

**A full and accurate account of the new method of curing dyspepsia :
discovered and practised by O. Halsted : with some observations on
diseases of the digestive organs.**

Contributors

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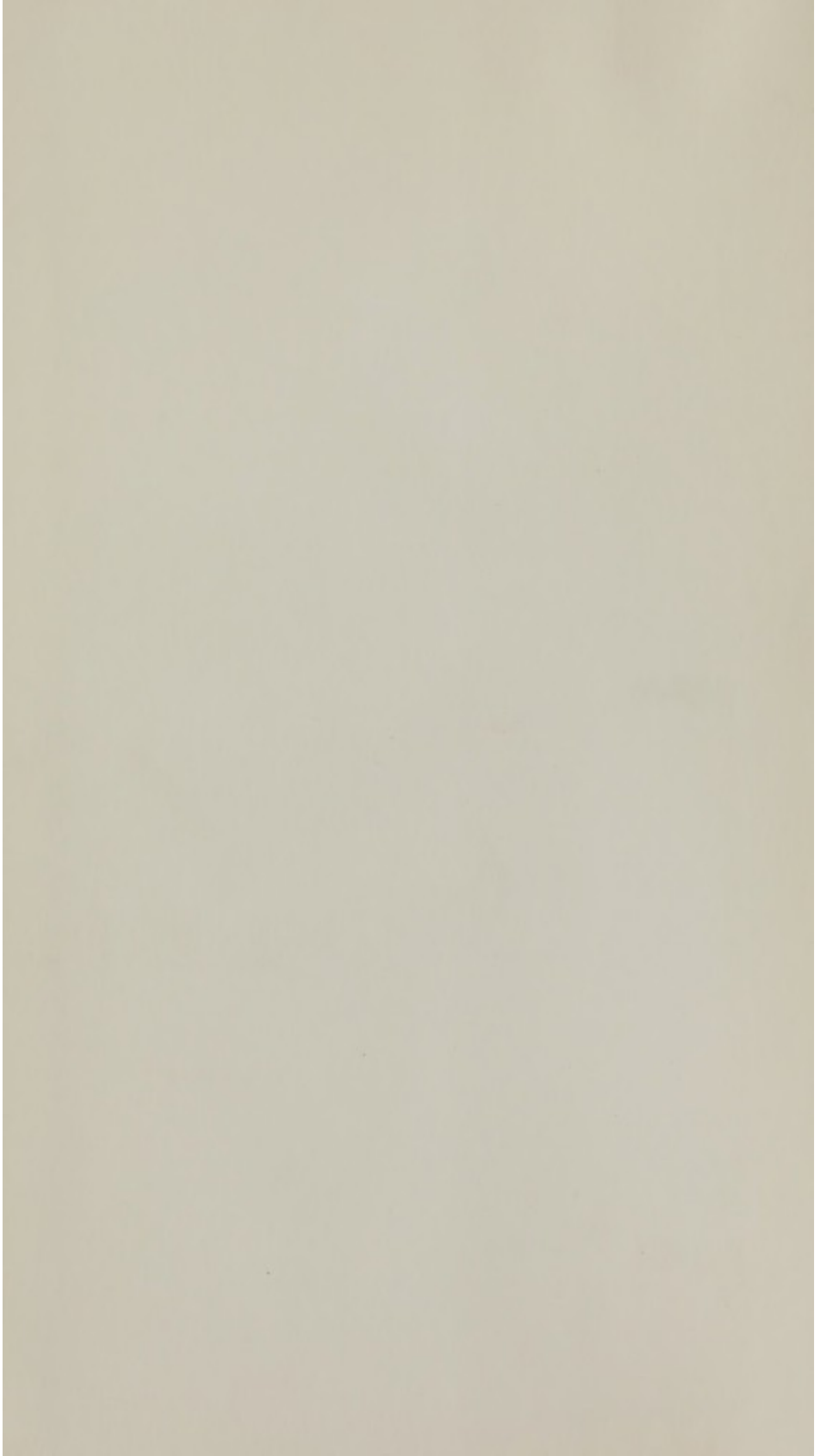
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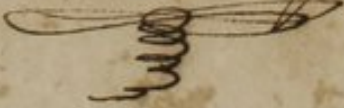


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W. J. Barry


FULL AND ACCURATE ACCOUNT

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OF THE

NEW METHOD

OF

CURING DYSPEPSIA,

DISCOVERED AND PRACTISED

BY

O HALSTED.

WITH SOME OBSERVATIONS ON DISEASES OF THE

DIGESTIVE ORGANS.

NEW-YORK :

O. HALSTED.

.....
Corner of Wall and Broad-Streets.
1830.

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SOUTHERN DISTRICT OF NEW-YORK, ss.

BE it Remembered, that on the fourth day of December, A. D. 1830, in the fifty-fifth year of the Independence of the United States of America, OLIVER HALSTED, of the said district, hath deposited in this office the title of a book, the right whereof he claims as Proprietor, in the words following, *to wit* :

“A full and accurate account of the New Method of Curing Dyspepsia, discovered and practised by O. Halsted, with some observations on diseases of the Digestive Organs.”

In conformity to the Act of Congress of the United States, entitled “An Act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the time therein mentioned;” and also to an Act entitled “An Act supplementary to an Act, entitled an Act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies during the times therein mentioned; and extending the benefits thereof to the arts of designing, engraving, and etching, historical and other prints.”

FRED. J. BETTS, { *Clerk of the Southern District
of New-York.*

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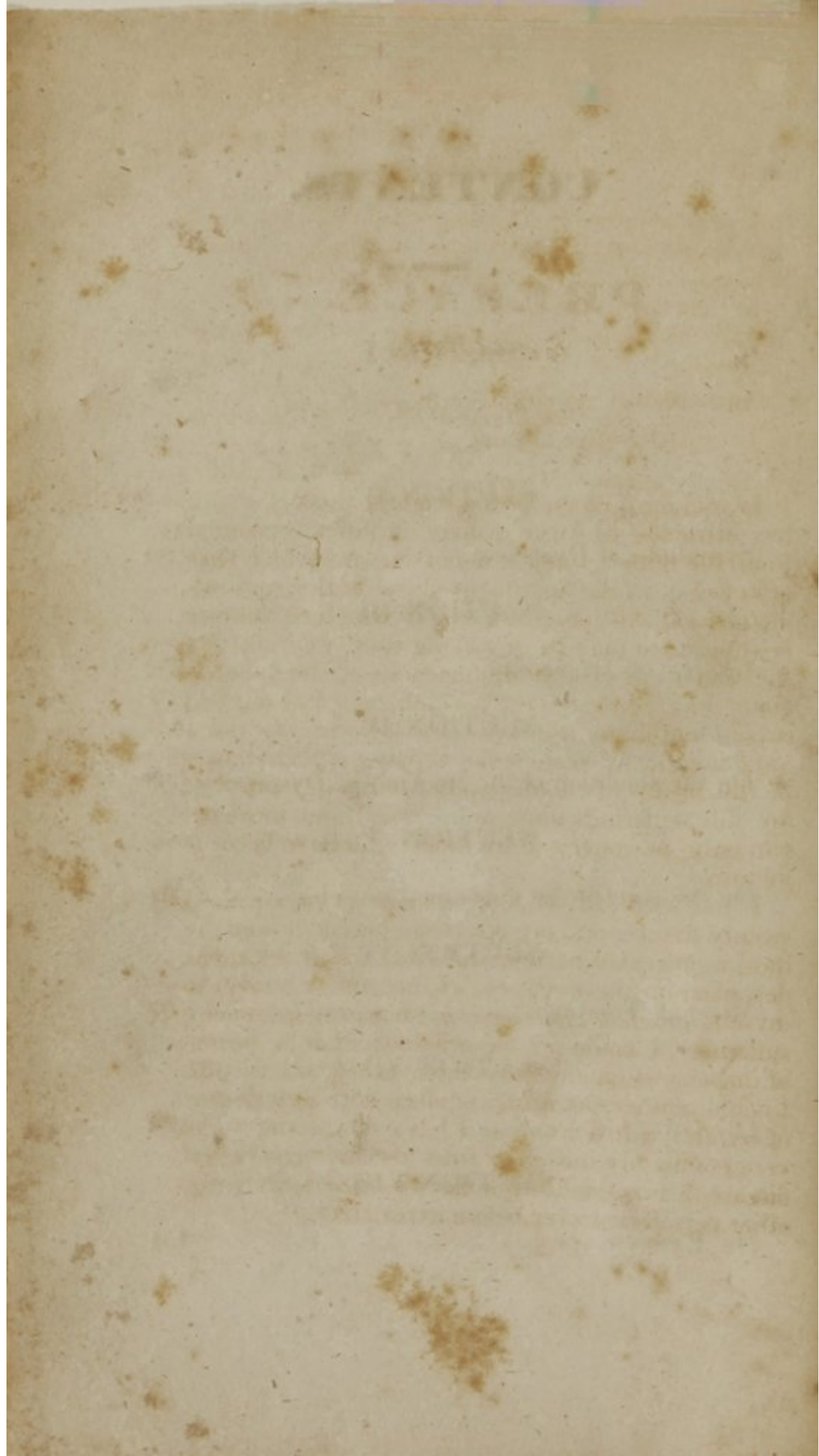
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PREFACE.

TO THE READER,

IN making known to the world a remedy which has attracted so large a share of public attention from the remarkable degree of success which has attended it, in the treatment of one of the most afflictive and obstinate disorders to which our nature is subject; it may be gratifying to the curiosity of the reader, to give a brief account of the manner of my making a discovery, which, as it has relieved myself and many hundreds of fellow sufferers, so I am under the firm conviction will, under Providence, be the means of affording relief to many more who are still suffering from a disease, whose torments can only be conceived by those who have been its victims.

I had suffered with Dyspepsia for upwards of twenty five years; my symptoms being those of the most aggravated nature, and such as are hereafter described in these pages. I became a burden to myself, and felt conscious that from my unceasing sufferings, I could not be otherwise than a source of uneasiness and anxiety to my family and friends. I could neither eat, drink, or sleep with any degree of comfort. In a word, as I have since found to be very commonly the case with the martyrs to this disease, I imagined my sufferings to be such as no other person had ever before experienced.

During the long period of my sufferings, I of course, sought relief from the various remedies usually resorted to, in this malady; and had consulted several physicians of eminence upon my case. Scarcely any thing, however, afforded me relief, or seemed to make any impression upon the disease: and when at length, I was told by my family physician, that I must not expect permanent relief from any thing which he or any other physician could do for me, I was ready to despair. Frequently, while labouring under great depression of spirits—wasted in flesh, reduced in strength, and deprived of all enjoyment of the common comforts of life, have I been tempted to the belief that death itself would be preferable to such a painful state of existence.

My thoughts, as may readily be supposed, during these sufferings, were constantly intent upon my deplorable condition, and employed in ascertaining the nature of my complaint, and in devising means of relief. This was more particularly the case after I had given up all hopes of aid from physicians. Medicine had proved unavailing; every variety of diet had been tried without effect; and exercise, so far from affording relief, seemed, on the contrary to aggravate my sufferings.

As far back as nine years ago, my attention was directed to the extreme hardness, and rigidity of my abdomen, which I was satisfied was unnatural: and I was conscious, during the paroxysms of the disease, of an increased tension or spasm of the muscles, which, if I may use the expression, seemed to be drawn up, and contracted in such a manner, as if they would squeeze me to death. I felt convinced that a great deal of my distress was somehow or other connected with this state of the abdomen, but in what manner I could not tell; and it was not until

several years afterwards that I discovered the clue, by following up which I have been completely restored to health and comfort.

Another circumstance presented itself to my mind, which, as I have remarked, was continually directed to every thing that could in any way throw light upon the nature of my malady. Exercise, which had been recommended to me by physicians, and of which I had tried various kinds, particularly riding on horse-back, and the different exercises of the gymnasium, seemed to augment my sufferings by increasing the contraction of the muscles, and the screwing sensation about the abdomen. But whenever I rode for a succession of days and nights in the mail-stage, to which my business frequently compelled me, instead of feeling worse, as might have been expected, from the fatigue, I invariably experienced an alleviation of my symptoms, and found that during the journey, I could eat and drink with comparative impunity. A few days after the journey was ended, however, I would relapse again into my horrid dyspeptic state, so to call it, and experience a return of all the dreadful feelings, which seemed doubly distressing after the short respite I had enjoyed. I frequently mentioned to my family the circumstance of my always experiencing relief when riding in the mail-stage, but could not account for the fact, that this sort of exercise should prove so serviceable, while the various kinds to which I had resorted at the instance of my physician, should only tend to make me worse. Indeed it was a long time before I could bring myself to the belief, that it was the riding in the stage which benefited me, but imagined that it might be owing to some other unknown cause.

Thinking intently however, upon the subject,

and connecting the state of my abdominal muscles which I was persuaded was unnatural, with the benefit derived in the manner just mentioned, I came to the conclusion, that while riding day and night in the stage, during the time that I was asleep these muscles became relaxed, and the action was communicated to my stomach and bowels which it seemed to me that nature required, and on which, I am now persuaded the chief benefit to be derived from exercise in this complaint depends; while during my other exercises these muscles being involuntarily contracted, the effect upon the stomach was lost, and I consequently derived no benefit.

I now became satisfied that if my reasoning on the subject was correct, I could obtain relief by relaxing these muscles, and giving the jolting sort of motion to the stomach and bowels, which I seemed instinctively to feel was required by nature; by jumping, riding, walking fast, &c. No time was lost in putting my theory to the test; and I found that by a strong effort of the will, a perfect relaxation of the muscles could be effected, precisely in the same manner in which a person suffers his arm to fall after it has been extended: and it was evident, from the change I experienced in my sensations upon taking active exercise while the muscles remained in this state, and from the good effects which ensued, upon it, that I could now receive the full benefit of exercise of which I had heretofore been deprived. So convinced was I that I had discovered the true nature of my disorder, and by following up the plan I had hit upon, I should obtain permanent relief, that I immediately mentioned to my family the firm persuasion I was under that I should now become cured; and to their great surprise I began to eat

with impunity articles which my stomach previously had not been at all able to digest. Since that period (April 1829) I have continued perfectly well; having regained my strength and spirits, and being able to eat and drink common articles of food without suffering the least inconvenience or distress. In short I feel like a new being.

Being satisfied that I had made a discovery, which would doubtless be susceptible of improvement, and thinking that what had proved of such essential benefit to myself, could not fail of being serviceable to others, I naturally felt inclined to try the efficacy of the plan in other cases; and to my great satisfaction I found its good effects equal to those I had experienced myself. In prosecuting the experiments, which I did with the view of rendering the discovery serviceable as well to myself and family, as to my fellow sufferers, and the public at large, I soon found a great diversity in the cases which fell under my observation, and which required a different mode of applying the principle. I at first, supposed that every person had a control over the muscles of the abdomen, similar to that which I had; but finding that very few could effect this by the will, other means were made use of to accomplish it. Peculiarities hereafter to be described also presented themselves; such as the torpid state of the stomach and the method of restoring its sensibility; and finally the mode of applying the stimulus of exercise in an artificial manner to the stomach was discovered, and the whole plan of treatment as detailed in the following pages, gradually developed.

The question has often been asked "why I did not at first make known the discovery to the world for the benefit of my fellow sufferers?"—"humanity

required this of me," it was said, and much obloquy has been cast upon me for having so long kept the plan of cure a secret. Now I maintain, had I no other object in view than to benefit my fellow beings by the discovery (and I trust this is not the least of the motives that has weight with me,) that I adopted the best possible means of doing so. Suppose, for instance, I had communicated all I then knew upon the subject and there left it, very few indeed would have had sufficient confidence in my representations, to induce them to give a fair trial to a remedy which though simple, requires in many instances, much perseverance in order to effect a cure. And besides I but claimed the right of other discoverers—that of perfecting my discovery, as far as lay in my power, before making it known to the world; and this it is evident I could only do by keeping my experiments secret. In addition to this, it is an acknowledged principle that he who makes any discovery or improvement likely to prove beneficial to mankind, is fully entitled to a reasonable share of all the rewards or profits that may accrue; and as I know of no obligation by which I should forego such remuneration, I took the only course left me of securing it.

A few words in answer to the objections that have been made to the remedy. Those which have been advanced by persons who confessed they knew nothing of its nature, it is not worth while to notice; the very acknowledgment of ignorance is a sufficient refutation. To those who object to the method of cure, and stigmatize it as being of no utility, and a piece of imposture, because it has failed in their own cases, or in some which have fallen under their notice, I would reply, that it has never been pretended that the remedy was infallible, or a panacea that would cure all diseases; but

like other remedies and medicines of acknowledged efficacy, there are doubtless cases in which its beneficial effects are not so apparent. In most of these very cases however, I am persuaded the failure has been in consequence of the patient not giving the remedy a fair trial, or of his indulging in excesses in diet which would have been sufficient to bring on the disease even in a healthy person. It has also been asserted that after a while the remedy loses its efficacy, and the patient relapses again into his former condition. It is granted that this will be the case if he indulges in the causes which originally induced the disease; but a sufficient refutation of the assertion is the great number who have been cured by the remedy and continue to enjoy perfect health after a lapse of many months.

Some having acquired but a partial knowledge of the plan of cure, have deemed it so inadequate to remove a disease of such an obstinate nature, that they have not even taken the trouble to give it a trial themselves, or to become acquainted with its effects upon others. In the eyes of these persons, the simplicity of the process instead of being its greatest recommendation, is the chief objection.

But it should be remembered that simplicity is often a characteristic of merit in things, as well as persons.

To those would-be wits who have made themselves very merry with the idea of curing the dyspepsia by kneading the bowels, in which they have supposed the remedy to consist, it may merely be replied that "Ridicule is not the test of Truth" and that he who professes to treat with derision what he does not understand, only exhibits his own folly, and lays himself open to the very weapons he attempts to wield. As the charge of exorbitance in my de-

mands, has been alledged against me, I may simply state, that I have prescribed and administered the remedy to several hundreds without any fee or reward, and in all cases have regulated my charge, as far as I was able, by the ability of the patient.

One word respecting the numerous claimants of the discovery who have sprung up like mushrooms in various parts of the country. As several of these pretenders have within a few weeks past announced themselves in the public prints of this state as the "original discoverers" it is reasonable to suppose that each of the other states has its full share, and it is more than probable that every town and village in the union will soon be filled with them, or their agents. One individual in this city, has recently had the faithlessness, (in spite of a solemn pledge to me in writing, which I now hold,) to claim in his advertisement the merit of the discovery. As the proceedings of this individual will probably become the subject of legal investigation, I forbear saying more at present, except simply to state that it is my determination to prosecute to the utmost limits of the law, all those who shall in any manner infringe upon my just rights.

With sentiments of the deepest gratitude towards those gentlemen, who, despite the clamor that has been raised against me by interested persons, and the epithets of quack, impostor, &c., with which I have been liberally honored, have dared to think and judge for themselves, and have given their sanction to what they were convinced would prove beneficial to mankind; and trusting that my readers will exercise this same privilege of judging for themselves, I remain the publick's humble servant,

O. HALSTED.

NEW METHOD
OF
CURING DYSPEPSIA, &c.

SECTION I.

Introductory remarks and description of digestive organs.

A question we often hear asked, is ‘how happens it, that this disease called **Dyspepsia**, is so prevalent at the present day, when formerly it was so little known’? The most common reason assigned is, the more luxurious, and the less active habits of the present generation. There may be some truth in this—Excesses in eating and drinking will certainly produce diseases of the digestive organs, but after all, it may reasonably be doubted whether these diseases

actually are more prevalent now, than in former times. The principal reason of their apparent increase, seems to be, that what are now enumerated as symptoms of one disease, were then considered and treated as distinct affections. Thus many affections, which were formerly known under different names, and treated accordingly, as the Spleen, Vapours, Indigestion, Low Spirits, and Nervous Diseases, are now generally comprehended under the sweeping term, Dyspepsia. The organs which assist in performing digestion, it is well known, are numerous and complicated, and so linked together that no one of them can be long affected, without a participation of the others. The term Dyspepsia is commonly applied to a derangement of one or more of these functions, and is a disease, rather of a set of organs, than of one in particular. Hence the diversity, and variety of symptoms it exhibits, according as the derangement of one or more of these functions predominates. Of these or-

gans, the most important, the one most liable to derangement, and in whose affections the whole system seems most to sympathize, is the stomach. Though we cannot assert that every case of *Dyspepsia*, using the term in its common signification, originates in the stomach, yet by far the greater number that present themselves, will be found to have their seat and origin there. We need not go far to account for this. An obvious reason suggests itself to us in the fact, that this organ, above all the others, is placed more immediately under the controul of the will, and entrusted, as it were, to the guidance of the reasoning faculties; as far at least, as regards the quantity and quality of the food. Differing from most of the other important functions of the system, the quantity of action to be performed by the stomach, is left chiefly to the pleasure of the individual. How this trust is abused, is unfortunately too well known to us; and sad experience shews us that this law of our

nature, instead of being a safe-guard to the organ, proves too often its destruction.

Another reason may be given for the universal prevalence of Dyspepsia, in the fact, no less strange than true, that Fashion, not content with the empire of our pleasures, extends her wide spread dominion even over our maladies. It is the fashionable complaint; and whoever is so unwise as to neglect the simple dictates of nature and reason in his diet, and is paying the penalty of his excesses, prefers laying the fault to the weakness of his stomach, rather than to that of his head. In this way, the Gourmand and the Tippler lay claim to our sympathies, and seek to be considered Dyspeptics; while in truth, they are only pursuing the means of becoming so.

Before proceeding to the particular consideration of the nature of the complaint, and the plan of treatment, the explanation of which is the object of the present treatise; it may not be deemed amiss to give a brief sketch of the organs of digestion, and

especially the principal one the stomach; to which the plan of treatment under consideration is particularly directed.

OF THE

ORGANS OF DIGESTION.*

In all the higher animals, the function of digestion consists of four distinct acts, namely, mastication, deglutition, chymification, and chylicification; to which must be added the process of excretion. We shall first of all describe very briefly the apparatus by which these actions are performed; and secondly, consider the actions themselves.

OF THE ORGANS OF MASTICATION.

Mastication is essential to digestion. Its object is minutely to divide the food. In all animals furnished with distinct digestive organs, expedients are provided for accomplishing this purpose. These expedients are varied according to the kind of food on which the animal subsists, and according to the general organization of the body. They consist,

* The following description of the Organs of Digestion, is taken principally from the Library of Useful Knowledge, article "Animal Physiology," to which deservedly popular work; the general reader is referred, who may desire a more minute account of these organs, and their functions.

for the most part, of a mouth, of teeth, of jaws furnished with powerful muscles to act upon them, of the tongue, and of the salivary glands.

Some animals live entirely on vegetable, others wholly on animal matter, and to the health and vigour of others a mixture of both is necessary. Of this latter description is man; so that from the structure of his teeth alone, we are enabled to decide upon the kind of food most proper for him.

Among the organs which are essential to the process of mastication, must be reckoned the salivary glands. These bodies convey to the mouth the saliva they secrete, by numerous ducts which open into it. In man the chief salivary glands are three on each side; the parotid, situated on the cheek; the submaxillary, situated beneath the lower jaw, and the sublingual, situated beneath the anterior portion of the tongue. These glands pour into the mouth a large quantity of fluid; it is estimated that they afford about eight ounces, which is mixed with the food at each meal. The importance of these organs will be noticed, when we come to speak of the rules to be observed in eating.

OF THE ORGANS OF DEGLUTITION.

The organs of deglutition, or those by which the food, after it has been properly masticated, and mixed up with the secretions from the salivary glands, is conveyed into the stomach, are the tongue, the pharynx, and the œsophagus. The posterior part of the tongue, of which it is not necessary to give

a minute description, is connected through the medium of the arches of the palate, with the organ termed the Pharynx. The Pharynx is a large muscular bag, having the form of an irregular funnel, the large opening of the funnel looking towards the mouth, while the under and smaller end of it constitutes the tube which leads to the stomach, termed the *œsophagus*. This tube, called also the gullet, derives its name from its office of conducting the food into the stomach. It is a fleshy tube, which begins from the inferior part of the pharynx, decends along the neck, passes through the thorax, or chest, and terminates in the stomach. It consists of three coats, or three membranous coverings, which are perfectly distinct from each other: the first is composed principally of cellular substance; the second of muscular fibre, and the third of mucous membrane. The second, or muscular coat, consists of two layers of fibres; all the fibres which form the external layer, have a longitudinal direction; all those which form the internal layer, are circular. The function performed by this tube requires that it should possess two kinds of motion, that of shortening itself, and of lessening its diameter. It is obvious that the contraction of its longitudinal fibres will shorten it, and that a contraction of its circular fibres will narrow it. The inner, or mucous coat, is continued from the lining of the mouth; it is formed into numerous longitudinal folds, which expand so as to become scarcely visible, when the *œsophagus* is dilated, and it is always abundantly lubricated with a mucous fluid.

It thus will appear evident from the description of these organs, that the food does not pass down into the stomach by the force of gravity, but by a regu-

lar series of muscular action ; which muscular action, it may further be observed, is continued from the moment a morsel is taken into the mouth, until it is passed from the body. In this way, solids, and even liquids may be swallowed in an inverted position of the body. We see this frequently exemplified by mountebanks, who will drink a glass of wine while standing on the head.

OF THE ORGAN OF CHYMIFICATION.

The process termed chymification, is performed by the stomach. The stomach is a large membranous bag, situated obliquely across the upper part of the abdomen, lying principally under the margin of the ribs of the left side. Its figure has been not unaptly compared to that of the bag of a bag-pipe. It is capable of holding in an adult man, when moderately distended, about three pints. It is generally described as having two extremities, two curvatures, two orifices, and three coats. The large extremity is situated on the left side of the body ; the stomach gradually diminishes in bulk towards the small extremity, which is situated on the right side. There are two orifices or openings of the stomach ; one at the left, not at the extreme end, but rather at the side, formed by the termination of the œsophagus, and is therefore termed the œsophageal opening, or the cardiac orifice. The opening at the right is formed by the termination of the small extremity, and is denominated the pyloric orifice. It is about three

inches lower than the œsophageal, and is therefore sometimes termed the inferior orifice.

The structure of the stomach is similar to that of the œsophagus. It possesses three coats, of which the external, derived from the lining membrane of the abdomen, termed the peritoneum, is denominated the peritoneal coat. The second coat is composed of muscular fibres; hence it is termed the muscular coat. The fibres consist of two planes, which, like those of the œsophagus, are arranged in different directions. The external plane is longitudinal; it is in fact a continuation of the longitudinal fibres of the œsophagus; it extends from the great to the small extremity, and upon each side of the lesser curvature forms a thick strong muscular band. The second plane is circular; it forms a layer considerably thicker and stronger than the other. It is obvious, that the effect of the contraction of the first plane will be to shorten the stomach, or to diminish its length from extremity to extremity; that the effect of the contraction of the second plane will be to narrow its cavity, or to diminish its capacity; and that the result of these alternate or combined actions upon the contents of the organ will be to agitate them gently, to move them in various directions; and since the pyloric orifice is three inches lower than the œsophageal, to direct them ultimately towards the pylorus.

The pylorus consists of a ring of muscular fibres, covered with mucous membrane. It is placed, as has been stated, at the lesser extremity of the stomach. This ring of fibres form what anatomists term a sphincter muscle, and it is called the sphincter pylori. It completely closes the aperture; and this was necessary, in order that the contents of

the stomach might not escape before they had been duly acted upon by the organ: at the same time, however, it was necessary that the orifice should open as soon as the function should be completed. It was requisite, therefore, to construct a valve which should close the aperture as long as was necessary, and which should open of its own accord, the moment this contrary action was required. This power of contracting on the application of specific stimuli, is a property peculiar to the muscular fibre, and one of the most wonderful endowments of living substance. At present, however, our only object is to point out the admirable use which is made of this property in this particular instance.

The third or inner coat of the stomach is also termed the mucous; it is continued from the inner coat of the œsophagus; but it has more of a velvet appearance, and is more extensive, being folded into numerous doublings, which are termed rugæ. It is this membrane which is more immediately connected with those secretions of the organ by which it performs the most important part of its function.

These different coats of the stomach are connected together by exceedingly delicate cellular tissue. Its blood-vessels and nerves are more abundant than those of any other organ of the body: its nerves especially are remarkable, not only for their number, but also for the variety of the sources whence they are derived. Accordingly, of all the organs of the body, the stomach is most exquisitely sensitive; it partakes, in a most remarkable manner, of all the general actions of the system; it sympathizes in all the changes in its individual organs; it may be regarded as a kind of common centre, by which all

24 OF THE ORGANS ON DIGESTION.

the organic functions are connected together, and their motions regulated. For this reason Mr. Hunter called it the centre of sympathies. This adjustment will appear the more beautiful when the extent of the system of the organs and functions concerned in nutrition, and the necessity of providing some means by which their various actions may be connected and combined, are considered.

OF THE ORGANS OF CHYLIFICATION.

The organs of chylification, or those more immediately concerned in the formation of the chyle consist of the small intestines, the pancreas, and the liver. The small intestines are directly concerned in the process ; the pancreas and the liver are only contributory to it. The intestines taken together consist of a long cylindrical canal, which begins at the pyloric orifice of the stomach, and terminates in the anus. They are divided into small and large. The small intestines, the only part of the tube concerned in the process of chylification are perfectly analagous in structure to the stomach, possessing the same number of coats, which are arranged in the same manner, excepting that the internal or mucous coat is plaited into numerous transverse folds termed *valvulae conniventes*, the object of which is to extend the surface of the membrane, in order to afford a greater space for the absorbing mouths of the lacteal vessels, and at the same time to perform, in some degree, the function of valves, to retard the motion of the chyle, in order that it may be more readily and completely absorb-

ed. The small intestines are divided into the *duodenum*, the *jejunum*, and the *ileum*. The duodenum is so large as to have received the name of a secondary stomach; it is more firmly fixed to the body than the other intestines; it does not like them, float loosely in the abdomen; its muscular coat is thicker; its mucous coat presents irregular rugæ in place of *valvulæ conniventes*. At the distance of about three or four fingers breadth from the pylorus, it is perforated by the termination of the pancreatic and the biliary ducts, which pour into it the pancreatic juice and the bile. Innumerable mouths of lacteal vessels, (so called from the whitish appearance of the fluid they contain, somewhat resembling milk,) begin to appear in this organ, for the purpose of absorbing the chyle; it is here especially that the chyle is formed: the chief use of the jejunum, and ileum appears to be to afford space for the distribution of the open mouths of the lacteal vessels by which it is absorbed: hence in these intestines the *valvulæ conniventes* are large, the villi prominent, and the lacteal vessels much more numerous and manifest.

The pancreas is a salivary gland, situated in the upper and back part of the abdomen, between the spinal column and the stomach. Its office is to secrete a peculiar fluid, very analogous to saliva, which it pours into the duodenum by a distinct duct at the point already indicated.

The liver, the largest gland in the body, in like manner secretes a peculiar fluid, termed the bile, which it pours into the duodenum by a distinct duct, called the *ductus communis choledochus*, at the same point as that at which the duct of the pancreas penetrates it.

26 OF THE ORGANS OF DIGESTION.

OF THE ORGANS OF EXCRETION.

The organs of excretion are the large intestines. They are divided into *cæcum*, *colon*, and *rectum*. They have the same general structure as the small. They are divided from the latter by a valve, termed the valve of the colon, which allows a free passage for the contents of the small into the large intestines, but completely prevents their return. This valvular apparatus, thus placed at the commencement of the large intestines, points out distinctly that the function performed by these two parts of the canal, is essentially different, and indicates with precision the very point where the function of the small intestines ceases, and that of the large commences. Without doubt, the great physiological difference between these two portions of the alimentary canal is, that the small intestines constitute the organs in which the chyle is formed and absorbed; while the large intestines constitute the organs by which the refuse matter is carried out of the system. Few or no lacteal vessels are found in their entire tract; and in a state of health they are not observed to contain chyle. They are however, furnished with a considerable number of lymphatic vessels, which probably absorb the more fluid part of the *fæces*, so that nothing that can ultimately contribute to nutrition may be lost. The chief peculiarities of their structure appear to be intended to render the progress of their contents slow; to retain them a considerable time; and, at last, to allow them to be evacuated only at certain intervals, a disposition which a moments consideration

will show to be absolutely essential to the comfort of the animal.

OF THE DIGESTION OF SOLID ALIMENT.

In the digestion of solid aliment the following changes take place, and in the following order:— The food received by the mouth undergoes a great degree of comminution and softening by the organs of mastication. When thus duly prepared, it is transmitted to the stomach by the act of deglutition. In the stomach it is converted into a uniform and almost fluid mass, which is termed chyme. The chyme passes from the stomach into the first intestine or duodenum, in which organ it undergoes a further change. By the action of certain secretions which are here added to it, it is separated into two distinct, and exceedingly different substances, one of which is termed chyle, and the other fæcula. The chyle is the nutritive portion of the aliment, and is conveyed by a particular set of vessels, the structure and the course of which hereafter to be described, into the blood. The fæcula is that portion of the aliment which is not conducive to nourishment, and which is conveyed out of the body. The conversion of the crude aliment into these different substances involves processes of great complexity and obscurity; but the accumulated observations and experiments of physiologists have put us in possession of many curious and important facts relative to the phenomena which take place, and to their order of succession.

As the stomach is the part we consider to be chiefly and primarily affected in the disease called

28 OF THE ORGANS OF DIGESTION.

Dyspepsia, we will conclude the account of the digestive process with the following article, which more immediately refers to the functions of this organ.

OF THE ARRANGEMENT OF FOOD IN THE STOMACH.

We owe to Dr. Wilson Philip, an interesting account of the phenomena which take place immediately after the food is received by the stomach. The alimentary mass passes first into the cardiac portion of the organ. It is in this part of the stomach that digestion is most actively performed. In cases of sudden death, after a full meal taken, when the person was in sound health, the coats of the stomach itself are apt to be digested ; but this digestion of the organ is most commonly found in its cardiac portion. Dr. Philip states, that if a rabbit be killed soon after eating a hearty meal, the cardiac extremity will be found completely digested in almost every instance ; but that, in the numerous experiments he has performed, he never saw the coats of the organ eaten through, excepting at its large end. Although, after death, the stomach must be equally subject to the action of gastric juice as any other dead animal matter, yet it is not a little extraordinary that the gastric juice of the rabbit, which in its natural state refuses food, should be capable of digesting its own stomach, so completely as to leave not a single trace of the parts on which it has acted.

The digestion of the food always takes place from the surface towards the centre of the mass: the nearer it lies to the surface of the stomach the

more it is acted on, and that part of it which is in actual contact with its wall is more digested than any other portion.

The new food is never mixed with the old : the new is always found in the centre, surrounded on all sides by the old : if the old and the new are of different kinds, the line of separation between them is so evident, that the old may be completely removed without disturbing the new ; and if they are of different colours, that line can often be distinctly traced through the walls of the organ before it is opened.

In proportion as the food is digested, it is gently moved along from the cardiac towards the pyloric end. As the layer which lies next the surface of the stomach first undergoes the requisite change, and is propelled onwards by the muscular action of the organ, so the portion which lies next it succeeds in turn to be submitted to the same process. The gastric juice, at the same time, pervades in a greater or less degree, the entire alimentary mass, so that when the central part comes into contact with the surface of the stomach, its digestion is already considerably advanced.

The food remains in the stomach upwards of an hour before any change in it becomes perceptible. It is supposed that a meal is completely digested in the human stomach in about four or five hours. It has been stated that, as the aliment is digested, it is gradually accumulated at the pyloric extremity of the stomach. This portion of the food has experienced the most complete digestion which it is capable of undergoing in this organ, and is termed chyme. Chyme is a pultaceous and almost fluid

substance, of a greyish colour, of a sharp odour, and of an acid taste, reddening paper coloured with turnsole. It is commonly said to be perfectly homogeneous in its nature, and that, whatever be the species of the food, the resulting mass is uniformly the same, never exhibiting any of the sensible properties of the crude alimentary matter. But this statement is not correct; for we learn by actual experiment that chyme produced from vegetable differs in colour, in consistence, and in some other sensible properties from that procured from animal substance.

When thus completely formed in the stomach, the chyme is gradually propelled by the alternate contraction and relaxation of the muscular fibres of the organ towards its pyloric extremity. Here it accumulates in a certain quantity before it is permitted to pass through the pylorus; which as has been stated, consists of a ring of muscular fibres, of the structure and arrangement of which it is impossible to convey an accurate idea by any description. It would appear that the accumulation of the chyme at this extremity of the stomach, never exceeds four ounces at any one time. M. Magendie states that in the numerous experiments in which he has had an opportunity of observing it, he has uniformly remarked that when it amounts to about two or three ounces, it is admitted through the opening of the pylorus into the duodenum. Nothing in the animal economy is more curious and wonderful than the action of that class of organs of which the pylorus affords a remarkable example. If a portion of the undigested food presents itself at this door of the stomach, it is not only not permitted to pass, but the door is closed against it.

with additional firmness: or, in other words, the muscular fibres of the pylorus instead of relaxing, contract with more than ordinary force. In certain cases, where the digestion is morbidly slow, or when very indigestible food has been taken, the mass is carried to the pylorus before it has been duly acted on by the gastric juice; then, instead of inducing the pylorus to relax, in order to allow of its transmission to the duodenum, it causes it to contract with so much violence as to produce pain, while the food, thus retained in the stomach longer than natural, disorders the organ; and if the digestion cannot ultimately be performed, that disorder goes on increasing until vomiting is excited, by which means the load that oppressed it is expelled. The pylorus is a guardian, placed between the first and second stomach, in order to prevent any substance from passing from the former until it is in a condition to be acted upon by the latter: and so faithfully does this guardian perform its office, that it will often, as we have seen, force the stomach to reject the offending matter by vomiting, rather than allow it to pass in an unfit state: whereas, when chyme duly prepared, presents itself, it readily opens a passage for it into the duodenum, where its further conversion into chyle is performed.

In addition to the foregoing anatomical Sketch of the Organs of Digestion, it may be remarked, that the stomach is principally supplied with nerves by a large pair, pro-

ceeding directly from the brain, called the *Par Vagus*. These in their course send branches to the pharynx and larynx, the œsophagus, the vessels of the neck and heart, the lungs, the liver, the spleen, and sometimes to the diaphragm. This distribution will account for many of the sympathies which have been observed between the stomach and other parts; as for instance, the hysterical affection of the throat when the stomach is distended with wind; the effect of vomiting by tickling the throat; and the affections of the lungs and heart, consequent upon a disordered stomach.

From the preceding description, the reader will readily perceive the high and important station the stomach, from its situation, connections, and functions, holds among the digestive organs. It might indeed with propriety be termed the chief organ of digestion, to which the others are but subservient. It may here be mentioned as not a slight proof of the important rank this organ holds in the living system, that the first

rudiment we have of animal life, in ascending upwards from the vegetable kingdom, is simply a stomach, which organ alone seems to constitute the being of the lower class of animals.

It is not therefore to be wondered at, that any derangement of the functions of the stomach should produce so great an effect upon the system generally. By understanding the relations it holds, either directly or indirectly, with the different parts of the body, the various symptoms that shew themselves in distant parts, when this organ is affected, may readily be explained, and traced to their source. We need not thus, go farther than a primary derangement of the stomach, to account for the multitude of diverse, and often seemingly anomalous symptoms that present themselves in *Dyspepsia*.

SECTION II.

Symptoms of Dyspepsia.

The manner in which the disease makes its approaches is generally very insidious. Although, now and then, the powers of the stomach are suddenly prostrated, from causes producing a violent effect upon it, such as poisons, swallowed accidentally or taken in injudicious quantities as medicines, and the aggravated symptoms of dyspepsia produced in a short space of time; yet, in most instances, its attacks come on in a gradual manner. Most commonly, it is only by looking back, after the disease has become established, that the patient is able to trace its hitherto unsuspected approach. The first indication he has of any thing being the matter with his stomach, is an occasional disagreement with it of particular articles of food; such, for instance, as rich made-dishes, or articles palpably indigestible, but which he has hitherto, as the phrase goes, always found to

sit well on his stomach. Or he finds that a meal a little fuller than usual, produces more uncomfortable feelings than it was wont to do. He is troubled, on these occasions, with flatulence, a sense of oppression and load at the region of the stomach, and often with acidity; and not unfrequently there is a sense of constriction, as if a girdle was drawn tightly around the body. A general heaviness, and an indisposition to exertion, either bodily or mental is experienced; as if the stomach being engaged with a harder task than usual, the energies of the system were concentrated to its support, by which the other parts were left to perform their functions more languidly. A feeling of chilliness, or a slight shivering, frequently marks this condition of the system.

After a certain time, however, the stomach having accomplished its work by means of a little extra labour, these symptoms gradually subside, and the individual feels as well as ever. Perhaps even, the pleasurable feelings consequent upon

relief from uneasiness, and the natural reaction of the constitution, when this has not been broken down by repeated excesses, may cause him to fancy himself in a better state of health than ever. Most commonly, the warning thus given is neglected; or if a resolve to be more careful for the future is made, a few weeks of undisturbed digestion are sufficient to melt it into air. By-and-by, however, another and still another attack of these uncomfortable feelings comes on; each more frequent in its recurrence, more aggravated in its nature, and of longer duration; and excited by slighter excesses in eating, and by articles which were previously easily digested. The patient now begins to feel emphatically that he has got a stomach. He complains that such and such dishes do not agree with him, and from the experience of their prejudicial effects, is induced either to forego them altogether, or if too much the slave of his palate for this, is at least obliged to indulge in them more sparingly. Frequently

recourse is had on these occasions, to artificial stimulus, such as the condiments of the table, mustard, pepper, &c.; or too often to a glass of brandy or spirits, which by exciting the stomach to an increase of action, and communicating a pleasurable glow to the system, affords temporary relief, but is sure to leave the stomach in a state of increased debility.

Habitual costiveness, or an irregular state of the bowels is usually the attendant upon this state of things. Often this is the first and only symptom of any thing being wrong, and the patient will tell you that could their regular action be restored, he should be perfectly well. With this view, he resorts to purgative medicines, which afford temporary relief, but are sure in the end to aggravate the disorder. Besides increasing the torpor of the bowels, there is no doubt a great deal of injury often done the stomach by a frequent use of purgatives, particularly those of a drastic nature, which tend directly and certainly, to enfeeble the tone of this latter

organ by their repetition. Aperient medicines are less objectionable, and often times they will be found indispensable. The most proper kind, and the best time for taking them, will be noticed when we come to speak of the treatment.

In this first stage of the disease, which may rather be termed a tendency to dyspepsia than the disease itself, attention to diet and regimen, and a strict avoidance of the causes which produced the weakness, will often be sufficient to restore the tone of the stomach. Thus, a change from a very warm to a more temperate climate, when excessive heat has been the cause of general debility of the system, and of the stomach in particular; travelling, regular exercise, particularly on horseback, and above all regularity and moderation in eating and drinking, will in most cases restore the patient to his accustomed health. If, however, these means are neglected, the patient continuing to transgress the bounds of

temperance in his diet, and to expose himself to the causes which induced the derangement of the stomach, then matters will inevitably go on from bad to worse. The uneasiness of the stomach after eating, from being occasional becomes constant. All the other symptoms above enumerated become more aggravated and permanent. The head now begins to sympathize with the disordered stomach. The patient does not complain so much of violent or acute pain, as of an unpleasant feeling in the head, which he cannot very well describe. He also now frequently complains of a mistiness and indistinctness of vision, particularly if the eyes have been exercised a little more than usual. The tongue in this stage of the complaint, is generally covered with a whitish coat, and there is an unpleasant taste in the mouth, particularly on rising in the morning; at which time a dull heavy pain, and sense of weight in the head is generally experienced. Often a dizziness, amounting

sometimes to vertigo, with a sudden fear of falling comes upon the patient. On these occasions he frequently experiences a temporary loss of memory, and knows not for the moment where he is. His complaints are now characterized as nervous.

A common sensation complained of by a dyspeptic, is a sense of emptiness, or a void at the pit of the stomach, exciting a frequent desire of food, without the natural feeling of hunger. Nor is this morbid craving satisfied by eating. A slight nausea often occurs without any known cause, or upon eating an article of food that previously had always proved grateful to the palate. Often too, when the patient sits down with, as he supposes, a keen appetite to some favourite dish, he feels a sudden disgust and repugnance to partake of it : at other times, articles usually distasteful, are sought after and swallowed with avidity. In short, the stomach is in that wayward, fickle state, that a desire to eat is sometimes felt without

hunger; and again, the natural appetite, by some unaccountable caprice of the organ, is succeeded, before indulging it, by a sudden feeling of satiety.

Cold feet and hands are generally indicative of a confirmed state of dyspepsia. The pulse is less frequent, and more feeble than usual. The movements, both of mind and body, are performed more slowly, and a general languor and exhaustion pervades the system. When the patient is addressed, there is a tardiness in replying, as if it took him some time to comprehend and frame an answer to a simple question. The spirits are much depressed, the countenance exhibiting a peculiar settled character of despondency, and the eye a dull, leaden, lacklustre expression, as if it regarded all things with equal indifference.

A peculiar torpor, of the faculties of the mind, perceptible to none more sensibly than the unhappy subject of it, attends this state of things. Generally after eating,

he is affected by an irresistible drowsiness, or stupor, which unfits him for the least mental exertion. He cannot command his attention sufficiently to peruse even a page of a novel, or a paragraph in a newspaper : and the simple operation of adding together a few figures, causes him as much mental labour as if it were one of the most difficult problems in mathematics. Though in health pleasant and good tempered, little things now vex and annoy him ; and almost literally is “ the grass-hopper a burden.” A peculiar sense of tightness or constriction about the throat, accompanied with a secretion of tough viscid mucus, is often complained of. Frequently, also, a palpitation of the heart, with irregularity of the pulse, is attendant upon a protracted case of dyspepsia, and the horrors of an apprehended disease of this organ are added to the mental sufferings of the patient. The respiration is very commonly more or less affected, particularly on making slight exertions, such

as ascending a flight of stairs; and frequently when no exertion is made, there is a tendency to sigh, or draw a long breath. The flatulence, which in the earlier stages of the complaint was a trifling inconvenience, and one that could easily be overcome, now assumes a more formidable and obstinate character.

An invariable symptom of protracted dyspepsia, is a sense of tightness across the abdomen, accompanied with an obstinately constipated state of the bowels. There seems, indeed to be a torpor, amounting almost to a complete suspension of the peristaltic motion, requiring the constant use of cathartic medicines.

This derangement of the functions of the stomach cannot continue for any length of time without other organs participating in the disorder. The organs that are most liable to become affected are, the lungs, the liver, the kidneys, and the intestinal canal. More particular notice will be taken of these sympathetic affections, when we come to

speak of the diseases that are apt to be confounded with dyspepsia.

Although oftentimes the disease remains stationary for years, with very little increase or diminution of the symptoms, yet sometimes its progress is fearfully rapid. When this happens, all the symptoms become more aggravated in their character. The emaciation, at first not very great, now becomes excessive. Extreme debility prevents the patient from taking his accustomed exercise; and at length confines him entirely to his bed. So completely enfeebled are the powers of the stomach, that the most simple food, taken in the smallest quantities, produces the greatest distress of a surfeit. The faculties of the mind seem also prostrated with the energies of the body. An extreme nervous agitation, rendering the patient susceptible to the slightest impression, or else a state of torpor, and apathy, in which the faculties seem completely benumbed, like the second

childhood of old age, marks the last, and most commonly fatal stage of the disease.

We seldom, however hear of persons dying with dyspepsia. The reason of this seems to be, that when its progress has continued for any length of time, the disorders of organs secondarily affected, the lungs or liver for instance, are so predominant that they swallow up the original disease. This is not always the case, and we now and then see persons expire, as it were, from inanition, the powers of the stomach being completely lost.

In this summary, and as we are well aware, imperfect sketch of a disease, Protean in its symptoms, but in reality single and uniform in its nature, we have enumerated three stages, which may be termed,

1st. *The incipient stage*—in which the stomach is slightly, and occasionally affected; and the disease makes its appearance in paroxysms, at first occurring at long intervals, but by degrees becoming more fre-

quent and aggravated. In this stage, the disease is entirely local in its character; the system at large, with the exception perhaps of the head, being very little affected.

2d. *The confirmed stage*, when the functions of the organ are permanently deranged, and the patient has no respite to his sufferings. The uneasiness at the stomach, the unpleasant feelings about the head, and the affection of the nervous system generally, though aggravated at particular periods, especially after eating, are constant. A slight cough, difficulty of respiration, occasional pain in the region of the liver, emaciation, and debility felt particularly at the knees in walking, characterize this stage of the disease.

3d. *The complicated Stage*—in which the functions of other organs, as the liver, the lungs, or the bowels become more particularly involved in the general derangement; and frequently an affection of one of these organs will assume the most prominent character in the disease. Thus the

patient will be said to die of liver complaint, an affection of the lungs, marasmus, dysentery, diarrhœa, or some anomalous complication of all these affections, conveniently classed by the Doctor, when he renders his account to the Sexton, under the sweeping term consumption. Dyspepsia, in this manner, the original fountain of all the mischief, escapes the odium that ought in strict justice to be attached to it, and is generally considered a disease, which however aggravated and tedious, never proves fatal: and the poor dyspeptic, who has got a confused notion about the impossibility of two diseases prevailing in the system at the same time, comforts himself amidst his suffering, with the idea that his malady will be a preventive of all others.

It must not be supposed that these stages are distinct, and can always be discriminated by their symptoms. On the contrary, they often make their appearance without any regular order; different parts being affected not so much in proportion to the duration of

the disease, as to the peculiar constitution of the individual, and the relative strength and soundness, or pre-disposition to disease of different organs. Thus a person of nervous temperament will suffer more from nervous agitation, and general irritability, than one of more rigid fibre, who is not so readily affected by external impressions. In an individual pre-disposed to affection of the liver, this disease will early shew itself: and in the same way, symptoms of pulmonary disease will manifest themselves in those of weak lungs. In short, in a disorder of this sweeping, and overwhelming character, where the whole and every part of the system is successively pervaded, the weakest organs will be the first to give way; as fire naturally spreads in the direction of the most combustible materials.

As some consolation to the dyspeptic, however, it may be remarked, that an aggravation of symptoms does not by any means necessarily follow a milder form of the complaint. On the contrary, patients

will frequently go twenty, thirty, or even fifty years, without any perceptible alteration in their symptoms : and not unfrequently a cure seems to be effected by a spontaneous effort of nature.

Without expatiating too largely on the melancholy detail of sufferings which characterize this disease, a few symptoms, which as they occur but occasionally, might be termed *anomalous*, may be added to the sad catalogue. So that the unhappy dyspeptic who peruses these pages, must not imagine his sufferings peculiar to himself, but understand that if not precisely to be enumerated among the ordinary evils “ which flesh is heir to,” they are at least such as afflict many of his species.

Sometimes a coldness of a particular spot in the head, or a peculiar throbbing behind the ear, or over the eyes, will usher in a paroxysm of the complaint. Often the voice is affected, and the patient complains of difficulty in speaking loud ; and of experiencing a peculiar jarring sensation through

the chest, when he does so. A sense of numbness, and coldness is often felt at the stomach; and sometimes a weight, as if a lump of lead were contained in it. More than once, have I been told by a sufferer, that he felt as if a number of wires passed up from the stomach to the brain, and there ramifying into innumerable small branches, communicated a sort of jarring, or vibrating sensation, to each particular nerve. Pains between the shoulders, and in the small of the back are common. Cramps of the extremities, stitches in the side, pains in the joints, and a general soreness, and weariness of the whole frame are often experienced. In short, every part and spot of the body seems to be liable to pains, aches, and anomalous indescribable feelings of some kind or other, in the progress of the disease; and we might almost fancy Shakspeare to have had a dyspeptic in his mind's eye, when he makes Prospero threatening Caliban, say—

“ For this be sure, to-night thou shalt have cramps,
Side stitches that shall pen thy breath up :

Thou shalt be pinch'd

As thick as honey combs, each pinch more stinging
Than bees that made them."

And again—

" I'll rack thee with old cramps ;
Fill all thy bones with aches ; make thee roar
That beasts shall tremble at thy din."

SECTION III.

Of the causes of Dyspepsia.

As a knowledge of the causes of any disease always assists us in rightly understanding its nature, and is the best guide to a successful plan of treatment ; it will be proper, before detailing the mode of cure in the present instance, to advert to the causes, which we find by experience, most commonly produce dyspepsia. These may be chiefly summed up under the general heads of *Error in Diet*, and *Want of proper Exercise*. To which may be added *Whatever tends to induce general debility of the system*.

OF ERROR IN DIET.

Error in Diet may be considered in three points of view ; viz—as respects the *quantity*, the *quality*, and the *time and manner* of taking food.

Of Error as regards the Quantity of Food.

Error in respect to the quantity of food, is perhaps the most frequent of these sources of disease. Over-eating, gormandizing or by whatever term, a habit of distending the stomach beyond its natural capacity, may be known, is probably the cause of more than one half of all disorders of the stomach. The immediate effects produced in this way, are mechanical, and precisely similar to what takes place, when a muscle, or set of muscles in any other part of the body loses its tone from excessive action. The stomach, it must be remembered, is a hollow muscle; and by adverting to what happens in analogous organs—the bladder for instance, in which nothing more certainly induces a loss of tone, than simple over-distension, we might, almost with certainty predict the effect that would follow a habit of cramming the stomach, even with food of the most digestive nature. A habit of

taking into the stomach large quantities of liquid ; warm tea for instance, in which the relaxing effect of heat is added to the mechanical one of distension, naturally leads to the same consequences.

A deficiency in the quantity of food, although, from the bountiful provision of Nature, not so common, especially in our own country, is a no less certain cause of inducing debility of the stomach. We see this exemplified in the case of persons who have been reduced almost to a state of starvation, by being placed in situations, where they were obliged to subsist upon an extremely small quantity of food. Under these circumstances, the stomach becomes so enfeebled, that when a supply of food is obtained, a comparatively small quantity produces the most distressing symptoms ; and great caution must be observed, in gradually adapting the quantity of aliment to the slowly increasing strength of the organ. The effect upon the stomach in this instance, is also similar to that of want of exercise

upon other muscles of the body, by which they lose after a time their tone and power of acting.

The precise quantity of aliment that is best for the stomach in its healthy state, is modified by so many causes, as habit, the quality of food, the quantity of labour or exercise undergone by the individual, &c. that it is not possible to lay down any rule upon this point; any more than to determine, without a previous knowledge of the constitution and habits of an individual, how much exercise he can perform by a muscle, or set of muscles in another part of the body. One man, from habit, can exert a particular set of muscles, as in the exercise of walking, sawing wood, or the performance of any laborious occupation, all day long, without experiencing any very great fatigue; while another, although perhaps equally strong, or even stronger, but unaccustomed to the particular exercise, could not make the same exertion for an hour, without great pain and weakness. In the same way, one

stomach may become accustomed to digest a much greater quantity of food than another. We must not however, fall into the error of supposing, that the stomach can by habit, be brought to digest a quantity of food much beyond that which is required for the nourishment of the body; at least of doing this for any length of time. Here also we may take a hint from the effect of excessive exercise upon the muscular system at large. Men who accustom themselves to violent exercise, as the professed pugilists of England, harlequins, rope-dancers, and those who exhibit feats of strength, are seldom long-lived: and, although the ill effects of excessive exertion may not be experienced at the time, yet they are universally found to wear out sooner than those who accustom themselves to more moderate exercise. The celebrated clown Grimaldi, it is said, died with all the marks of old age, at a period which is usually considered as the prime of life. It was also remarked of the Ath-

letæ who engaged in the Olympian games, that an instance of the same person obtaining a prize in youth, and in mature manhood, was extremely rare. And the English boxers, who carry the system of training or bringing every muscle of the body to its highest pitch of strength, by a course of severe exercise, are generally thought to be past their prime when they have attained the age of thirty. Let not therefore the over-fed gourmand, who fills his belly to repletion with the good things of the table, and carries off in that capacious receptacle, more than twice the quantity a temperate man could bear, flatter himself with the idea, that the power of his stomach will always keep pace with the cravings of his morbid appetite. On the contrary, he will sooner or later find this organ falling into a state of premature decay, and failing him when he least expects it; and if not suddenly taken off by some violent disorder, as a fit of apoplexy, he will most certainly in the end, fall a victim to the immediate,

or remote effects of the most aggravated dyspepsia.

Of Error in regard to the Quality of Food,

It does not come within the scope of the present treatise, to enter into any thing like an enumeration of the various articles of diet in common use ; much less to discuss their relative digestible, or indigestible properties ; the object being simply, in enumerating the causes of dyspepsia, to state a well known fact, viz—that the stomach is very often injured by the use of articles of food, that are with difficulty digested. We have seen, that the digestive organs in man are adapted to the reception of both animal and vegetable food. The inference to be drawn from this, would be, that a certain mixture of these two kinds of food is his most natural diet ; and the one most conducive to full health, and vigour of the body.

Animal food, being already in a measure assimilated to the material of the body, re-

quires to undergo less change, and is consequently more easily digested than vegetable. It is also more nutritious. Life can be longer sustained by an equal quantity of animal, than vegetable food. Being however more stimulating in its properties, it is manifestly injurious in many states of the system, particularly when there is any febrile tendency. Its excessive use in all cases seems sooner to wear out the powers of life. Vegetables, on the other hand, contain less nutriment, and are less stimulating, but are digested with greater difficulty. A certain quantity of articles of a vegetable nature, seems necessary to give bulk to animal food, and to dilute as it were its stimulating qualities; somewhat like the addition of nitrogen in atmospheric air, which serves, by diluting the oxygen, to render it fit for the purposes of respiration. There is this difference, however, that vegetables contain of themselves, a certain proportion of nutriment, and can very well sustain life;

whereas nitrogen alone cannot for a moment support respiration.

We find, that according to the labour, and consequent exhaustion of the system which we undergo, we require a proportionably larger quantity of nutriment, and vice versa. Hence we derive the dietetic principle, that he who leads an active, laborious life, requires more animal food, than one of sedentary habits. It is therefore, an error in diet, for a person of the latter description to take much animal food. Indeed, the most common as well as the most prejudicial error, is that of making too free use of that kind of aliment. We all eat too much meat.

In general, the most indigestible articles are ; substances of a fatty and oily nature—these contain a large proportion of nutriment, but are extremely difficult of digestion. All kinds of pastry, confectionary, rich soups, and those culinary preparations known by the name of made-dishes, are manifestly unwholesome. In short, it may be laid down as a general rule, that the far-

ther we depart from simplicity in cooking, and preparing our food, so much the more difficult of digestion do we render it.

The excessive use of strong tea and coffee tends to impair the powers of the stomach, producing those dyspeptic symptoms known by the term *nervous feelings*. The use of tobacco in any form, has the same tendency.

And last not least, to the articles that produce an injurious effect upon the stomach by their quality, may be added wine and ardent spirits. The consequences arising from the use of these stimulants, particularly the latter, have most generally been considered with regard to their action upon the brain, and the deterioration of the mental powers, and moral character of the individual. But it must be remembered that they act directly upon the stomach in the first instance, and through the medium of this organ upon the system generally. There is therefore, little doubt, that very many of the sufferings, and uneasy sensations of the

drunkard depend upon his deranged stomach; and to the ruin of his reasoning faculties, and moral worth, may be added all the horrors of the worst species of dyspepsia.

Of Error as regards the Time and Manner of Taking Food.

The last error of diet to be mentioned, is that respecting the *times*, and *manner of eating*. These will be further noticed when we come to speak more particularly of diet, As causes of dyspepsia, it may simply be observed, that a habit of excessive abstinence, or allowing too long an interval to elapse between our meals; eating too frequently, whereby the stomach is not permitted sufficient repose between its periods of action; and lastly, a habit of eating too fast, by which the food is not properly prepared for the stomach by mastication, all tend to produce derangement of this organ. Eating when the system is in a state of excitement, either from bodily exercise or

mental agitation, is liable to produce an injurious effect upon the stomach. Nature teaches us the impropriety of receiving food into the stomach at such times, by taking away the desire to eat.

OF WANT OF PROPER EXERCISE, A CAUSE
OF DYSPEPSIA.

In the division we have adopted, of the most common causes of dyspepsia, the next to be considered is *a want of proper exercise*, as tending to produce the disease. Next to the error of over-eating, and often connected with it, this one of not taking a sufficient quantity of proper exercise, is the most frequent. We know by experience, that a certain quantity of exercise is absolutely necessary to the preservation of health. In the effects it produces upon the system, the stomach seems to be the part most immediately influenced. By the use of moderate and well regulated exercise, a tone is given to this organ, and a power of

performing its functions with vigour; unattainable by any other means. A person need only attend to the difference in the state of his sensations at dinner time, after having rode, or taken active exercise all the morning, and those experienced when he has been confined to his desk, or counting-room for the same period, to be satisfied of the truth of this observation. In the former case, his appetite is keen, and his stomach capable of vigorous digestion; in the latter, he feels languid, has comparatively but a feeble appetite, which perhaps he is obliged to excite by some stimulant, as a glass of wine and bitters, and he seems to eat more from habit, than from the natural stimulus of hunger. We are thus, not surprised at the great difference between the digestive powers of the labourer, and those of the student, or the man who follows a sedentary occupation. The peculiar manner in which exercise affects the power of digestion seems to be the following. In all the movements of the body, particularly the

most natural and common ones, such as walking, running, riding, &c. a certain degree of agitation or jolting, is communicated to the stomach and bowels, which seems to be their natural stimulus. When this stimulus is wanting, or when, from a certain condition of the system, it is prevented from being communicated to these organs, they fall into a state of debility. The muscular power of the stomach becomes enfeebled; and the peristaltic movement of the intestines is slower. We thus see the greater value of some kinds of exercise compared with others. Riding on horse-back gives this action to the stomach in a greater degree than most other exercises. Hence its superior utility in diseases depending upon debility of this organ. Without entering at present, into any further discussion concerning the *modus operandi* of exercise, it may be sufficient to remark, and all experience confirms the fact, that exercise strengthens, and the want of it debilitates the tone of the stomach; that in proportion to the quan-

tity of exercise, provided it is not carried beyond a certain point, are the powers of digestion invigorated, and that those who lead sedentary lives, compose a very large proportion of the martyrs to the disease under consideration.

Particular kinds of exercise, and their relative advantages, will be more fully noticed in the chapter on this subject.

CAUSES PRODUCING GENERAL DEBILITY.

Whatever tends to debilitate the system generally, has more or less effect in weakening the tone of the stomach. Causes of this nature, however, are in general only operative, when there is a natural feebleness of the organ; or when some of the causes already enumerated concur. Thus the system may be reduced to a state of extreme weakness, without the stomach being affected in a proportionably greater degree than other parts; and this organ on a return of the general strength, will recover its tone

along with the others. But generally in such cases, the weaker organs will be the first to suffer, and the last to recover their tone ; and in this manner, where there is a pre-disposition to the disease, symptoms of dyspepsia will ensue, as consequences of a fit of illness, or of a general prostration of the system, from whatever cause.

In this class of causes, tending to produce dyspepsia, may be enumerated—profuse evacuations of whatever nature ; copious and frequent blood-lettings ; mental affections, particularly those of a depressing character ; intense study ; the action of powerful medicines upon the system ; as for example, large and often repeated doses of calomel ; (these also exert an immediately prejudicial action upon the stomach.) The relaxing effects of heat upon the system ; whence the prevalence of diseases of the digestive organs in warm climates, and the aggravation of all their symptoms during the summer months : any thing in short, that

tends to prostrate the system, or weaken the powers of life, may be enumerated among the causes of dyspepsia.

SECTION IV.

*On the particular condition of the Stomach
in Dyspepsia.*

Viewing the stomach as the original seat of the disease, the next point to be determined is, what part and function of the organ is most particularly affected; and what are the changes induced in neighbouring parts. It is evident, if this is satisfactorily determined, that we shall have a clue to the proper mode of treatment; and our remedies not being directed at random, will have a much better chance of success. Indeed, in all diseases, the most difficult point often is, to determine accurately the nature of the disorder, and the precise changes which take place in the functions of affected parts. When this is clearly ascertained, more than half the battle is won.

Concerning the precise nature of the derangement of stomach which exists in a com-

mon case of dyspepsia, there has been a variety of opinions. On this, as on many other points, Doctors differ. Some have supposed it to consist in a diminished quantity, or vitiated state of the gastric fluid; or in a morbid secretion from the inner coats of the stomach. Some have vaguely ascribed it to a peculiar acid generated in the stomach. Others again, have confounded dyspepsia with chronic inflammation of the mucous membrane of this organ. Another class, denying that the stomach is the seat of the disease, maintain that all cases of dyspepsia originate and consist in a torpor of the liver, and a deficient secretion of bile. Now all these conditions, without doubt, may exist in the state of parts constituting dyspepsia; and will of course, when existing, produce their peculiar symptoms, and require a modified treatment. The most probable proximate cause of the disease that has been suggested, the one most in accordance with the exciting causes, and most fully agreeing with the symptoms, and the effects of the

ordinary methods of cure, seems to be, "That it consists mainly, in a debility, or loss of power of action in the muscular coat of the stomach." We have seen that the different layers of fibres composing this coat, are strong and well adapted by their situation and direction, to exert a powerful action upon the contents of the organ. By means of these muscular fibres acting in a regular manner, the food is gradually moved about, and every portion of it applied in succession to the inner surface of the stomach, and exposed to the action of the gastric juice, which is at this time plentifully secreted. Being churned up in this manner, after a certain period it becomes converted into the pulpy, homogeneous mass, termed chyme, and by a further action of the muscular fibres, is propelled through the pylorus, or lower opening of the stomach, into the small intestines; where the process of its conversion into chyle is effected. Muscular fibre, in every part of the body, it may be observed, is subject to its peculiar

diseases. One of the most common of these, is a loss of its power of contracting.

Now it is plain, that if the fibres constituting the muscular coat of the stomach lose their power, either from a deficiency of the nervous influence, or an inherent want of contractibility; or if, instead of performing the regular series of movements, which takes place during healthy digestion, they act irregularly, the process of chymification must either be suspended, or imperfectly performed: and as this process is the most important, and after mastication, the first link in the chain of the digestive process, those that follow must necessarily become more or less deranged.

But let us see, what would be the immediate, and necessary effects, consequent upon a feeble, or imperfect action of the muscular coat of the stomach; and how far they agree with the symptoms usually complained of by patients. In the first place, after taking an ordinary meal, the stomach not contracting firmly upon its contents, instead

of the healthful, and rather agreeable sense of tension and fulness, accompanying this condition of the organ; a feeling of hollowness, languor, and oftentimes faintness, is experienced by the individual. This sensation is not generally felt until about half an hour or an hour after eating; the stimulus of the food seeming to excite some degree of action, which will continue a certain time, even in the most enfeebled stomach; as a very weak person may be excited to powerful exertion for a little while, by means of strong excitement. As soon however, as the powers of the stomach begin to flag, the peculiar feeling of emptiness and uneasiness is experienced. Here it may be observed, that as long as the different functions of the body are performed in a healthy manner, by a wise provision of our nature, we are totally unconscious of the many actions that are constantly going on within us. Thus, in a state of health, we are not conscious of the action of the heart, the circulation of the blood, the various processes

of absorption and secretion, the peristaltic motion of the intestines, and the function under consideration, the healthful action of the stomach. As soon, however, as these functions are interrupted, there is a change in the sensations. Let the heart cease its pulsations, or any of the regular movements going on in the system be suspended, and we are at once made sensible of the fact, by the peculiar unnatural feelings at the part.

Now in the state of stomach under consideration, the food not being properly acted upon, that is, churned up, and exposed to the full action of the gastric juice, (even supposing this to be of a healthy nature,) lies as it were like a dead weight, and as such is complained of by the patient, until at length, by a longer continued action of the gastric juice, assisted by the weak and irregular efforts of the muscular coat, the proper change is effected. During this process, there seems to be a concentration, or rallying of the nervous energy, or vital

principle at the weak point. The mental powers are for the time, to a certain degree suspended; the blood is driven from the extremities towards the centre, leaving the feet and hands cold; and instead of the pleasant glow, which in health usually succeeds a full meal, a feeling of chilliness and slight shiverings are often experienced. The whole system, in a word, appears to sympathize with the over-laboured organ; and all the functions, mental and physical, are performed for a time, more feebly. Often a sense of coldness, and sometimes of numbness, is felt at the stomach itself; and the patient will complain of a feeling of deadness and want of action in the part. In the mean while, the nerves of the stomach, (which organ, as the reader may remember, has been termed the centre of sympathies,) being exposed to the irritation of the undigested mass, it is no wonder that a general disturbance of the nervous system should be excited.

A strong argument, in favour of a debilitated condition of the muscular coat of the stomach being a proximate cause of the disease under consideration, is that those remedies which are supposed to act more immediately upon the muscular fibre, either directly, or through the medium of the nerves, give the greatest and most speedy relief. Thus brandy, bitters, the condiments of the table, and the class of remedies denominated tonics, are generally resorted to, either as preventives or palliatives of these uneasy feelings. As these remedies, however, generally produce their effect by exciting an undue, or over-action, they most commonly, in the end, leave the stomach in a still weaker condition. This is in accordance with a law of the animal economy, by which it appears that those medicines or remedies, which produce excessive action, or one greater in degree than is ordinarily performed in health, require a gradual increase, both in quantity and quality, to keep up the same effect; and when

discontinued, generally leave the part or organ in a weakened condition ; while on the other hand, these stimulants, that act by merely bringing a part to perform its natural functions, may be gradually withdrawn, without diminishing the effect ; and the restored organ will retain its tone.

It is upon this principle, that the true application of all medicines chiefly depends ; and by a neglect of it, much injury has often, doubtless, been produced. In this way, a judicious course of tonic medicines, given repeatedly and in small doses, so as never to cause excess of action, has often a very happy effect in this condition of the stomach. The difficulty, however, is in the adaptation of the kind and quantity of the stimulus, so as to keep up the desired effect, without carrying it so far as to leave a corresponding state of debility.

Taking it for granted then, (whatever may be the other changes, either as to a diminution, or vitiated state of the gastric juice, or secretions of the stomach,) that the muscu-

lar coat is in this relaxed, debilitated condition, the question presents itself, what is the best method of restoring its tone. Now we have seen, that exercise appears to be a natural stimulus to the stomach; and one which in a state of health, it absolutely requires. We have seen further, that, independently of the rapid and constant change of air, to which the beneficial effects of exercise have been attributed by some, and the increased circulation attendant upon exertion of any kind, a certain degree of agitation, or jolting, by which a series of little concussions is communicated to the stomach, is necessary to ensure the full effects of exercise.

We thus see that the operation of exercise, in giving tone to the stomach, and digestive organs generally, is to a very great degree, at least, purely mechanical. The attempt, therefore, to stimulate the stomach mechanically, in a manner, as nearly as possible resembling the effect of exercise, is by no means an absurd one. And if we find by experience, that in a majority of cases,

an increase of tone may be thus communicated to the stomach, and that the symptoms throughout the system generally, consequent upon its derangement, may be removed, the presumption is that the plan of treatment is a good one; and if no injurious consequences are found to ensue, we are confirmed in the propriety of making use of it.

Stimulating the stomach, then, in a manner resembling as nearly as possible the action of natural and healthful exercise upon it, is the principle upon which the method of cure about to be detailed, is founded. The manner of doing this will be more fully treated of, in the chapter devoted to this subject; the object at present being merely to shew, that this relaxed state of the muscular coat of the stomach does exist, and that an attempt to restore its tone, and excite it to action by a mechanical stimulus, is both rational and philosophical. And, on the other hand, if by means which directly tend to excite and stimulate to action mus-

cular fibre, we succeed in restoring the organ to its healthy state, the direct inference is that a debility, or want of tone in these fibres, constituted, in a great measure, the disease.

SECTION V.

*Of the State of the Abdominal Muscles in
Dyspepsia.*

A very characteristic feature of this disease, and one, it is believed, never yet noticed by writers on the subject, or particularly attended to by physicians in its treatment, is the condition of those muscles which form the parietes, or walls of the belly, called the abdominal muscles.

A short description of these muscles will be necessary, in order that the general reader may understand their situation, uses, and connections; and how any change in their condition will affect the system generally.

The whole of the front and sides of the abdomen, from the edge of the ribs to the pelvis, is composed principally of four pair of large and strong muscles, viz :

The two Recti muscles, so called from their running in a straight direction from the breast bone to the pubis. These muscles lie side by side, directly on the fore part of the abdomen. Each of them is three or four inches broad, and is crossed at intervals by four tendinous intersections, which divide it into five distinct compartments. By the sides of the *Recti*, are situated the

Two External Oblique Muscles; one of which lies on each side of the abdomen. They are attached to the lower edge of the chest, and run in an oblique direction downwards and forwards. The two muscles meet in the middle of the belly; and this meeting forms (along with the tendons of the muscles) a line from the pubis to the breast bone, which from its white appearance when the integuments are removed, is termed the *linea alba*.

Immediately under these lie the *Two Internal Oblique Muscles*, which arise principally from the haunch bone, and run obliquely upwards and inwards, somewhat in a radi-

ated manner, and are also inserted into the *linea alba*.

Still deeper seated, lie the two *Transverse* muscles, which pass directly across the abdomen.

The *Pyramidal* muscles, being very small, and merely accessory to the *Recti*, are not worthy of particular note.

The general effect of the action of these muscles is very plain. They bend and turn the trunk, and keep it steady, during the performance of the various actions of the limbs. They also assist in respiration, and have a great effect in compressing the contents of the abdomen.

In a state of health, when the individual sits or stands perfectly at his ease, and these muscles are not called into action by an effort of the will, the abdomen presents a general feeling of softness and pliability; the natural condition of these muscles, like that of all the other muscles of the body, being one of general relaxation. A striking difference, however, is usually very obser-

vable, on examining those persons, who have been subject for any length of time to weakness of stomach. In such cases, these muscles, instead of being soft and relaxed, are in a state of preternatural and permanent tension. The whole abdomen seems often to be in a state of constriction; there is an obvious tendency in the patient to relieve himself by stooping forwards; and a contraction of the body just below the ribs, will be for the most part perceptible to the least practised eye. So striking, in some instances, is this latter appearance, that the individual looks as if he had worn a belt drawn tightly around him for years.

This contraction of the muscles is usually most perceptible immediately below the margin of the chest. Instead of a continuation of the uniform surface of the body, a sudden depression takes place at this point, and generally a deep hollow on each side will be here observed. The ribs, from this sinking in of the soft parts, have the appearance of projecting, although, in reality, they

are likely to be more depressed than usual. This appearance of the abdomen is generally attributed to emaciation ; or it may seem to be the effect of an occasional and temporary contraction of the muscles. That it is not wholly the effect of emaciation is shewn by the fact, that by the use of means which tend to relax these muscles, the natural fullness of the abdomen may be restored, even when the general leanness of the body continues. Nor is it the effect of a temporary contraction of the muscles, either voluntary or involuntary, because the rigidity is permanent, and continues when the patient is placed in the posture most favourable to their relaxation.

The degree and manner of this muscular contraction are various. Sometimes, as has been observed, it seems as if a cord were drawn tightly around the waist, with a corresponding protuberance and tension of the lower part of the abdomen. In other instances, the contraction is not so visible to the eye ; but instead of the natural pliability of the

abdomen, a general rigidity, accompanied by a tough leathery feel, gives evidence of this unnatural state of the muscles.

When the disease has been of long standing, and there is much emaciation, the straight muscles may frequently be felt, like cords not much thicker than the thumb, running down the fore part of the abdomen.

The degree of tension and rigidity is not always in proportion to the general disease. Sometimes, especially in persons of robust habit, and rigid muscular fibre, the hardness of the abdomen, and swelling of the fleshy bellies of the muscles, are very great, without a correspondent severity of the symptoms; and at other times, the disease may be very violent, and of long standing, with little change in the muscles; this, however, is not often the case.

Sometimes the muscular spasm is greater on one side than the other, and frequently it seems confined to one particular spot, which is generally about the insertion of the muscles, as for an inch or two below the

ribs, or along the haunch bone, whence the muscle denominated the *Internal Oblique* arises. The straight muscles, however, seem most to evince this unnatural contraction; particularly their uppermost portion.

The patient himself is most generally conscious of a feeling of uneasiness attendant upon this unnatural tension and contraction of the muscles, and seeks to relieve it by bending the body forward, and drawing up the knees when sitting or lying down.

Many of the symptoms complained of by dyspeptics, may be accounted for by this spasmodic condition of the muscles; particularly the tightness around the waist, and constriction of the chest. When these sensations are experienced after eating, they are generally ascribed to the mechanical distension of the stomach by the food. This may, of course, produce these feelings in a measure. But that they are not always the effect of simple distension, is proved by the fact, that they occur when only a very

small quantity of food has been taken ; and upon examination, instead of an enlargement of the circumference of the body at the region of the stomach, there will be found a very perceptible contraction.

The following explanation, as to the manner in which this state of parts takes place, may be offered.

The intimate association of action, and consent of these muscles with the stomach, particularly when the organ is in a state of irritation, or excited to unnatural action, is well known. We see this strongly exemplified in the act of vomiting ; and it has been a matter of much discussion, whether the stomach itself, or these abdominal muscles, are the most powerful agents in the performance of this act.

Now in the state of stomach under consideration, it is not surprising that these muscles should be more or less affected. When the organ, from whatever cause, is in the state of relaxation or atony we have been endeavouring to describe, and unable

by its own efforts to accomplish its work, in accordance with the principle of sympathy pervading the system, by which one part assists in the performance of the action of another, the aid of these muscles seems to be called in. By a kind of action similar, though less in degree, to that exerted in vomiting, a certain degree of support and pressure is afforded to the stomach; and its own contractile power is thus greatly aided. That this support is called for, is evinced by the inclination the patient feels at such times, to press firmly with the hand upon the region of the stomach.

At first these muscles seem only to be called into action when the stomach is more than usually tasked; and the feeling of constriction is only occasional, as after eating. By degrees, however, owing to the increasing debility of the organ requiring more frequent aid, and the principle of association by which certain trains of action at first occasionally performed in concert, become invariably connected; the muscular con-

traction becomes more and more permanent. And, as we shall presently see, this very action of the muscles, although at first an assistance to the stomach, becomes, after a while, an aggravation of the disease in question, and one of its most prominent features; as the introduction of a foreign power often proves the means of destruction to the weaker party which called in its aid.

Of the effects of permanent Contraction of the Abdominal Muscles.

It cannot be supposed, that this preternatural and constant tension of the abdominal muscles will continue for any length of time, without producing more or less effect upon the parts to which they stand immediately related. One of the most obvious effects will be upon the action of the thorax or chest, to which these muscles are principally attached, and upon the function of respiration. The act of breathing, it may be

remarked, consists of an alternate enlargement, and diminution of the cavity of the thorax, by which the air is alternately received into, and expelled from the lungs. It is effected in part, by the action of a set of muscles which elevate the ribs, and at the same time expanding them, enlarge the capacity of the chest. This takes place during inspiration. Expiration is more a passive action, and is effected principally by the subsidence of the ribs by their natural elasticity, assisted by the gentle contraction of the abdominal muscles. In forcible expiration, as coughing, these muscles are thrown into more powerful action. The diaphragm, however, a large muscle extending across the lower part of the chest, and forming the division between its cavity and that of the abdomen, is the muscle principally concerned in respiration. In its relaxed state, after expiration has been performed, the diaphragm presents the appearance of a vault, arching high up into the thorax. By contracting, at the same time

that those muscles which elevate the ribs are called into action, it becomes flatter, descends, and in this way produces a great enlargement of the cavity of the chest; the air rushes in to supply the vacuum, the lungs are inflated, and inspiration is thus performed. The act of breathing, in this way, is often performed solely by the diaphragm, when the ribs are not allowed to move, as in cases of injuries done them.

Now, from considering the situation of the abdominal muscles, and their manner of action, the effect of their undue contraction, or permanent rigidity, will readily be perceived. As they are principally attached to the lower margin of the thorax, their constant tendency, in this unnatural state of spasm, is to pull down the ribs, and prevent that free expansion of the chest, which takes place in a full inspiration. An actual change is thus often-times produced in the conformation of the chest, in persons who have long suffered with this disease, particularly in early life, similar to that

caused by the wearing of corsets in females. Hence the difficulty of respiration, and frequent inclination to sigh, or draw a long breath, so often complained of by dyspeptics.

The action of the diaphragm is also impeded by the contracted state of the abdominal muscles. The stomach and liver, which lie immediately in contact with its under surface, being forcibly pressed upwards against this muscle, the full expansion of the thoracic cavity is thereby still further prevented. An impeded action of both the lungs and heart, organs contained within the thorax, and very commonly affected in dyspepsia, may be thus accounted for by mechanical compression. There are other reasons, however, why these organs should sympathize with the disordered stomach, such as nervous communication, and the irritating effects of imperfectly formed chyle upon the lungs.

Very often, great relief will be experienced in impeded respiration, simply by

producing a relaxation of the abdominal muscles. In some instances, a violent cough, which was always increased after eating, and generally continued until vomiting took place, has been entirely relieved by this method. In these cases, the cough seemed to be the effect of an irritation of the diaphragm, caused by the upward pressure of the full stomach; any distension in the natural manner forwards, being entirely prevented by the extreme board-like rigidity of these muscles.

Another of the most common symptoms of dyspepsia may be accounted for, by the contracted state of these muscles, viz, the extreme torpor and want of action in the bowels. The contents of the stomach, it has been already remarked, are passed from this organ, and thence through the whole length of the intestinal canal, by a series of alternate contractions and relaxations of the muscular fibres. In the intestines, this is called the peristaltic motion. The natural effect of constriction, or constant undue

pressure upon the bowels, would be to impede this action. Hence, it is not at all surprising, that a torpor and slowness of the bowels should accompany this state of the external muscles. It is also probable, that in many cases, a spasmodic action of the intestines themselves, sympathetic with that of the abdominal muscles, exists.

This condition of the muscles is also productive of serious consequences to the stomach itself, by preventing the due effect of exercise, which we have shewn to be the natural stimulus of that organ. If we observe the slow, cautious, creeping manner in which a confirmed dyspeptic walks, in contrast with the free, firm step of a man in full health, the truth of this observation will be apparent. Exercise of almost every kind, tends still further to contract the muscles, already drawn up, as we have seen, in a preternatural manner; and no doubt much of the pain and soreness of the abdomen, complained of by dyspeptics, is owing to this cause. A person in this state, con-

sequently, avoids exercise as much as possible, particularly that of a jarring, jolting kind, which we consider as the most salutary; or if he undertakes it, the effect upon the stomach is rendered null, and the pain and soreness of the abdomen augmented by the increased spasm of the muscles; which seem to be thrown into action at such times, for the very purpose of preventing the shock from being received at the stomach. No wonder therefore, the benefit derived from exercise on horseback in such cases is often so small.

In this way we see that a dyspeptic, however much exercise he may take, is in a measure reduced, so far as the stomach is affected by it, to the condition of one who leads a sedentary life; and the debility of the organ is indirectly increased by what in the first instance, seemed an effort of nature to relieve it.

SECTION VI.

Of the Mode of Treatment.

If the views we have taken of the commencement and progress of the disease, the condition of the stomach, and the changes produced in the parts connected with it be correct, we then have in an ordinary case of dyspepsia the following condition of things, viz :

1st. A relaxed, enfeebled state of the muscular coat of the stomach, amounting in some cases to a partial paralysis, whereby it is rendered unable to perform its proper function of contracting upon the food, and gently passing it around, so that every portion of it may be in turn applied to the inner surface of the stomach, and exposed to the full action of the gastric juice. This fluid, in the general torpor of the organ, is also probably secreted in a less quantity, and perhaps of a vitiated quality.

2d. A preternatural rigidity, and permanent contraction of the abdominal muscles ; which, instead of presenting the uniform, soft, relaxed, and yielding state, natural to them in a healthy condition, are often drawn up as it were, into knots, and to the touch seem like cords stretched tight beneath the skin.

3d. A torpor, or obstruction of the peristaltic motion of the bowels, evinced by obstinate costiveness, produced, as is supposed, in a great measure, by the constant and undue pressure of the external muscles ; or by a spasmodic action of the intestines themselves, corresponding with that of these muscles.

4th. A constriction of the thorax, and consequently impeded respiration, caused by the excessive and constant action of the abdominal muscles, in pulling down the ribs.

These may be considered as the immediate and mechanical effects which are generally consequent upon disordered action of the stomach. The remote effects of this

disease, such as derangement of the functions of the liver; affections of the lungs, the heart, the kidneys, the head, and the nervous system; in short, disorders of almost every part of the body, are so numerous, and make their appearance so irregularly, that it is impossible to enumerate them in any precise order of succession.

Of the four conditions of parts, above enumerated, it will be seen that the two last are effects of the second, viz—the unnatural contraction of the abdominal muscles. The indications of cure therefore resolve themselves into the following, viz:

1. To restore these muscles to their natural relaxed state.

2. To excite the stomach to resume and continue its proper action.

The means of fulfilling these indications, may at the first glance, appear opposed to each other; but when it is remembered that the rigidity of the external muscles, is the consequence of the debility or relaxation of the proper muscles of the stomach, the effect

100 OF THE MODE OF TREATMENT.

of remedies calculated to restore these parts to their natural condition, will not seem so contradictory.

METHOD OF RELAXING THE ABDOMINAL MUSCLES.

These muscles belong to that class denominated *voluntary*, which in a state of health, are under the control of the will. Thus the individual can, by a voluntary effort, contract or relax them, in the same manner with the muscles of the arm or leg, and like these muscles, their natural state when not called into action, is one of complete relaxation. In the condition, however, we have just been describing, these muscles remain permanently contracted, and for the most part, can no more be relaxed by an effort of the will, than those of the leg in a fit of cramp. Still, however, though a perfect relaxation can very rarely be effected by the act of vo-

lition, yet now and then we meet with cases where much may be done in this way.*

It is therefore proper to keep the attention of the patient directed to this point; and by telling him "to let down these muscles," an expression, though not perhaps strictly technical, he will perfectly understand.

Again it may be observed, that in a healthy state, the greatest relaxation of these muscles takes place at the moment of inspiration, or drawing in the breath, as may be seen by the gentle elevation of the abdomen at this time. The patient should therefore endeavour to favour, as far as he is able, this fulness or swelling of the abdomen in the act of breathing, by letting the breath descend as low in the body as possible; ta-

* An instance, somewhat analogous to this, of the power of the will over muscles in a state of spasmodic contraction, offers itself in the case of a dislocated shoulder. Here the main difficulty, in the way of reducing the dislocation, is the spasmodic contraction of the muscles; and the patient, by exercising a strong control over them, and letting them go from him, as it were, greatly favours the return of the bone to its socket.

king care that he does not increase the muscular rigidity instead of removing it, by straining, or making violent efforts to brace himself out. A full, but natural inspiration, should be aimed at.

The method, however, which has proved most efficacious in producing the desired effect of relaxing these muscles, is the external application of warm fomentations, such as emolient cataplasms, steaming, &c.; or in other words, exposing them to the combined action of heat and moisture. Various modes of using these applications have been tried. Covering the abdomen with a common bread and milk poultice, applied warm, and repeated two or three times a day, will frequently be found very serviceable, particularly when there is much soreness and tenderness to the touch. A hot brick wrapped in a flannel cloth steeped in vinegar, and covered with a dry towel, may also be applied with advantage.

The method, however, found by experience to be the most convenient, as well as the most effectual, is the following.

Let the patient, when he goes to bed, cover the whole abdomen, from the margin of the chest to the hips, with flannel cloths wrung out in a mixture of equal parts of hot vinegar and water. These flannels should be applied in three or four thicknesses, so as to retain a greater quantity of moisture. Then spreading over them a coarse dry towel; a bottle filled with boiling water, or what is better a common flat-iron, such as is used in smoothing linen, heated as warm as can well be borne, should be gently passed over the whole abdomen, continuing the process for fifteen or twenty minutes, and applying the iron more particularly to those parts where there appears to be the greatest degree of rigidity. When the bottle of water or iron begins to grow cold, the cloths should be removed, and a piece of dry warm flannel substituted, to

prevent any risk of taking cold from the operation.

By repeating this process two or three times a day, taking care that it be always done upon an empty stomach, a sensible change in the condition of the abdomen will soon be observed. From the tense and rigid state it previously exhibited, it will gradually become soft and yielding; the muscles will regain their natural flexibility; the feeling of tightness around the body will be removed; the patient will be able to expand the chest more fully in the act of respiration, and being relieved from the sense of constriction and tendency to bend forward, occasioned by the contraction of these muscles, he will experience altogether a degree of ease and comfort, to which he had long been a stranger.

Though great relief will commonly be afforded in the course of a few days by this process, yet sometimes, especially where the muscles have been for a number of years in this state of unnatural rigidity, a longer

perseverance in the use of the applications will be necessary to produce the desired effect. Weeks, and even months, in some instances, have elapsed before the requisite change in the condition of the muscles could be effected.

Now and then, also, a degree of exhaustion and debility will ensue upon the use of the warm application. This may either be the consequence of a sudden removal of the support to which the contents of the abdomen had been so long accustomed from the pressure of the exterior muscles; or it may be owing to a too long continuance of the warmth, producing a relaxed state of the stomach itself. In these cases, it will be proper to discontinue the fomentations for a day or two; and on resuming them, not to continue their application for so long a period at each time.

Occasionally, at such times, and from the same causes, the patient may experience an increased degree of flatulence; this however, generally proves but a temporary in-

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convenience. As the stomach begins to recover its tone, by the plan of stimulating it presently to be described, these symptoms of debility will rapidly disappear, and be succeeded by an increase of strength and vigour throughout the system generally.

METHOD OF STIMULATING THE STOMACH.

Having thus described the manner, by which the first indication of relaxing the abdominal muscles may be fulfilled, we will proceed to shew the method, by which the next object in the plan of cure is to be effected, viz—of restoring the tone of the stomach ; or in other words, of stimulating it to resume its original and healthy course of operations. This is done by communicating a mechanical action to the organ, resembling as nearly as possible that produced by natural exercise ; the art of doing which constitutes the most important part of the plan of treatment now proposed.

It may simply be observed, without entering into any disquisition respecting the peculiar *modus operandi*, that the muscles throughout the system are stimulated to action by the influence of the nerves. In other words, by means of a certain something, the precise nature of which is not perfectly understood, but which from its effects, is supposed to resemble the Galvanic fluid, or to be identical with it, communicated from the brain or sensorium, through the medium of the nerves, the muscular fibre is excited to contract; and by the contractions thus produced, all the various motions of the body are performed.

The stomach, we have seen, is principally supplied by a pair of nerves proceeding directly from the brain, by means of which nerves it is excited to perform its proper functions. It also appears that besides the nervous influence, a certain degree of mechanical stimulus, communicated as we have seen, by external motion or agitation, is re-

quisite, in order that these functions should be performed with due vigour. Hence the absolute necessity of exercise, the importance of which is universally acknowledged, although its peculiar manner of exciting the stomach to action, does not appear to be so generally understood. The mode in which this takes place, by a succession of slight shocks or impulses upon the organ, we have already attempted to explain.

There are two causes which seem to prevent the proper effect of exercise upon the stomach. One of these, viz, the condition of the abdominal muscles, we have already dwelt upon somewhat at large. The other is a torpor or absence of the natural sensibility in the organ itself; the result, apparently, of long inaction from a deficiency of the natural stimulus. The degree of this torpor may in general be ascertained, by making a slight pressure with the finger, upon the spot just below the breast-bone, commonly called the pit of the stomach.

This spot, in a healthy person, it is well known, possesses a remarkable degree of sensibility ; a slight blow upon it producing a painful sensation of a peculiar indescribable character, somewhat like that experienced when the finger is pressed upon the eye-ball. This sensation is the effect of the impression made upon the nerves of the stomach, which are expanded upon it immediately under this spot. These same nerves, as it has been remarked, also supply the lungs, and are the principal ones of a set of nerves called the respiratory system, which go to the different parts either immediately, or remotely concerned in the function of respiration. By this fact in physiology, the sudden check given to the breathing by a stroke upon this spot, may be accounted for: and when death takes place, as it sometimes does, in consequence of a violent blow here, it is probably the result of the shock given to this system of nerves.

This spot is sometimes morbidly sensi-

tive, and the slightest touch will give exquisite pain. This is the case when the mucous membrane, or inner coat of the stomach, is in a state of inflammation, which we have observed is often confounded with the disease in question. Most commonly in dyspepsia, there is a torpor or want of sensibility at this spot; so great, in some instances, that no more sensation will be produced by pressure here, than upon any other part of the abdomen.

Generally, however, the latent sensibility of the stomach may be excited by the following process. A gentle tap or slight push is given with the finger upon this spot, and repeated until the effect is produced, using more or less force, according to the feeling of pain experienced. A degree of caution must, of course, be observed in doing this, as we have seen that fatal consequences have now and then resulted from a violent blow upon this part. By commencing gently, however, and making repeated

trials, the natural quickness and delicacy of sensation in this part will be restored.

The effect of the impulse given to the stomach in this manner, seems to be to rouse it from its state of apathy, and to render it more sensitive to the stimulus of natural exercise; the mode of applying which in an artificial manner will presently be described. Often, on giving the slight stroke upon the pit of the stomach in this manner, a sensation of pain will be felt running up in the course of the nerves, as high as the throat; and sometimes even between the shoulders. When this is the case, it seems to indicate a degree of excitability in the stomach, favourable to its recovery. At any rate, when the spot retains a portion of its natural consciousness of external pressure, and when the sensation already mentioned is felt running up towards the throat, the amendment of the patient is usually most rapid: while on the other hand, when little or no impression can be made upon this spot, it shews an extreme degree of

torpor in the organ, and is consequently an unfavourable symptom.*

It may be remarked, that very often the impression cannot be made upon the stomach in this way, on account of the resistance opposed by the rigidity of the external muscles, which often start into violent involuntary contraction, the moment the finger is applied to them. By repeated trials however, and by watching an opportunity when the muscles are most relaxed, (which will generally be found to be the case after using the warm fomentations,) the stomach may be awakened in this manner from its state of torpor.

This being effected, the next point is to give the mechanical stimulus, of which we have spoken, to the stomach. To this end,

* When the sensibility is restored at the pit of the stomach, the patient should be careful to keep it so; which can be done by frequently touching the spot with the finger or thumb, with sufficient force; because if he allows this spot to become torpid, he will be liable to a return of the disease, or rather, to a delay of the cure. The more sensitive the part becomes, the more rapid the cure.

the patient should be placed in the position that will favour most the relaxation of the abdominal muscles. A sitting posture will be the best for this purpose. Then the practitioner, seated on the right of the patient, and facing him, having excited the sensibility of the stomach, by the process just described, places his right hand upon the lower part of the abdomen, in such a manner as to effect a lodgement, as it were, under the bowels, suffering them to rest directly upon the edge of the extended palm, from the tip of the thumb to that of the fore finger. When the muscles have been properly relaxed, there will be no difficulty in doing this. Then by a quick but not violent movement of the hand in an upward direction, by which the bowels are thrown up much in the same manner as in riding on horse-back, a sort of pulsatory action will be communicated to the stomach, and a sensation experienced, similar to that produced by a slight blow upon the region of the organ.

By continuing this action from one to two minutes, a sense of warmth, and a feeling somewhat like that experienced from a slight electric shock, will be felt at the stomach, and a general excitement or gentle glow throughout the system. The pulse will most usually be increased both in strength and frequency; the extremities when cold will have a little return of warmth; and not unfrequently there will be a gentle perspiration all over the body. The patient will often experience a feeling as of returning vitality and vigour, to the previously inanimate and enfeebled stomach. When flatulence has been a prominent symptom, large quantities of wind will be thrown up, to the patient's great relief; and indicating an internal and natural contraction of the organ upon its contents. All the feelings, indeed, will be those of returning action, not only in the stomach, but throughout the system generally.

At first, perhaps, the sensation produced in this manner upon the stomach, may be

somewhat painful, but almost invariably after a few repetitions, the effect upon the organ itself, and upon the system at large, becomes agreeable. It now and then, though rarely, happens that from some peculiar delicacy or irritability of the stomach, a slight nausea and feeling of faintness ensues upon the process described. These sensations, however, seldom occur after the first trial; the stomach, however irritable, soon getting accustomed to a stimulus, which from the pleasant effects it produces, seems to be perfectly consonant with its nature.

By understanding the principle of the remedy in question, and the precise object to be effected, viz, to communicate a series of slight impulses or concussions to the stomach from below upwards, so as to resemble as much as possible the effect of exercise of a jolting nature, the manner of accomplishing it may be varied, and the patient be placed in different positions, so as to suit his own or the practitioner's convenience.

A very good method of giving the mechanical stimulus to the stomach is the following. Let the patient be seated as before, bending himself a little forwards; the practitioner standing behind him, and putting his arms under those of the patient, places both hands, with the points of the fingers opposite to each other, upon the lower part of the abdomen, indenting its surface, and holding the hands horizontally, with the palms upwards, so as to get them as much as possible in a line immediately under the stomach. Then by giving a quick but gentle movement of the hands upwards, the action will be communicated to the stomach, and the peculiar sensation already described will be distinctly perceived; and the desired effect upon this organ and the system at large be produced.

It must be kept in mind, that a certain degree of relaxation of the abdominal muscles must take place before any benefit can be expected from this exercise. Indeed where this is not the case, the peculiar sen-

sation at the stomach, which is the test of the proper action being communicated to it, will not be experienced; the hands instead of getting under the stomach, will slide over the tense surface of the abdomen; and if the attempt to give the action is persevered in under these circumstances, a soreness and increased rigidity of the muscles will probably be the result.

Another convenient method is to let the patient lean with the back against a wall, inclining the body a little forwards, so as to favour the relaxation of the abdominal muscles. The assistant seated before him, communicates the impulse to the stomach, by making a quick movement upwards with the palms of the hands placed firmly upon the abdomen.

Sometimes this action will not be so readily communicated to the stomach from the lower part of the abdomen. When this is the case, by giving the motion upwards with the points of the fingers, placed a little below the tender spot at the pit of the

stomach, being careful in this as in the other methods, to get as much under the organ as possible, the peculiar sensation at the stomach which we have so often mentioned, will generally be felt, provided any sensibility remains. Then gradually moving the hands lower and lower down, the impression may be at length communicated from the inferior part of the abdomen. The advantage of giving this action to the stomach from as low a point as possible, seems to be two-fold. In the first place, by so doing we get more immediately under the organ, and consequently are enabled to apply the stimulus to a greater portion of its surface, and in the direction apparently most natural to it: and secondly, the intestines seem also to be invigorated, and their peristaltic motion increased by the gentle agitation they receive.

This process, it may be observed, is not that of kneading the stomach and bowels, neither is it external friction; the object being to communicate a series of gentle shocks

or impulses to the stomach, somewhat like the pulsatory motion felt by placing the hand upon one side of a bladder filled with water, and gently tapping with the finger on the opposite side; or like that familiar to the touch of the medical practitioner, when he strikes upon the abdomen of a dropsical patient in order to detect the presence of the fluid within. I say *somewhat* analogous to these, since, as the contents of the abdomen are not fluid, of course the impression cannot be precisely the same.

Other methods, besides those already detailed, of giving this mechanical stimulus to the stomach, will be suggested by the ingenuity of the practitioner. It must however always be borne in mind, that force or violence of any kind is never to be employed: on the contrary, the object is to be accomplished by a certain degree of tact and address, only acquired by practice, and by understanding perfectly the principles on which the plan of treatment is founded. Out of many hundred cases treated in this manner,

there has not been an instance where any injurious effects have ensued.

— Like tonic medicines administered internally, which require to be taken repeatedly in moderate doses, and at regular intervals, in order to ensure their full success ; the efficacy of this plan of mechanically stimulating the stomach depends upon its being frequently, and regularly performed ; so as not to permit the organ to relapse into its former torpid, sluggish condition. Like other tonics, also, when properly administered, after the stomach has recovered its natural tone and power of action, the process may be gradually discontinued ; common exercise, provided the muscles continue in their relaxed state, producing its natural, healthful and sufficient effect upon the stomach. As it is therefore essential, that this process of stimulating the stomach should, at first, be frequently repeated, in order to insure its good effects, it becomes necessary that ‘the patient should minister to himself.’ For this purpose, he must be

instructed in the manner of giving the mechanical stimulus to his own stomach.

This is to be done as follows. The patient first places himself in the position which seems most to favour the relaxation of the abdominal muscles, that is, he may either be seated or standing, with the body a little inclined forwards, in the manner already described. Then let him place his hands in a horizontal position upon the fore part of the abdomen, so that the points of the fingers may meet each other about an inch or two below the sensitive spot at the pit of the stomach. Then turning the palms of the hands uppermost, at the same time gently inclining the body forwards, so as to get them as nearly as possible immediately beneath the stomach; by a slight movement upwards, the pulsatory action will be communicated to it, and the peculiar sensation felt at the part, as before described.

Some difficulty will probably be experienced, in communicating the impulse to

the stomach, by reason of the involuntary action of the external muscles. By an effort of the will, however, and a little perseverance, this will soon be overcome ; and although the performance of this action may at first prove awkward and fatiguing to the patient, yet after a little practice, and some experience of its beneficial effects, it will become easy and simple. Besides relaxing the muscles in as great a degree as he is able, the patient should also breathe as fully and naturally as possible, in order that the stomach may not be drawn inwards, so as to prevent the hands from getting beneath it in order to communicate the movement.

The same effects, such as the glow, and feeling of warmth at the stomach, and gentle excitement of the system generally, will attend this action when properly performed by the patient himself, as when done by an assistant.

It must also be observed, that in both cases, the hands which at first are placed near the stomach, should gradually be ap-

plied further and further down, until the desired sensation can be communicated to the stomach from the lowest part of the abdomen. The object and advantage of this has been already mentioned.

The frequency with which the process should be repeated, must be determined by the state of the stomach; its greater or less degree of debility, and the effect produced upon it by the stimulus. In common cases, where there appears to be a considerable degree of torpor and want of action in the organ, the directions usually given to patients, are to make the application as frequently as every half hour through the day; continuing it for a minute or two each time, or until the peculiar glow, and feeling of warmth is produced. It is improper, however, to stimulate the stomach in this manner immediately after eating; and it is therefore best, in general, to wait about an hour after each meal, before entering upon the process. Gradually, as the organ recovers its tone, the intervals be-

tween the several applications of the remedy may be lengthened, until two or three times during the twenty-four hours will suffice. After a while the practice may be wholly discontinued, regular exercise, such as we have described, and for which this process is a substitute, (provided the muscles continue in their natural relaxed state,) furnishing a sufficient stimulus to the stomach.

The immediate effects of this external action upon the stomach, as we have observed, are the same with those of a gentle tonic, or stimulant taken internally. In many instances a surprising increase of muscular strength has been experienced by the patient. A young man, who had been so much reduced by the disease, as to be confined for the greater part of the time to his bed, and who could scarcely stand without support, invariably, after having his stomach stimulated in this manner for a few minutes, found himself so much stronger, as to be able to walk about the room for some time without assistance. He was eventually, by

persevering in the remedy, entirely restored to health, and when last heard from, was a hale and vigorous man.

The effects upon the system which follow the continued use of the remedy, and which will ensue after a longer or shorter period, depending upon the state of torpor to which the stomach has been reduced, and the perseverance with which the plan of cure is followed up, are those indicative of an increase of tone in the organ, and an improved state of the digestive functions generally.

The stomach becomes able to retain and digest food which before oppressed it. The uneasy sensations consequent upon eating, are gradually diminished, and at length entirely removed. The food being more perfectly digested, an augmentation of strength, and an increase of the flesh of the patient, takes place. The morbid appetite becomes natural and regular. The secretions generally are restored; that of the liver in particular; and the bowels, their natural stimu-

lus of healthy bile being afforded them, and the constriction of the external muscles removed, gradually resume and continue their regular action, without the aid of medicine.

In a number of instances, in which patients have been in the daily habit of taking purgatives for years, by a perseverance in the plan of treatment just detailed, they have been enabled entirely to discontinue the use of medicines of every description.

All the sensations and feelings of the patient, from being of the most disagreeable nature, become pleasurable. His sleep is natural and undisturbed by hideous dreams. He finds that he can eat and drink with comfort, and without the dismal foreboding, that for every mouthful he swallows, a dreadful penalty of suffering is to follow. His head by degrees becomes clear of the megrims and vapours with which it was filled, and is free from the feeling of confusion and other distressing sensations of which it was the seat. The faculties of the mind grow stronger, and become more un-

der the control of the patient's will; and he can now read, write, and attend to his business with ordinary alacrity. The sluggish fiend that had so long oppressed him with its leaden wings has taken flight, and he feels as if a load like a mountain had been removed from his system—as if an intolerable weight of chains had fallen from every limb. In short, he is a new being, and cannot sufficiently express his delight at the change.

But although these effects sometimes take place, particularly in recent cases of the disease, in an incredibly short time, the enemy is not always dislodged so easily. Much constancy and perseverance must be exercised by the patient, in order to ensure success, and many drawbacks will be met with, before a perfect and permanent cure can be effected. One of the most common of these arises from the inclination, often irresistible on the part of the patient, to indulge the appetite, as soon as he finds that he can eat with impunity, and to

overload the stomach, especially with those articles of which he has been long deprived. Neglecting the use of the remedy as soon as a degree of improvement is experienced, and before the stomach has fully recovered its tone; or giving it up in despair, when no visible change in the symptoms immediately follow its use, are common causes of its failure. Exposure to the causes which originally induced the disease, will also necessarily prevent any good effects from this method.

It may be mentioned, however, for the encouragement of those who, from the little benefit they seem to be receiving, are tempted to abandon the plan of cure, that several instances have occurred, in which the patients became disheartened, by reason of the slow progress they were making, and discontinued the use of the remedy as of no avail, and who yet eventually, on being induced to recommence and persevere in it, became perfectly cured.

SECTION VII.

On Diet.

So many works have been written professedly upon this subject ; such a variety of conflicting opinions has been put forth ; so difficult does the bewilder'd patient, tempted with beef steaks and porter on the one hand, and threatened with absolute starvation on the other, find it to comply with the peptick monitions usually laid down for him ; and finally, so insufficient do they prove after all to effect a cure, that on the appearance of a new chapter on diet, he is tempted to exclaim with the afflicted patriarch of old, " Many such things have I heard, miserable comforters are ye all."

Although differing very widely from those monitors of the dyspeptic, who take upon themselves to cater for the weak of stomach, and would regulate the allowance of all by the standard of their own capricious organ,

I would not have the reader suppose, that it is my intention to detract from the merits of the many excellent works that have, from time to time, appeared on this subject, or to deny the necessity of a strict attention to diet, in all cases of complaints of the stomach. On the contrary, there can be no question, but that many cases of incipient dyspepsia have been cured simply by a strict observance of proper diet; and still further it is equally certain, that hardly any case can be relieved without some attention to this point.

Still however it may be asserted, and the sad experience of thousands will testify to its truth, that although a necessary adjutant, and in most cases a *sine qua non* in the successful treatment of the disorder, Diet, in the great majority of instances, is of itself wholly inadequate to effect a cure.

The chief aim in prescribing a course of diet, and a very proper one it is, seems to consist in adapting the quantity and quality of food to the capacity or tone of the sto-

mach: but this tone is often so low that the nutriment thus afforded is not sufficient to sustain the powers of life. The dyspeptic therefore, who has been reduced by this plan, to a crust of dry bread and cup of water, will perhaps drag out his enfeebled existence with fewer aches and pains than he previously suffered; but the languor of his mind, and the emaciation of his body, will make him very sensible that this is not the road to amendment. In like manner, the worn out *gourmand* will find to his sorrow, that although excessive indulgence in the good things of the table has brought upon him dyspepsia "with all his woe," yet, after the mischief is done, simple abstinence from the cause will not repair the injury, or remove the effects.

Exercise, as has been shewn, is the basis upon which we must found our plan of treatment, in order to ensure success; the sheet-anchor, by means of which alone we can hope to get the shattered bark clear of the shoals upon which she is stranded. And,

if a continuance of the simile may be allowed, as throwing over the cargo, though it will lighten and relieve, will not remove the vessel from her perilous situation; so the most rigid adherence to rules of diet, without the aid of exercise, will prove of little or no avail.

With these views of the footing on which diet ought to be placed, and of its efficacy as a remedy when compared with exercise, I would make a few observations, referring the reader for details to the excellent works of Johnson, and Paris, on this subject; but above all to *the dictates of common sense*, and to *his own experience*.

Three simple rules may be laid down, which ought to be impressed upon the minds of all “on whose appetite, good digestion waits not,” viz—

1. *To eat slowly.*
2. *To eat moderately.*
3. *To eat at regular periods.*

Of Eating Slowly.

However near the truth the ancient philosopher's celebrated definition of a man may be, as "*animal implume bipes*," or rather his waggish cotemporary's illustration, when he stripped a fowl of its feathers and set it before the assembled sages, in one respect at least the comparison does not hold good: the stomach of the featherless biped cannot perform the office of mastication; or, in other words man has no gizzard. He, therefore, who bolts his victuals, acts very unfairly in making the poor stomach perform the additional duty of grinders. At least he ought to imitate the example of the feathered animal in all points, and swallow a few pebbles to assist in the process of trituration. Seriously, there can be little doubt but that many cases of derangement of stomach are induced and continued simply by this habit of fast eating.

In all her operations, nature has ordained certain rules, which cannot be transgressed with impunity ; and has prescribed to each part and organ its appropriate function, which cannot be as well performed by another. To the jaws and teeth, are assigned the offices of dividing and grinding up the food, which being mixed with the saliva, plentifully secreted at this time, is prepared for being received into the stomach, and for undergoing the further changes that are there to take place. For the proper performance of this office of mastication, a certain time is required. He, therefore, who swallows his meal in a hurry, unmasticated, and not properly mixed with the saliva, must remember, that by being thus sparing of his time and teeth, he imposes a double share of duty upon his stomach, and must not be surprised if he finds it at last, failing under the toil.

As illustrative of this point, it may be observed, that in those animals which have no teeth, and whose organs of mastication are

small and weak, we find a proportionably stronger and more complicated stomach; while on the other hand, in those whose jaws are strong, and mouths well furnished with incisors and grinders, we discover less strength and complication of stomach. Thus admirably does nature proportion one part to another.

The great importance of each successive change in the food being performed by its appropriate organ, may be still further illustrated, by the care which nature exhibits in preventing the passage of the food from the stomach into the intestines, before it has been completely converted into chyme: the pylorus, or muscular ring situated at the lower orifice of the stomach, like a trusty door-keeper, gently relaxing and allowing the perfectly formed chyme to pass; but closing tightly upon, and rejecting by a sort of spasmodic action, the undigested morsel. It is probably on this account, that we find organic diseases of the stomach generally taking place at this point, as a consequence of long

continued functional derangement. By the constant labour of powerfully contracting upon the approach of matter unfit to pass, the pylorus gradually becomes narrowed in its diameter, thickened in its walls, hard and scirrhus, and finally ulcerated, and like a faithful servant perishes in the discharge of duty.

As to the length of time requisite for a meal, no precise rule can be laid down. It is as impossible to say exactly, how many minutes a man must be employed in eating his dinner, as it is to tell how many times he must wag his jaws during the operation. By being made sensible of the importance of masticating the food well, and preparing it properly for the stomach, and paying a little attention in the first instance to this point, a person will soon acquire the habit of allotting the portion of time necessary to this process. Eating slowly, therefore, and sitting a certain time at table, is no more indicative of an inordinate indulgence of the appetite, than the practice of bolting enor-

mous masses of food in a short space of time is characteristic of temperance.

While on this subject, it may be proper to advert to the ill effects of erring in the opposite extreme, and sitting too long at our meals ; particularly where the practice prevails of bringing in a number of courses. Independently of the greater quantity the stomach is made to receive in this manner, being forced as it were, to take several meals in succession, much mischief probably arises from new food being received into the stomach, after the process of conversion into chyme has partially taken place upon that already swallowed. And, as if a fashionable dinner was an experiment upon the strength of the digestive powers of the guests, the most indigestible articles, as pastry, confectionary, preserves, &c. are usually presented to the jaded stomach, after it has been filled to repletion with a variety of animal food. Fruits, although in general innocent and easily digested, when the stomach is in a fit condition to receive them;

when eaten in this way, after sitting at dinner, often prove injurious.

After all, the discretion and good sense of the individual must dictate to him in these matters.

Of Eating Moderately.

As regards this point, much also must be left to the judgment of the individual. There seems to be naturally as great a diversity in the capacities of men's stomachs, as in those of their minds; and what might seem a very moderate meal for one, would prove a surfeit to another. Hence the difficulty of pronouncing what a moderate allowance is.

It may be remarked, however, that he who observes the first rule of eating slowly, will not be as likely to transgress this one of eating moderately. The stomach being slowly distended, will usually, when it has received as much as it can easily digest, give notice of its being satisfied by the flagging appetite. The misfortune however is, that this admonition is generally unheeded,

especially when the palate is stimulated by a variety of savoury dishes and piquant sauces. He who is wise enough to pay attention to his feelings in this particular, and has sufficient self-command to refrain from eating as soon as this sensation of satiety is experienced, will not generally err very much on this point. By a habit of gluttony however, (for the practice of eating more than is necessary can scarcely be called by a milder epithet,) the perception of this feeling is entirely blunted. We must then attend to the subsequent effects of the meal, not only upon the stomach itself, but upon the system at large. He who experiences after dinner a sense of oppression and languor, a feeling of great drowsiness and stupidity, and a degree of mental imbecility incapacitating him from attending to his ordinary business; in a word, who is troubled with those symptoms which have been described as attendant upon a paroxysm of dyspepsia, may be assured that he has eaten more than his stomach knows what to do

with. He must therefore reduce the quantity of food to the capacity of the organ; and as this recovers its tone by the plan of treatment already described, the quantity of aliment may gradually be increased.

Let him therefore, who has once suffered from the consequences of a feeble stomach, beware how he transgresses in this respect. A single act of indiscretion may bring on all the symptoms, which he has been perhaps months in getting rid of. To eat with moderation therefore, is a precept that should be impressed upon the mind of him who wishes to preserve the tone of his stomach unimpaired, as well as of him who is striving to recover it when lost.

Of Eating at Regular Periods.

The necessity of this dietetic rule may not appear so obvious as that of the two former: indeed an opinion directly opposite is very prevalent. Nothing is more common than to hear the advice given to a dys-

peptic, "to eat a little and often," and the weakness of the stomach assigned as a reason. With this view the poor patient who is ready to follow every body's advice, except perhaps that of the physician, stuffs his pockets with crackers, dyspeptic bread, or perhaps less harmless materials. and like an over-anxious nurse with her worrying charge, on every little feeling of uneasiness at his stomach, applies a bribe, as it were, to the complaining organ. This plan of eating frequently, however, is decidedly a bad one. As well might we advise a person troubled with insomnulency, "to sleep a little and often," (were such a course practicable,) as recommend to the dyspeptic this method of constantly cutting out new work for the stomach.

We have seen that the stomach requires a certain time, in order to perform its office of converting the food into chyme. Now if fresh material is taken in before this is properly accomplished, the process is interrupted; the stomach becomes wayward and ca-

precious ; acts with uncertainty, is irregular in its demands for food, and at length loses entirely its power of acting. Many cases of dyspepsia have doubtless had their origin in this very error, of not taking the food at regular and proper intervals.

After the proper function of the stomach has been performed, a period of repose is also required : rest after labour being as necessary to this, as it is to all the other parts of the system. When this is not afforded, the constantly-tasked organ, though it may from constitutional vigour, or by means of stimulants, be enabled to bear up for a while, will at length begin to fail, and no respite being given to its labours, must necessarily become prematurely worn out and exhausted.

Throughout the whole system, there seems to exist a certain analogy between its different parts ; and a general similarity may be discovered between individual organs, and the body considered as a whole, which will often help us in deducing general rules

of treatment for a particular organ, from those which we have found by experience applicable to other parts, or to the system at large. Of this nature is the general law of the regular alternation of action and repose, which takes place in every part of the system. Upon a due regulation of the quantity and duration of each of these states in the different parts of the body, seems to depend the grand secret of preserving health, and prolonging life to its utmost limits.

Again, as constant and uninterrupted action has the effect of wearing out the body, so does sluggishness and inaction tend to enfeeble all its powers and faculties. In this way a too spare diet, or a habit of permitting the stomach to remain for a long time without any material to act upon, will produce a debility in the organ. Although not so common an error as that of much and frequent eating, it is more than probable that mischief is often done through a mistaken notion on this point. A person for instance, finding his stomach deranged, and

the powers of digestion feeble, abstains for a long time almost entirely from food, under the impression that the digestive organs will in this manner recover their tone. This is almost as injurious as the former error, and will certainly tend to increase instead of removing the debility.

There seems to be a natural bias in the mind, especially when the treatment of our bodily ailments is in question, to run to extremes: and instead of conforming to the dictates of nature, and taking her unerring instincts as guides, we seem to delight in steering as wide as possible from them, and following those courses which are most opposed to reason and common sense. Hence the diametrically opposite nature of the advice and prescriptions which we hear offered with such officious humanity, for all the maladies to which our frail nature is exposed. We must remember, however, that health when fled, is not often to be recovered by unnatural, violent and compulsory measures; she must be lured back by gen-

tle and persuasive, and above all by persevering efforts. The importance of taking the meals at certain hours, may also be inferred from the fact, that the stomach, like other parts of the system acquires strength by habit, and will be better enabled to perform its proper function at the periods to which it has thus become accustomed than at any others. Thus, it is well known, a person will experience an increase of appetite at the usual period of eating, which if not indulged, will gradually subside, and in all probability not again be felt until a return of the next accustomed hour of taking food. In this way we see that the adage "that Man is the creature of habit," is applicable to him, not only when considered as a whole, but even to the separate organs of which his body is composed.

From a consideration of these points, it must be evident, that regularity in the periods of taking food, is indispensable in the treatment of the disease in question. As a general rule three meals a day seem to

be most natural and proper ; with the intervals of about six or seven hours between them. This rule, however, must be modified by circumstances, such as the previous habits of the individual, the quantity and quality of the food, and the slowness or quickness with which the process of its conversion into chyme is performed.

A very few observations upon the kind of food most proper for dyspeptics, may be added to these general rules respecting diet ; referring the reader, as before, for details, to the many popular works upon this subject, particularly the one of Dr. Paris, which comprises every thing useful which has been written either before or since on this point.

So different seem the powers and properties of the stomachs of different individuals, that it might almost be asserted of them, as it has been of the human countenance, that there are no two exactly alike. Independently of habit, which unquestionably has great influence in this particular, there

is naturally a peculiar aptitude and power in each individual stomach to digest certain articles, and a disability to digest others, very difficult to be accounted for. When this property of the stomach, generally most observable in rejecting certain articles, is strongly marked, it is termed an idiosyncrasy ; but every stomach seems to be more or less characterized by a peculiarity of this sort, and as in a state of general debility, little infirmities, both of the mind, and of particular parts of the body become more observable, so when the stomach is enfeebled, its waywardness and caprices are the more remarkable.

It is this trait in the character of the stomach, so to express it, which renders it so difficult if not absolutely impossible, to specify *a priori* those articles which will agree best with an individual, or to lay down a uniform course of diet, which shall suit all cases. It is also probable, owing in a great measure to this circumstance, that such a diversity of opinion exists on this subject,

and such a variety of incongruous articles have, from time to time, been honestly recommended as specifics for the disease under consideration, serving to exemplify the truth of the homely adage, "that one man's meat is another's poison." Did not melancholy consequences too often result from the blind credulity with which invalids swallow not only figuratively, but literally, such advice, it would be amusing to listen to the various dietetic precepts given on these occasions. Scarcely an article that has ever served as food for man or beast; either from the vegetable, animal, or mineral kingdom,—fish, flesh, fowl, creeping insect, or dull herb, no matter how disgusting to the palate, or palpably unfit for the purposes of digestion, but has found some advocate who will recommend it as "the sovereign'st thing on earth" for the cure of dyspepsia.

In this way, some dyspeptics having found their stomachs relieved by an exclusive use of animal food, are strenuous in recommending beef steaks and mutton chops

to all similarly affected. Others, having derived most benefit from living upon vegetables, are equally solicitous that all should adopt their course of diet. While others, finding that milk agrees better with them than either meat or vegetables, urge its use upon their fellow sufferers, although perhaps those to whom it is recommended cannot bring their stomachs in any possible way to bear it. One advises to indulge the appetite with every thing it craves ; and another prescribes a reduction of the food to a point just on this side of absolute starvation. Brandy, pork, cheese, crackers and cream, mustard-seed, and even soot, have in turn been recommended as infallible remedies. Enough, however, we think has been said, to prove the truth of the position, that one invariable course of diet will not suit every case ; and that every stomach has a certain range of articles, only to be found out by experience, which will agree best with it, and to which in its debilitated state the individual must have recourse.

Avoiding, therefore, the articles which experience teaches are difficult of digestion, and adopting these which the same unerring instructor tells us are the reverse, the dyspeptic cannot very much err: and by pursuing this course, he will stand a much better chance of obtaining relief than by listening to the idle tales of advice-giving invalids, or by following to the letter, all the dietetic rules that ever were laid down by professional wisdom.

SECTION VIII.

On Exercise.

If we have made ourselves at all intelligible to the reader, in the foregoing pages, he will readily understand that exercise is the principle upon which the plan of treatment therein detailed is founded. It is almost as superfluous to insist upon the necessity of general exercise to the healthy condition of the body, as it would be to attempt to prove the truth of a self evident proposition. Nature, ever sure and unerring in her instincts, prompts us to constant action. We see this exemplified in every period of life, from the involuntary boundings and leapings of frolic childhood, to the tottering efforts of the octogenarian, when he creeps forth to stretch his withered limbs, and bask himself once more in the warm sunshine.

Exercise, in relation to its effects, may be divided into two kinds, viz, active and passive. Active, when motion is given to the body, and the general effects produced upon the system by the voluntary action of the muscles; and passive, when this is done by an extraneous impulse without any, or at least with very little muscular exertion. Walking is a familiar example of active exercise, and riding in a carriage that of passive. Most exercises, however, are more or less a combination of the two kinds; or rather, the effects of passive exercise are commonly produced in a greater or less degree by voluntary muscular exertion. Thus the same kind of jolting or agitation is given to the body by running, jumping, &c. as is communicated by the passive exercise of riding.

The effect of active exercise upon the muscles called into action, is to send to them an additional quantity of blood, and gradually to enlarge their size and increase their strength. The principal benefit derived from

passive exercise, seems to be from the agitation or jolting communicated to the different parts of the body, particularly to the digestive organs, of which so much has already been said in the preceding pages. By keeping in view these different effects of exercise, we are enabled to determine which will best suit particular cases. Thus, to him whose stomach is in a tolerably good condition, but who is suffering from loss of strength in consequence of muscular inaction, active exercise, or that which imparts tone and vigour to the muscles, will prove most serviceable ; while for the dyspeptic, whose stomach is the weak part, a due share of the passive or jolting kind of exercise must be added to render it efficacious. We hence see the force of the saying, that ‘ riding is the best exercise to regain health, and walking to preserve it.’

These desultory observations may be concluded by the apposite remarks of Addison, which shew how near the truth, common sense and observation will lead us,

without the assistance of anatomical knowledge.

“I consider the body as a system of tubes and glands, or, to use a more rustic phrase, a bundle of pipes and strainers, fitted to one another after so wonderful a manner as to make a proper engine for the soul to work with. This description does not only comprehend the bowels, bones, tendons, veins, nerves, and arteries, but every muscle, and every ligature, which is a composition of fibres, that are so many imperceptible tubes or pipes, interwoven on all sides with invisible glands or strainers.

This general idea of a human body, without considering it in its niceties of anatomy, lets us see how absolutely necessary labour is for the right preservation of it. There must be frequent motions and agitations, to mix, digest, and separate the juices contained in it, as well to clear and cleanse that infinitude of pipes and strainers of which it is composed, as to give their solid parts a more firm and lasting tone.—Labour or exercise ferments the humours, casts them into their proper channels, throws off redundancies, and helps nature in those secret distributions, without which the body cannot subsist in its vigour, nor the soul act with cheerfulness.”

We thus see that Exercise as it is the preventive so also it is the remedy for diseases of the digestive organs. And to the primal curse entailed upon man, ‘that by the sweat

of his brow he shall gain his food' we find annexed the merciful provision that by so doing he is rendered better fitted to digest and enjoy it.

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