Anatomical and physiological description of the late Signor Sarti's new anatomical model, : together with the causes, symptoms, and treatment of the diseases of the principal organs. / By W. Mawhinney, surgeon.

ANATOMICAL AND PHYSIOLOGICAL DESCRIPTION

OF THE LATE

SIGNOR SARTI'S

NEW

ANATOMICAL MODEL,

TOGETHER WITH THE

CAUSES, SYMPTOMS, AND TREATMENT

OF THE

DISEASES OF THE PRINCIPAL ORGANS.

BY W. MAWHINNEY, SURGEON.

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ANATOMICAL AND PHYSIOLOGICAL DESCRIPTION

OF THE

NEW ANATOMICAL MODEL,

Comprising 86 Sections!

BEING THE MOST COMPLETE DISSECTED FIGURE EVER INTRODUCED INTO THIS COUNTRY.

THE FLORENTINE VENUS, to which reference is here made, was modelled in Florence, the birth-place of the artist, who spent ten years' diligent labour in its formation, during which time no less than three hundred bodies were dissected, and the several parts delineated with such precision that the anatomist in vain looks for an error in its complicated structure. Although the original intention, in the preparation of this beautiful work of art, was to present the visitor with a representation of the human frame worthy of its patronage, he has at the same time produced a perfect model of female beauty, which the fair portion of creation would do well to visit, before attempting to compress their offspring in steel or whalebone, in order to produce a spider-waist, which the vagaries of fashion have imposed upon the minds of the ignorant and the vain. When we consider how far the different parts of animated nature will degenerate when unfavourably circumstanced, we cannot be surprised to find a degeneracy in the human race when subjected to numerous privations through a number of successive generations. The Venus may justly be considered a model of perfection, to which the females of a temperate climate may nearly approach, if due regard be paid during the different periods of infancy, childhood, and youth, and to the three grand sources of health, viz. food, clothing, and exercise.

THE INTEGUMENT,

Which consists of the skin, the fat, and the fascia. The superficial *fascia* is a condensed layer of areolar tissue, about the thickness of a piece of silk paper, lying over the surface of the muscles (or flesh), and binding down the superficial blood-vessels, so as to retain them in their places. Lying over the surface of this we have a layer of fat, differing in thickness in different individuals, the use of which is supposed to be to prevent the heat which is generated in the body from passing away too suddenly—fat being a bad conductor of heat. We seldom hear a fat person complaining of cold in the same temperature that a thin person does, although the thin person is hotter to the touch. In a thin person there is generally more heat generated, on account of the quantity of blood being greater in proportion to the weight of the body. The skin consists of three layers: the deepest layer, called the true skin, or *cutis vera*, lies over the surface of the fat: in it the nerves terminate; or, as some with more propriety suppose, the sensitive nerves have their origin. In this layer there are two sets of glands: one set for separating the perspiration from the blood, and the other set secretes an oily substance which keeps the skin soft. The oil glands increase in size and number in hot climates, as seen in the negro race; but the perspiratory glands predominate in a temperate climate. On the surface of the true skin we have the middle or mucous layer, which is composed of cells. This is the part which gives colour to the different races of men, in some being black, in others of a copper colour; in this country it is of a pale red. As this layer dries, it becomes the external skin or cuticle; the cells composing it die and become flattened into scales; so that

the cuticle is in reality a dead part, and merely remains for a time as a protection for the delicate nerves which arise in the true skin. In the healthy condition, the cuticle passes off imperceptibly; and, when regularly washed and rubbed, gives to the surface of the body a beautiful, healthy appearance. By keeping the surface perfectly clean, the pores through which the perspiration passes off are kept open, so that the impurities are separated from the blood and the different glands relieved of their secretions, which, if not allowed to pass away, may be received back again into the system, and become the source of various diseases.

DISEASES OF THE SKIN.

In regard to the diseases of the skin, they are too numerous to require any distinctive remarks as to their symptoms or treatment; but as a general rule, they are best treated on general principles. If the patient is of a full habit, the ordinary antiphlogistic, lowering treatment will be found beneficial. This consists of bleeding, rest, low diet, mild aperients, &c. and in many cases the local application of sulphur and the warm bath may be used with great benefit; and, as often as the health will permit, exercise in the open air, with a mild but generous diet. This must be evident to any one who remembers that the solid parts of the body are formed from the blood: and as the blood is formed from the atmospheric air and the food, proper attention to these must be of vital importance.

ERYSIPELAS.

In this disease there is redness of the skin, preceded by feverishness, which generally ceases when the rash has fully appeared. If there be simply redness of the skin, the disease is called Erythema; if the redness be of a rose colour, it is named Roseola; but when accompanied with vesicles like blisters, it is designated Erysipelas. This disease may be confined to one particular locality of the skin, or it may wander from place to place over the whole surface, receding from the part first affected, or it may even affect the mouth, throat, or internal organs. It may affect the cellular membrane below the skin; then there is great swelling: or it may become gangrenous, which is the worst form of the disease. If there be any part of the body in which there is more danger than another, when affected, it is the head, owing chiefly to the important organs contained there, and their liability to acute and violent inflammation.

I know of no class of individuals exempt from this disease; but of all others, those whose constitutions are broken down by intemperance are most subject to it, and especially after the receipt of any local injury.

TREATMENT.

This will depend in a great measure on the constitution of the patient. If it occur in a strong, healthy individual, the system must be lowered by rest, low diet, purgatives, and every other means of depletion which we have in our power. But when it occurs in a broken-down constitution, the lowering system must not be pushed to any great extent, and sometimes it may be necessary to give stimulants. In the gangrenous form, it is necessary to give wine, bark, and opium. In regard to the local treatment, the application of cold to the part by means of wet rags, so long as it is comfortable to the patient, and the application of calamine powder to dry up the discharge that may ooze out of the (blebs) or blisters, will be found serviceable; drawing a piece of caustic round the inflamed part will retard its progress.

MUSCLES, &c.

The integument being removed, brings into view the muscles, blood-vessels, and nerves. The fleshy part, called muscle, consists of layers held together by cellular tissue; these glide over each other in the different movements. The muscle consists of two parts—a fleshy part in the centre, called the belly, and a tendinous part at each end by which it is attached to the bones. The bones, besides forming a general frame-work to the body, serve as a series of levers, so that from the mode in which the muscles are attached to these, we are enabled to move about from place to place. Muscles are divided into several classes, according to their form, position, or use. To describe these minutely would render the present work too extensive. I shall, however, point out a few of the most important as I proceed. On the face we have two sets of muscles, a superficial and a deep. The deep-seated are used in masticating the food, and in speaking; these are supplied with sensation and motion by the branches of the fifth pair of nerves, hence they are entirely under the control of the will. The superficial set are supplied by the seventh pair of nerves, so that their use is to give expression to the countenance. These muscles are beautifully shown on the right side of the face of the figure. A slight knowledge of them must be interesting to every female, and especially to those who have the care of children. Upon the forehead there is shown the anterior part of a muscle called the *occipito frontalis*, often brought into action by those who suffer from anxiety of mind. By its exercise the forehead is drawn into tranverse wrinkles, called "the brow of care." Its posterior part is attached to the back part of the skull, and gives expression to fear. When it contracts, it draws the skin of the head backwards, and thus raises the hair on the front part of the head upon an end, which most people have felt when suffering from excessive fear. Another muscle seen on the forehead, the *corrugator supercilii*, gives expression to anger; when in action, it draws the skin of the forehead into longitudinal wrinkles, which is called frowning. There are two muscles on the face arising a short distance below the eye and inserted near the angle of the mouth; the internal one is used when smiling, and is expressive of a good feeling; the external one is used in grinning, in the same manner in which the dog does when he draws up his lips in order to lay bare the fangs which he uses as a mode of defence; this muscle evidently expresses the feeling of rage. There is only one other to which I need refer at present, often brought into requisition by the young child. It arises from the lower jaw, and is inserted into the angle of the mouth. When anything is given to a child which pleases it very much, and is afterwards taken away, it depresses the angle of the mouth to such an extent that it seems to lengthen its face. It is often said to a child when it seems dissatisfied, "don't make a long face." It is easy to understand how, from the use of these muscles, the expression of the countenance may be altered; so that the most uninteresting person may, by the cultivation of proper principles and kindly feelings, become affectionate in look and really beautiful; and I have no hesitation in saying that good principles practised for two or three generations, will produce such a change in the form of the face that it will reach the perfect standard of the species.

THE NERVES

Have the appearance of white threads; they proceed to and from the brain and spinal chord to every part of the body, supplying motion and sensation.

On the left side of the face there is a deep dissection. The superficial muscles have been removed, bringing into view the bones. There are seen passing through several small holes blood-vessels for supplying the face with nutrition; also branches of the fifth pair of nerves called the trifacial. One of its branches is seen emerging from a small hole above the eye, and another from below that organ; these are frequently the seat of a painful disorder called

TIC DOULOUREUX, OR NEURALGIA.

The nerves of the system are frequently affected with disease, which may be confined to the sheath, and would then require the treatment for rheumatism: or the substance of the nerve may be affected with inflammation, or from want of nutrition. The constitution of the patient will in general indicate the mode of treatment which it will be necessary to pursue. When the nerves of the face are affected, it is called tic douloureux, and is in general best treated on general principles. If the patient is of a full habit, bleeding may be necessary by means of a lancet, or purgatives, such as the following: a drachm of the compound extract of colocynth with a scruple of the blue-pill mass, mixed together and divided into twenty pills, one every second or third night. The patient ought to be kept at rest, and should avoid all stimulating food or drink; but if there are signs of debility, it may be necessary to clear out the bowels by a brisk purgative, such as a black draught, or one of the pills which I have just mentioned, and afterwards to give tonics, such as half a drachm of sulphate of iron with twenty grains of the extract of gentian, made into a mass and divided into twelve pills, one to be taken night and morning. The same treatment will be found proper in TOOTH-ACHE; but, as a general rule, the remedies for restoring the health of the digestive organs will be all that is necessary in these nervous affections. Indeed, I believe it is generally found that those who are troubled with tooth-ache, or any other nervous affection, have it in consequence of the deranged state of the digestive organs; and if I am allowed to think through the glass of physiology, I do not know how it could be otherwise. I believe, if proper attention was paid to food, exercise, &c. there would be very few of those diseases generally termed nervous affections, proper allowance being always made for hereditary taint. The remedies necessary for restoring the health of the digestive organs shall be pointed out when I come to the stomach. Half the lower jaw has been removed, and also the deep-seated muscles, giving an excellent view of the nerves of the tongue. There are three in number, the superior one is a branch of the fifth pair, called the gustatory, or nerve of taste. The one seen immediately below it is the ninth or lingual, the motor nerve of the tongue. Still lower down and more deeply seated is the glosso-pharyngeal, one by which we swallow the food. It is the second division of the eighth pair, and many physiologists think it is the nerve of taste. From the fifth nerve there are branches seen passing off to supply the teeth of the upper and lower jaws. It will be observed from what I have stated that the fifth nerve is very compound, containing both sensitive and motor branches. From the ganglion seen upon it, it would appear to be a nerve of nutrition; and this opinion has been confirmed by observation; for when it has been extensively diseased, all the organs of the external senses suffer—the eye loses its sense of sight, the nose the sense of smell, &c. The nerves of the tongue communicate with each other very freely, so that it is possible for any of its nerves to be injured or diseased, and yet the three functions of taste, sensation, and

motion, may remain. There are seen at the side of the neck the common carotid artery; its division into an external and internal; with the numerous branches given off from the external to supply the face and the side of the head with blood, and also the several nerves which pass off from the spinal chord while in the neck, together with the pneumo-gastric, phrenic, and sympathetic nerves. These I shall explain when speaking of the several organs to which their branches are distributed.

GLANDS.

Having here a beautiful view of the salivary glands, I may mention that there is no simile which seems better calculated to give to the general reader an idea of the use and function of a gland, than that of a filtering stone. When blood passes through a gland, the secretion is separated, and, freed from that impurity, it returns back again to the general circulation —just as the impure water passing through the filtering stone has the impurity separated, and the pure water passes from beneath. If we carry the simile farther, we may suppose a number of filtering stones, each formed of a different kind of stone; according to the structure, each will purify the water to a great extent—so the several glands, as the salivary, the liver, the kidney, &c. being each of a different structure, will each separate its own peculiar fluid, and thus fit the blood for entering into the solid structures of the body. As the office of the several glands is evidently the purification of the blood, it will require no great stretch of intellect to perceive how persons addicted to the practice of drunkenness, or who are from day to day taking inferior articles of diet, or breathing impure air, must have their blood impregnated with deleterious particles, which, by thus imposing on the glandular structures too much labour, will in the end totally destroy both their structure and functions. There are three salivary glands at each side of the mouth—the sublingual, situated under the tongue; and the submaxillary, under the jaw. These will be stimulated by the action of the muscles during the process of mastication. The food, touching the termination of the several ducts, will also stimulate the glands; and every one knows how the mind will affect them. It is common, when a person thinks of an acid substance, to have the saliva poured into the mouth; and as the ducts open near the teeth, it is not uncommon to hear the expression—"my teeth water after it." The parotid gland, situated over the joint of the lower jaw, is irritated during the action of the jaw in speaking; this will also cause a secretion of saliva. As to the use of these glands, some have supposed that the saliva they secrete acts on the food as a solvent juice. One principal use appears to me to be to keep the mouth moistened in speaking. I know it is mentioned by one of the best physiologists of the present day, that when he mixed some food with saliva and the other with plain water, and exposed both to the action of the gastric juice, the one dissolved as quickly as the other. I am not aware that it has yet been ascertained whether, when the quantity of saliva is increased, there is an increase in the several chemical constituents, or whether there is only an increase of the watery part. If the latter is the case, it may be at the expense of the fluid part of the perspiration, the bile or the urine, and the general system suffer nothing from the change. I have a strong reason for disapproving of the practice of smoking tobacco, or in any such way using strong narcotics; from the bad effect which they produce on the nervous system, paralysing to a great extent their vital functions, and often inducing at an early period of life the mental debility of old age. It is confirmed by all experience, that no good is derived from

the habitual use of such substances; and it is therefore a sinful abuse of money, which might be applied to a higher, a nobler, and better purpose. In addition to this, it so affects the breath as to render the slave of such a vice a nuisance to society.

MUMPS.

The salivary glands are sometimes inflamed; the disease is called Mumps. It is usually caused by cold. It first commences in the parotid and afterwards extends to the submaxillary and sublingual glands. During the acute stage, the disease has the ordinary symptoms of inflammation, such as pain which descends down the neck and upwards to the head and face, increased heat, redness, and swelling which greatly interrupts the motion of the jaw in speaking or masticating the food. The disease is apt to change from one place to another. It may leave the salivary glands, and attack the mammæ in the female, or the testicle in the male; sometimes it affects the brain. On this account it is dangerous to apply cold, as this might induce such a transition.

The treatment consists in keeping the part warm by the application of flannel, avoiding all stimulating food and drink, and the exhibition of some mild aperient medicine, such as a dose of castor oil, say half an ounce, or three grains of calomel combined with twenty grains of powdered jalap. In severe cases, it may be necessary to apply a few leeches, or rub the skin over the affected part with a pencil of caustic, or with a strong solution, twenty grains to an ounce of distilled water. The disease usually occurs in children from seven to fourteen years of age.

INFLAMMATION OF THE TONSILS, OR QUINSEY.

There is another disease which, from the locality of the affection I shall now describe. It is called Tonsilitis. On examining the mouth, there may be several parts found inflamed, such as the uvula, soft palate, &c. When the tonsils are inflamed, they appear like large red balls, and are called in common language the almonds of the ears. The pain which is always felt is much increased in swallowing, and even more so in swallowing the saliva than solid food; speech is greatly impeded. If the case is severe, there will be fever, with the ordinary symptoms of inflammation; but the prominent symptom is the great difficulty in swallowing. In this disease, general bleeding is seldom necessary; but leeches ought to be applied below the jaw, and the bleeding kept up for some time by fomentations or poultices. Blisters cannot be applied in the acute stage; they can never be used, unless the debility is such as forbids the use of leeches, or when they have been used as far as is advisable. Great benefit is generally derived from scarifying the tonsils, and frequently an emetic is found useful. Gargles often give great relief, especially the nitric acid gargle. This, as well as the preceding disease, being of an active inflammatory nature, must as soon as possible be put under the care of a medical man.

THE THYROID BODY.

This peculiarly constructed body is situated in front of the windpipe, a little below the prominence called the apple of Adam. It is called by some writers the thyroid gland; but as it has no excretory duct, it does not seem entitled to the name of gland. Some have supposed it to be a safety valve for the brain; and from the number of large vessels that enter into it, it may serve such a purpose, especially in infancy, when the brain and its membranes are more subject to inflammation than in after life. The use, how-

ever, does not seem to be well understood. It is rendered important in some parts of this country, as well as on the continent, by an enlargement to which it is subject, called Goitre, or

DERBYSHIRE NECK.

This tumour is sometimes so extensive that it reaches to the lower part of the chest, and cases are on record where it has reached so low down as the knees. The cause of the disease is not well understood; some suppose it is caused from the use of bad water, others think it depends on the state of the atmosphere; probably the one renders the constitution susceptible, and the other finishes the work. It is said that if two people marry on the continent having this disease, their children will be cretins, that is, diminutive in size, with large heads, and idiotic. In the treatment, every thing ought to be done to improve the constitution. The patient ought to be removed to a healthy district and use the purest water. Among the remedies, iodine is one of the best, applied both externally and internally. A saturated solution may be given in doses of five drops two or three times a day; this dose may sometimes be considerably increased, or half a drachm of iodide of potassium may be dissolved in an ounce of distilled water, and a tea-spoonful given two or three times a day. At the same time, a portion of an ointment composed of a drachm of iodide of potassium to an ounce of lard may be rubbed into the part three times a day. If, from the use of the medicine internally, symptoms of gastric irritation should arise, it must be suspended, and the symptoms removed by proper remedies. If, from the local application, irritation arise in the part, this must be removed by leeching, &c. Cod-liver oil is said to be useful, and, as a tonic, is in many instances highly commendable. The remedies recommended are found useful while the gland is enlarged and soft, especially when the treatment is commenced early; but when the disease is of long standing, when it is cartilaginous or earthly, depositions are formed in it, and such treatment is seldom successful.

MUSCLES OF THE CHEST, &c.

On the upper part of the chest the collar bone is situated. It gives support to the arms; and the breast bone is seen passing down the front of the chest, to which the cartilages of the ribs are attached. In front of the ribs the great pectoral muscle is situated; by its origin it is attached to the ribs, the breast bone, and collar bone, and its fibres pass outwards to be inserted into the arm. Its use seems to be to draw the arm forwards and inwards If we take the arm as the fixed point, we can raise the ribs and use it as a muscle of inspiration. To those persons whose employment seldom brings this muscle into action, some exercise ought to be used to strengthen it; and for children, especially girls, I know of no instrument equal to the skipping rope. If this be properly used, the pectoral muscle is so brought into requisition that it cannot fail to enlarge the cavity of the chest; and when this is accomplished, a large quantity of air will be admitted into the lungs; and, the blood being perfectly purified, the health of the body will be much improved. In front of this muscle, the mammary gland, commonly called

THE BREAST,

is placed. It is composed of the minute ramifications of the milk tubes; but we have also entering into its composition blood-vessels, nerves, and absorbents. When this gland is raised from the pectoral muscle, it is seen to consist of a number of small lobules, held together by cellular tissue;

each lobule is composed of a distinct set of milk tubes; these unite with each other as they approach towards the nipple, and open by the single tube—thus it will be seen that there will be an external opening for each lobule. If an injection of a different colour be thrown into each external opening, it will not mix: each lobule will be injected with its own particular colour.

This will account for a person, during the period of lactation, suffering from inflammation, abscess, or cancer, or having a part of the gland removed, and it does not interfere with the healthy secretion of milk in the other parts. A person may, during the disease of the breast, apply the child with safety; the healthy part will secrete milk, and the unhealthy part will not; so that the child will receive no injury—a beautiful provision made for the protection of the child, that being its only nourishment, and the most proper during at least the first seven months of infancy. In regard to the sympathy which exists between the mammary gland and the uterus, causing the secretion of milk under certain conditions of that organ, it is not well understood. It is not always necessary that pregnancy should take place in order to cause the secretion of milk. Cases are on record where the application of the mouth of the child has caused the secretion of milk in persons who had never been pregnant, and even in man.

HACKING OF THE NIPPLE.

In regard to the diseases which affect this organ, hacking of the nipple often occurs a few days after parturition. The best application is a solution of tannin, five grains to an ounce of distilled water. The part should be protected by a shield, which may be obtained from any apothecary at a trifling cost. The disease might be prevented by bathing the part frequently, for a few weeks before parturition, with a decoction of oak bark.

MILK ABSCESS

Is a very common complaint, which requires the same treatment as an ordinary abscess. If it goes on to suppuration, soothing poultices till the matter forms, and then puncturing with a lancet, is the principal part of the treatment. If the part does not heal in a short time, an astringent lotion, such as two or three grains of sulphate of zinc dissolved in an ounce of water, may be injected into the part two or three times a day. In order to prevent swollen breasts, the infant ought to be put to them immediately after its birth; and if it is not able to draw the breast, a stronger child must supply its place. Malignant diseases frequently affect this gland; the most common are

SOFT AND HARD CANCER.

The soft usually attacks those under thirty years of age, and the hard after that period. These diseases are usually met with in persons of a weak, delicate constitution, and may arise from the irritation produced by the wearing of pieces of wood, whalebone, or steel in stays. Soft cancer is unattended with pain in the early stages of the disease, and is blended to a considerable extent in the tissues with which it is connected. It is very rapid in its progress, usually running its course in a few months. During the early stage of the disease, leeches may be found beneficial, or cold by the application of iced water. The removal of the part with the knife would be altogether useless, as the disease is certain to return. The constitutional treatment ought to be such as to support the strength; exercise in the open air, in the early stage; a generous diet, but not stimulating. The preparations of iron, when the lips are pale and other symptoms of

great debility are present, will be found useful; and pills, containing two grains of chloride of ammonia given three times a day, have been found useful. To these remedies anodynes may be added when there is much pain. Hard cancer is more uncertain in its progress; it may terminate fatally in a few months, or it may last for half a century; but the usual period is about four years. In the early stage, this disease may be removed by the knife, and in many instances it does not return. The constitutional treatment may be the same as is recommended in soft cancer. In the suppurating stage, carrot poultices, medicated by a solution of opium, conium, or belladonna, will be found useful. In the early stage, nothing is more beneficial than change of air, cheerfulness, and a generous diet.

HERNIA OR RUPTURE.

The muscles of the abdomen are principally of use for protecting the viscera contained therein, and are strengthened by the transvere ligamentous lines which represent the ribs in the lower order of animals. There are in the walls of the abdomen certain weak parts through which the intestine is often found protruding in different forms. Inguinal Hernia is that in which the intestine passes out at the external abdominal ring, following the course of the spermatic cord down to the scrotum. This is often seen in men who are in the habit of lifting heavy weights. Femoral Hernia—so called when it passes out along the inner side of the femoral vein at the upper part of the thigh—is frequently met with in the female during pregnancy. In Umbilical Hernia, which is most common in infancy, the intestine protrudes at the umbilicus or navel. Although these different kinds of rupture occur in persons such as I have mentioned, the different kinds are met with in both sexes at all periods, from infancy to old age. In the child, umbilical hernia is treated by placing on the part, after the intestine has been returned to its place, half of a small wooden ball, and retaining it there by a compress and bandage for about two months, which usually effects a permanent cure. In the adult, the intestine must be returned to its proper place and supported there by a truss, which keeps up regular pressure on the part. The treatment of hernia, when strangulation takes place, must be conducted by a medical practitioner; so that any hints I might give in a work like this would be entirely out of place. Congenital Hernia, or rupture at birth, differs little from the oblique, and is so called from occurring at, or shortly after, birth—the intestine protruding into the scrotum before the communication between the peritonæal covering of that part and the general peritonæum has become obliterated. Treatment—the bowel must be returned to the natural cavity as soon as possible, and be retained there by a proper truss, which can be safely applied as soon as the operation is completed.

The muscles now being removed from the abdomen and chest, together with the ribs, sternum, and collar bone, bring into view the viscera contained in those cavities. In the chest are situated the lungs and heart with its great vessels. In the abdomen we have the organs of digestion, and the diaphragm as a partition wall separates these two compartments. These parts I shall describe hereafter.

The muscles on the extremities are divided into four sets, according to the use to which they are applied; viz. extensors, flexors, pronators, and supinators. The reader will easily conceive from this arrangement that the extensors must be situated on the back part of the arm, fore arm, and hand; the flexors on the front; the supinators on the outer side; and the pronators on the inner side. This is also the case with the corresponding muscles

of the lower extremities. By placing the hand on the front of the opposite arm, and then forcibly drawing up the fore-arm, the large muscle in front of the arm is felt to enlarge in the centre, and thus bring its insertion nearer to the origin. A similar motion is felt by placing the hand upon the fore-arm while forcibly closing the hand.

The figure is so placed upon the couch as to give an excellent view of the muscles which I have just enumerated. The right hand lies with the palm turned downwards, so that the common extensor muscle of the finger is seen running down the back of the arm. Near the wrist joint it divides into four tendons which pass under the annular ligament (a ligament which surrounds the wrist like a ring) to be inserted into the finger; and the two supinators are passing forwards and inwards, so that when they contract they draw the radius outwards, over the ulna, and turn the palm of the hand upwards (called supine). At the bend of the arm, the mediar cephalic vein is observed, and beneath it the artery so frequently punctured in bleeding. When this occurs, it is followed by an aneurism, cured by cutting down upon the artery and putting a ligature upon it, and the circulation is afterwards carried on by the collateral branches. This shows the absurdity of allowing those unacquainted with anatomical structure to perform surgical operations. The left hand lies with the palm upwards, giving a view of the flexor muscles of the fingers: about the middle of the fore-arm these are seen terminating in their long tendons, which extend down to the fingers, into the bones of which they are inserted; and a little below the bend of the arm, a small muscle is seen passing outwards—it is one of the pronators, and is inserted into the outer bone of the fore-arm (the radius). When it contracts, it draws the radius inward over the ulna or inner bone, and turns the palms of the hand downwards, called prone. On the left lower extremity, the muscles are seen in their natural position—all the extensors of the thigh, leg, and foot, the knee-joint protected by the patella; and, spread over the surface of these, the superficial set of blood vessels, accompanied by numerous nerves. On the right lower extremity, the muscles have been removed from the front part of the thigh and leg, enabling the visitor to trace the courses of the femoral veins and nerves, with their several branches, from the point where they emerge from beneath the Poupart's ligament at the upper part of the thigh, down to the extremities of the toes. The thigh bone is also exposed, with the several small blood vessels by which it is nourished. At the knee-joint, the patella has been removed, so that its structure may be minutely examined. It will be observed here, that the bones of the leg and thigh do not come immediately into contact, but that small cartilages, called semilunar, are placed between them, which serve as a spring cushion, preventing the shock which we should receive in walking if the two bones came in contact. As these cartilages are thickened round their edges, they considerably deepen the cavity and strengthen the joint. Surrounding the joint there is a delicate synovial membrane, which secretes fluid for moistening it: this prevents friction during motion, as oil does when applied to machinery. Every enlargement of this joint, unattended with the ordinary symptoms of inflammation, is vulgarly called white swelling, but which is properly applied to the enlargement usually met with in scrofulous constitutions; the treatment of which does not differ materially from that of scrofula in other parts, to which I shall have occasion to refer hereafter.

Housemaid's Knee is an acute inflammation of the bursa, situated on the front of the knee-cap (or patella), and usually arises from kneeling on hard, damp floors. It is attended with pain, swelling, and fever. From

the swelling in this case being very superficial, it can easily be distinguished from inflammation of the knee-joint. The treatment consists in rest, purgatives, leeches, and fomentations. If puncturing should become necessary, the advice and attendance of a medical man will be demanded.

In regard to the muscular structure, generally, gentle exercise is necessary to preserve its healthy condition. It is wonderful to observe the great strength attained by those who have been brought up under judicious training; indeed, the strength acquired by the muscles in some of the ordinary occupations of life is almost incredible. Many of the coal-heavers in London will carry with ease seven or eight hundred weight, and these men are even surpassed by many of those employed at the ports in Turkey. There is an account given of a man who is said to have commenced to lift a calf, and continued to do so every morning till it became a cow, that his muscular strength increased in proportion to the weight of the animal, so that he performed the feat with ease until it was fully grown. The strength of the legs of a handloom weaver, or of a dancing-master, and also the arms of a blacksmith, have been proverbial. The muscles, from want of exercise, have a tendency to degenerate. This will also happen when the nerves supplying the part have been injured. The healthy structure is said to be preserved for a considerable length of time by passing a current of electricity occasionally through the injured limb. This, I think, is worthy of a trial in such cases, as the application is easy, and, if carefully applied, unattended with danger to the patient. In cases of injury, friction of the part with the hand, at the same time applying some stimulating liniment, as the hartshorn and oil liniment, or camphorated oil, is highly recommended; and, I have no doubt, if persevered in, would be successful.

Before proceeding to the consideration of the viscera, the windpipe requires some observation. It is a cartilaginous tube, situated in front of the neck, extending from the mouth into the substance of the lungs. It is divided into three parts; the upper, called the larynx; the middle, the trachea; and the lower part after its division, the bronchial tubes. It is lined throughout with mucous membrane, to protect it from the irritation of the air. It often becomes inflamed, and from the lining membrane extensive expectoration takes place. The inflammation has received a distinct name, according to the part diseased. Thus we have laryngitis, tracheitis (called croup when it occurs in the child), and bronchitis.

LARYNGITIS.

In regard to this discase, it may be produced by any of the ordinary causes of inflammation, local injury, the immoderate use of mercury; but the most common cause is cold and wet, especially when applied to the feet; the ordinary symptoms of inflammation are present; locally there is pain, heat, redness, &c.; and the constitutional symptoms are quickness of the pulse, hot skin, thirst, great difficulty of breathing, suppression of the voice to a whisper, and often loss of voice altogether. In this disease, both medicine and surgery are called into requisition; perhaps no other disease requires more prompt or energetic treatment. On this account, medical advice must be obtained as soon as possible; and till that can be done, rest, low diet, and mild aperients must be given.

CROUP.

This is properly called tracheitis; it is inflammation of the lining membrane of the trachea. The distinctive mark of this disease is a rough, ringing cough; the sound is as if it passed through a small brass tube;

besides which, there is a hissing inspiration and a difficulty in breathing, especially in inspiration, and a pain low down in the throat. There is a mucous expectoration, sometimes mixed with shreds of lymph. The face is flushed, the pulse rapid, with great anxiety of countenance. This disease occurs in children between the period of weaning and puberty. The disease may last from twenty-four hours to three or four days, or sometimes even longer. The treatment is precisely the same as recommended in laryngitis; except when the child is very young, the jugular vein may be opened, instead of bleeding from the arm; after this, leeches may be applied to the throat—the number must vary according to the age of the child; and after this, a blister; but this must not be kept on too long. The warm bath is sometimes of service, and benefit has often been derived from emetics. These things can only be done safely by a medical practitioner.

BRONCHITIS

Being an inflammatory disease, many of its symptoms are in common with inflammation of other parts. The pulse is quick, sometimes so high as 100, or even more, usually full and soft; the skin dry; sometimes there is profuse sweating; the tongue of a dirty white colour; there is great congestion of the face, and the veins of the neck and head are much enlarged during coughing; and headache, which is usually present, is much increased. The breathing is shallow and quick, and any attempt at a deep inspiration is attended with considerable pain. There is constriction and soreness in the region of the large bronchial tubes. There is sometimes considerable cough, excited by the slightest motion. The expectoration is in the inverse ratio to the intensity of the disease. It varies both in colour and consistence. It is sometimes yellow like pus, but glutinous, and for the most part swims in water; at other times it is dark coloured. It may be blue, green, or white. If the disease go on without interruption, it usually terminates fatally in abont six days. The sound on percussion is not altered, it is the same as in health; but, applying the ear to the chest, instead of the respiratory murmur, there is a rough, loud sound like the snoring of a small animal, or like the bass string of an instrument, called the "sonorous rattle;" and sometimes there is a sharp, shrill sound heard, like the chirping of a bird, called the "sibilous rattle." These last symptoms are very decisive. In this disease, tartar emetic is of great service; it ought to be given in grain doses, every hour at least, so as to keep up nausea; even vomiting gives great relief, as it causes a great discharge from the part, and is not attended with pain. Tartar emetic is of greater service than in any other inflammatory disease. As this disease is so often mistaken for consumption, and much valuable time lost under the treatment of inexperienced persons, I must strongly urge the necessity of consulting a physician of eminence in so dangerous a condition.

CHRONIC BRONCHITIS.

This disease must be treated according to the condition of the patient; the depletory measures must not be carried too far; but blisters are often of great service, and dry cupping, as in this operation there is no loss of blood, but a great determination to the surface. The disease is common in old people, especially in the winter season. The mucous rattle is commonly present in this form of the disease.

THE LUNGS

Are two oblong, conical bodies, situated in the chest, one on each side,

filling the whole of that cavity, except a small portion near the centre, where the heart is situated. The lung is principally composed of the air-cells, which are clustered round the bunches of the bronchial tubes much in the same manner as the bunches of grapes are attached to the stem; each cell communicates with the air-tube, so that it becomes filled in inspiration. We have also entering its composition the branches of the pulmonary-arteries—whose minute capillaries form a net-work round the air-cells, and thus expose the blood contained in them to the action of the atmospheric air, that it may be purified and fitted for nourishing the system—and the pulmonary veins, which return the blood back again to the heart in its pure state; also the bronchial arteries and veins, which are the nutritive vessels of the lung, together with the nerves and absorbents. These parts are held together by cellular tissue, and constitute parenchyma, or substance of the lungs; in colour, they are pale in the child, bluish in the adult, and, towards old age, of a dark, greyish hue. The lungs have a mucous membrane lining their tubes and air-cells.

THE PLEURA.

Externally each lung is covered by a distinct membrane, the pleura. Like all serous membranes, it is closed, called in medical language a shut sack. One layer covers the lung called the pleura pulmonalis, and the other is reflected on the ribs, called the pleura costalis. The surfaces which come in contact secrete the serous fluid which keeps the part moistened and prevents irritation during motion.

PLEURITIS.

Numerous diseases affect the pleura. Inflammation, called pleuritis, arises in almost every instance from cold and wet; sometimes from local injury or ulceration. The general symptoms are slight feverishness, if consequent on some local irritation; it begins with shivering, and is followed by quickness of the pulse, pain on pressure, if made firmly between the ribs or on them; but pain is not felt if the pressure is slight. (This distinguishes it from rheumatism, in which there is pain on the slightest pressure.) This being a serous membrane, the pulse is hard and quick, the skin hot, and generally great perspiration. The local symptoms are an acute, short, stabbing pain, greatly increased by any attempt at a deep inspiration. The respiration is rapid, but shallow, pain increased by coughing or speaking; when the disease is partial, the patient lies best on one side; sometimes on the one that is diseased, and sometimes on the other. On listening to the sounds of the chest, there will be less respiratory murmur in the affected part, as it is not much expanded in respiration; we may have a duller sound from slight effusion that may have taken place. It will be distinguished from pneumonia, as there is no crepitous rattle as in that disease; we also want the sibilous and sonorous rattle of bronchitis. There is a sound like that of a goat (called ægophony), when there is an effusion of considerable quantity; but this is not heard when the effusion is either very great or very small. In regard to the treatment, it is that of an ordinary inflamation; low diet is absolutely necessary, and the patient ought to keep quiet in bed. This disease may become chronic; and the symptoms are so like those of consumption, that a patient is sometimes said to have fallen into that disease. In general, there is no pain, or very obscure; there is feverishness, cough, and expectoration; the pulse constantly quick, the patient will become hectic, waste away, and die As this form of the disease is attended with various affections and symptoms, it must be

treated accordingly. When there is an effusion, which is frequently the case, which is known by the dull sound heard on striking the chest, it is removed by puncturing the chest at the part where the fluid accumulates, if this is indicated by the pointing of the matter, or between the eleventh and twelfth ribs; the constitution must be supported, and opium given to relieve the constitutional irritation. As the treatment of this disease must be by a medical man, any further description would be unnecessary; and as the disease does not run its course so rapidly as acute inflammations, medical aid can always be procured in time.

PULMONITIS, INFLAMMATION OF THE LUNGS.

In this disease there is a difficulty in breathing, cough, and expectoration. The breathing is shallow, and the pain is dull and deeply seated; whereas in bronchitis there is a soreness in coughing and a constriction in the front of the chest. The respiration is quick, and there is present the ordinary symptoms of inflammation. The expectoration is regarded by some as a distinctive sign of the disease, from its adhering to the vessel like mucus. The disease has three distinct stages, in each of which the symptoms will vary. In the first stage there is an increased quantity of blood, so that we have respiration accompanied with a crepitating rattle—such a sound is heard when a few hairs are rubbed together close to the ear—instead of the ordinary murmur heard in the healthy chest. In the second stage, the quantity of blood is increased, so that the part becomes solid as a portion of the liver; in this stage, no air can be admitted into the affected part, so that there is no hollow sound on striking the chest; there is no respiratory murmur or crepitus heard. In the third stage, pus is formed; but is not collected into an abscess, but diffused generally through the substance of the lung; in this stage, as in the second, there is no sound on percussion, no respiratory murmur or crepitous rattle, but there is a mucous rattle from some effusion into the bronchial tubes.

SPITTING OF BLOOD.

This disease is called hemoptysis. The blood may come either from the lining membrane of the bronchial tubes, or from the air-cells. So far as the treatment is concerned, it is of little consequence whether the effusion is from one or the other. But so far as the patient is concerned, there is a great difference. If the effusion comes from the lining of the tubes, it is not so profuse as when it comes from the air-cells; but that which comes from the lining of the tubes is the form which precedes consumption. The only disease that is likely to be confounded with it, is hemorrhage from the stomach. If it come from the stomach, it is of a dark colour, as the effusion is from the veins; and from having remained in the stomach for some time, it is generally coagulated and mixed with the contents of the stomach, and comes up with nausea, sickness, and, perhaps, vomiting. When it comes from the lungs, the blood is of a bright red colour, and mixed with frothy mucus. There are also pectoral symptoms, such as "stitch" in the side, cough, and tickling in the throat. When the effusion is from the air-cells, there is, in addition to the symptoms which I have mentioned, difficulty in breathing, heat in the front of the chest, flushing in the face, followed by great paleness; sometimes from the air-cells there has been spit up so much as ten pints in twenty-four hours. Treatment:—The patient should not, if possible, be allowed to lie down. Ice ought to be applied to the chest; and,

till that can be procured, cold water ought to be thrown on it, so as to keep the part as cold as possible. He ought not to be allowed to speak or use any exertion for a long time, lest the disease should return. The best medicine that can be given internally is the acetate of lead. It may be given in doses of two or three grains every five or six hours, according to the symptoms. The best mode of administering it is to combine it with the extract of colocynth ; one drachm of acetate of lead may be combined with one drachm of the compound extract of colocynth, the mass divided into thirty pills, one taken every four or six hours. Care should be taken to open the bowels at least once every twenty-four hours, with castor oil, croton oil, or some laxative that does not contain sulphuric acid; if this be done, there will be no danger of colic, which sometimes arises. Prussic acid is sometimes given, when the stomach is irritable ; but could only be administered by a medical man.

ASTHMA.

This is a spasmodic disease, and in itself not dangerous ; but it is generally combined with chronic bronchitis, or some other affection, and must be treated accordingly. In pure asthma, which is a deranged state of the nerves of the lungs, and spasmodic in its character, bleeding is seldom required, unless the patient be of a full habit. During the fit, a full dose of opium, thirty or forty drops, may often be given with safety ; and to prevent its recurrence, the ordinary anti-spasmodics, such as ether, musk, assafœtida, or opium, are the best remedies ; much relief is often derived from smoking thorn-apple (herbe aux sorciers).

HOOPING COUGH.

This disease is nearly allied to asthma. It usually affects children. The symptoms are a violent fit of coughing, with a short expiration followed by one long, deep, hooping, crowing inspiration. This disease has two distinct stages : in the first, there are inflammatory symptoms of the bronchial tubes or air-cells, &c. ; during this stage, antiphlogistic treatment must be employed, leeches to the chest, according to the age of the child ; emetics are of great use ; two or three grains of ipecacuanha with half a grain of tartar emetic is a sufficient dose for a child of five or six years old ; so that the dose may be regulated by the age of the child. Castor oil, in small doses, may be given with advantage to clear out the bowels. The food ought to be very light. In the spasmodic stage, narcotics are of great service, When the disease lasts for a long time and there is debility, tonics, such as iron, may be required ; the sulphate may be given to a child in small doses, half a grain in treacle or any convenient mixture. Change of air is often found of service in the spasmodic stage ; even changing the child from one apartment to another in the same house has a beneficial effect. A visit to the sea side will sometimes remove this disease without anything else.

CONSUMPTION, CALLED PHTHISIS.

This disease is more common and more fatal in its effects than any other that occurs in this country ; and, unfortunately, after it has gone to a certain extent, medicine has little control over it. It is divided into three stages, which are very distinct. The first is while the tubercles are being depo-

sited, the second is while they are in the act of suppurating, and the third is the period during which hectic is present. As the tubercular matter is deposited in small granular particles, which are at first distinct and separate, there is no dull sound heard on striking the chest, nor any change discovered by the stethoscope; but as the tubercles increase in number and in size, they in a short time form solid masses: and, as this usually takes place at the upper part of the lung, a dull sound will now be heard on striking the part below the collar bone; and if the stethoscope be applied there, and the patient made to speak, the sound is louder than natural, the solid matter being a good conductor of sound. One of the first symptoms present at this stage is spitting of blood, and in this case it comes from the bronchial tubes. There is a light tickling cough, and a small quantity of mucus spit up. The patient is sometimes troubled with a stitch in the side, which often extends to the abdominal muscles. The cough increases on going to bed at night, and on rising in the morning, from the change of temperature to which the body is exposed. There is now a slight feverishness, and the pulse becomes quicker than natural on the slightest exertion. On falling asleep, the patient finds that he perspires in some particular part of the body, such as the calves of the legs, or the chest; and there is a slight chilliness. The expectoration now becomes slightly tinged with blood. In the second stage there is more cough and difficulty of breathing, and the patient lies easier on one side than on the other. There is generally pain in the side. The eye becomes transparent, and the nails curved in. If the patient be a female, menstruation declines, or may cease entirely. The expectoration, instead of being frothy, becomes green or yellow, and is shorter between the fingers and sinks into water; small curdy lumps are seen in the sputa (the matter expectorated), and shreds whiter than the rest. The tongue may remain in a healthy condition, or it may become foul and loaded with mucus, or it may become red at the tip and edges, or even the whole of its surface. During the last or hectic stage, there will be an increase in the pulse, at least in the middle of the day, and in the evening; a sediment now appears in the urine, and the pulse is seldom below ninety, and frequently above a hundred. The mind and appetite generally remain unimpaired. One remarkable symptom in this disease is hope; even the most intelligent think, till the last day of their existence, that they are going to recover; very few, indeed, despond. In the second stage, the turbercular mass softens and becomes expectorated; then there will be a cavity formed, so that, on striking the chest, over the part, a hollow sound is heard, such as in health, or perhaps more so. By using the stethoscope, we hear a sound as if it were placed over the trachea; this is called pectoriloquy. There is no doubt but a predisposition to this disease is sometimes hereditary; those who are most subject to it are persons of a fair complexion, light hair, sanguineous temperament, soft skin and hair, long-pointed fingers, the flesh soft, the pupils of their eyes large; they are generally thin and tall, especially thin with a long neck; they have generally been subject to hemorrhage from the nose when young. There is another class subject to this disease: they are short and swarthy, with dark hair and eyes, the pupils large, the skin soft, the fingers and nails short; the latter class have generally a tumid upper lip. The disease usually occurs in this country between the age of eighteen and thirty. There can be no doubt but a predisposition to this disease is often caused by bad food, bad clothing, and damp atmosphere; and the most common exciting cause is cold and wet applied to the body when overheated. Great mental or physical exhaustion, or powdery substances in the atmosphere, will give

rise to it. Among dry grinders this disease is very prevalent, and few of them live beyond thirty or forty. Public speakers and performers on wind instruments, who are accustomed to great respiratory exertions, and those who have taken a large quantity of mercury, or have indulged in solitary habits, or excesses of any kind, often fall victims to this disease. The patient ought to avoid all excesses, all exposure to night air, and to be warmly clothed; flannel is indispensable; plenty of exercise in the open air, but not so as to produce fatigue. Good, nutritious diet, with a regular proportion of animal food, of the best quality, once or twice a day, will be necessary, unless there are some inflammatory symptoms present, when antiphlogistic treatment will be required. The cold shower bath, if it can be borne, has a powerful effect in strengthening the patient. If the cold shower-bath produces too great a shock, the chest should be bathed with tepid water, and afterwards with cold water, and rubbed dry, which will protect the patient against cold during the day. Among the remedies recommended in this disease is sulphate of iron; it may be taken in doses of two or three grains, once or twice a day, with great benefit. If there be great irritation, opium may be given in the form of muriate of morphia: a quarter of a grain is equal to a grain of opium, and is considered a sufficient dose for an adult. But far before all other remedies is cod-liver oil; this has been effectual in cases where every thing besides has failed; and since it is now prepared in great purity, there is no longer the objection to its use there formerly was, on account of extreme nauseousness. The patient may commence with a teaspoonful three times a day, gradually increasing the dose to a table spoonful. The best mode of taking it is in water in which orange peel has been boiled. The patient must give the remedy a fair trial—its effects may at first be slow, but in nearly all they are sure. The benefits resulting from its use, not only in this disease but many others, every day, are the astonishment of the first physicians, both in this country and on the continent.

THE HEART.

The heart is the next organ I shall describe. It is situated nearly in the centre of the chest, with the base upwards towards the left shoulder, and the apex pointing downwards towards the left side. It consists of four cavities —two auricles and two ventricles, surrounded by a proper covering—the pericardium. The use of the heart is to send the blood through the lungs, to be exposed to the atmospheric air and purified, and then through the system for its nourishment. The heart in man so much resembles that of many of the lower animals, that a minute description of its form and appearance is altogether useless; I shall therefore proceed at once to the circulation of the blood, which must be interesting to all who desire to know how life is continued and health preserved. There are two kinds of blood-vessels in the body—the arteries, which carry the pure blood through the system for its nourishment; and the veins, which return the blood back again to the heart, from which it is sent through the lungs, and purified there by exposure to the atmospheric air. The blood, rising in the left ventricle of the heart, enters a large vessel, the aorta, which ascends upward towards the neck for about two inches, and gives off branches which pass along the arms, and to the head and neck, supplying those parts with nourishment. It then turns downwards along the spine (back bone), giving branches to the different organs in the chest and abdomen, till it reaches the loins, where it divides into two branches (the common iliac); these again divide into two —the inner go to supply the parts contained in the pelvis, situated at the lower part of the abdomen; the external on each side passes out at the

upper part of the thigh, forming the femoral artery, and continues its course to the extremities of the toes. All the branches given off from these vessels continually divide and subdivide, till they terminate in fine capillaries, vessels like hairs In passing through them, the blood gives out nutritious particles, loses its bright red colour, enters the veins (which are a continuation of the capillaries), which bring it back again to the heart. All the veins from the inferior extremities and abdominal viscera unite to form the inferior vena cava, while those from the arms, and head, and neck, unite to form the vena cava; both these open into the right auricle. From the right auricle it passes into the right ventricle. It then enters into the pulmonary artery, by which it is conveyed to the lungs. The branches of the pulmonary artery divide and subdivide till they terminate in capillary vessels, which form a network round the air-cells, and thus expose the blood to the atmospheric air, which changes it from a dark colour to a bright florid red; it is then brought back again to the heart by the four pulmonary veins which open into the left auricle; from this it passes into the left ventricle, from which I commenced this description.

The circulation will be easily understood by a simile which is used by most persons who are describing the circulation—that of the water which supplies a town. The fountain will represent the left ventricle; the main pipe, which carries the water to the town, is the aorta; its branches, which carry the water through the streets, are like the arteries passing through the body; the tube which carries the water to each house, like the fine vessels which terminate in the capillaries; the house, when the water is applied and becomes impure, is like the capillaries in which the blood becomes impure; and the sewers, which carry the impure water into the sea, are like the veins which return the impure blood back again to the heart. Then we may compare the lungs to a filter, where the blood is purified and again fitted for use. How the atmospheric air and blood get into contact in the lungs is rather difficult to understand, as there is evidently the thickness of the air-cell and the coat of the capillary vessel between them. This will be comprehended when we remember, that if venous blood is put into a bladder and dipped into a mixture of neutral salts, it become arterialised, and yet the bladder seems impervious to the water. It is believed by some physiologists that the finest membrane is composed of fibres, like fine threads which form a web of cloth, and that through the interstices the blood and air come in contact. It is difficult to say what change takes place in the blood by the action of the atmospheric air. It is thought that the carbon, contained in the impure blood, combines with the oxygen of the air, forming carbonic acid; water is evolved at the same time, no doubt from the combination of hydrogen with oxygen. How the nutritious particles of the blood become the solid parts of the body, may still be more difficult to explain. Some writers suppose that it is dependent on a chemical affinity; but it is known that life resists the ordinary laws of chemistry; a leech, getting into the stomach by accident, has been known to live there for a considerable length of time, and the gastric juice has no power over it so long as life remains; but so soon as life becomes extinct, the gastric juice dissolves it. Even the stomach itself cannot be affected by the gastric juice while living; but it will soon affect it after death, and even dissolve it as it would food. There appears to be a peculiar power given to us by creation, called by some the vital principle, by which means organised bodies can convert either organised or disorganised matter into their own

substance which is not fully understood. By this power, when the blood circulates through the capillary vessels of the system, every part takes its own nourishment from it; when it passes through bone, the bone takes something like itself; if through muscle, it appropriates a part of the blood, and so with all the solid parts of the body. The amount of nutrition conveyed to any part will therefore depend upon the vital force or principle of life contained in it; the blood-vessels accommodating themselves to such a demand. This is well exemplified during pregnancy; the blood at this period showing the buffy coat, as in inflammation. It is easy to conceive, from this, that, at no distant period, that which is now the solid bone, flesh, or brain itself, was floating through the blood-vessels; and, as I shall shortly show, when I come to the process of digestion, that the blood that is now in the body is formed from the food and the atmospheric air, it will require no great stretch of imagination to consider that that which but yesterday was a cow, a sheep, a vegetable, or even a grain of dust, may to-day hold a place in the composition of the human body. It is equally true that every time we breathe or move, the solid parts are wearing away, being dissolved into a thin fluid, like water, called lymph, which is taken up by fine vessels which arise in every part of the body; these pour their contents into the blood, and as the blood passes through the different glands and through the lungs, the substance which at this moment may form the eye, the ear, or the tongue, may in the course of a few hours be floating forth among the air we breathe, enter into the composition of some other animal, and become a prey to corruption, or to the reptiles of the earth. Who could contemplate these things, even for a moment, without ascribing glory to Him who has formed by his hand and sustains by his power such a wonderful, incomprehensible existence? Or who could suppose that, in the study of the human frame, there was anything calculated to depreciate the wisdom and power of a being who could form and maintain the operations of such a complicated structure?

On opening the cavities of the heart, we observe on the right side three valves, at the opening between the auricle and ventricle, called the tricuspid; these are strengthened by tendinous cords; they are sometimes called the active valves. Between the auricle and ventricle on the left side, there are two valves similarly constructed, called the mitral valves. At the entrance of the pulmonary artery and aorto, there are three valves placed; and, as they have no cords attached, they are called the passive valves. These valves act as so many floodgates, preventing the regurgitation of the blood into the several cavities from which it has passed. It must therefore be easily understood that any thickening or defect in their action will at once affect the circulation, and give rise to unnatural sounds, easily discovered by any medical practioner who makes the proper use of his hands and ears. The membrane which surrounds the heart, called the pericardium, is for the purpose of secreting a fluid to keep it moistened, and thus prevent friction during its motion. As the heart expands and contracts at the rate of seventy times a minute, its contact with the surrounding parts would have a tendency to excite inflammation, which is prevented by the fluid secreted by the pericardium, in the same way as oil prevents friction to machinery in motion.

PERICARDITIS.

Inflammation of the membrane that surrounds the heart will arise from any of the ordinary causes of inflammation in serous membranes; one of the most common is cold after a warm temperature. Being a fibro-serous membrane, it often occurs when rheumatism attacks the joints, either from sympathy with them or from being similar in structure; it often appears when rheumatism begins to decline, or when it has disappeared suddenly. This disease is important, especially as it either accompanies or precedes all the other inflammations of the heart, its lining, or valves. It usually occurs in persons between the ages of fifteen and thirty; but it is sometimes seen at a much earlier period.

One of the principal symptoms is feverishness, with heat. There is pain in the region of the heart, increased by pressure between the ribs over the part, or by pressing up the diaphragm under the cartilages of the left side; the pain is severe, darting through the left shoulder blade upwards to the left shoulder, and descending down the arm to the bend of the elbow, seldom beyond it; the pain also increases during inspiration, or by lying on the left side; the palpitation of the heart is quick, and also respiration, and there is sometimes fainting. There is little to be learnt by the ear—the sounds of the heart are clear, although they are of a negative character. We do not hear the loud murmur or the sonorous or sibilous rattle of bronchitis, or the crepitous rattle of pneumonia, or the ægophony of pleuritic effusion; nor have we preternatural sounds of organic disease of the heart. In the treatment of the disease there is nothing peculiar, being an active inflammation, except that there is great danger of its becoming a chronic disease. General bleeding is seldom required; but local, by means of leeches or cupping over the part, is generally all that is required. Colchicum is useful, if any morbid irritability remains after the acute stage has passed; it may be given three or four times a day, in doses of three or four grains, with great benefit.

INFLAMMATION OF THE LINING OF THE HEART.

This may take place from the same causes which produce pericarditis; but generally, if not always, as a consequence of pericarditis. The principal symptoms are a smarting pain along the spine, in the region of the heart, and great rapidity of pulse; and, if the inflammation extends to the lining of the aorta, a smarting pain is felt along the spine, in the course of that vessel: fainting is a very frequent symptom. The treatment being the same as in pericarditis, little is required to be said on the subject, except that colchicum will not be required, this being inflammation of a purely serous membrane. Local bleeding, purgatives, low diet, and rest, are the principal remedies. Inflammation may extend to the valves of the heart, and induce disease of these parts; there is, frequently depositions of earthy matter found in them. The walls of the heart itself may be inflamed; they may be found much thicker than usual, or even thinner; these different affections will produce a change in the state of the pulse, and in the sound of the heart, as well as affections of other organs, as the lungs, &c. and produce effusions, as the different forms of dropsy. A detailed account would be quite unintelligible to the general reader; besides, as the diseases which affects the heart are usually consequent on pericarditis, the whole attention ought to be directed to that disease, that it may be checked as early as possible. The organic affections of the heart are treated by medical men on the

same principle as they treat consumption—by avoiding every excess, and checking urgent symptoms. When the substance of the heart itself is inflamed, the symptoms are much like those of pericarditis, which is generally present at the same time; fainting is still more common than in inflammation of the pericardium or lining membrane.

THE DIAPHRAGM.

This is a great hollow muscle, which forms a partition between the chest and abdomen, attached the whole way round the cartilages of the false ribs and spine. It is the principal muscle of inspiration. When it descends, the cavity of the chest is enlarged, the air rushes into the lungs; as it descends, the abdominal muscles rise; and as they contract, it ascends, and, diminishing the cavity of the chest, the air is expelled. It may therefore be considered the principal muscle of inspiration; and the abdominal, those of expiration. Several other muscles assist these, as the great pectoral, serratus, magnus, &c. This muscle assists in expelling the contents of the alimentary canal and bladder, and also the contents of the uterus in parturition. It is also brought into spasmodic action in laughing, and is often inconveniently so in hiccup. When this complaint is troublesome, vinegar has been found to give relief: I think the antispasmodics would be found useful, or blistering, by means of a narrow strip of blistering plaster applied round the body, at the place of its attachment to the cartilages of the false ribs. I may here refer to a very absurd practice, carried on in this as in most civilized countries to an injurious extent, the wearing of tight stays, the great design of which is to contract the centre of the body; and such is the mania for this peculiar deformity, that the practice is continued not only in childhood and youth, but often during the period of pregnancy; a practice which at all times and in every circumstance is attended with injurious effects on the constitution, destroying the healthy condition of the stomach and liver by compressing them, so as to interrupt their circulation; but, at that period especially, giving rise to the different forms of hernia (rupture), and also deformities of the child, as shall be afterwards explained. By weakening her own digestive organs, and injuring her constitution, the mother often hands down to the offspring a debility which may be continued through two or three generations.

THE LIVER

Is the first of the abdominal viscera which I shall describe. It is situated immediately below the diaphragm, above and to the right side of the stomach; it weighs about four pounds, is of a dark reddish brown colour, and of a glandular structure. It is divided into five lobes; three of them are seen upon the under surface; but the great lobes, called the right and left, are seen from above, separated from each other by the broad ligament. Upon the under surface there is observed the gall-bladder, with the common bile duct opening into the duodenum about two inches beyond the outlet of the stomach; the vena portæ, by which the impure blood is carried into the liver, for the separation of the bile; the hepatic artery, by which it is nourished; with numerous branches of nerves forming the hepatic plexus. The use of the liver is to secrete the bile, which seems to consist of two kinds of fluid; the one, irritating in its nature, acts as a stimulant for the intestines, keeping up that regular contraction which goes on day and night, called the peristaltic motion, by which means the food is pressed along, and thus exposed to the

several juices which separate the nutritious particles from it; and the other, which seems to be of a milder quality, enters into the composition of the chyle, and is again taken into the circulation, and becomes the solid part of the body. To give a minute description of this organ would be very tedious, and altogether useless to the general reader. The best idea I can convey, is by comparing it to a filter; the impure water, on passing through a filtering stone, has the impurities separated, and the pure water passes from beneath; so, when the impure blood passes through the substance of the liver, the bile is secreted as an impurity, and the pure blood returns again to the circulation. The liver, like all other parts of the body, is subject to numerous diseases; these may arise from any of the common causes of disease, as changes of temperature; pressure, as from stays; intemperance, or anxiety of mind. Among the numerous diseases, I may mention inflammation, enlargement, abscess; malignant diseases, as cancer; scrofula, and a granular fatty disease, called the gin liver. The treatment of these must vary according to the stage and condition of the patient. When the liver is inflammed, there is pain in the right side; the pulse generally full and hard, but varies in different instances; the pain extends to the left shoulder blade, sometimes to the right shoulder; the patient lies better on the right side, there is a nausea and vomiting, and sometimes jaundice, with difficulty of breathing. This disease, if taken in time, is seldom fatal; the ordinary treatment of inflammation is required as in other cases; bleeding generally by the lancet, according to the state of the pulse and strength of the patient; locally by means of leeches; low diet, rest, and purgatives. If abcess forms and points externally, it must be opened, and a small portion of the matter allowed to escape at a time; then the strength of the patient must be supported. Counter-irritation, by means of issues or setons, are sometimes of great service. But the disease to which I wish to direct the attention, and which is most frequently met with, is a functional derangement. This may arise from any of the causes which I have just mentioned, but especially from anxiety of mind. Every one must understand this, who has observed the effect produced on glandular structures in other parts, all glands being presided over by the sympathetic nerve, which is connected intimately with the external senses. If a sensitive person hears a tale of grief, the lachrymal gland acts so powerfully that the water falls over the eyelids in the form of tears; if we think of an acid substance, the saliva is poured into the mouth; or from fear, the perspiration flows from the skin, on account of the effect produced on the glands of the part. The liver being a similar structure, when a strong impression is made on the external senses, or the great excitement of business, the changes of temperature, or the use of stimulants, so derange the function that it may cease to secrete for a week or fortnight; then the bowels become torpid; it may then take on an excited action, and so large a quantity of bile is poured into the intestine, that the parts is over stimulated, and the bile enters the stomach, producing vomiting, or bilious attack, as it is called: to remedy this evil, the patient may take some mild aperient. Anxiety of mind will depend in a great measure on the mode of life of the individual; and in the female it is often complicated with some love affair. This I have often observed; the disease disappearing after marriage, when the mind was at rest. Gall-stones sometimes form in the gall-bladder, and the patient experiences excruciating pain during their passage through the bile duct. An opium pill may be of service, as an anoydne, and the part ought to be fomented to assist the dilatation of the duct. There is little doubt but, in functional diseases of the liver, much may be done for the

patient by attending to the general health, free exercise in the open air, good clothing, and wholesome food (not containing much oil, fat, or sugar), cheerfulness, and keeping the bowels moderately open. This is all the treatment I think necessary to recommend to the general reader.

HUNGER.

This is a sensation the immediate cause of which is not well understood; but it is generally believed that, when we have wanted food for a certain time, the gastric juice, which is secreted and accumulated in the gastric glands, presses on the extremities of the pneumogastric nerves, producing the sense of hunger; and that when food is put into the stomach, that organ, being stipulated by it, throws out this juice, and the pressure being taken off the nerves, the sense of hunger is satisfied. The only objection to this theory is, that a strong mental impression will destroy the appetite, the pressure being still continued on the nerves. I have explained elsewhere that the sympathetic nerve presides over the circulation. Now it is known that particular kinds of impressions will affect the circulation of particular organs; if, therefore, a very strong impression is made on the mind, this will be communicated to the blood-vessels of the stomach by the sympathetic nerve, which will cause them to contract; then the pneumogastric nerve, not being sufficiently supplied with blood, will lose its sensibility, although the pressure from the gastric nerve is undiminished. This is also observed in a person who, when hungry, and on commencing a meal, hears unpleasant news, such as the loss of a friend, or the loss of fortune;—all desire for food is immediately destroyed.

THE STOMACH

This organ, situated in the upper part of the abdomen, overlapped at the right end by the liver, and to the left end the spleen is attached, is a dilated part of the alimentary canal, communicating by one end with the œsophagus, and at the other with the duodenum. It will hold, when distended, about three pints of food, but in many instances much more is imposed upon it. A good instance of this is seen in some of the London aldermen, who, when returning from dinner, if asked if they have dined, reply, "YES, SEVERELY." As these gentlemen eat often at the expense of the public, I suppose they wish to show their gratitude to the full extent. This organ is composed of three coats—the internal is mucous, which prevents irritation from the food; the middle is fibrous, which enables it to act on the food and keep it exposed to the gastric juice; and the external, which is serous (a reflection of the peritoneum, the common covering of the abdominal viscera), secretes a serous fluid, which prevents irritation when the one part moves upon the other. The stomach is supplied with blood from a branch of the cœliac axis, a short trunk driven off from the abdominal aorta. Its nerves are branches of the eighth pair (pneumogastric) and the sympathetic. When food is taken into the mouth, masticated with the teeth, and mixed with saliva, it passes down the œsophagus and enters the stomach at the upper (cardiac) orifice. When it enters that viscus, it stimulates it, and causes it to throw out the gastric juice (a fluid which is secreted by the glands which are situated under the mucous), which dissolves into a soft pulp, call chyme. This process requires four hours; but this will vary according to the health of the stomach and the quality of the food. It then

passes out at the pyloric orifice into the duodenum, the first part of the small intestines. Surrounding the outlet there is a ring of fibres, called the pyloric valve; it is sensible to the touch, and contracts when irritated by any rough substance; thus it keeps the food in the stomach till converted into chyme. If it passed out before that took place, the pancreatic juice and bile would not be able to produce the next change, and we should receive no nourishment from it. This will show the necessity of nurses giving the child food appropriated to its age and strength; for if the food is not converted into chyme in four or five hours, the pyloric valve loses its sensibility and allows it to pass. The proper change not having taken place in the stomach, chyle of an inferior quality will be formed from it; and this, passing through the mesenteric glands on its passage to the thoracic duct, produces a scrofulous enlargement, of which hundreds of children die. It will be easy to conceive how such children will eat three or four times the quantity which they ought to do, and yet receive little nourishment; the organs through which it passes not being in a healthy condition, or able to perform their functions. It is truly distressing to hear, from day to day, the expressions of the public in regard to females learning anything of their own structure, or of the different parts of the human frame; yet to them is committed the entire care of a human being destined to fill the highest offices of life; whilst, from neglect or ignorance, disease may be established in infancy which almost or altogether incapacitates the individual for such an office. The hopes of a parent are thus blighted, and the man who, but for ignorance, might have become an honour and an ornament to society, may pass a life in obscurity, and become a burden to society; he may drag out a few years of miserable existence, or anxiously look for death to separate him from his frail tenement.

DISEASES OF THE DIGESTIVE ORGANS.

I shall now proceed with the disease of the digestive organs commonly called Indigestion, or Dyspepsia. The stomach sympathises with all the other organs of the body, from its extensive connections with them by means of the sympathetic nerve. The brain and heart are frequently affected through the same medium, but not so often as the stomach. The derangement of the digestive organs is seen in so many forms, that it is almost impossible to give a satisfactory account of them in the small space here allotted to the subject.

In some cases there is loss of appetite, in others it is only irregular, and, in many instances, there is a loathing even at the thought of meat. It is not uncommon to find a depraved appetite, so that persons will eat some of the most disgusting things. This disease is especially seen in females. Some young ladies eat chalk, cinders, glass, &c. others have eaten live animals, as kittens, rats, &c. There is an account of a lady who desired to eat something she had not eaten before; she could not tell what it was, nor could any one else. Such cases as these are usually met with in females suffering from chlorosis, or during pregnancy. The appetite is sometimes excessive; people will eat several pounds of meat in the course of the day. The patient is often affected with thirst, the tongue is foul and covered with a creamy mucus; the tongue may be red, dry, glazed, or cracked; the breath may be fetid, sour, or smell of cabbage water. Eructations are very common, and these may be attended with a feculent odour, from a confined state of the bowels; the matter may be taken up by the absorbent vessels and thrown off by the lungs. Nausea and vomiting are common symptoms. Often water will run out of the patient's mouth as cold as if it came from a spring;

there may be a burning sensation in the stomach, or a vomiting of bile; there may be tightness or fulness of the abdomen over the stomach, especially after meals; there may be aching or excessive pain—this may also occur when the stomach is empty; there may be a flow of water into the mouth—this may be called waterbrash. The pain may be sudden and very severe, and dart back to the spine and cause the face and extremities to become cold, the pulse small, and surface pale. This is sometimes called spasm of the stomach. The pain may run to the left shoulder, down the arm, up the jaws, and along the teeth; pain is sometimes felt in the extremities, as in the calves of the legs; there may be violent cramp. The most common cause of the latter symptom is acid in the stomach. There is sometimes an inflammatory pain, so that the stomach is tender on pressure, and all ingesta produce great agony. There is a sense of heat in the stomach and up to the throat, and a violent pulsation at the pit of the stomach. In this disease, the bowels are generally irregular, for the most part torpid; sometimes they are relaxed, and at other times there is costiveness; the fæces are frequently unhealthy, often lumpy; there are morbid degrees of consistency, and of colour; the urine may be high coloured, or it may be excessive in quantity, and pale; this is especially the case when there is a great quantity of wind generated in the stomach. There is sometimes headache; this may be either general or confined to the forehead, and sometimes to a particular part of the forehead: it may be intermittent or periodical. A similar headache may arise from other causes, as anxiety of mind, cold, or something that disagrees with the stomach This kind of headache is often hereditary; it may come on at regular or irregular intervals, and disappear entirely after a number of years. In this complaint the nervous system is often greatly disturbed; there may be confusion of mind; patients cannot employ themselves as formerly—they cannot read long at a time; some have to give up reading altogether. There may be dizziness, heaviness, sleepiness, or there may be loss of sleep; there may be ringing in the ears, specks seen before the eyes, great depression of spirits, the patient may become restless and fidgetty, and the temper becomes irregular. The heart often simpathises, so that there may be palpitation or intermittent pulse, perhaps night-mare or terrific dreams; there is a sense of great debility at the pit of the stomach. The *causes* of indigestion are rupture, constipation, improper food, imperfect mastication, inflammation, organic disease, debility, such as is induced by continued excess in eating or drinking, sympathy with other parts; such instances are seen during pregnancy. *Treatment:* The first thing to be done is to relieve any urgent symptoms that may be present. If the cause of the pain is something that has been taken into the stomach, an emetic will be necessary; a scruple of sulphate of zinc or ipecacuanha; but this must not be done if the patient is of a full habit, as there would be danger of apoplexy. Bleeding and purgatives must be relied upon; from five to ten grains of calomel, followed in a few hours by salts and senna, will be the best treatment. When there is pain unaccompanied by inflammation, opium is one of the best remedies. Tincture of opium may be given to the extent of thirty or forty drops; or a grain of opium may be dissolved in hot water, which is a better form of the medicine. In heartburn, acidity, or scalding rising to the throat, magnesia or carbonate of soda is the best; they will cure the symptoms by acting chemically in a moment. After urgent symptoms have been removed, it is necessary to apply remedies for a permanent cure. As the cause of the complaint is generally to be found in the costive state of the

intestines, it is necessary to bring them into a healthy condition; for this purpose it is wrong to give strong purgatives, as they act violently on the intestines, so that it will again be followed by torpidity. One of the best medicines for this purpose is croton oil, when given in small doses, combined with rhubarb or colocynth; and, if it causes griping, some aromatic oil may be added. This may be taken for years, or for ever, without losing its effect. The following is the proportion of the medicine: Compound extract of colocynth, a scruple; croton oil, one drop; oil of pepperment, two drops; mix, and divide into twelve pills, one to be taken every night at bed-time. If this medicine is persevered in, till there is procured a motion of the bowels every morning, the deranged state of the digestive organs will give way. The blue pill, which is sometimes recommended, pervades the whole system, and renders the patient weak and nervous; it makes those who use it susceptible of cold, and must be injurious. The disease may be depending on anxiety of mind; and till that is removed, medicine will be given in vain. In this disease, patients ought to observe great regularity in taking food, as well as to take a proper quantity, and of the best quality. The quantity of food to be taken in a day is about half a pound of good beef or mutton, and a pound and a half of bread, or other vegetables equivalent to it. A meal ought to be taken three times a day, allowing six hours to intervene between each. About a pint or a pint and a half of fluid should be taken in the day. Brown bread prevents some from being costive, but in others it produces heartburn. Where there is great debility in the stomach, tonics with aromatics will be found requisite, such as gentian root, sliced, two drachms; quassia wood, one drachm; cloves, a scruple; Epsom salts, two ounces; the whole to be fused for twelve hours in a pint and a half of boiling water—a wine glass full to be taken every morning. This is one of the best preparations with which I am acquainted, when there is a deranged state of the digestive organs arising from the debility of the stomach.

HEADACHE.

This term is applied when there is pain, heaviness, or oppression about the head, from whatever cause it may arise. It is often symptomatic of diseases of the stomach, when there will be present a whitish tongue with the edges of pale red colour. The sight is dim and indistinct, with slight giddiness and confusion, a slight degree of sickness, and the pulse slow and feeble; the fingers become cold and dumb, and the patient what is commonly called nervous. This kind of headache takes place a short time after taking food, and may be removed by an emetic; but this remedy must not be used very often. There is another kind, called sick-headache, when the disease is situated in the upper part of the bowels, and occurs rather longer after taking food, in which the tongue is covered with yellowish white fur; the pulse languid, but of the ordinary frequency. The pain in the head is very severe; there is also giddiness, weight and stiffness in the eye-balls, and the appearance of bright objects before the eyes. The body, hands, and feet are cold; usually flatulence, with a sensation of weight and stoppage in the bowels. The stools vary much in appearance, sometimes as if there was too much bile, at others of a faint yellow, or a dark greenish brown colour. This form of disease is commonly relieved by a dose of jalap, colocynth, or aloes, followed by small doses of neutral salts. Headache may be the forerunner of apoplexy, epilepsy, or other

diseases arising from too great a flow of blood to the head. Here you have great fulness of the system, the pulse full and oppressed, the arteries throbbing, especially those about the head, and the eyes red. In this case, cooling purgatives must be given and full living carefully avoided.

Headache may be an original disease, unaccompanied with any of the symptoms which I have described, and commonly called a nervous headache. It may last for a long time, rendering life very miserable. Although this form of the disease is very unmanageable, relief is sometimes obtained by giving strict attention to the bowels and digestive organs. The food should be nutritive and easily digested. The temperature of the body ought to be equable, and the feet kept warm and dry; an occasional purgative should be taken. When the disease is periodical, quinine has been found useful; or, when a severe fit comes on, ammonia, musk, or ether, may be tried. Sometimes the disease ceases entirely, from some change having taken place in the nervous system.

CONSTIPATION.

The frequency for persons in good health to evacuate the bowels is once in twenty-four hours. But there may be considerable deviation from this, while the body is in a perfectly healthy state, from the peculiar habits of the individual.

Young children have a great tendency to costiveness—I have no doubt, from the condition of the intestines induced by the accumulation of bile previous to birth. The first milk of the mother generally serves as a laxative in these cases, or a tea-spoonful of castor oil or other mild aperient will be found sufficient.

In adult life, great regularity ought to be observed in regard to the time at which the bowels ought to be evacuated, as habit in this manner will have much influence. A proper proportion of animal and vegetable food should not be overlooked. I think, eight ounces of animal food and twenty-four ounces of bread, or other vegetables equivalent, ought to be taken in the day. The quantity of fluid ought to be about sixteen ounces. These must of course vary according to circumstances. I may here state that the use of tea, which some have considered it their duty to condemn, as producing costiveness and also causing a great irritability of the nervous system, is one of the safest and best stimulants with which I am acquainted, especially under great mental exertion; but, like most articles of food, too much has been expected from it. The toil-worn seamstress has employed it instead of a sufficient number of hours of repose. The student has used it instead of relaxation and exercise in the open air. And all who are of sedentary habits look to it as the restorer of comfort and the very soul of their happiness, until, by continued neglect of the proper means of health, they find their constitutions completely broken up, and the nervous system shattered throughout. Then, as tea has been their ordinary beverage, they look upon it as the cause of all their sufferings, and their friends condemn it as the source of all their misery.

Causes of costiveness may be enumerated thus: a sedentary life, anxiety of mind, fear, rice, the finer kinds of bread, roast beaf without a proper proportion of vegetables, cheese, port, and other dry wines, or a sea voyage, will produce the complaint in certain individuals. In the female, a confined state of the bowels is borne with less inconvenience than in man, owing to the greater width of the pelvis; hence that state

is often continued in them for a week together. How injurious this must be to the system, often producing colicy pains, fœtid breath, nervous irritability, discolouration of the skin, giddiness, ringing in the ears, showing too large a quantity of blood in the head, and predisposing to apoplexy. Treatment:—A proper mixture of animal and vegetable food, due proporportion of milk and other drink found by experience to produce relaxation, mild laxatives, such as castor oil, taken daily in small quantity, or the daily use of the enema, which may contain luke-warm water, gruel, or castor oil, according to circumstances; exercise, either on horseback or foot, and for the young either the skipping-rope or dancing at a proper season, and in moderation. Pills composed of colocynth and croton oil have been strongly recommended; say twenty-four grains of the compound extract of colocynth and two drops of croton oil, mixed and divided into twelve pills; one to be taken every night at bed time. Or half an ounce of Epsom salts, dissolved in half a pint of water, drank every morning on rising, will be found an excellent remedy.

THE SPLEEN.

The spleen is a kind of granular body, attached to the left end of the stomach, nearly of the same colour as the liver. It weighs about four ounces. Its use has not yet been satisfactorily ascertained. Some suppose that it acts as a safety valve for the liver; that if there is any interruption to the passage of blood through that organ, it returns to the spleen; and, as it is composed of an elastic substance, twenty-five or thirty ounces of blood may collect in it, and so prevent rupture of the delicate vessels of the liver. Others suppose that it is a large lymphatic gland; that it produces some change on the lymph, fitting it for entering the circulation. Others again imagine that it produces some change in the blood, enabling the liver to separate the bile from it. From its immediate connection with the liver, and the want of valves on their intermediate veins, there is much reason for supposing it an accessary organ.

DIGESTION AND NUTRITION.

The duodenum, or second stomach, is seen lying across the spine, and the pancreas or sweetbread above it. This gland secretes a fluid-like saliva; it passes through a duct which opens into the duodenum along with the common bile duct, about two inches and a half beyond the outlet of the stomach. When these fluids mix with the food, which in the stomach has been converted into chyme, they separate a milky fluid called chyle; and as this substance floats along the intestines, it is taken up by small vessels, the lacteals, and are carried through the mesenteric glands to the thoracic duct. The duct opens into the subclavian vein (the vessel which returns the blood from the arm) at its junction with the internal jugular (the vein which returns the blood from the brain and its membranes). Here it mixes with the impure blood; it is carried with it to the heart: the heart sends it with the impure blood to the lungs, and it is there converted into blood by the atmospheric air. Thus it will be observed that the food undergoes four changes—first, in the mouth it is masticated with the teeth and mixed with the saliva; second, in the stomach it is converted into chyme by the gastric juice; third, it is changed into chyle in the duodenum, by the bile and pancreatic juice; and fourth, it is changed into blood in the lungs by the atmospheric air. Although these changes take place in the parts I have described, there is some effect produced upon it as it passes through the different ducts to these organs; and as long as

these ducts pour out a fluid which mixes with the food as it passes along, any thing affecting the circulation, as a strong impression on the external senses, great anxiety of mind, &c. may cut off the circulation from these parts, and interrupt the process of nutrition. It will thus be seen how important peace of mind is to the healthy condition of the body.

As the structure of the intestines is similar to the stomach, I shall continue the description of these parts, before I proceed to the diseases of that organ. The intestines in the human subject are about thirty feet long; twenty-five feet of the small, and five feet of the large intestines. They are divided into several parts which have received distinct names. First, there is the duodenum, about a foot long; it commences at the outlet of the stomach, and passes across the spine (back bone) to the upper part of the left kidney. In this portion the process of chylification is principally effected. The next part is called jejunum, from being always found empty, and is about nine feet long. The next is the ilium, about fifteen feet in length, and terminates by a valvular opening in the colon; this valve is formed so as to prevent the matter from passing back from the large into the small intestines, as it has now assumed the odour peculiar to fæces. The large intestine, which is about five feet long, is divided, for the sake of anatomical precision, into three portions; the first, called the ascending colon, passes upwards on the right side, from the cavity of the iliac fossa to the under part of the liver. The second part, called the arch or transverse colon, passes across, below the liver and stomach, to the left side, so far as the spleen, a glandular mass attached to the left end of the stomach. The third portion descends from this, down to the left side, into the pelvis, where it terminates in the rectum, the last part of the intestine. This is the part usually found in a deranged state from constipation; and patients often describe pain as passing up the right side, across the front of the abdomen, and down the left side, following the course which I have just described; so that by administering some mild aperient, such as an ounce of castor oil, the patient experiences great relief in the majority of cases. The length of the intestine in man, being about six times the length of the body, has led many to suppose that he was destined to live on a mixture of animal aud vegetable food; the structure of the teeth would teach the same lesson; the length of the intestines has taught others and with great reason, that man was destined to inhabit all climates (the covering of the body being a matter of choice with him), his intestine holding a middle place between those animals that live on flesh, and those that live on vegetable food. He can with little trouble bring himself to live on one kind or the other. In cold climates, vegetables cannot be obtained; and if they could, they are not adapted; so that man must become a carnivorus animal. In hot climates, he must live almost entirely on vegetables, as animal food is too stimulating. We find that no animal that lives purely on flesh, has an intestine more than three times the length of the body, whilst none of those living on vegetable food has an intestine less than nine times the length of the body. This teaches us that vegetable food is more difficult to convert into nourishment; for the longer will it be exposed to the different juices which are necessary for its solution. In a temperate climate, if too large a quantity of animal food is taken, there is danger of inducing apoplexy; and if the vegetable food be in excess, we are subject to the skin diseases. In this country, the quantity required in the twenty-four hours is about thirty-two ounces—eight ounces of animal food, and twenty-four of bread; and, if any other substances are taken, containing less nutriment than bread, the quantity must be in-

creased accordingly. As to the amount of fluid, sixteen ounces is said to be the average; and I believe water agrees best with the majority of people. As this is dangerous when taken cold, if the body is much fatigued and heated, tea or coffee ought to supply its place. I am not aware that stimulants are ever required when the body is in health. In such a condition it is as absurd to take them, as to eat when we are not hungry, or drink when there is no thirst. Many drink to forget their sorrow, that they may remember their misery no more; but instead of producing this effect, it is the cause of more misery than all other vices together. As national evils, alcoholic drinks should be banished from society.

DISEASES OF THE INTESTINES.

The first disease of the intestines that I shall describe is inflammation, the symptoms of which must vary according to the coat which is affected. If the internal coat, which is mucous, be inflamed, there will be diarrhœa, or dysentry, some form of looseness; if the middle or fibrous coat, there will be torpidity, a confined state of the bowels; if it be the peritoneal or external coat, there will be no effect observed on the secretion, but there is great pain on the slightest pressure. The pulse in these cases will be small and quiet, but softer when the lining membrane is inflamed than when it is the peritoneal. The ordinary treatment for inflammation will be required; viz. the antiphlogistic (lowering).

PERITONITIS.

When the peritonæum is inflamed, in addition to many of the ordinary symptoms of inflammation, there will be a quick, generally hard, but small pulse, and pain on the slightest pressure. Leeches may be applied to the abdomen, followed by fomentations and poultices; cupping could not be borne, from the pain of the pressure required. Purging is very requisite during the disease; but, as this is a most dangerous disease, it cannot too soon be placed under an experienced medical man.

ENTERITIS.

In this affection, the fibrous coat is inflamed, so that there is a sharp fixed pain, increased on pressure; although it is more severe at one time than another, still the pain never ceases, as in colic. There is usually great costiveness. The abdomen become tense, and the countenance anxious. The tongue grows white, there is a nausea and vomiting; and if complete obstruction occurs, there may be vomiting of the fæces. The pulse is quick, small, and wiry, and at last it becomes irregular, very rapid, respiration is quickened, and death ensues. Enquiry ought to be made, to see that the patient does not labour under rupture, which would be treated accordingly. In this disease, which runs so rapidly into a condition from which there is little hope of recovery, I cannot recommend domestic treatment farther than putting the patient to bed, using fomentations or mustard poultices to the abdomen, and giving mild aperients or injections containing castor oil, Epsom salts, or turpentine, until medical assistance can be procured.

COLIC.

This is a disease where there is no pain from spasm without inflammation. The symptoms are, great pain in the intestines—principally, as in other cases, about the umbilicus (navel); the pain is relieved by pressure; this would increase pain if there were inflammation present, and at once

points out the true nature of the disease. The pain in colic is not constant nor uniform; sometimes it ceases and the patient is perfectly easy, and then it returns with great violence; there is always nausea and generally vomiting, often of feculent matter; the action of the intestines seems to be inverted. This disease may arise from cold or indigestible substances in the stomach. One common cause is lead. When the disease arises from this substance, it is gnerally called lead colic. As croton oil seems to be one of the best remedies in this disease, it may be given in doses of one drop; this may be repeated every hour or two, until it takes effect; at the same time, an injection of one or two ounces of oil of turpentine in a pint of fluid may be thrown into the intestines. As the intestines are contracted, opium is of use in producing relaxation; and, in some severe cases, by dashing cold water on the abdomen in large quantities, the disease has been overcome. When there is a tendency to this disease, the patient ought to wear a roller of warm flannel round the body; it protects the abdomen against cold, and is of great service.

DYSENTERY.

This disease is the consequence of inflammation of the mucous coat of the intestine, which is attended with feverishness, quick pulse, heat, thirst, pain in the abdomen, increased by pressure; there is tenesmus (griping), small mucous or bloody stools; the fæces are usually retained; but when they come away, it is in hard lumps. As the liver ceases to secrete, no bile passes. Sometimes the liver is in a state of irritation, and secretes green bile; the motions are sometimes like pitch; there may be a thin serum; this may be mixed with a portion of blood, so that it becomes like the washings of meat. This disease ought to be treated as an active inflammation; fomentations and poultices applied to the abdomen are useful. The patient should be allowed very little food, and kept at rest. An excellent remedy is from half an ounce to an ounce of castor oil with thirty drops of laudanum. After the inflammation has been subsided, astringents are requisite; one of the best is the compound powder of catechu. If these fail, one of the best remedies is sulphate of copper; it may be given in half-grain doses; combined with opium, the dose may be increased, in some cases to one or two grains; but care must be taken to give it after meals, or it may irritate the stomach. The disease sometimes degenerates into

DIARRHŒA;

A disease which may and often does occur independent of dysentery. In this disease there are frequent, copious, liquid, feculent stools; whereas, in dysentery, they are not feculent; there is pain at the time of evacuation. The discharge may be of all colours, black, green, white, yellow, clay-coloured, &c.; and may have all kinds of disagreeable odours. If the disease be slight, it may not be necessary to do anything; it being an effort of nature to relieve herself of something which is improper that has been taken internally. If it be necessary to use any remedies, mild diluents, such as chicken broth, barley water, &c. a mild aperient, such as a small dose of castor oil, may be necessary; and if the case be severe, opiates and astringents, such as recommended in dysentery, will be required.

CHOLERA

Is a disease frequently met with in this country; to distinguish it from an epidemic disease which has absurdly received the name of cholera morbus, it is called English cholera. In this disease, the patient is suddenly

siezed with vomiting and purging, the discharge may be bilious from the first, or it may be preceded by a thin watery fluid, but soon becomes bilious. Besides the vomiting and purging, there are severe spasms of the abdominal muscles, and in the legs, neck, &c.; a burning heat is felt in the stomach, from the large quantity of bile forced into it; there is thirst and headache. At last, from the great discharge and violent pain, the patient becomes cold; there is great faintness, and the patient gradually sinks; general convulsions come on, and the patient dies, as if from loss of blood. This disease may continue for many days, or the patient may be cut off in a few hours. The treatment of this disease is very simple: plenty of mild drinks, such as chicken broth, so as to dilute the bile and prevent its effects on the stomach and intestines; large doses of opium, either in solid or liquid form; stimulants, and the hot bath. If these remedies be had recourse to in time, it is very rarely a patient dies in this disease. In regard to the epidemic disease which has received the same name, I think that to treat it on general principles is at least the most rational mode.

WORMS.

When worms affect the human body, they are found in many of the organs, as the liver, bladder, or in the substance of the organs themselves; but the part in which they are most frequently found is the alimentary canal. There are several kinds. The first I shall mention is that which is commonly called the thread worm; they vary from a quarter of an inch to an inch in length; they inhabit the rectum, or the last part of the intestine. They are called, in medical works, oxyuri. The second kind is a round worm of a yellow colour, about fifteen inches in length; it much resembles the earth worm in form, it inhabits the small intestines, and is sometimes found in the stomach and œsophagus; people vomit them frequently; this kind is termed ascaris lumbricoides. The next kind is very common, called tænia, or the tape worm. It is never less than fifteen feet, and often several yards long. It consists of a series of articulations, or joints as they are called. Worms may be, and in all probability are, introduced into the system from without, either with the food or water; and, as they are generally found in the body when in a state of debility or disease, it may be that these are the only conditions in which they can exist; so that if introduced into the body in a perfectly healthy state, they would not thrive, but shortly disappear. Symptoms: in some cases there is no inconvenience experienced from worms; at other times there are most distressing symptoms present, so that life becomes a burden. There will be headache, depression of spirits, convulsions, epilepsy, a dark circle round the eyes, paleness of the face, a tumid upper lip, thirst, foul tongue, itching of the nose or anus, palpitation, difficulty of breathing, cough, spitting of blood, appetite either lost or excessive, nausea and vomiting, gnawing pain at the umbilicus (navel), pain over the abdomen, purging, griping, feverishness, and emaciation. These, or many of them, are generally present in all cases of worms, especially when the constitution is much affected. Several remedies are recommended, some to bring the system into health, others for the purpose of dislodging the worms, alive or dead, and others for killing previous to their expulsion. One of the best remedies for destroying the worms is oil of turpentine. In cases of thread worms, it may be thrown into the rectum in the form of an injection; it then comes immediately in contact with the offenders, and destroys them in their own habitation. In the other two kinds, it may be taken by the mouth, either

alone or in conjunction with castor oil. An ounce of oil of turpentine is a sufficient dose for an adult female, and two ounces for a male. I believe it is best taken alone, and then in a short time to give castor oil to carry it off. The turpentine ought to be given after food has been taken; if taken when the stomach is empty, it causes sickness; if headache or dizziness is produced by the turpentine, these symptoms soon pass away, especially when castor oil is taken after it. A drachm of turpentine will be sufficient for a child, as an injection, mixed with a little gruel; it is best not to give too large a dose, as the irritation is too great, and it is not long enough retained. After this treatment, the patient ought too take other things to bring the system into a healthy condition. This, with attending to the diet, air, and exercise, is generally found sufficient to restore the patient.

PILES.

This is a disease which affects the termination of the intestines; they are situated round the verge of the anus. If slight, they may be cured by small doses of castor oil or sulphur; at the same time there ought to be applied to the part, three times a day, an ointment composed of powdered opium, powdered galls, trisnitrate of bismuth, of each a drachm, hog's lard one ounce, observing at the same time the utmost cleanliness. The daily use of the *enema*, when there is a tendency to constipation, will be found of the *utmost service* in this disease, especially when it occurs during pregnancy.

THE KIDNEYS.

These separate the urine from the blood; they are situated one on each side of the spine, in the lumbar-region; each weighs about four ounces; they are of a brownish red colour, surrounded by a proper covering, the tunica propria, and attached to the upper part of each is the renal capsule, convex above, concave below, of a yellow colour externally, but brownish inside. The use of the capsules is not understood; some suppose they perform some function peculiar to fœtal life; others look upon them as safety valves for the kidneys. From these, the ureter (a tube about eighteen inches long) passes down to the bladder, and through which the urine flows as it is secreted by the kidney.

INFLAMMATION OF THE KIDNEYS

Is attended with pain in the loins, usually in one side, nausea and vomiting: the pain runs along the course of the ureters to the bladder; there is numbness along the inner side of the thigh; the urine is scanty and of a reddish colour, sometimes it is increased in quantity, and pale. The treatment of the disease, as in other inflammations, consists in the warm bath, low diet, and purging. When suppuration takes place, the strength of the patient must be supported as in suppuration in other parts, and the irritation relieved by anodynes, as opium, half a grain, according to circumstances.

SUPPRESSION OF URINE.

The kidney, from disease, may cease to secrete urine. This is very different from the urine being retained in the bladder; that organ being found empty when the catheter is applied; this will of course be one of the principal symptoms. The patient becomes drowsy, which may increase till apoplexy sets in, and death terminates existence. The treatment of this disease consists in applying a blister to the loins, and giving cantharides internally, which ought to be given in doses of a grain twice a day; the dose may be increased, in many cases, considerably.

DIABETES.

In this diseas, the symptoms are the very opposite to the last; here the patient passes too much urine, usually from six to twenty pints in the day; often double the amount of fluid drunk. The urine differs from the healthy in its chemical constituents, usually containing a large amount of sugar. In the treatment of this disease, small bleedings are said to be useful in many cases; the patient ought to be kept, as far as possible, on animal diet; rump steaks ought to be the food of the patient, if he can be induced to take it. One of the best remedies is opium, given in half-grain doses three times a day; and the patient ought to take at the same time the phosphate of iron; different astringents have been recommended, and also bleeding, the warm bath, &c. Much will depend on the symptoms of the disease and the condition of the patient.

GRAVEL

Is a disease occasioned by the formation of small stones in the urinary passages; these generally pass from the kidneys through the ureters and bladder in the course of a few days. During the passage of these concretions there is considerable pain in the loins, a numbness felt in the thigh of the affected side, sickness, vomiting, and frequently a diminution in the quantity of urine. If the pain be very violent, there may be faintness or convulsive fits. Causes:—The period of life, the disease being most common in childhood and in old age. It is said to be more common in children of the poor than in those of the higher classes, and is also seen especially in the females of those families whose males are attacked with gout. Particular districts of country are also favourable to the formation of calculi or gravel. Treatment:—This will depend on the nature of the disease; when there is an alkaline deposit, which will be known by its white colour, and by the urine restoring red litmus paper to its original colour, the use of acids will be indicated. Muriatic acid, in doses from five to ten drops in a little water, will be proper, giving at the same time confection of senna, or castor oil, as a mild aperient. If the deposit be of an acid nature, which is reddish colour, and the urine stains turmeric paper, the use of alkalies will be proper, particularly magnesia, both from its being an alkali and from its tendency to open the bowels. In this form of the disease, there is an inflammatory condition of the system. Hence it is necessary to avoid animal food and all stimulating drinks, especially acid wines; and to avoid the use of oranges, lemons, and all substances containing acids. If the pain be excessive, anodynes may be necessary; and if there be much pain in the region of the kidneys, leeches or cupping may be found requisite, together with the whole antiphlogistic plan of treatment.

THE BLADDER.

The bladder is the organ in which the urine is collected when secreted by the kidney. It appears very small when empty, being composed of a thin membrane; but it is capable of being distended to such a degree, that in some cases of suppression of urine it has been found to contain half a gallon. It is situated in the pelvis (at the lower part of the abdomen) behind the pubic bone. It is composed of three coats; the inner one is mucous, which prevents it from being irritated by the urine; the middle one is fibrous; and the external, which is partial, is a reflection of the peritonæum, the external covering of the abdominal viscera. There are three openings into it—two posteriorly for the ureters, and one inferiorly for the

urethra. When the bladder is empty, it is situated in the pelvis, behind the pubic bone; but when distended with urine, it rises into the abdominal cavity.

INFLAMMATION OF THE BLADDER.

In this disease there will be a throbbing pain in the part, increased by pressure; a frequent desire to make water; and great pain in the neck of the bladder while the urine is passing, so that the patient often passes it on his knees. It may be passed in small quantities, perhaps every ten minutes; it may be high-coloured or bloody. This disease may arise from the use of turpentine, or cantharides, but commonly gonorrhœa The ordinary treatment for inflammation, which I have so frequently described, requires to be used vigorously here. When the disease becomes chronic, the antiphlogistic treatment must be pursued, as far as the strength of the patient will permit; the frequent application of leeches, and, if there is no great irritation, turpentine in small doses may be found useful. Uva ursi in powder, from twenty to thirty grains for a dose, or made in decoction, an ounce to a pint and a half of water boiled down to a pint, from an ounce to two ounces for a dose twice a day, is sometimes found of service.

GOUT.

This is a disease of which the vanity of man has often disposed him to be proud, being seldom found among those who earn their bread by the sweat of the brow. As it is generally brought on by rich and luxurious living, it is usually supposed to impart a degree of opulence and rank to the patient, which serve as a kind of consolation during his suffering. Unfortuuately the excesses of the father may in this instance be visited on the son, giving him a strong predisposition to this disease; and if the son, by a rigid abstinence during a long course of life, escapes its violence, still he may in turn transmit it to his descendants, and thus the third generation may suffer for a course of luxury and intemperance of which he was entirely innocent. *Symptoms:*— This disease commences with some uneasiness about the stomach, slight feverishness, pain and inflammation attack the joints of the hands and feet, and especially the joint of the great toe. All the symptoms may abate in the course of a few days, to return again at longer or shorter intervals. There is usually an attack in spring, from the heat which now succeeds the cold in winter. A paroxysm may take place at any period of the day, but usually about two or three o'clock in the morning. When the pain comes on, there is shivering, followed by a degree of fever; the pain generally affects one foot, commonly the first joint of the great toe. After the pain has lasted for twenty-four hours, it begins to abate; a gentle perspiration breaks out, and the patient falls asleep. In the morning the part is red and swollen, which in a few days gradually disappear, leaving both body and mind considerably improved. Gout attacks some persons at long intervals, sometimes two or three years; after repeated attacks, the joints become stiff, and sometimes lose the power of motion from chalky deposits. Medical treatment in this disease, no doubt, diminishes the suffering of the patient; but the remedies which have been used with more or less success are so numerous and varied as to preclude them altogether from a work like this. But I must recommend labour or exercise as of essential importance, but not too violent. The diet ought to be nutritious, but not stimulating, containing a small proportion of animal food, and no wines or fermented liquors used, unless when the previous habits or constitution render such indispensable.

RHEUMATISM

Is a disease very common in cold, moist climates, generally attacking those in middle life. As it chiefly affects tendons and ligamentous structures, although the disease is of an inflammatory nature, from the weakness of the circulation in those parts, there is a great tendency to run into the chronic form. The parts of the body most frequently attacked are the large joints, as the ancle, knee, wrist, shoulder, and hip-joints. The spine is affected in the region of the loins, and is called *lumbago;* and when the hip joint is attacked, it is called *sciatica*. In the acute form, the patient is attacked with pain and stiffness in one or more joints, which increase to a considerable degree, accompanied with fever, in which there is a strong, hard pulse, thirst, furred tongue, heat, and sometimes a dry skin; or there may be great perspiration. As this is a disease which can only be treated by a medical man, bleeding is of the utmost importance; and as an internal remedy, one of the best things is Dover's powders; ten grains, given every four hours, until free perspiration is established, is of the greatest service. When the perspiration commences, the patient ought to drink plenty of hot gruel or barley water; and the food should be of the lightest possible description Some have found the nitrate of potassa of service, while others use the ammoniated tincture of guiacum, or the wine of colchicum. In the chronic form, frictions ought to accompany the sudorific remedies which I have already recommended; in addition to this, the warm bath, or sea-bathing, with the frequent use of the flesh-brush, is of great service. The ammoniated tincture of guiacum, in drachm doses, has been found useful. If the disease be accompanied with debility, it may be necessary to give bark, iron, wine, or other tonics. Blisters or warm plasters may be applied locally; or frictions with stimulating liniments, such as the ammonia or camphor liniments. Some have found purgatives serviceable; and I think aloes one of the best, especially in the acute stage of the disease; and cod-liver oil is excellent in the chronic form.

HYSTERIA.

The name given to this disease would induce the belief that it is confined to the female sex, which certainly is not the case. I have had several cases of it in boys, although the great majority occur in females, and generally between the period of womanhood and the cessation of those discharges peculiar to that sex. The disease attacks in paroxysms or fits. A sensation is felt as if a ball were moving through the abdomen with a rumbling noise upwards towards the throat, accompanied with a sense of suffocation; the patient is at the same time in a state of stupor or insensibility, and greatly agitated by convulsive movements. There may be crying, sobbing, and laughing in quick succession, or with great frequency, without any apparent cause. There may be at the same time an involuntary discharge of pale-coloured urine, or flatus, of which there may not be the slightest recollection. It is strange that a disease of such violence, and attended with considerable inconvenience to the patient, is of such frequent occurrence; the general opinion being that the patient has it so much under her own control. I will not say that ladies throw themselves into such a state for the purpose of making themselves interesting; but I think it strange that they will take no pains to fortify their minds against the many sources of irritation which occur in every-day life, but allow themselves to be fretted with every trifle, thus subjecting themselves to the hysteric passion. Under severe family affliction we seldom hear of a fit of this kind. The causes

of complaint are excessive evacuations, especially the monthly discharges, depressing passion, hope deferred, violent excitement, late hours, fulness of blood, excess in drinking, &c. *Treatment*:—During the fit, the application of assafœtida, hartshorn, or burnt feathers to the nostrils, or dashing cold water on the face of the patient, has been found effectual; but the remedy I have found most effectual is an injection of oil of turpentine. I usually order an ounce of castor oil and an ounce of oil of turpentine to be mixed with half a pint of thin gruel, to be thrown into the rectum by means of a syringe, or an enema apparatus; and I have not yet found it to fail in bringing the patient out of an ordinary fit. After this is done, the patient must be treated on general principles. If we find that it arises from the fullness of habit, means must be used to lower the system. If from the state of the uterus, everything must be done to improve the general health; plenty of exercise in the open air, proper food, clothing, and nourishment. If the digestive organs are deranged, one or two of the compound rhubarb pills may be taken every forenoon, or the aloe-assafœtida pills will be found particularly useful. Religious principles, domestic employment, or the steady pursuit of useful knowledge, will be found the best antidote for the irritable, querulous excitement which often gives rise to this disease.

THE UTERUS, OR WOMB.

The uterus (or womb), in which the child is developed during the period of pregnancy, is situated in the pelvis, between the bladder and the rectum. In the unimpregnated female it is very small, about the size and shape of an ordinary pear. It is about three inches long, two broad, and an inch and a half in thickness. It is retained in its place by several ligaments. In this figure, the round ligaments are seen, and posterior to these the broad ligaments, which are folds of the peritonæum. In a fold of the broad ligaments the ovaries are situated, one at each side, and connected with them the fallopian tubes, through one of which the ovum, when impregnated, passes, and in which it is sometimes detained; and, when there developed, produces extra uterine pregnancy, from which the child has sometimes been removed by what is called the Cæsarean section. The ovum, or germ, from which the child is developed, is said to reach the womb in about ten days after conception; and during that period the inner surface becomes surrounded by a membrane or fine skin, so that when the child reaches that part, it forms a connection with the membrane, and is supposed to draw from it its nourishment during the first few days of fœtal life. The womb increases both in the size of its cavity and also in the thickness of its walls, as pregnancy advances. This appears necessary, as there is great action required for the expulsion of the child when sufficiently developed to enable it to live as an independent creature. In this figure, the uterus is represented about the third month of pregnancy. The afterbirth is seen attached to the side of the uterus, and the navel cord connecting it to the child; along this cord the pure blood is conveyed to the child by the umbilical vein, and returned back again by the two umbilical arteries. The blood of the child does not seem to mix with that of the mother, as has been supposed by some writers. This is understood, when it is known that the afterbirth consists of two parts—the uterine and umbilical, and that each part has a complete circulation, disconnected with the other. We have a set of uterine arteries and veins, and also an umbilical set; so that the uterine vessels merely elaborate nutrition, which is taken up by the umbilical and conveyed to the child for its nourishment.

Thus we may look upon the child's blood as a vehicle conveying the nutrition which has been presented to it in the afterbirth by the mother. The child, while confined in the womb, has little motion, so that there is very little waste of the system; and whatever is, appears to be separated from its blood by the liver, which is very large during fœtal life, compared with that of the adult. There is always found in the child, at birth, a considerable portion of condensed bile, which seems to be the worn-out part of its system for the nine months previous. If this be not the true theory, I am at a loss to understand why the liver of the child is so large during fœtal life. As this enlargement seems to be produced from a great quantity of blood sent to the left lobe by a branch given off by the umbilical vein, and as this supply is cut off immediately at birth, the left lobe, which, previous to this, was equal in size to the right, rapidly diminishes, so that in a short time it is scarcely one-fifth of its bulk, fully convinced me that the liver was designed to perform some function peculiar to that stage of existence, in addition to that which it performs in after life. For these reasons, I think we may justly infer that the mother has nothing to do with the purifying the blood of the infant, but merely supplies it with nourishment, which its capillary vessels take up in the afterbirth by absorbtion. As to a connexion existing between the mother and the child by nerves, that is quite out of the question; such have not been discovered, nor do I see their use. About the sixteenth week, the womb rises so high as the pubic bone; and, from coming in contact with parts better endowed with nerves, the mother feels the motion of the child for the first time; this is called the period of quickening. The child has life before this period, but does not move; at the fifth month it reaches half way to the umbilicus (navel); at the sixth, it reaches as far as that part; at the seventh month it reaches to half way between the navel and the termination of the breast bone; and at the eighth month it has so far ascended as the end of th breast bone; during the ninth month it sinks slightly. At this period, the womb has been found to weigh from a pound and a half to three pounds. The progress of gestation, at different periods, is beautifully represented in the smaller models. From the changes which take place in the position of the womb, as well as the increase of size, it must be evident to any reflecting mind that the tight lacing, which at all times is very injurious, must be particularly so during pregnancy. The womb, from increasing in size, pushes the intestines upwards and backwards; and when the stays are worn, they push the intestines downwards; and from this contention for space, the intestines are often forced from the natural cavity, producing the different forms of rupture, and perhaps the displacement of the womb. I was told, a short time ago, by a medical practitioner, of a case where the womb was displaced, and the child was being developed externally to the pelvis; to what period of gestation this proceeded, I was not informed. There is another evil to which I beg particularly to call the attention of mothers. When children are born with deformities, they are nearly always attributed to some impression made on the external senses, generally the sense of sight. If the child has a hare-lip, the mother will say she has looked at a hare or a rabbit; if it has a club-foot, she will say she has looked at a club-footed person, &c. These, I nave no doubt, are often coincidences; for scarcely any person could pass nine months without seeing such animals, or a club-footed person; but what connexion this has with the deformity, I am at a loss to discover. I have no doubt but, in many cases of hare-lip, it may occur from want of, or arrest in development, as well as other deformities which are daily seen. Yet

there is no one who knows the position of the child as it is represented in the Model, but must agree with me that the deformities which I am about to mention may be produced from pressure. I care not whether this arises from the use of stays, habitual costiveness, or any other pressure during pregnancy. The hands are seen lying close to the mouth, so that any undue pressure may bring one or both of them in contact with the lip; this pressure continued for a time will cause absorption and produce a hare-lip; if this pressure is great, it may bring the hand along the side of the head, and the side of the hand pressing on the ear may divide it. The foot, from lying in contact with the wall of the uterus, may be so pressed as to cause absorption of the bones, and so produce club-foot. I once met with a lady who had a white mark on the cheek; she told me her mother was struck with a white rose during her pregnancy; and that in her case, in summer, when roses bloom, her's followed the example of the species. If this was the case, she might have expected it to drop off in autumn; but her rose forgot to go through all the changes. The middle skin is that in which colour is situated, and when this part is destroyed, it is not again produced. This is beautifully illustrated in cases of wounds which have healed by granulation; a white mark remains during life. If, from pressure, the child's hand is forced against the cheek bone, the middle skin becomes absorbed; and the result is, a white mark in after life. It is easy to understand how, in summer, when the weather is warm and the circulation better on the surface, the mark will become more distinct. A case was also related to me of a man who struck his wife on the arm at about the sixth month of pregnancy, and that when the child was born it wanted an arm. I enquired if the arm was found in the uterus, which would have been the case had it at that time been amputated; but I found that it was not. If this circumstance made an impression on the mind of the father, so as to prevent him from striking his wife again, in that case some good was effected. Although there are many deformities for which a satisfactory account could not be given, still I think it very unlikely that any of them are produced through the sense of sight. This is a subject which, I think, has been culpably overlooked, and may have produced serious consequences. I can conceive that a woman, during the early months of pregnancy, may meet with something which she fancies will produce a deformity on her child: the impression may become so strong, that she may have her appetite destroyed; disease may be the result; debility may be handed down to the child; it may be born with weak digestive organs; this may produce scrofula, or some other malignant disease, which may destroy it. All this might have been prevented, had the mother been rightly educated. In regard to the period of pregnancy, little need be said, as the conduct of the mother will depend in a great measure on the state of her health; gentle exercise is absolutely necessary; but people ought throughout the whole period to avoid violent exercise, and especially as they advance towards the period of parturition. This they learn from the care taken by many of the lower animals; these, being guided by instinct, always act properly, unless when their actions have been influenced by the interference of man.

CARE OF CHILDREN.

In regard to the care required by a child, we have only to look at the condition of the system, and we can hardly be in ignorance on this subject. During the first seven months the child has no teeth; therefore solid food is out of the question. If the mother cannot supply it with a sufficient amount of nourishment, equal parts of milk and water, sweetened with a

ittle sugar, is generally all that is required; then by the end of the seventh month, some light vegetable food may be given; still it may be allowed to suckle till the end of the first year; by this time she has taught it to take a little solid food by degrees, so that it may then be weaned without the slightest risk. It ought to have warm clothing and plenty of fresh air; and if these things are procured, there will be little trouble farther. Before walking, a child manifests an inclination to crawl or creep; this ought to be encouraged, for it is nature's mode of teaching the child to use its limbs. By attempting to force a child to walk, the legs become deformed. The child should always be placed upon a carpeted floor, that it may not receive injury from coming in contact with cold surfaces, as it is too often the case, owing to the lamentable ignorance or carelessness of the nurse. The death or permanent injury of many a child has resulted from being left to crawl about a stone floor. If, as the child grows up, it appears to walk with the knees inwards, it should be made to ride on the rocking-horse, which causes pressure on the inner condyles of the knees, and turns them outwards.

THE SKULL.

The portion of the bony system which surrounds the brain is called the cranium, or skull, globular in form, and about twenty-three inches in circumference. It is composed of two tables, an external and internal, separated from each other by a spongy substance, called the diplœ. In some parts the two tables lie nearly in contact, and in others separated to a considerable distance. They also differ in their relative position in different individuals; they will also change their position according to age. Thus in the child they lie in contact; in middle life they are separated; and in old age they are again in contact. The errors arising from a want of knowledge on this subject, I have pointed out in speaking of the functions of the brain. The skull is lined by a dense membrane, called the dura mater, which gives off reflections for support to the different parts of the brain, such as the flax, tentorium, &c. The next covering is the arachnoid; being a serous membrane, its secretion moistens the brain, and prevents irritation during a motion caused by respiration. The internal membrane is the pia mater, which lies in contact with the brain, dipping in between its convolutions; through its medium the brain receives its nourishment.

THE BRAIN.

In man, this is the organ through which the mind performs its functions. In form, it corresponds with the inner table of the skull. Its average weight is about three pounds and a half; but it varies greatly in weight in different individuals. That of Cuvier, the heaviest on record, was nearly five pounds. It consists of three distinct portions—the *cerebrum*, or great brain; the *cerebellum*, or little brain; and the *pons varolii*, or central brain. The functions of these I shall describe hereafter. Along its base, nine pairs of nerves appear to arise; but these, with the exception, of the nerve of smell, can be traced into the upper part of the spinal cord. The first are the nerves of smell; the second those of sight; the third, fourth, and sixth are motor nerves of the eye; the fifth the nerve of taste, &c.; one part of the seventh is the auditory or nerve of hearing, and the other part supplies the muscles of expression; one division of the eight enables us to swallow the food; and the ninth is the motor nerve of the tongue. On cutting into the hemispheres of the great brain, the lateral ventricles will be seen, in which water is generally found, in hydrocephalus. A small red body is also seen in the interior of the brain, supposed by Descartes to be the seat of the soul.

The brain consists of two kinds of substances, a grey on the surface, called the nervine; and a white in the interior, called the medullary substance. The white, which is fibrous, is called by some the conducting part; and the grey, the seat of thought. This opinion seems to be favoured by the structure of the nerves, as shown by the misroscope. When the ultimate filament of a nerve is examined, it is found to have a cellular sheath surrounding it and preserving its form; then a cylinder of white substance to insulate the central part, which is of very soft consistence, and through which the impression is supposed to be conveyed; the nerves of sensation are supposed by some to arise in the skin and terminate in the brain, or spinal chord; and the nerves of emotion to arise in these parts, and terminate in the muscles. This seems to be a rational theory; for we find a grey portion on the surface of the brain, and also in some parts of the interior, and in the centre of the spinal cord. There is also a portion at the commencement of the sensitive nerves, in the skin; and if sensation commences in a portion of grey substance, it is not inconsistent to suppose that volition and involuntary motion have also their origin in this substance. There has been no other experiments made, so far as I know, to prove the truth of this theory. It has been observed, that from a want of a supply of blood at the origin of the sensitive nerves, the sensibility of the part has been lost, as is often seen in the fingers of delicate persons, if they dip their hands in cold water; and in cases of inflammation of the skin, when there is too large a supply, the sensation is so acute that it becomes painful. It has also been observed, that when there has been great derangement of the intellectual faculties, the grey part of the brain has been found in a diseased condition, arising, no doubt, either from intemperance, functional derangement of other organs, or local injury. Throughout the different tribes of animals, we find the intelligence corresponds with the condition of the nervous system. If we examine the lowest tribes, we are unable to trace any nerves; and the only functions these animals perform are those of nutrition and reproduction. In a higher order we may trace nerves, and in them a more perfect development of function. If we ascend to the vertebrated scale, where we have the nerves connected with a spinal cord, we find a considerable degree of instinct manifested; and as we advance up the vertebral scale till we come to man, we find in each tribe of animals a degree of intelligence perfectly corresponding with the development of the nervous system.

The reader must observe that it is not the size of the brain alone he is to notice; for the elephant would be more intelligent than man, his brain being larger; but the brain of the elephant is not so large, compared with the spinal cord, as in man, and therefore less intelligent. The little brain is found large in all animals that have great exactness of motion, and in all birds that follow insect prey; it is large in the monkey tribe, as these use two of their feet as hands; and it is small in all animals which walk on four or more feet, as there is little difficulty in regulating their motions. From this it may be inferred that the larger the great brain is, compared with the spinal cord, the more fatigue of mind will the man endure, and consequently become more intelligent; and the man whose little brain is largest compared with the size of the spinal cord, will be best able to regulate his motions. As to the organs of the brain, these are deeply seated, and are in all probability connected with motion, or forming a communication between the hemispheres.

In examining the locality of any one of the supposed phrenological

organs, it may be found that we have a certain quantity of the grey or thinking part of the brain, as it is called; and on examining the next of equal size externally, we may find under it one of the sulcus parts of the convolutions, containing five times the quantity under the last organ. Hence medical men ask the phrenologist, how do you know the locality of the convolutions? To which they can get no answer, except this—I have observed a certain form of head and a certain character combined. I have never observed such a correspondence, however; nor do I believe such could exist. Every one at all acquainted with the formation of the skull must know how different it is in thickness in difierent parts, and in the same parts in different individuals; so that, although the inner table may correspond with the brain, the outer never does. It was said by a phrenologist, in regard to a clergyman, that his head indicated a large brain; but it has been found, since the clergyman died, that it was only a thick skull he possessed, and that the brain was comparatively small. As the two tables of the skull change their relative positions at different periods of life, many have been misled. They lie nearly in contact in infancy, they are separated in middle life, and are then again in contact in old age: casts may be taken at different times, and these found to vary, and yet no change takes place in the form of the brain.

In regard to the form of the head, I have no doubt but the child at birth has a skull pretty nearly corresponding with the brain; and if the head be examined a few days after birth, when the effect of the pressure during parturition has passed away, it is much in the form of a phrenological bust. To speak generally, a long-headed or a round-headed child of five years of age is so in after life.

That the brain is a single organ appears very evident. Phrenologists say that we can do several things at the same time, if these do not require the application of the same organ. The instance given is that a man can sing and paint at the same time. We have only to open our eyes to discover the fallacy of such a theory. True, you may observe a man painting a wall or anything else, when the motion of his hand is little if anything but a mere reflex action; just as a man will walk along the street and think of his business at the same time. But let the man come to a difficult part in his painting, and you will soon observe him stopping his music until he has got over his difficulty; and then he sings as before. When an impression is made on our external senses, it is conveyed to the sensorium, or seat of the mind. The mind then performs an act of judgment; and volition is the result. If we take the case of a young child when born, it has a mind as a certain power; but as to an innate idea, that is impossible; for how could we have an image in the mind before an object was presented to the senses?

In regard to the organs of the brain increasing by the exercise of certain faculties, this seems altogether unsupported by anatomical research. That the form of the head, as well as other parts of the body, does improve from favourable circumstances in the course of two or three generations, I think few can doubt; but that the exercise of the intellectual faculties produce that change, is yet far from being established.

When the brain is defective, that defect will appear principally in front of the head, the posterior part of the brain being supported by the cerebellum. But if I see the front defective, but the head large upwards and backwards, I still consider the formation consistent with intelligence. I must, however, affirm that, no matter what may be the size or shape of the head, the thickness of the skull is unknown, and also the comparative size

of the brain and spinal cord, while the individual is living; so that an opinion must always be given with caution. And, in addition to this, we know not whether the brain be in a healthy condition, or what education the subject has had; all of which have much influence in the formation of character.

In conclusion, it must be understood, that a vast proportion of the ill-health and disease suffered, are the consequences of bad habits, the wearing of thin shoes in females, breathing the night air, improperly clad, the compression of the body in stays during youth, want of sufficient out-door exercises and personal cleanliness. There is also the folly of *quacking* and indiscriminate medicine taking, and the tampering with the delicate and elaborate mechanism of the human frame, whereby a derangement, simple at first, is aggravated and caused to take firm hold of the system. A man who possesses a watch, is careful of it, prizes it; he knows that it is a delicate elaborate piece of mechanism; should that mechanism get out of order, he takes it to none but a man who perfectly understands its various parts, or anatomy as it may be called, and he is willing to pay liberally the skill required for its being put in proper order. Now, whether is a watch or the human frame most complicated? Why, the former is to the latter a child's toy, a mere bauble. The latter is as much superior to the other as is the Maker of the one incomparable beyond compare to the maker of the other! and yet we often find a man most scrupulous as to whom he employs to repair the one, and most careless as to whom he commits the other.

But the human body differs from a watch in this—the little machine, if deranged, stops; the injury then ceases to operate. But the great machine goes on, and the evil perhaps goes on, unless proper aid be called in. Now medical men, having made the human system, and the effects which a vast variety of agents have upon it, both in health and disease, a life study, can, in the great majority of cases, with little trouble and simple remedies, destroy the seed which, if permitted to grow by delay, or the administration of improper medicines, would have rooted themselves in the constitution; taken in time, the incipient disease is easily removed.

But, strange as it may appear, the skill thus manifested—the ability which has enabled the physician to pluck out the evil so effectually, is one reason why the services of medical men are so little esteemed. Uninitiated persons do not consider it has cost the man his lifetime to acquire the ability which has enabled him to put a stop to the evil. The whole matter has been managed with such extreme simplicity, with so little apparent study or effort on the part of the medical attendant, that people regard the recovery as a matter of course, and often begrudge paying the doctor's bill, when they suppose so little was the matter. But the inconsistency of such people would be most ridiculous, were it not sometimes so serious. Cold seizes upon an unsound constitution; every one, except the proper person, is consulted; the disease is gradually getting deeper hold; alarming symptoms begin to present themselves; the patient suffers a great deal, has caused great distress and apprehension in the family; the doctor is now called in, perhaps too late; but, before, the idea of a few shillings was begrudged; now pounds would not. In other cases, a vaunting ignorant quack, who advertises a number of fictitious or exaggerated cases in the newspapers, is applied to; and the consequences are sometimes terrible in the extreme. Persons sometimes apply to these persons from motives of economy; the constant result is, that they are robbed both of money and health. In all cases, the best, cheapest, and shortest way of recovering

sound health, is to apply in time to a regular practitioner. In every branch of art, the man who does his duty is liberally rewarded. No profession has higher claims than has the medical; the surgeon or physician has to leave his rest at any hour of the night, has to brave infection in all its forms, sit watching by the patient while others soundly sleep, and perform offices at which others would shrink. For the proper prosecution of the medical profession, much time, study, hard labour, and self-sacrifice are required. Let the public understand that there is nothing in nature more complicated in construction, more elaborate in its parts, or so wonderful as a whole, as the human system; they will then understand that there is no branch of study which requires so much close attention, no profession which demands so much ability and varied powers as the healing art.

FINIS.

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