successful; and also the methods of Father Kneipp, which are excellent.

## CONSTIPATION

*Definition.* A failure of bowel action, because of failure of secretion of the glands of the alimentary canal, or because of an atonic condition and a consequent lack of peristalsis of the intestinal musculature.

*Treatment.* For spastic constipation, associated with a costive condition, treat by the application of concussion to the eleventh thoracic vertebra, or by the use of sinusoidal stimulation, using one electrode over the tenth thoracic and the other electrode over the front of the abdomen, or applied by using a rectal applicator while the other is applied to the tenth thoracic segment.

*Atonic Constipation.* Concussion may be applied to the upper three dorsal segments or the sinusoidal stimulation may be used by applying one electrode over the second lumbar spine, and the other may be applied by use of the rectal applicator to the rectal spincters and thus to the coccygeal ganglion. Treatment by the sinusoidal current should be given twenty to thirty minutes at each seance, and repeated three times per week.

## CONSUMPTION

*Treatment.* Stimulation of the spinal centers of nerve origin is an auxiliary method of treat-

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ment of merit in all cases of tubercular infection of the lungs. One of the most important effects produced by spinal stimulation is the results of the treatment by which we obtain an increase in the number of red blood cells, and in the volume of the blood, which condition is autoprotective against tubercular development.

*To Increase Blood Supply.* Apply concussion or other stimulation to the tenth thoracic spinal segment, which will dilate the spleen, increase the production of red cells and help to overcome the anemia of the lungs.

We may obtain better results by applying concussion to the tenth thoracic and the second lumbar segments alternately, as we may, in this way, secure alternate dilation and contraction of the spleen, pancreas, etc., which will prove more effective in increasing the amount of the red blood cells and of the volume of the circulation.

Still better results may be obtained by concussion applied to the fifth, sixth, seventh and eighth thoracic vertebrae to stimulate the blood-making organs, in addition to the alternate contraction and dilation which is caused by the alternate stimulation of the tenth thoracic and the second lumbar vertebrae.

For specific information concerning the treatment of various phases and varieties of pulmonary diseases, see subsequent pages under heading of pulmonary diseases.

## CORYZA

For the best treatment for coryza, see catarrh.

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## COUGHS

There are coughs from various causes, but there is usually some inflammatory trouble of the air passages, and, therefore, attacks of coughing may usually be relieved by concussion of the seventh cervical spinous or transverse processes, which will relieve the hyperemic condition of the mucosa of the air passages and consequently the irritability thereof.

Some doctors report excellent success in relieving the paroxysms of whooping cough, by the application of concussion to the seventh cervical spine.

## DIABETES INSIPIDUS

*Definition.* This is a condition in which there is an enormous amount of the kidney secretion from day to day. The amount sometimes reaching several gallons in twenty-four hours.

*Treatment.* Measures to constrict the parenchymatous tissues and also the blood vessels of the kidneys will no doubt mitigate the symptoms of this malady very quickly and promptly. Apply concussion to the seventh cervical spine, to the sixth, seventh and eighth thoracic vertebrae and to the second lumbar, and by so doing, you will stimulate the constriction of the blood vessels and contraction of the parenchyma of the renal organs.

## DIABETES MELLITUS

*Definition.* This is a disease in which there is present an excessive quantity of sugar in the renal secretions.

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*Treatment.* Apply spinal concussion to the seventh cervical and the second lumbar vertebral segments alternately to produce constriction of the renal circulation.

Apply spinal concussion to the fifth thoracic segment which will both stimulate and increase the secretion of the pancreas, and the secretion of these glands will prevent the elimination of the sugar and thus check the glycosuria.

Dugan says that diabetic patients may be so weak that excessive exercise may excite proteid metabolism. From twelve to one hundred and twenty contractions per minute, produced by the sine current, will exercise the muscles sufficiently without producing the above results.

Apply one moistened pad electrode to the tenth dorsal segment and the other to the abdomen, and next use one electrode on the second lumbar instead of the tenth dorsal vertebra, and continue the seance from twenty to thirty minutes, and repeat the treatment three times a week.

## DIARRHEA

*Definition.* Diarrhea or dysentery is an excessive action of the glands of the intestines, and a consequent excessive discharge from the bowels.

*Treatment.* Spinal adjustment or spinal concussion applied to the second lumbar vertebra will, because of the vaso-constrictor influence of the nerves from this segment upon the bowels, surely and immediately check the excessive secretion and discharge from the bowels.

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The spinal adjustment will prove more permanent in effect than spinal concussion. Concussion may produce more potent or efficient, temporary results. Acute cases of diarrhea may be completely and parmanently relieved by a single treatment.

## DROPSY

*Definition.* Dropsy is due to diminished vaso-motor tone, which permits of the transfusion of the liquor sanguinis elements of the blood into the perivascular spaces.

*Treatment.* The first and most necessary measure in the treatment of dropsical conditions is to overcome the lack of vaso-motor tone. Use spinal concussion applied to the seventh cervical spinous or transverse processes, and if the dropsy is in the abdominal cavity, we may still further help or abate the symptom by concussion of the upper three lumbar segments.

Dropsy of the brain is best relieved by concussion of the seventh cervical spinous or transverse processes, which will constrict the circulation of the brain.

For more specific and more efficient methods of treating the diseased condition, which may be indicated by the presence of dropsical effusion, the reader is referred to Rational Therapy, page 158.

## DYSMENORRHEA

*Definition.* Dysmenorrhea is painful menstruation.

*Treatment.* If the painful menstruation is due to constriction of the cervix of the uterus, the trou-

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ble may be relieved by concussion of the tenth thoracic vertebra.

Painful menstruation due to an inflammation of the endometrium, may be relieved by concussion of the second lumbar vertebra, which will constrict the capillary circulation of the mucosa, and thus relieve the inflammatory condition.

## EMESIS

*Definition.* Emesis or vomiting is a reverse action of the stomach which causes the ejection of the food backward instead of passing the contents of the stomach onward.

*Treatment.* Temporary relief may be obtained from vomiting by exciting constriction of the cardia and dilation of the pylorus of the stomach, which will cause the stomach to empty its contents into the duodenum. This may be done by concussion of the fifth thoracic spinous or transverse processes, or by nerve pressure applied on the right side of the spinal column, beside of and even with the fifth thoracic spine.

To relieve the cause of vomiting, which is due to reflex neurosis, especial attention should be given to the intervertebral foramina affecting lumbar nerves and to the lower orifices of the body, and especially to the cervix of the uterus in cases of pregnancy.

Vomiting may be checked and controlled by raising the hyoid bone, which will cause a more nearly vertical attitude of the stomach and dilation

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of the pylorus. This will cause the stomach to empty its contents into the duodenum.

## EMPHYSEMA OF THE LUNGS

*Treatment.* This condition may be overcome temporarily by spinal concussion or sinusoidal stimulation applied to the fourth and fifth cervical vertebrae. See Pulmonary Emphysema.

## ENDOMETRITIS

*Treatment.* According to (Rice) prepare a large negative pole and place over the lower part of the abdomen. The writer would suggest placing the electrode over the second lumbar. Through the speculum introduce an amalgamated sound, connect with positive pole. Continue treatment five to ten minutes. Apply from twenty to fifty ma. Repeat these seances three times per week.

## ENTERITIS

*Definition.*—Inflammation of the mucosa of the intestines.

*Treatment.* Use spinal adjustment or spinal concussion over the second lumbar segment. Use magnesia sulphate internally in small doses.

## ENTERO-COLITIS

*Definition.* This is an inflammation of the mucous linings of both the small and large intestines.

*Treatment.* Quick relief may be obtained by adjustment of the second lumbar or by spinal concussion applied to the second or to the upper three lumbar segments of the spine.

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## ENURESIS

*Definition.* Enuresis is incontinence of urine.

*Treatment.* This ailment may be overcome by adjustment of the first lumbar vertebra and also may be relieved by concussion of the second lumbar, and of the fourth and fifth lumbar segments. Enuresis, enteritis, enterocolitis and endometritis may all be relieved by stimulation of the coccygeal ganglion by rectal dilation.

## EPISTAXIS

*Definition.* Epistaxis is nose bleeding.

*Treatment.* Nose bleeding may be stopped almost instantly by adjustment of the fourth cervical vertebra or by rapid concussion applied to the seventh cervical spine.

## ESOPHAGISMUS

*Definition.* This is a spasm of the esophagus which is due ordinarily to excessive or increased vagus tone.

*Treatment.* If the spasm of the esophagus is due to increased vagus tone, then it may be relieved by paravertebral pressure applied to the intervertebral space between the third and fourth spinous processes.

## EXOPHTHALMIC GOITRE

*Definition.* Enlargement of the thyroid glands associated with protrusion of the eye balls and with cardiac affections.

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*Treatment.* One of the most successful treatments for exophthalmic goitre is concussion of the seventh cervical spine, in addition to adjustment of the second and fifth thoracic vertebrae.

This treatment will excite vascular constriction of the capillary circulation of the parts affected, and will overcome the cardiac complications.

## FEVER

*Treatment.* Spinal concussion causes an over action of the nervous system, which is a prime factor in the production of fever, therefore, spinal concussion is not a remedy for fever. For methods to relieve and reduce fever, see Rational Therapy.

## FLOATING KIDNEYS

*Treatment.* For definition and helpful methods of treatment of cases of floating kidneys, see article (p. 143) entitled, "Kidney Prolapse."

## FREQUENT URINATION

For treatment, see methods recommended for enuresis, ante.

## GASTRITIS

*Definition.* This is an inflammation of the stomach.

*Treatment.* Use the slow sinusoidal current. Apply one pad over the fourth dorsal spinal segment, and the other over the stomach. Continue sine current for fifteen minutes, and repeat treatment daily. Stimulation of the fifth dorsal segment will empty stomach by dilating the pylorus.

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## GASTROPTOSIS

*Definition.* Prolapsus of the stomach.

*Treatment.* Use spinal concussion by applying rapid strokes to the seventh cervical spine, and also to the spines of the middle thoracic vertebrae from the third to the fifth inclusive. Stimulation of these centers will cause the stomach to assume its normal position or elevation.

The use of sinusoidal stimulation, giving five to ten minutes at each seance, daily or on alternate days, will increase the strength of the musculature which supports the splanchnic viscera.

## GLYCOSURIA

*Definition.* The elimination of sugar by the kidneys.

*Treatment.* For methods of treatment by spinal concussion, see the recommendations above for diabetes mellitus.

## GOITRE

*Definition.* Goitre is an enlargement of the thyroid glands.

*Treatment.* For the best measures of treatment for goitre associated with cardiac trouble, see measures recommended above for the treatment of exophthalmic goitre. For the fibrous and other forms of goitre, see Rational Therapy (Gregory).

## HEADACHE

*Treatment.* We relieve headache instantly by spinal adjustment in practically every case, but we

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suggest the use of the sinusoidal current for the less progressive physicians who have not investigated spinal adjustment.

Apply the electrodes opposite the seventh cervical spine when there is an increased acidity of the blood.

Apply the electrode opposite the eleventh dorsal spine for alkaline conditions.

Continue treatment ten minutes and repeat the seances daily.

## HEART DISEASE

Heart disease may be either functional or organic and the treatment should be according to the nature of the ailment.

*Treatment.* For heart failure from functional trouble, from accident or from chloroform, drowning and other causes, apply rapid concussion strokes to the spine of the seventh cervical vertebra, which will initiate and strengthen the action of the heart, because of the stimulation of those nerve centers which give rise to the principal motor nerves of the heart. Concussion applied to the central cervical region, which will stimulate the origin of the phenic nerves, will excite myo-motor action of the heart and will accelerate the rate of the heart's action.

Concussion administered to the second thoracic spinous or transverse processes, will also initiate the heart's action in case of syncope, and will, because of the stimulation of the vagus tone, cause a strong but inhibited rate of action of the heart.

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*To summarize,*

*We initiate and accelerate* the heart's action by concussion of the third and fourth cervical segments.

*We initiate and strengthen* the heart's action by concussion of the seventh cervical spine.

*We initiate and inhibit* the heart's action by concussion of the second thoracic segment.

For further potent and efficient methods of resuscitation of the heart's action in case of asphyxia, see Rational Therapy, (Gregory).

Concussion of the seventh cervical spinous or transverse processes is an efficient method of treatment in cases of cardiac insufficiency, and this measure of treatment will overcome dilation of the heart and functional weakness and consequent valvular lesions.

The hypertrophied heart may be reduced in size, and the heart which is prolapsed from its normal situation may be restored to its normal location by concussion of the seventh cervical spinous or transverse processes.

## HEMATURIA

*Definition.* The passage of bloody urine.

*Treatment.* Apply spinal concussion to the upper three lumbar segments, which will probably control this condition by contraction of the parenchyma of the kidneys and of mucosa of the bladder walls.

If the hemorrhage is from the bladder, apply concussion to the fourth and fifth lumbar vertebrae. If the hemorrhage is from the kidneys, use concus-

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sion of the seventh cervical spine in connection with stimulation of the upper lumbar segments.

## HEMOPTYSIS

*Definition.* This is a symptom in which there is blood in the sputum.

*Treatment.* We believe that hemoptysis may be controlled by the application of concussion, or the sinusoidal current to the seventh cervical segment, and nerve pressure on either side of the seventh cervical spine will also prove an effective measure. These measures will constrict the vessels of the circulation of the parts and thus cause the loss of blood to cease.

## HEMORRHAGE

*Definition.* Sudden loss of blood caused by traumatism and augmented by vaso-motor insufficiency.

*Treatment.* For nasal hemorrhage, adjust and also apply concussion to the middle cervical region and to the seventh cervical spine.

For pulmonary hemorrhage, apply concussion to the spinous processes of the fourth and fifth cervical vertebrae, and also to the seventh cervical spine.

For hemorrhage from the stomach, bowels or the uterus, apply concussion to the upper three lumbar segments.

Concussion of the seventh cervical spine is very important as this stimulates the chief subsidiary centers of vaso-constriction, which centers

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are situated in the neural arch of the seventh cervical vertebra, hence, concussion of the seventh cervical spine is indicated in all cases of hemorrhage.

## HEMORRHOIDS

*Treatment.* Galvanic electrodes should be applied as follows, according to (Rice): Select rectal electrode for treatment of case. To avoid holding electrode so that the copper bulb is in apposition to the growth, the short electrode with hard rubber arm is of great service. Fit a piece of chamois over the copper bulb so as to leave no rough surfaces, place patient on the left side with the wet pad with negative pole on abdomen. If any of the hemorrhoids are prolapsed and difficult to replace, lay a little dry cotton over the part, and with the ball attachments to a mechanical vibrator, apply massage gently, then connect rectal electrode to positive pole. Apply fifteen ma. and treat ten minutes daily.

## HYPERTROPHY OF THE PROSTATE

*Definition.* This is an enlargement of the prostate gland, a trouble which is common to men of advanced age.

*Treatment.* Prostate enlargement may be reduced by a stimulation of the twelfth thoracic spine by concussion or by the use of the sinusoidal current. Stimulation of the upper three lumbar segments by spinal concussion or sinusoidal stimulation is an auxiliary method of merit in the treatment of an enlarged prostate.

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## HYPERTHYROIDISM

*Treatment.* For measures of treatment, see recommendations for the treatment of goitre which should prove effective also in the treatment of hyperthyroidism.

## ICTERUS

*Definition.* Icterus is a condition in which the bile is absorbed into the general circulation of the blood, which will produce a condition known as yellow jaundice or icterus.

*Treatment.* In case of catarrhal jaundice in which there is more or less occlusion of the bile duct, we may assist the passage of the contents of the gall bladder, or the gall stones, into the duodenum by the use of spinal concussion applied to the ninth thoracic segment. This will excite dilation of the gall duct and the gall bladder.

## INFANTILE PARALYSIS

*Treatment.* Use the slow sinusoidal current by applying both electrodes opposite to the tenth dorsal spine and also opposite the second lumbar spine daily, and continue treatment from ten to twenty minutes.

For more effective methods of treatment, see Rational Therapy, page 371.

## INSOMNIA

*Definition.* Inability to sleep.

*Treatment.* Armstrong recommends the slow sinusoidal in cases of insomnia and claims that recovery is rapid by its use.

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## INTERCOSTAL NEURALGIA

*Definition.* Pain between the ribs on the side or in front of the chest.

*Treatment.* Concussion will not help. Freezing tender nerves at or near their exits is an irrational treatment, which may help in some cases, and which may do harm in other cases. Absolute, instantaneous and permanent relief from intercostal neuralgia may be obtained by spinal adjustment. See Spinal Treatment, Science and Technique, (Gregory).

## INTESTINAL OBSTRUCTION

*Definition.* Intestinal obstruction is an occlusion of the lumen of the bowel and a consequent reverse action of the peristalsis.

*Treatment.* Intestinal obstruction may be due to impaction of feces or to intersusception of the bowel. Either of these conditions may be overcome by exciting dilation of the intestinal walls, which will also increase the secretion of the intestinal mucosa.

Dilation of the intestines may be caused by rapid concussion strokes or by sinusoidal stimulation applied to the tenth and eleventh dorsal segments.

By the proper use of these physical methods, we may avoid the dangerous and unfavorable results which usually follow surgical methods of procedure in such cases.

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## INTESTINAL HEMORRHAGE

*Treatment.* Hemorrhage of the intestines may be quickly overcome by adjustment of the second lumbar or by spinal concussion applied to the upper three lumbar segments to constrict the vessels of the circulation of the intestinal walls and mucous linings.

## INVOLUTION OF THE WOMB

Involution, retroversion, antiversion, prolapsus and all other abnormal conditions of this organ as to location are due to lack of tone and of the normal support of the uterine ligaments.

*Treatment.* To overcome an atonic condition of the supporting ligaments of the uterus, apply concussion to the upper three lumbar segments.

When uterine displacement is due to splanchnoptosis, use spinal concussion from the third to eighth thoracic spine inclusive. Apply the sinusoidal current, one electrode on either side between the spinous processes of the sixth and seventh thoracic vertebrae. These measures of treatment will restore the abdominal organs to their normal location and thus relieve the superimposed weight of them upon the pelvic viscera.

## JAUNDICE

*Definition.* Jaundice is a yellow discoloration of the surface of the body due to absorption of the biliary secretions into the general circulation.

*Treatment.* Yellow jaundice may be helped symptomatically by dilating the gall duct and thus

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allowing the passage of the bile into the duodenum, which is its normal channel for usefulness and elimination.

Concussion or other methods of stimulation applied to the spinous or transverse processes of the ninth thoracic vertebra will cause dilation of the gall bladder, which will permit the normal discharge of its contents.

## KIDNEY PROLAPSE

*Definition.* A prolapsed kidney is one which is displaced downward to a greater or less extent due to weakness of the muscles or ligaments which normally support it in its proper location.

*Treatment.* Sinusoidal stimulation applied by placing one electrode on either side of the spinous processes of the sixth, seventh and eighth thoracic vertebrae will cause a contraction of the ligaments which support the renal organs.

The proper adjustment to relieve interference with the principal nerve supply to the kidneys and to their supporting tendons, is very important in the treatment of floating kidneys. See Spinal Treatment, (Gregory).

After spinal adjustment and before the application of the sinusoidal current, the kidneys should be manipulated, while the patient lies on the back, into their normal position. After they are once in their normal situation, they will be retained there by the mesentery as well as by the increased tonicity of their supporting ligaments.

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## KYPHOSIS

*Definition.* A posterior curvature of the spine.
*For treatment* see scoliosis, page 163.

## LARYNGITIS

*Definition.* Laryngitis is a condition of inflammation and a hyperemic condition of the mucosa of the larynx.

*Treatment.* Sinusoidal stimulation applied to the seventh cervical segment, or spinal concussion applied to the spinous or transverse processes of the seventh cervical vertebra, will diminish the capillary circulation, and consequently the inflammation of the mucous membranes of the larynx.

Spinal adjustment to relieve interference with the nerve supply to the larynx is much more effective in restoring the normal condition of the mucous linings of the larynx than is spinal concussion.

## LEUCORRHEA

*Definition.* Leucorrhea is an excessive discharge of a whitish mucous nature.

*Treatment.* The hyperemic condition of the mucous linings of the genitalia may be overcome by exciting vaso-constrictor influence, by stimulation of the spinal centers of origin, or by stimulation of the nerves directly supplying the parts.

Spinal concussion applied to the spinous or transverse processes of the upper three lumbar vertebrae or the sinusoidal current applied to the three upper lumbar segments, will excite vaso-constriction and consequently the hyperemia and excessive exudation will disappear.

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## LOCOMOTOR ATAXIA

*Definition.* Locomotor ataxia is a disease of the spinal cord in which there is a decided involvement of the integrity of the afferent or sensory tracts thereof.

Spinal stretching, spinal adjustment, and rectal dilation, are much more efficient measures of treatment for this so-called incurable ailment than is stimulation of the spinal centers by concussion or sinusoidal stimulation.

Spinal concussion and also the sinusoidal current are very potent auxiliary methods of treatment, and will hasten results materially, and these measures should not be overlooked by any progressive physician.

It is claimed by Marie Jaworski that a ten minutes' treatment by the use of spinal concussion applied to the eleventh dorsal spinous or transverse processes will accomplish more results than six months' treatment by former conventional methods, and that after several repeated treatments, the results become permanent.

For treatment, see Ataxia Locomotor, ante.

## LORDOSIS

*Definition.* A lateral curvature of the spine.

*Treatment.* See scoliosis, page 163.

## LUMBAGO

*Definition.* Lumbago is characterized by pain, which is induced by impingement upon lumbar

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nerves, caused by settling of the spine or by contraction of the musculature approximating the vertebrae, thus causing a thinning of the intervertebral discs and a consequent narrowing of the foramina for the exit of lumbar nerves.

*Treatment.* Spinal adjustment, in connection with spinal traction, will completely and permanently relieve the majority of cases of lumbago in from five to ten minutes' time.

We would not give any other treatment, except for the non-progressive who have not investigated our late and improved methods of overcoming spinal lesions, and who may depend upon stimulation of the spinal centers by concussion or the sinusoidal current, to the exclusion of a more rational system in which we embrace the methods of overcoming spinal lesions and consequent interference with spinal nerves.

*Sinusoidal Treatment.* Use the surging or slow sinusoidal modality by placing one pad on the cervical spines and the other on the sacrum. Give fifteen to twenty minutes' treatment every day to relieve the pain.

If the reader will try stretching and adjusting the patient under traction, and note the quick and positive results, he will thereafter refuse to dally with palliative methods, such as the sinusoidal current, freezing tender nerves and hot and cold applications.

## LUNG DISEASES

*Definition.* We have various lesions of the pulmonary organs, which may be relieved by stim-

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ulation of the spinal centers of origin of the nerves which supply and affect the lungs. Permanent cures may be accomplished by relieving the interference with the nerves which are associated with the various pulmonary ailments, and which make the stimulation of nerve centers necessary.

See Pulmonary Diseases, or Consumption, ante.

## MALARIA

*Definition.* An infectious disease characterized by paroxysms of chills and fever. Spinal stimulation is not a successful method of treatment for this malady, but it may be used as a method of diagnosis, and concussion may also be used to contract the glandular organs, which may be enlarged as a result of malarial infection.

*Diagnosis.* It is known that the spleen is a favorite repository for the plasmodium malariae, and it is also known that malarial infection will remain with a patient for years.

In cases in which there is latent malaria, a paroxysm of chill and fever may be initiated by concussion applied to the spinous processes of the third and fourth thoracic or the second lumbar vertebrae. This will constrict the spleen and force the microbic organisms or plasmodium of malaria into the circulation.

If quinine is administered in the treatment of malaria, only the plasmodia which are in the circulation are destroyed. If the spleen is made to contract by stimulation of the proper spinal centers, the plasmodia may all be forced into the cir-

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culation, and then the quinine will cleanse the system of the infection.

There is no doubt that the results of the plasmodium of malaria remain after a symptomatic cure by the use of quinine.

Spinal treatment will remove the results or effects produced by the plasmodium of malaria upon the liver, spleen and kidneys.

## MAMMARY GLANDS

*To Increase Secretion.* An increase of the amount of the secretion of the mammary glands may be produced by concussion or sinusoidal stimulation applied to the third, fourth and fifth thoracic vertebrae. The sinusoidal current applied to the third, fourth and fifth thoracic segments or between the third and fourth spines, will stimulate and increase the lacteal supply, making nourishment abundant for the support of an infant.

*To Decrease Secretion.* Administer rapid spinal concussion to the spine of the seventh cervical vertebra, or the rapid sine current to the seventh cervical segment to constrict the circulation, and this will decrease the secretion of the mammary glands and the flow of milk.

## MELANCHOLIA

*Treatment.* Dr. Armstrong claims that cases of melancholia are benefited by the use of the slow sinusoidal current. He recommends that we apply one pad on the sacrum and the other on the abdomen in case of intestinal disorders. Seance to continue fifteen minutes, and should be repeated daily.

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## MENORRHAGIA

*Definition.* An excessive menstrual flow.

*Treatment.* When this trouble is associated with hyperthyroidism, it may be relieved by concussion of the seventh cervical spine, which will diminish the hyperthyroidism and increase the vasomotor tone, which is autoprotective against excessive discharges. Also apply concussion to the second lumbar vertebra to constrict the capillary circulation of the endometrium of the uterus, which will check menorrhagia.

## MENSTRUATION PROFUSE

*Treatment.* Apply concussion to the seventh cervical spine and also to the second lumbar spinous process.

## MILK, LACK OR EXCESS OF

*To Increase.* Stimulate the centers of nerve origin which supply the mammary glands, which may be done by stimulation of the third, fourth and fifth thoracic segments, by concussion or by sinusoidalization.

*To Decrease.* Apply concussion to the seventh cervical spine to constrict the circulation, which will reduce the lacteal secretion, and consequently the excess of milk. See Mammary Glands, ante.

## MORNING SICKNESS

*Definition.* This is a common symptom of pregnancy, and is due to a reflex neurosis from pel-

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vic conditions, due to the connection of the lumbar nerves with the terminal fibres of the vagus nerves.

*Treatment.* Apply pressure beside of the fifth thoracic spine, which will produce dilation of the pylorus and thus cause an emptying of the contents of the stomach into the duodenum. This will cause the passage of the contents of the food into its normal channel and this will prevent the vomiting. Raising the hyoid bone will prohibit vomiting and also cause the stomach to empty its contents into the duodenum.

See Rational Therapy.

## MURMURS

*Definition.* Sounds indicating abnormal conditions of the valves of the heart.

*Treatment.* When murmurs are due to valvular weakness, they may be easily overcome by concussion of the seventh cervical spine, which will strengthen and increase the myo-motor tone of the heart and of the cardiac valves.

## MUSCLE ATROPHY

*Treatment.* Dugan recommends the slow sinusoidal current for atrophy of the muscles. The use of the sinusoidal current will cause rapid muscular development if daily applications are made.

If the sinusoidal current is used on the abdominal muscles we will see improvement in the nerve function, together with a marked improvement in the tone of the muscles. The repeated contractions produced by the sinusoidal current will assist in developing muscular tone of any part of the body.

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## MUSCULAR PARALYSIS

*Treatment.* Muscles may be caused to contract by applying the sinusoidal current directly to the muscles, or the sinusoidal current may be applied to the centers of origin of nerves which supply the involved muscles. Continued action of the muscles will develop strength in them.

## NASAL POLYPI

*Definition.* Abnormal growths in the nasal cavities.

*Treatment.* Stimulation of the nerve supply to the nasal cavities and of the vaso-constrictor nerves, which supply them, will remove the cause and help to remove by absorption the abnormal enlargements.

Apply concussion or sinusoidal stimulation to the third and fourth cervical segments and to the seventh cervical spine to constrict the capillary circulation of the tissues of the nasal cavities.

## NEPHRITIS

*Definition.* Inflammation of the kidneys.

*Treatment.* Concussion of the tenth dorsal spine will dilate the kidneys, but for conditions of nephritis, a more rational treatment would be to constrict the blood vessels and parenchyma of the kidneys by concussion of the spines of the seventh cervical and also the second lumbar vertebrae or by adjustment to relieve interference with the direct nerve supply to the kidneys, which will accomplish much more in effecting relief and a cure.

See Spinal Treatment, Science and Technique.

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## NEURALGIA

*Definition.* Neuralgia is pain produced by impingement or injury to a nerve or nerve fibres.

*Treatment.* The most rational treatment is to remove the interference or impingement of the nerves, which may be done by spinal stretching and spinal adjustment.

For those who do not understand rational methods of treating cases of neuralgia, we would recommend the slow sinusoidal.

Abram says the slow sinusoidal is often, in cases of trigeminal neuralgia, helpful. He recommends that one electrode be applied to the back of the neck and the other over the gasserian ganglion from ten to twelve minutes.

*Neuralgia Visceral.* Dugan recommends rapid sinusoidalization, and claims that visceral neuralgia is removed by the analgesic effect of this current which will relieve the congestion. We should use the large electrodes, and place one over the lumbar region, and the other on the abdomen or over the painful part. Seances should continue for ten minutes daily.

## NOSE BLEED

*Treatment.* Stimulate the seventh cervical segment by concussion and also the third and fourth cervical segments by concussion, or by the use of the sinusoidal current. Adjust the middle cervical, and either the former or the latter methods will check nose bleed very quickly and without fail.

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## OBESITY

*Treatment.* The slow sinusoidal is recommended by Dugan. A general application of a slow sinusoidal current will cause contraction of the muscles over the entire body. In obesity a large amount of muscular action is needed to burn up the surplus fat. The sinusoidal electric full bath and physical exercise are both helpful measures in reducing fat.

## OBSTRUCTION OF THE INTESTINES

For measures of treatment, see Intestinal Obstruction, ante.

## OPTIC ATROPHY

We have restored cases of blindness of as long as nine years standing by relieving interference with the spinal or cervical nerves, which give off communicating branches which join the optic nerves. This proves that spinal nerves affect the integrity of the cranial nerves.

Dr. Coleman in his new book, Electricity in Diseases of the Eye, Ear, Nose and Throat, tabulates many cases of atrophy of the optic nerve, where vision was greatly increased by the application of the rapid sinusoidal current with a double eye sponge electrode and an oval pad at the nape of the neck. Treatments should continue twenty minutes daily.

## PALPITATION OF THE HEART

*Definition.* A rapid and bounding heart action due to lack of the integrity of the inhibitory control.

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*Treatment.* Increase vagus tone by concussion of the seventh cervical spine, or by sinusoidal stimulation applied to the third and fourth thoracic segments briefly, in connection with concussion of the seventh cervical vertebral spine.

## PARALYSIS AGITANS

*Definition.* A form of paralysis, associated with shaking palsy.

*Treatment.* This trouble has been considered incurable and is truly so, when using former conventional methods of treatment.

The author believes that from the experience he has had, with two or three cases which he has treated, that the methods recommended in Rational Therapy will check this disease and improve the condition of the patient, and no doubt in many cases will effect a cure if we persist in the treatment.

## PELVIC DISEASES

*Treatment.* If we relieve interference with the nerve supply, which is responsible for the integrity of the pelvic organs, normal function and normal health will be restored.

For those who do not understand relieving interference with nerves, we would call attention to another recommendation of Dugan, who recommends the use of the rapid sinusoidal.

*Directions.* In pain, due to neuralgical condition of the ovaries or tubes, in cases in which the uterus is very sensitive, but no acute or chronic endometritis is present, the rapid sinusoidal will afford most satisfactory results.

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Whenever passive congestion is present, we should use one electrode on the abdomen and the other should be applied to the uterus. Use the rapid sinusoidal for ten minutes, then use the slow sinusoidal current for five minutes.

## PERTUSSIS

*Definition.* This is commonly known as whooping cough.

*Treatment.* The paroxysms of coughing may be mitigated, made less frequent and overcome in two or three days' time, by concussion of the seventh cervical spine. There are better methods of physical treatment for cases of pertussis which the progressive physician may use. See Rational Therapy.

## PLEURISY

*Definition.* A sharp, lancing pain in the pleura of the lungs.

*Treatment.* Pleurisy may be instantly relieved in every case by a thrust to relieve impingement of the nerves which supply the pleura, usually relieved by adjustment of the third thoracic vertebra.

For those who do not understand adjustment, and for those who are prejudiced against this rational method, we would suggest the rapid sinusoidal.

*Treatment.* In pleurisy or intercostal pain of the chest wall, use one electrode over the eighth or ninth dorsal spine, and one over the seat of pain, and continue the application for ten minutes. This

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is claimed to be an efficient remedy for the relief of the pain.

## POLYPI OF THE EAR

For measures of treatment, see Nasal Polypi, ante.

## PNEUMONIA

*Definition.* An infectious pathological process involving the tissues of the lungs.

*Treatment.* It is conceded that pneumonia is a very fatal, acute disease, and that there is no specific medication for the cure of this trouble.

Concussion is a good auxiliary method in the treatment of this ailment, especially in the advanced stages of the disease when the heart is enfeebled and not able to do its work properly.

Concussion should be applied to the seventh cervical spine to establish and maintain the tone and strength of the heart's action in case of weakness of its function.

If the measures recommended in Rational Therapy are used, practically every case of pneumonia will be broken up in one or two days' time, and we believe that no case will run its regular course, as cases have done under conventional methods of treatment, in the past or present. We trust that the people may learn better than to depend upon the non-progressive medical doctors, who trade upon the traditions of ancestors.

## PULMONARY ANEMIA

*Definition.* A condition in which there is a lack of normal circulation, more especially in the upper segments of the lungs.

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*Treatment.* As this condition is favorable to the invasion and development of tubercular bacteria, it is necessary to overcome it by exciting dilation of the blood vessels of the lung tissues.

This may be done by concussion applied to the spinous or transverse processes of the middle thoracic vertebrae, from the fifth to the eighth inclusive, which will contract the splanchnic zones and dilate the lungs, and increase the circulation thereof.

## PULMONARY ATELECTASIS

*Definition.* This is a condition in which the lungs or some parts of them are collapsed, and do not expand normally during respiration.

*Treatment.*—Excite the phenomenon of dilation of the lungs by concussion of the fifth, sixth, seventh and eighth thoracic vertebrae. This measure of treatment will constrict the splanchnic zones as well as cause dilation of the pulmonary organs, and this will mechanically force the contents of the vascular system of the abdominal cavity into the dilating and expanded vessels of the pulmonary circulation.

## PULMONARY EDEMA

*Definition.* This is a dropsical condition of the lungs from serous effusions.

*Treatment.* For pulmonary edema, apply concussion to the middle cervical segments to produce constriction of the lungs, and to promote absorption of the edematous accumulation.

An alternate constriction and dilation of the

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lungs will prove more efficient in causing the clearing up of the lung tissues, and this may be accomplished by concussion applied alternately to the fourth and fifth cervical, and to the middle thoracic segments, from the third to the eigth inclusive.

## PULMONARY EMPHYSEMA

*Definition.* Emphysema of the lungs is a condition in which the air cannot be expelled properlly, and this is due to the relaxation of the longitudinal muscle fibres of the air passages without a corresponding relaxation of the circular fibres thereof.

*Treatment.* Spinal concussion applied to the fourth and fifth cervical segments, or the sinusoidal current applied to the same region, will constrict the longitudinal fibres of the air passages, and quickly overcome the emphysemic condition. These measures of treatment will relieve a paroxysm of asthma in case of emphysemic complication.

## PULMONARY HEMORRHAGE

*Definition.* Hemorrhage from the lungs, which is usually due to tubercular pathological processes.

*Treatment.* To relieve the symptom of pulmonary hemorrhage, apply concussion to the fourth and fifth cervical vertebrae, or use the sinusoidal current by the application of an electrode on each side of the fourth and fifth cervical segments. Results are positive and immediate.

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## PULMONARY TUBERCULOSIS

*Definition.* A tubercular infection and the consequent pathological processes involving the tissues of the lungs.

*Treatment.* Spinal concussion applied to stimulate the blood-making organs is an auxiliary method of considerable merit in the rational treatment of tuberculosis.

Concussion or other methods of stimulation applied to the tenth thoracic vertebra or spinal segment, will cause dilation of the spleen, and adjacent viscera and increase the volume of the blood and also the number of red blood cells contained therein.

Concussion of the fifth, sixth, seventh and eighth thoracic spinous or transverse processes alternately will increase the circulation in the lungs and produce the most favorable condition for autoprotective action on the part of the lung tissues.

Alternate concussion of the tenth thoracic and the second lumbar segments will alternately contract and dilate the spleen, and this will more greatly increase the volume and the number of red cells of the blood.

## PROLAPSE OF THE WOMB

For methods of treatment for this trouble, the reader is referred to Involution of the Womb, ante.

## PROSTATIC HYPERTROPHY

For definition and measures of treatment, see Hypertrophy of the Prostate, ante.

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## PYLORO-SPASM

*Definition.* A condition of spasmodic contraction of the pylorus of the stomach, associated with dilation of the cardia.

*Treatment.* Pressure applied on the right side of the spinous process of the fifth thoracic vertebra will cause dilation of the pylorus and constriction of the cardia, and will cause the contents of the stomach to empty into the duodenum, as the stomach assumes a more nearly vertical attitude from this stimulation.

## QUINSY

*Definition.* Quinsy is a disease of the throat in which there is inflammation of the tonsils.

*Treatment.* Apply spinal concussion to the seventh cervical spine, and adjust the second and fifth thoracic vertebrae.

## RECTAL PROLAPSE

*Treatment.* Apply spinal concussion or the rapid sinusoidal current to the fourth and fifth lumbar vertebrae, and also to the second lumbar segment alternately. Continue treatment for ten minutes, and repeat daily.

## RECTAL ULCER

*Treatment.* Monell recommends the galvanic current and negative electrolysis. Moisten a felt covered flat electrode, four by six inches, in a solution of bicarbonate of soda, connect with positive pole of the galvanic current and place it under the

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sacrum. Select any metallic electrode with an oval tip and connect it with the negative pole. Cleanse the ulcer. Apply to it the metallic tip. Apply seven ma. for five minutes. Repeat the treatment in four days.

## RENAL CALCULI

For methods of treatment, see Calculi Renal, ante.

## RENAL CONGESTION

*Treatment.* Apply concussion to the sixth, seventh and eighth thoracic segments, to the spine of the seventh cervical vertebra and to the spine of the second lumbar vertebra. This will produce the maximum amount of constriction of the blood vessels and of the parenchyma of the kidneys. For directions for removing interference with the nerves which supply the kidneys, see Spinal Treatment, by the author of this work.

## RHEUMATISM

*Definition.* A digestive disturbance and a subsequent decomposition of the nutritive elements in the blood stream and their formation into chrystals of urates and uric acid.

For rational and efficient methods for the positive cure of rheumatic conditions and stubborn chronic cases of rheumatism, see Rational Therapy.

## SALIVATION

*Definition.* An increased flow of the secretions of the salivary glands.

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*Treatment.* Concussion of the seventh cervical spine will reduce the secretion of the salivary glands by reducing their capillary circulation. Repeated seances may accomplish permanent beneficial results.

## SEXUAL WEAKNESS

*Treatment.* The genitalia may be temporarily stimulated by concussion of the upper three lumbar segments, and the tone of the sexual organs may be improved by the use of the sinusoidal current applied to the second lumbar segment. Seances to be repeated daily from ten to fifteen minutes at each sitting. See Rational Therapy for better, more efficient and more expedient methods of treatment.

## SCIATICA

*Definition.* An inflammation and sharp lancing pains in the sciatic nerve because of impingement of the nerves entering into the formation thereof where they exit from the lower lumbar region.

*Treatment.* To permanently cure, practically every case with a single treatment, give the spinal adjustment while the patient is being stretched. See illustration, page 175.

The sinusoidal stimulation may prove analgesic and helpful in some cases, and concussion, hard enough to relax the musculature of the lower lumbar portion of the spine, may accomplish some good, which results may satisfy the non-progressive practitioner.

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## SCOLIOSIS

*Definition.* A lateral deviation or curvature of the spinal column.

*Treatment.* The treatment for scoliosis is the same as for kyphosis and lordosis, and the most rapid and successful, and practically the only rational treatment for spinal curvature, is traction upon the spinal column and adjustment while the traction is being made.

First stretch the patient tight which tends to draw the spine into alignment, and then apply specific thrusts to relax the contracted musculature, which will allow the spine to straighten and the impinged nerves will be relieved.

If the patient remains stretched for ten or fifteen minutes, the musculature of the spinal column will adjust itself to the normal condition, and the intervertebral discs will expand and gradually maintain the corrected and straightened condition of the spine by maintaining the normal thickness of the intervertebral discs.

## SCROTAL HYPERTROPHY

*Treatment.* This ailment may be overcome by exciting vaso-constriction of the blood vessels and also contraction of the tissues of the parts.

Apply concussion to the upper three lumbar vertebrae, and also the rapid or surging sinusoidal current. Apply the sine current to the second lumbar, one electrode on either side, and this will overcome hypertrophy of the scrotum, but the best re-

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sults are obtained by relieving interference with the nerve supply by adjustment and afterwards use spinal concussion.

## SPINAL CURVATURE

See recommendations for scoliosis, ante.

## SPINAL MENINGITIS

*Definition.* Inflammation of the meninges of the spine.

*Treatment.* Spinal concussion will irritate and increase the trouble. The sinusoidal current will accomplish but little good. For effective methods, see Rational Therapy.

## SPINAL SPRAINS

*Treatment.* The only rational method is the spinal thrust to prevent and overcome the contraction of the musculature, which always results from injury to the vertebral tissue, which is caused by a sprain. Sprains of the lumbar musculature cause lumbago and sciatica. See Lumbago, ante.

## SPLANCHNIC NEURESTHENIA

*Definition.* This is a nervous affection in which there is abdominal tenderness, gaseous accumulation and enlargement and tenderness of the liver.

*Treatment.* There are two methods of procedure by the use of spinal stimulation available according to Abrams for the treatment of splanchnic neurasthenia, namely, spinal concussion and sinusoidal stimulation.

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The spinal concussion is more efficient than is sinusoidal stimulation in the treatment of this ailment. We give below specific directions for the application of spinal concussion to cause constriction and to increase the tonicity of the splanchnic zones.

1 Concussion of the seventh cervical spine will cause general vaso-constriction and thus increase the splanchnic tone.

2 Concussion of the spine, or of the transverse processes of the third, fourth and fifth thoracic vertebrae, will stimulate and will cause contraction of the parenchyma of the liver.

3 Concussion stimulation of the upper three lumbar segments will excite constriction of the splanchnic viscera and of the liver, and decidedly improve the efficiency and tonicity of the splanchnic zones.

4 Concussion applied alternately to the spinous or transverse processes of the thoracic vertebrae, from the third to the eighth inclusive, will excite stimulation and cause contraction of the splanchnic viscera, and will constrict the abdominal circulation.

Sinusoidal stimulation may be used instead of concussion in splanchnic neurasthenia, but with less success.

When using the sinusoidal current, we should apply the stimulation to the same segments as are indicated above for the application of spinal concussion.

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## SPLANCHNOPTOSIS

*Definition.* A general prolapsus of the abdominal viscera due to diminished splanchnic tone and often due to habits of dress.

*Treatment.* Correct the habits of dress. Relieve all interference with the nerve supply to the splanchnic zones, and in addition, follow the directions given for the treatment of abdominal insufficiency, ante.

## SPLEEN ENLARGEMENT

*Treatment.* Spinal concussion applied to the spinous processes of the upper three lumbar vertebrae will excite constriction of the spleen.

Concussion of the third thoracic segment will also stimulate and constrict the spleen.

Care should be used in exciting contraction of the spleen in cases in which there is latent malarial infection, as there is danger of precipitating a paroxysm of malarial chill and fever.

## SPUTUM EXCESSIVE

*Treatment.* Concussion of the seventh cervical spine will constrict the blood vessels of the upper air passages and diminish the excretion or secretion of sputum.

## STOMACH DILATION

*Definition.* A condition of lack of tone and relaxation of the muscular walls of the stomach.

*Treatment.* Excite contraction of the stomach by concussion of the seventh cervical spine and of

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the upper three lumbar segments. The efficiency of the treatment may be enhanced by stimulation of the third, fourth and fifth thoracic segments, which will increase the tone of the great splanchnic nerves.

## TIC-DOULOUREUX

*Definition.* This is a neuralgic or painful condition of the trifacial nerves, due to impingement of cervical nerves, which furnish communicating branches to them.

*Treatment.* Some obtain results by freezing to deaden the sensibility of the nerves, which is to the mind of the author, an irrational method of procedure.

This trouble is relieved instantly by loosening the spinal articulations of the middle cervical region, which can be done without pain by our improved methods of spinal adjustment. See Spinal Treatment, Science and Technique.

## TONSILITIS

*Definition.* Inflammation of the tonsils.

*Treatment.* It is claimed by one physician that the Lord overdid matters in creating man when he created the tonsils and the appendix, and would have corrected the matter had he thought of it before the book went to press.

We believe that by constriction of the tonsils, after having first relieved interference with the nerve supply to them, that we can overcome any enlargement and stimulate the glandular activity,

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and thus overcome their pathogenic tendency.

Apply concussion to the seventh cervical spine and adjust the second and fifth thoracic vertebrae.

We may increase our beneficial results by adjusting the cervical region and by applying concussion or the sinusoidal stimulation to the third and fourth cervical segments.

## TUBERCULOSIS

*Treatment.* For treatment of this infectious and progressive pathological condition, the reader is referred to the directions given for the treatment of consumption, ante.

## TUMORS

*Treatment.* Tumors may be reduced in size by stimulation of the nerves, which will cause vasoconstrictor influence upon the zone of the location of the tumor.

For more efficient and rational methods of treatment, see Rational Therapy.

## TYPHOID FEVER

*Treatment.* It is well to remember, that in cases of typhoid fever, that the spleen is involved, and is the habitat of some of the typhoid bacilli. Concussion of the upper three lumbar vertebrae will constrict the spleen and unload its contents of typhoid bacilli into the blood stream.

Concussion of the third thoracic and of the eighth thoracic vertebrae will stimulate the origin of the principal nerve supply to the zones of the habitat and development of the typhoid bacilli.

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For efficient methods for the treatment of typhoid fever, and those which will break the fever and restore the patient to health in three days' time, see Rational Therapy.

## UTERUS

*To produce contraction.* Apply spinal concussion to the second lumbar vertebra and this will cause contraction of the musculature and of the blood vessels of the uterine organ, and this method of treatment will check hemorrhage promptly and positively.

*To produce dilation.* We may cause relaxation and dilation of the uterus, especially of the cervix, by concussion or sinusoidal stimulation applied to the tenth dorsal segment.

It is well to remember that by exciting dilation of the cervix of the uterus during child birth, that the delivery of the child may be made almost painless.

## VAGUS-TONE

*To increase vagus-tone.* Apply concussion to the seventh cervical spine, and this will increase vagus-tone.

Abrams says that the tone of the vagus may be permanently increased by applying the rapid sinusoidal current to the seventh cervical spine by means of the double interrupting electrode. The seances should continue from ten to fifteen minutes. Use care that you do not over-stimulate.

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## VOMITING

Vomiting may be stopped by pressure by the fifth thoracic spine which will dilate the pylorus and at the same time close the cardia.

## VOMITING IN PREGNANCY

For methods of treatment by spinal concussion, see Morning Sickness, ante.

## VISCERAL TONE

*Treatment.* The visceral tone of the entire body may be increased by concussion of the seventh cervical spine and it may also be increased by the sinusoidal current applied to the seventh cervical spinal segment.

The visceral tone of the abdominal cavity may be best increased by spinal concussion or by sinusoidal stimulation applied to the spinous or transverse processes of the thoracic vertebrae, from the third to the eighth inclusive.

## WHOOPING COUGH

For methods of treatment, see Pertussis, ante.

## WORMS

By increasing the splanchnic tone, we will increase the secretion and also the strength of the digestive ferments, and this will be incompatible with worms and other abdominal parasites.

Apply concussion to the seventh cervical spine and concussion and sinusoidal stimulation to the

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thoracic vertebrae from the third to the eighth inclusive, to increase the acidity of the gastric juices, and to increase the amount and efficiency of the digestive ferments of the alimentary tract, which are secreted below the stomach.

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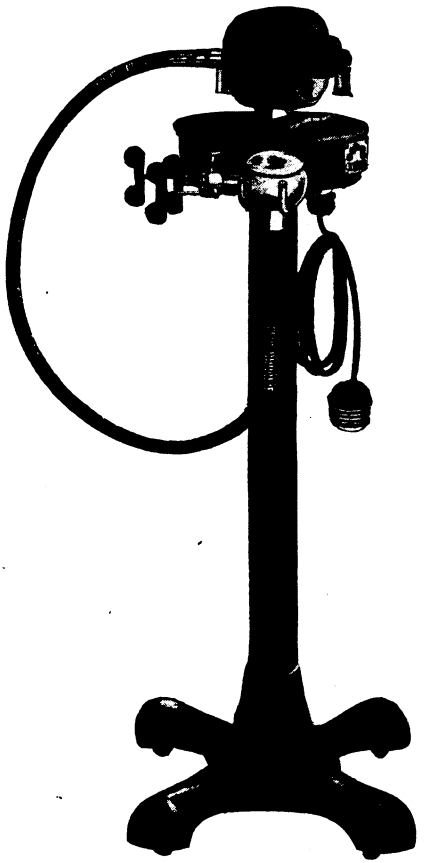

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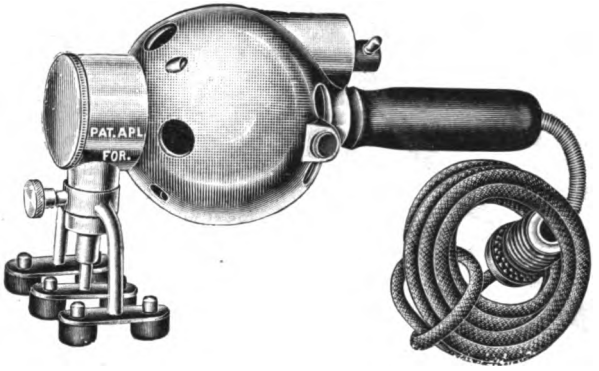


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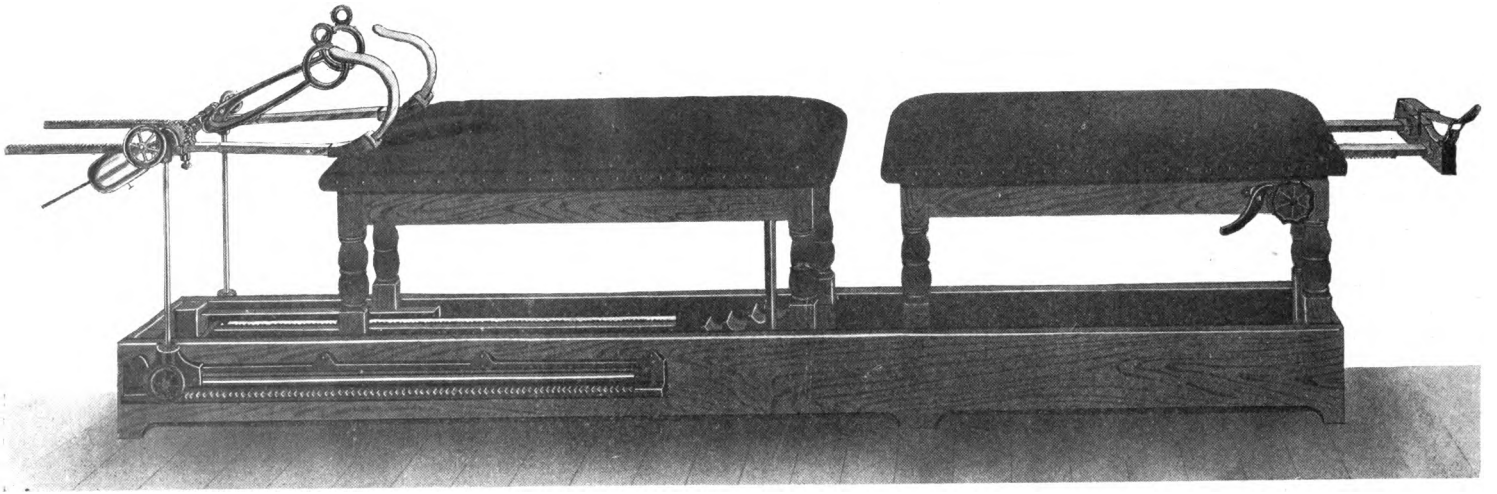



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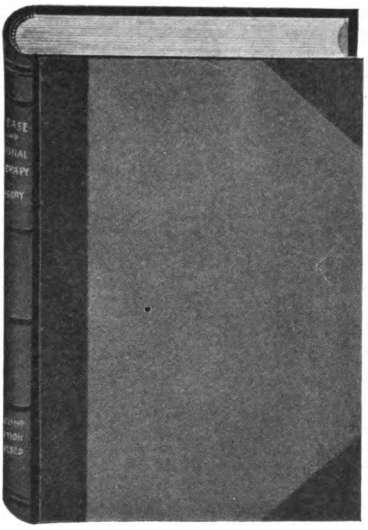
# Spinal Treatment, Science and Technique

*By Alva Emery Gregory, M. D.*



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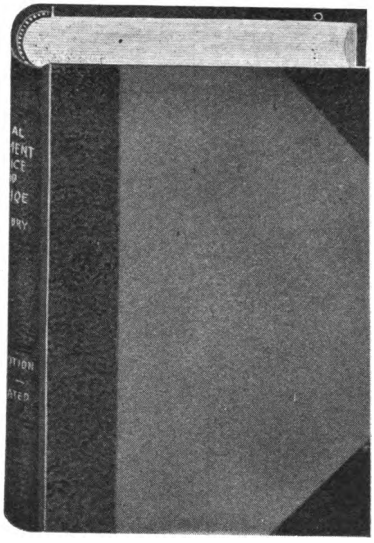

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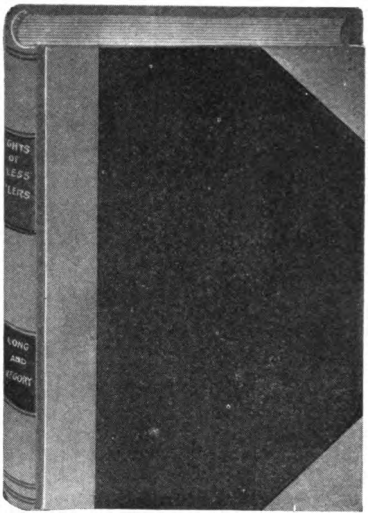

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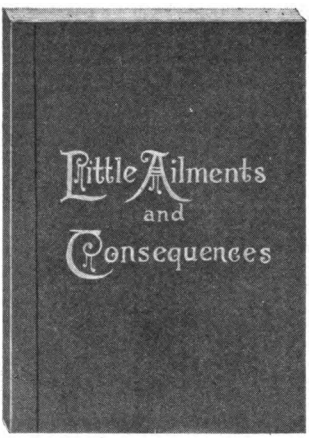


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At first we secured a copy of this work by chance, simply because an agent wanted to sell us. Some two or three months later when we started on a trip, we decided to read this work on the way. After reading it, we would not take five hundred dollars for the information we gained, and have ever since kept this work in stock, feeling that if it was valuable to us it would be valuable to others.

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