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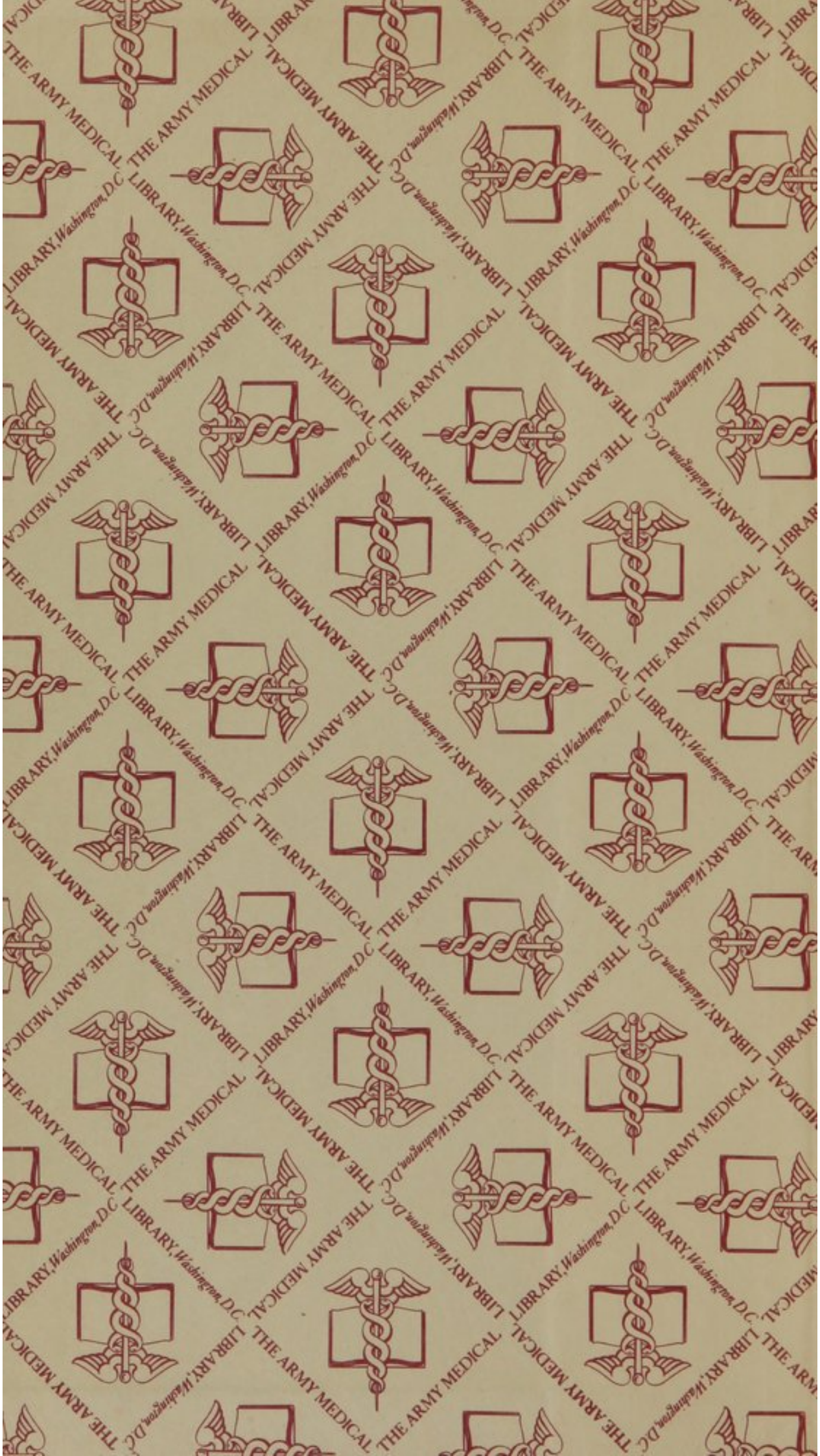
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ESSAYS

ON

PATHOLOGY AND THERAPEUTICS,

BEING THE

SUBSTANCE OF THE COURSE OF LECTURES

DELIVERED BY

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INDEX OF CHAPTERS.

CHAPTER XXVIII.

CHAPTER XXIX.

CHAPTER XXX.

CHAPTER XXXI.

CHAPTER XXXII.

CHAPTER XXXIII.

CHAPTER XXXIV.

CHAPTER XXXV.

CHAPTER XXXVI.

CHAPTER XXXVII.

CHAPTER XXXVIII.

CHAPTER XXXIX.

CHAPTER XL.

CHAPTER XLI.

CHAPTER XLII.

CHAPTER XLIII.

CHAPTER XLIV.

CHAPTER XLV.

CHAPTER LIV.

CHAPTER LV.

CHAPTER LVI.

CHAPTER LVII.

CHAPTER LVIII.

CHAPTER LIX.

CHAPTER LX.

CHAPTER LXI.

CHAPTER LXII.

PRACTICE OF PHYSIC,

OR

THERAPEUTICS.

CHAPTER XXII.

DISEASES OF THE DIGESTIVE SYSTEM.

We come, next in order, to speak of the diseases of the Digestive System, and shall include under this head, not only the morbid affections of the stomach and bowels, but likewise of all those parts and organs which concur in the reception of food, its solution and conversion into aliment, and the separation and expulsion of the portions rejected. That the animal body may receive its proper nutriment, the teeth must masticate thoroughly the food made choice of; the salivary glands must afford a certain amount of their peculiar fluid to lubricate the mass, with which the varied muscular actions of the tongue and cheeks must mix it intimately; the pharynx must receive and contract upon it; the muscles of deglutition must transmit it along the æsophagus to the stomach, in which it is to be dissolved by that wonderful menstruum the "gastric juice," far exceeding in its actual powers all that an insane philosophy dreamt of in its futile researches after the "universal solvent." The soft, pulpy chyme receives farther elaboration by means of the pancreatic fluid and the bile, and in a state of close union with these, is subjected to the action of the lacteals, through which it passes,

after a process which some regard as a progressive animalization or vitalization, others, merely as a mode of straining or purification, into the current of venous blood.

Of the numerous organs thus engaged in the business of digestion, it is difficult, nay, impossible to point out in separate detail, the specific function of each. Some physiologists have chosen to speak of the stomach and small intestines as exclusively engaged in digestion, considered as a particular office; while all the other organs, which concur in the promotion of the general end, are regarded as collateral or collatitious; for example, the liver, the pancreas, and more doubtfully, for its true office is as yet unknown, the spleen. The large intestines are, by modern physiologists, supposed to be something more than mere sewers or receptacles. The change in the contents of this portion of the tube, is very remarkable and uniform; it is not perfectly understood how this change, which is termed fœcification, is effected, but it is known to be an essential coincident of healthy digestion.

Naturalists assert that the stomach is the organ most invariably met with as a part of the organism, in all the classes and varieties of animals. From this fact it would seem to be very nearly, if not absolutely indispensable to the existence of this form of life; the hydatid, the lowest of the class, is all stomach "et preterea nihil," and in the highest it exerts an influence as extensive as ceaseless. Its sympathies are almost indefinably powerful. With its tone, the whole system corresponds; it is in a strong sense, as Dr. Kitchener calls it, "every man's master;" its demands require ready compliance; its morbid conditions imply discomfort and disorder every where throughout the system; "ventriculô languidô omnia languent." This universal extention of its morbid influences, when distempered, gives rise to many irregular anomalous and inexplicable phenomena, which have been much dwelt on by pathological and practical writers, and which, to our ceaseless annoyance, patients, who suffer greatly and are often much alarmed by them, are perpetually urging upon our attention for explanation and relief. A morsel of undigested food or improper aliment, will, in one person, give rise promptly to a paroxysm of gout, in another to a troublesome cutaneous eruption; and in a third to an oppressive dyspnœa. A

blow upon the pit of the stomach will often prove instantly fatal; so will a large draught of alcohol and some other poisons; by what strange impression upon the sensorial and circulatory functions, it is beyond our comprehension to perceive. I might go on to multiply examples of this sort, almost without limit; as, when we have cramps from nausea and vomiting, extending even to the fingers and toes, and convulsions from worms or from irritating ingesta, and the like.

It is well, too, to remind you that these sympathies are reciprocal; that, the functions of the stomach are impaired or interrupted in every general derangement of the constitution; that digestion ceases whenever any strong mental emotion is excited; that fatigue impedes it; that pain from whatever cause, puts an end to it, when intense; and that all fevers, with scarcely an exception in any of their varied types, necessarily imply diseased conditions of this important organ.

DYSPEPSIA.

I shall place first on the catalogue of diseases of the digestive system, a morbid condition of the stomach, which however familiar to the practitioner, the pathologist has always found it difficult to define. Under the term Dyspepsia, we have become accustomed to comprise an extensive variety of troublesome symptoms which occur so often in connection with each other, that it seems reasonable to refer them to a common cause, and to regard them as resulting from the same morbid state of the organ primarily affected.

I would describe Dyspepsia proper, as a Gastralgia, in which the functions of the stomach are not properly performed; and this brief definition, it seems to me, will include all that is necessary to a fair comprehension of our subject. If there be, as has been affirmed, any true gastric neuralgia which does not interfere with digestion, it does not come under our present head. And surely the phrases are sufficiently analogous in etymology to express the fact with a due degree of clearness, that dyspepsia necessarily implies suffering in the stomach, which suffering is increased by the presence of food, and during the process of digesting it.

The Symptom most prominent, and most uniform perhaps, is

anorexia, defect or irregularity of appetite. This is often enhanced into nausea, more or less intense, and perhaps protracted for weeks without intermission; sometimes it is attended with occasional vomitings, either of the secretions of the stomach or of the food and drinks taken. As inevitably connected with this oppressive uneasiness, there is great depression of spirits, extreme languor, both mental and physical, a gradual emaciation of the body, and constipation, or an irregular state of the bowels. Many dyspeptics, however, enjoy, if I may thus misapply the word, a good appetite; nay, it is not rare to see them eat voraciously. But the food taken, either lies heavily on the stomach, or is thrown up acridly fermented, or passes into the bowels undissolved, giving rise to colics and cramps and diarrhœa. The tongue is foul, with offensive breath and a disgusting taste in the mouth; there is a distressing sense of weight, tension and fulness of the abdomen; some complain of a perpetual dragging downwards of the bowels; there is frequently tenderness on pressure, chiefly at the epigastrium, and bands or ligatures cannot be borne on any part of the trunk.

Cardialgia or heart-burn, an annoyance which often follows any single attack of indigestion, is a very familiar symptom in dyspepsia. It is too readily assumed to depend of course upon the presence of acids. This is very commonly the case, no doubt, and the patient is troubled with eructations of a fluid which set the teeth on edge. But the fluids of the cavity diseased, though apt to fermentation, are sometimes alkaline, and besides these, there are other irritants neither acid nor alkaline, which will induce heart-burn; nuts and tobacco juice will do this.

Pyrosis or Water-brash, a not unusual attendant on dyspepsia, consists in abundant secretion and ejection from the stomach and fauces, of a thin mucus, sometimes sour, sometimes limpid and tasteless; sometimes this is accompanied by nausea, but not uniformly. It is also generally, though perhaps not always, associated with Gastrodynia, an acutely painful affection which some attribute to spasm or irregular contraction of a portion of the muscular fibres, but which I am disposed to regard as properly a neuralgic symptom. The sensorial system rarely escapes sympathetic disturbance. Headaches, of great variety, present themselves; vertigo, very commonly; dim and imperfect vision,

sometimes double vision; morbid vigilance, with or without light delirium; vapors, a species of mental delusion chiefly occurring at night, in which phantoms appear before the eye and are heard to speak.

The respiration is not unfrequently disordered, when we meet with asthma, or a form of recurrent dyspnœa undistinguishable from asthma; nay, Wilson Philip traces one of the varieties of phthisis to dyspepsia, as its legitimate source. The circulatory function is not so apt to be affected, but may be variously deranged. Palpitation of the heart is occasionally complained of, and in some patients becomes so prominent as to arouse serious fears of organic disease. The pulse is, for the most part, natural; but may become very slow, and rather soft or weak. I have seen it, in one case, as low as 34 in the minute, in another at 40, and in a third from 50 to 55 repeatedly. I have met, more than once, with a sudden and remarkable sinking of the pulse, coincident with great prostration of muscular strength.

In this long list, to which I might have made many irregular additions, I have not enumerated a single symptom which has not occurred under my own observation; and their singular diversity will serve, without comment, to exhibit to you the proteiform nature of this distressing malady. We are prepared then to anticipate the formation of a great variety of theories among the pathologists who treat of dyspepsia. In discussing these, let me remind you of the importance of distinguishing between mere occasional indigestion, and the morbid condition which constitutes the subject of this essay. Indigestion, in all its modes, may be the result of causes which have no tendency to affect permanently the functional capacities of the stomach. Thus fever, which while it lasts, prevents digestion, as well as all or most of the other natural actions of the organs, leaves behind it, when it disappears, an appetite and a power of converting food into aliment, which are often extraordinary. Intemperance, however, either in food or stimulant drinks, or the use of opium, not only interferes at the time with the process of digestion, but tends to the production of a permanent morbid state, which demands and has received a specific appellation. Let us enquire in what this morbid condition consists. Dr. Parry, whose pathological reasonings are always ingenious and plausible, attri-

butes all the phenomena of dyspepsia, to a mere fulness of the vessels of the stomach, a hyperæmia. Broussais, and a great number of others, confound it with chronic or sub-acute gastritis. Barras regards it correctly (as I have above remarked) as a mode of gastralgia; and Wilson Philip, dividing it into two stages, describes it, as primarily an affection of the nerves of the stomach, which becomes by protraction a vascular or inflammatory condition. In proof of the doctrine (scarcely disputable, I suppose,) that nervous irritation may and does produce vascular and structural disease, Dr. Wilson Philip has referred to an experiment, detailed by Sir Benjamin Brodie. "A silk thread being passed through the substance of the nerves of the eighth pair, exposed in the neck of a rabbit, after the manner of a small seton, the animal in the course of twenty-four hours, was observed to breathe in a laborious and hurried way. In fourteen hours after, it died. On dissection, both lungs were found loaded with blood and inflamed, the left in the greatest degree, its surface being encrusted with coagulable lymph, which was also effused in several places in the thoracic cavities." He remarks farther, "that a stone passing down the ureter occasions pain in the testicle, which, after a certain length of time, is followed by swelling, tenderness and actual inflammation. Worms in the intestines occasion pain in the chest and dyspnœa, which symptoms are entirely removed, provided the worms are quickly got rid of; but if this nervous and sympathetic irritation continues long, however, actual inflammation and suppuration of the lung take place."

Now, it is obviously an error, to confound these secondary changes of structure, and lesions of tissue, with the sympathetic irritations or impairments of function which give rise to them; and yet, this is precisely what Dr. Philip goes on to do, when he treats of inflammation of the stomach as a stage of indiges tion or dyspepsia. I am not sure, that every variation of the nervous condition of an organ, predisposes it to inflammation, nor that all the changes of structure which may result, are to be regarded as inflammatory. When there is deficient supply of sensorial influence to any part, atrophy is, at least, as likely to occur as hypertrophy—anœmia as hyperœmia; yet Parry hastily assumes the latter to be the constant condition of the gastric sur

face in dyspepsia. I do not, by any means, deny, that this is sometimes the fact, but I regard the actual morbid state as being considerably diversified. It is usual to speak of atony or debility of the stomach, as an essential part of the disease under discussion; but there has been little effort made, to define the true meaning of the terms as here applied, and the carelessness or obscurity of writers has caused much confusion. Neither with regard to this, nor any other malady, will I admit, that the phenomena are satisfactorily to be explained by a reference to the mere increase or diminution of action or power of action in a part, an error which pervades the Pathology, in succession, of Brown, Rush, Parry, Broussais, and numerous other inferior names. I do not doubt, that in dyspepsia, there is not only a difference in degree, but in the kind of action of the vessels, which results in a morbid alteration of the qualities of their secretions. The gastric juice of a healthy animal, dying suddenly, will dissolve the coats of the stomach in which it has been poured forth, and even out of the stomach, exhibits the most astonishing powers of solution, and will resist successfully all tendency to the ordinary chemical changes in articles subjected to its influence. But, in the dyspeptic stomach, the plainest food will remain long undissolved, or will be melted down slowly and imperfectly, in the meanwhile undergoing the same fermentations and decompositions that it is liable to out of the body, though perhaps in a modified way. And here, perhaps, I should object, in passing, to the introduction of Pica and Bulimia among the phenomena or modes of dyspepsia. The former I look upon as a true cachexy—generally, perhaps, of scrofulous character. The irregular appetite is not for food, but for absorbent substances, which palliate, by some mechanical or chemical influence, the irritation of the morbid gastric secretions. Of this nature, is the clay or dirt-eating of our malaria regions, which, at first the result of an instinctive craving, soon becomes an uncontrollable habit. Many women, subjects of the transient pica of pregnancy, take food freely and digest it well. Such persons cannot be regarded as dyspeptics, whose irregular appetite is always attended with more or less difficulty and suffering when ordinary food is taken. Still less reason is there for considering bulimia under the head of dyspepsia—canine

appetite being always, so far as I have known, connected with great powers of solution and assimilation.

In dyspepsia proper, there seems to be combined a number of elements, which must co-exist in varying number and intensity, in order to produce the symptoms presented in the different cases. 1. The most prominent, as it is the most essential, is abnormal innervation. It is difficult to know, whether we should place this first in point of time, as primary or consequent, cause or effect. I have said abnormal, because I mean morbid innervation, which may be either defective or superfluous, but which is always specific in its nature. 2. Morbid condition of the vessels of the gastric surface. There may either be redundancy or deficiency of blood in the tissues of the stomach, anæmia as well as hyperæmia. 3. In either case, as the nervous influence is not acting regularly, we have depraved secretions. These also may be in greater or less amount than the average, but will be found always morbid. 4. There are many circumstances which go to show, that the muscular or contractile powers of the stomach are impaired in dyspeptics generally, so that its peristaltic movements are not properly performed, and the necessary agitation and mixture of food with the gastric juices cannot take place. 5. To these, Todd adds, not unreasonably, the probable suggestion, that the absorbing power of the stomach is diminished, and thus the digestion of fluids rendered more difficult.

The Causes of dyspepsia have been well divided, by Cullen, into the direct and indirect; the former acting immediately upon the stomach itself—the latter acting upon other parts of the general system in such manner as to disorder or derange that important organ. The first of the direct causes of dyspepsia, which I shall mention, is imperfect mastication. Digestion may truly be said to begin in the mouth, the food being here comminuted and intimately mixed with saliva, which fluid was formerly looked on as aiding in its solution, but is now regarded as principally, at least, a mere lubricant. Experimenters tell us, that the mass of food in the stomach is gradually melted down by the gastric juices, the portions nearest the inner surface of the organ being first dissolved and pressed away toward the pylorus by the peristaltic motions of the organ.

Hence, it is plain, that in definite proportion to the tenacity or solidity of the meal taken, will be the slowness and difficulty of its solution. "There is no person," says Spallangani, "who has not, some time or other, been subject to indigestion from want of having duly chewed his food. I took two pieces of a pigeon's heart, each weighing forty-five grains, and having chewed one as much as I used to chew my food, inclosed them in two spheres, and swallowed them at the same time. Both these tubes happened to be voided together. Of the masticated flesh, there remained only four grains, whereas, of the other, there were eighteen grains left." The result of similar experiments, made by him with mutton and veal, was the same, and it was uniformly confirmed by the careful observations of Beaumont. Imperfect mastication is usually a matter of habit; it is, in our own country, the frequent consequence of excessive occupation and the hurry of pressing business; it is often owing, too, to decay and loss of teeth, whose diseased conditions are, indeed, supposed to be capable of determining dyspepsia, independently of the defective mastication which must attend their deficiency in number.

Excess in the amount of food taken, is a common cause of dyspepsia. This sometimes results from the influences just spoken of. Food not broken down and mingled with the saliva, is but imperfectly tasted; the appetite, therefore, is not satisfied by the proper and natural impressions on the gustatory nerves, and morsel after morsel is swallowed so rapidly and in such condition, that the stomach is overloaded and oppressed before satiety is induced—but satiety is our only physiological and instinctive safeguard against excess. Besides this, the art of cookery has always, in civilized nations, aimed as assiduously at the gratification of the palate as the nourishment of the body. Our dishes are carefully seasoned, and a nice management is displayed in graduating the excitement of an artificial appetite, by presenting, in regular order, a series of courses, each more tempting than the one which preceded it. Gluttony is thus made a scarcely less fatal mode of indulgence than intemperance in drinking, that magna parens malorum. It is worthy of particular remark, that dyspepsia seldom, if ever, originates from any peculiarity in the quality of food, however improper

or deleterious it may seem. The human stomach is gifted with inconceivable powers of solution and assimilation. "The Hindoos live entirely on fruits and grain; the Tonguses on berries, the refuse lichen found undigested in the stomach of the reindeer, dried fishes and beasts of prey; the Californians on rats, lizards, snakes and wild herbs." Some hordes of Nomade Tartars, subsist chiefly on mares' milk, and the curds and cheese made from it; and the Esquimaux, and other Northern tribes, on whale oil, blubber and rancid fish, with raspings of wood. The influence of habit over the modes of life, is proverbial, and almost omnipotent. Yet we perpetually hear certain articles in familiar use as food and drink, accused of causing dyspepsia specifically. The bread we eat, in all its varied forms of preparation; meats of every kind, however cooked—nay, milk itself, and the delightful infusions of tea and coffee, are thus stigmatized, how irrationally, you may decide for yourselves. Of tea and coffee, against both of which, so loud a clamor has been lately raised, we may observe, that the Chinese, and the Turk, from whom we learned their use, seem to have failed to discover their alleged deleterious influences. It is possible, that the high temperature at which we drink our tea and coffee, may be injurious; but this is not clearly made out, and, moreover, their aromatic properties seem counteractive, in a notable degree, for warm water, taken in the same quantity and at the same times, has, in numerous instances, appeared to me decidedly injurious.

It is not to be doubted, that the free or customary employment of many medicinal substances, with whatever views, ought to be enumerated among the causes of dyspepsia. Of these, the chief, perhaps, are tobacco, rhubarb, aloes, and alcohol. I do not here speak of idiosyncrasies, upon which Cullen has laid more stress than they merit. He gives us an example, in reference to tobacco, of an individual whose appetite would be destroyed for a whole day, by a single pinch of snuff taken in the morning, and, of another, in whom snuffing regularly brought on pains in the stomach. I am certain, that such is the tendency of all narcotics. It may be counteracted by vigor of constitution, and lessened by habit, yet few are so fortunate as to escape it altogether. The amount of quantity which can be borne, is in inverse relation to the intensity of narcotic power;

hence, tobacco and alcohol, are less injurious perhaps than opium, in this particular mode.

Of the second class of causes of dyspepsia, those namely, which act upon the stomach indirectly, through and by means of their effect on the general system, the number is almost infinite. It is under this head, that we must consider the sedentary habits connected with so many various modes of life, and so many occupations. The student, who, with a happy but delusive forgetfulness of self, barters for intellectual improvement his physical powers of action and enjoyment; the indolent voluptary, whose existence, for it cannot be called life, is spent either at the table or in bed, ("du lit à la table, de la table au lit;") the imprisoned slave of commerce, chained to the counting house, the ledger and the desk; the pale artizan whose heavily passing hours find him still seated at his work bench; these are the fated victims of dyspepsia. The passions and emotions of the mind, must next be enumerated here. Anxiety, when intense, stops the process of digestion as promptly as if the eighth pair of nerves were cut and destroyed, and the same may be affirmed of all the rest, in greater or less degree. Long protracted or very violent fatigue, loss of rest, the bad air of ill ventilated apartments, sudden changes of climate or even of temperature, and excessive venereal indulgencies, are also to be mentioned. These produce dyspepsia in two modes, either separately or combined. They tend to exhaust the sensorial power by an undue determination of it to particular organs or tissues, which are kept in action unduly; or they depress the tone, the vitality of the general system, which exhibits the effects of such depression early, though secondarily, in the organs of supply, the great channel of the restorative energies.

The terminations or consequences of dyspepsia vary somewhat with the predisposition of the subject, and the local and other climatic agencies which exert an influence upon him. It will readily be supposed, that undigested food remaining in the stomach shall give rise to irritations of that organ, which may, under certain contingencies, become inflammatory. Thus we have a chronic gastritis aroused, a condition not unfrequent among dyspeptics, but exaggerated by Parry, into the constituent or proximate cause of the symptoms, and regarded by Wil-

son Philip, as a second stage of the disease which preceded it. This is an incorrect view of the matter, however; it is but one of a train of consequences, variable, incidental and irregular. Diarrhœa is another of these, owing to similar irritation of the upper intestine by crude ingesta. Aphthous inflammation of the whole tube, is sometimes met with, sometimes chronic hepatitis, and occasionally a true nephritis. But these are all alike irregular and unessential. Malaria itself, has not been accused of originating a longer catalogue of maladies, than have been attributed to dyspepsia.

The Treatment of dyspepsia need not detain us long, if it were in our power to communicate to our patients the disposition and the ability to follow out the few brief rules which we should lay down for their observance. There is no single disease recognised by nosologists, so completely under our control—"Fling but a stone, the giant dies." Exercise and temperance, under which last term is included the entire regulation of all our passions and appetites—exercise and temperance are fully sufficient for the absolute renovation and restoration of the digestive function, in dyspepsia proper, that is, while yet no organic derangement or structural lesion has supervened. But unfortunately, we should in vain employ the eloquence of an Erskine, to inculcate upon our unhappy patients the importance and necessity of the avoidance of the remote causes of this disease, which may, with few exceptions, be comprehended under the heads of indolence, excess, and sedentary labour. A very large majority are incapable, however well convinced, of following our advice; and of the remaining few, more than a moiety would turn a deaf ear to our exhortations. The student will not set a limit to the acquisition of knowledge, though made, as he is but too conscious, at the expense of his health, and ultimately of his very life. The idle sensualist cannot be spurred to exertion, but prefers the indulgence of his contemptible sluggishness. The poor artist and mechanic, though writhing under the pressure of pain and infirmity, cannot remit exertions, on which depend their means of daily subsistence. Nor have we yet learned to "minister to a mind diseased," to calm the tumults of passion, to soothe into tranquility the grief of the mourner, and the anxious fears of the distressed. We must, then, be con-

tent to palliate evils, which we have not the power to shun or take away, and this, in truth, constitutes the purpose of the medical practice in dyspepsia. To the student, we must prescribe hours of exercise; to the glutton, measured intervals and quantities of food; to the voluptuary, rules for the government of his headlong appetites; otherwise, the continued application of the causes which have produced, will perpetuate or renew the disease in spite of all our remedies.

The dyspeptic, then, should sleep on a firm and hard mattrass, rather than an ordinary feather bed, should avoid late vigils and rise moderately early. His breakfast should be a light one, and taken soon after rising, to fit him for his accustomed exercise or occupation. He should enjoy free access to the open air, and shun all close and ill ventilated apartments. If urged by appetite, or prompted by an uneasy feeling of hollowness at the stomach, or debility, he may take a little nourishment at or about noon. His dinner should be moderate, and rather an early than a late one. If he can, he should follow the old maxim, "after dinner, rest awhile;" yet, unless specially feeble, I would not encourage any indulgence in the recumbent posture, or in sleep. The question as to the propriety of taking supper, has been warmly discussed; but the answer seems to me an easy one. If there has been bodily labor, or active exercise after dinner, a slight meal should be allowed, otherwise not.

The term exercise, comprises a variety of modes, all of which tend to the same purposes. Frictions over the whole cutaneous surface, but particularly the abdomen, do much good by exciting the vessels and disposing to perspiration. If the bowels be pressed and kneaded, it is said to arouse their peristaltic action and relieve constipation. This was Halsted's method of treating dyspeptics, at one time so famous in New-York. Playing with the dumb bells, swinging, leaping the rope, fencing, and other gymnastics, should be resorted to in bad weather. Riding in a carriage and sailing, are of great service; but horse-back exercise is probably most beneficial to the majority.

I have taken great pains to impress upon you the principle, that the quantity of food and drinks is of much more importance than their quality. An intelligent dyspeptic cannot but smile at the efforts which have been made by acute and experienced

physicians, to select particular formularies of diet for him. One prescribes an exclusive use of milk; another of broths and jellies; a third confines him to bran and water; while a fourth enjoins upon him the necessity of a resort to the most stimulating articles, as beefsteak with cayenne and brandy. In the midst of all this contradiction and uncertainty, it is difficult, but not yet I trust, impossible, to lay hold of the definite truth. No two stomachs agree entirely, as to the kind of food which deserves a preference. Habit exerts much control in this matter, and should always be attended to, and within certain reasonable limits may be allowed very great weight in our decision. Beyond this, I will venture to lay down two rules—1. That no exclusive diet can be proper; and 2. That too great abstemiousness is as much to be shunned as excess. Without variety, the appetite palls, and the stomach depends so much, for its tone, on the influence of the gustatory nerves, that unless these are properly stimulated by sapid and desired food, the secretion of the gastric juice is both deficient in quantity and imperfect in quality. Hence we see patients emaciating and suffering under the milk diet, the rye mush, the bran biscuits, and even the ever recurring beefsteak, which they have learned to loathe. A change arouses the mind and excites the secretory vessels. As to the second point stated above, I do not doubt the benefit of moderation, or even of occasional abstinence and total fasting, but I fully believe that infinite harm is done by the modern system of confining the patient to a measured amount of the insipid aliment allowed him. "Rise up from table hungry," says the philosopher. "Get an appetite," says nature, "and satisfy it." This can always be done safely, if the food be plain, moderately varied, not too highly seasoned, and masticated perfectly. We do not improve the strength of a feeble muscle, by forbidding it to lift weights, or give vigor to the intellect by abstinence from all difficult efforts. Sir W. Temple, I think, was the author of the quaint phrase, that "the stomach is like an idle school boy, always doing mischief when unemployed." A similar prejudice is embodied in the vulgar maxim, "to eat little and often," unfortunately not confined to the vulgar only. Nothing so much wears out the powers of the stomach, and by preventing the possibility of a full development of the natural

appetite or hunger, it keeps the harrassed organ in a perpetual condition of sickly satiety.

I am very little disposed to enter into the debates concerning the solubility or digestibility of various articles of ordinary food. I generally select for my patient, among the common materials of his accustomed diet, such as are not objectionable by any known property. I advise him to limit for himself the quantity or amount of each meal; to make the intervals between them as long as he can bear without faintness or other inconvenience; to chew thoroughly and eat slowly, and to make frequent changes in his diet, avoiding the use of more than one or two articles at each meal. Among the received opinions on the subject of diet, are the following. Animal matters are more easily digested than vegetable; the flesh of those of mature age, than that of the very young; meats roasted, than those prepared in any other mode; lean meats, than fat; fresh meats, than those which have been smoked, dried, salted or pickled; eggs, raw or soft boiled, milk and jellies, are also supposed to be readily soluble; so also the various mucilages. There are a thousand whimsical notions in existence, concerning our bread stuffs. The Grahamites prefer bran to fine flour. The Scotch have much to say in praise of oat meal. Good wheat, well raised and allowed to cool thoroughly or become a little stale, is unobjectionable. Corn, rye and barley make a very good bread, if well prepared. Rice is nourishing and light. The Irish potatoe, when mealy, is both nutritious, and by common stomachs, digested without trouble. Once for all, let me protest against the idea of rendering our ordinary diet, in any mode or degree, medicinal. If homony or rye mush, or wheat bran prove laxative, the very fact shows that they are unfit for food, and so of all other articles. Let us keep absolutely separate the mat: med: from the mat: alimentaria.

As to condiments, which some so strictly prohibit, I am rather in favor of their being allowed. It is useless to discuss the employment of pepper and salt, for they must and will be employed. Salted meats and fish deserve to be considered in this relation, rather than as articles of diet. Ham, for example, forms an advantageous addition, for the most part, to the breakfast of a dyspeptic. Many find mustard and cayenne of service.

Of drinks, "water is best" on every account, both for dilution

and to quench thirst. Its temperature is a point of some consequence, as in warm climates we are tempted to reduce it unduly. Iced fluids may become injurious if taken in excess—lemonade, etc., as well as frozen confections, custards and creams. Of tea and coffee I have already spoken. Wines and malt liquors, occasionally but not habitually, and in reasonable amount, may be taken without any injurious consequences. Ardent spirits I mention, only to reprobate their use in any mode or quantity. In health, they should find no place on our tables; and in all chronic diseases, they should be absolutely prohibited. The temporary relief, which they have occasionally afforded to dyspeptics, is infinitely more than counterbalanced by the permanent evil they have inflicted. If I can prevail on you uniformly to discountenance their administrati on except in the rare exigencies of acute disease, I shall not in vain have occupied this chair, or written and delivered in vain, this series of lectures.

As to the Medicinal Treatment of dyspepsia, there is no degree of certainty. It has very generally been assumed that the most essential portion of the malady consists in a debility of the stomach, and that the remedies most distinctly indicated, therefore, were chiefly to be found among the tonics. After what was formerly said of the complicated elements which enter into the pathology of dyspepsia, you will find no difficulty in accounting for the ill success, so much complained of, of the choicest and most powerful tonics, when administered solely with a view to their tonic influence. The precise modus operandi of this class of medicines, we do not clearly comprehend, but we do know that it is by no means so simple an affair as was once imagined. The specific differences, which they exhibit in their influence on the body, are very remarkable; it may be said indeed that they possess no trait in common. They cannot, therefore be used promiscuously, but require to be carefully adapted to the particular conditions of the dyspeptic.

You will meet with no class of patients in your future practice, who will require from you so constant an attention to their symptoms, the consequences or effects of the morbid condition under which they labor. You will often find it essential, in the very first instance, to remove the crudities which have been

allowed, on account of the torpid state of the digestive tube, to accumulate in the stomach and bowels. For this purpose, an emetic is occasionally demanded, as when the tongue is foul, the breath fœtid and the stomach oppressed. A free dose of ipecac, will do good here, not only by the removal of offensive secretions, both upward and downward, but by the impulse given to the liver and secretory surfaces universally. You must not be led, however, by the transient relief afforded by the act of vomiting, to its too frequent repetition—an error common among the ancient Romans and the modern West Indians.

Constipation is one of the most ordinary attendants on dyspepsia, and many patients spend their lives wretchedly, in the constant use of purgative formulæ, which, by their irritation and consequent exhaustion of the excitability of the parts acted on, increase the evils they are meant to relieve. The favorite laxatives are rhubarb, aloes and the blue pill. Magnesia will answer our purpose, when there is an abundant acid in the stomach, but should not be employed in too large an amount, as great masses have been found impacted in the alimentary canal. It is highly probable that a deficiency of acid, the hydro-chloric or muriatic, which ought to be found in every healthy stomach in a definite proportion, is now and then a concomitant of dyspepsia. I prefer to enjoin upon my patient a regular and punctual effort at an alvine evacuation to be made daily, which, with proper attention to due habits of exercise, will rarely fail to remove costiveness. Next in order, I advise the daily use of enemata, of mere water, or if necessary of some more active material; a system much preferable to the use of cathartics. If, after all this, they cannot be dispensed with, we must exhibit them at the longest possible intervals, and of the mildest ingredients. Many persons find a half grain or grain of calomel, taken over night, act gently next day. Others prefer a moderate dose of rhubarb with an alkali, the carb: sodæ for example, and an aromatic as ginger, mint or aniseed.

If there be permanent uneasiness of the stomach, with pain at the epigastrium, increased on pressure, it may be well to institute a slow alterative course. Blue pill, in the small amount of a grain or two, or calomel in the dose of one-half or one-third of a grain, combined with an equal proportion of ipecacuanha,

may be administered nightly until relief is afforded. Daubenton speaks highly of the latter article as an alterative and a tonic, when employed in these minute quantities. Under similar circumstances, advantage may be obtained from the application of cups or leeches to the epigastrium or abdomen.

Under this head of alteratives, I will here recommend the sub-nitrate or white oxyd of bismuth, which has also been recognized as a deobstruent and a tonic, and a sedative or anti-irritant. It is perhaps more generally adapted in the treatment of dyspepsia than any other remedy, and my own experience enables me to speak with confidence of its utility. I usually prescribe it in the dose of 5 grs. ter diê.

Gastrodynia or simple pain in the stomach without heat or burning, may arise from a variety of causes. It depends sometimes on the mere distention of the organ by air evolved in its cavity. This is often relieved by aromatics, as mint, ginger, camphor; or relaxants, as tobacco smoked. It is occasionally so intense as to demand immediate relief by free doses of opium or other narcotics, which should, however, be avoided as much as possible. Fomentations may be laid externally to the surface with good effect, or a laxative enema given. It is here that I have seen most benefit from prussic acid, so highly but vaguely eulogized by Elliotson, who declares that it often acts "like a charm, giving instant relief." He begins its exhibition with a single minim, which he increases to 3, 4, 5 and even 6.

One of the forms of gastrodynia attends upon and seems to be terminated by the secretion of a thin mucous fluid which is thrown out from the stomach in large quantities by vomiting or a movement similar to hiccup; and these symptoms have received the separate name of pyrosis or water brash, which indeed, Cullen, and after him, Wilson Philip, regard as a distinct affection of the stomach. The fluid thus brought up is usually tasteless, though sometimes slightly acid; the patient suffers from thirst and emaciates perceptibly, though there is, for the most part, no loss of the desire for food. I have met with pyrosis most frequently in women, as is also affirmed by Pemberton and others. I am unable to ascribe it definitely to any thing notable in the mode of living or in the diet or drinks of those subject to it. Percival suggests, that the secretion may be from the pan-

creas; but this is mere conjecture. I have found the astringents of most service here; the preparations of iron are among the best, but cinchona, kino, alum, and catechu, have been administered with success. I have seen a few cases of pyrosis unconnected with gastrodynia, and apparently dependent upon other conditions.

Cardialgia is a well known symptom, in which the suffering complained of, is almost exclusively a sensation of morbid heat in the stomach, hence called heart-burn. Generally speaking, it is dependent upon the formation of acid in the stomach, and attended by eructations so sour as to set the teeth on edge, and produce an acrid irritation in the throat and fauces. This is easily relieved, for the time, by the use of alkalies, soda, carb: potassæ, magnesia and lime-water. As it seems to be the result of fermentation, it can also be removed by the mineral acids. The vitriolic elixir, and the muriated tincture of iron, may be taken for this purpose, and the latter especially is well adapted here. Cardialgia is not, however, exclusively a result of acid fermentation, as I have elsewhere observed, but may arise from varied modes of irritation. Some tobacco chewers are always attacked by it, if they happen to swallow any portion of their saliva. Some dyspeptics suffer from it whenever they eat nuts—some from cheese, etc. These put an end to it, by stimulants and aromatics. Some drink vinegar, and as they affirm, with immediate relief.

Among the severest sufferings endured by dyspeptics is flatulence, which, indeed, is often unaccountably annoying. I have known more than one instance in which it occurred regularly after every meal, no matter how moderate, or of what article or articles of diet, beginning about an hour after eating and continuing from one to two hours. In the worst of these cases, it was strange to observe, that a similar attack of flatulent colic took place, and with peculiar violence whenever the habitual meal was abstained from or delayed. In two of the patients thus affected, after the total failure of purgatives, tonics, aromatics and opium, the flatulence gradually subsided under the moderate, but steady, use of wine—Madeira and Sherry and Lisbon, with every thing eaten. The moderate and regulated use of wine, I have found serviceable in cases of continued

nausea. This may be combatted, too, with camphor, in small doses, with iron and with the oxyde of bismuth.

The connection between physical and intellectual health, as pointed out in the old maxim, "mens sana in corporê sanô," is no where more strikingly displayed than in dyspepsia. The mental dejection—the profound depression of spirits, which is so constant a symptom of the disease, proceeds very often into a gentle, but gloomy insanity, and occasions, as I verily believe, a majority of the instances of suicide which, from time to time, strike us with horror. I speak with a personal and feeling knowledge of the subject, when I say, that from this cause, life becomes an intolerable burden, the capacity for enjoyment being absolutely destroyed, and, from a morbid increase of nervous sensibility, the susceptibility to painful impressions augmented an hundred and a thousand fold. The unhappy patient, under these circumstances, ignorant of the true source of his unspeakable sufferings, fixes his fancy upon an infinity of imaginary evils and vain anticipations, and in the contemned name of hypochondriac, loses all claim to the sympathy even of his friends. Wearisome vigilance, or a troubled and unrefreshing sleep, dreams dark and heavy, or the suffocating nightmare, beset his couch; and the very thought of the long—long night, becomes a terror to him. Horrible shapes surround him, gloomy forebodings fill his ear, and the morning, which brings him a light and interrupted slumber, finds him languid and exhausted. The company and conversation of the day, furnish him sufficient excitement to restore, in part, his powers mental and physical, and at evening he attains a comparative degree of cheerfulness, until he retires, when the same succession of phantoms haunt his pillow and embitter his hours of repose.

In the more severe cases of this character, we must resort to the narcotics—lactucarium, hyosciamus and opium. Wine and camphor sometimes give relief. I have seen good done apparently, by the infusion of soot, a favorite prescription of Dr. Physick and Professor Ives.

To the dyspeptic, perhaps, more than any other among the numerous sufferers from chronic disease, the various medicinal springs diffused over all regions of the globe, are valuable and useful. Of these, there are two classes from which he may

derive special advantage—the chalybeate and the mildly purgative. Both these appear to have their remedial virtues much heightened by impregnation with carbonic acid gas, a chemical agent fatal when introduced into the lungs, but grateful and pleasantly stimulating to the stomach. Common water, indeed, with which this gas has been combined, by forcible pressure, is highly agreeable to most persons, and will often relieve irritability of the stomach, remove nausea and check vomiting.

The effect of the long continued mild action of purgatives upon the constitution, as an alterative measure, has never yet been duly appreciated. We see it exemplified in that form of hydrocephalus which results from derangement of the primæ viæ, in morbus coxarius, one of the worst developments of the scrofulous diathesis, and in many other instances of scrofulous contamination of the fluids, with or without marasmus. This happy influence is no less strongly exhibited in the case before us. We have no officinal preparation of a purgative, which can be taken daily in an effective dose, with impunity, by the valetudinarian in chronic disease. But, for whatever reason, the waters of Ballston and Saratoga form an innocent luxury for the sound, while they benefit, nay, entirely restore the otherwise hopeless sick. These natural formulæ we imitate in vain; in vain we combine the agents which chemical analysis has detected in their composition. The quantities of iron—of iodine—of the various alkaline and neutral salts, and of the gases thus mingled, are so small, that some have considered the benefits derived, as the results of mere dilution. But these results cannot be imitated at home, either by simple dilution, or by any artificial combinations. I care not, then, whether the happy changes, effected at the watering places of which I speak, were wrought by the true medicinal virtues of the chrystal well, or by the mere mechanical washing out, as some believe, of the primæ viæ and the excretory tubes, or, as others maintain, and with more reason, by the exercise and agreeable society which, in such resorts, entice and amuse the invalid—I say, I care not whether the restoration of health and comfort is brought about in either of these modes, or, as I am disposed to think, by means of them all collectively. It suffices to know, that a few weeks' or months' residence at, and proper use of, these hygeian

streams, has often given new life to the despairing dyspeptic; and that many a wretch, who was brought to their healing fountains a mass of disease, misery and despondency, has returned home with a frame glowing with ruddy health, and a mind bright with cheerful anticipations.

CHAPTER XIII.

GASTRITIS.

Inflammation of the gastro-intestinal mucous membrane has, perhaps, of late years, received more attention from the profession, than any other form of disease. Clutterbuck sees, in every attack of fever, a case of arachnitis, an inflammation of the brain or its membranes. Broussais and his followers, attributed, by a similar mistaken generalization, all fevers to an inflammation of the mucous membrane of the stomach and intestines. That such inflammations may excite fever, is undeniable; that they often attend upon fever, as among its principal symptoms, is obvious to every one; that they are rather effects of fever, or coincident effects of the cause which has produced fever, I have already maintained—and I believe this to be the doctrine which now generally prevails, and to which, even Broussais, seems to have been compelled to give a reluctant assent.

Gastritis, like other inflammatory affections, presents itself under two general forms—the acute and chronic, the latter being often met with in practice, while the former is rare. When we reflect upon the immense number and variety of substances, differing in temperature and qualities—mechanical, chemical, and specific, which are received into the stomach so frequently and often in such quantity, and when we regard the close and extensive sympathies by which it responds to the impressions, whether natural or morbid, received upon every other part of the system, we are struck with a rational surprise,

that so few instances of idiopathic gastritis should come under our notice. We can only account for such exemption, by a reference to the powers of resistance physiologically displayed by the principle of vitality, against the influence of chemical and other extraneous agents.

ACUTE GASTRITIS—I have said, you will seldom meet with. Abercrombie says, "I have been often very much astonished to find, in my own observation, how seldom the stomach shows marks of inflammation, even when the organs most nearly connected with it, have been inflamed in the highest degree." Broussais tells us, that it never occurs alone, but always in combination, as a gastro-enterite. A far better authority, less biassed—less wedded to preconceived opinions, far more accurate, I think, in observation—Andral—in his Medical Clinique, gives several separate cases.

It is readily recognized by the presence of severe pain at the pit of the stomach, with a sense of heat or burning, and intolerable oppression, nausea, and frequent and violent vomiting. After a short time, there is extreme tenderness at the epigastrium, with inability to bear the slightest pressure; the skin becomes hot and dry—the pulse is small and contracted, but hard, tense, and frequent—the tongue, at first covered with a white fur, becomes clean, and red, especially at the tip and round the edges; there is much thirst, but every thing taken, is apt to be at once rejected, or occasions a sense of weight and brings on hiccup. There is great anxiety and depression of spirits, with restlessness and sighing, and a peculiar and striking prostration of strength. "If the stomach is inflamed," says John Hunter, in his Treatise on the Blood, Inflammation, etc., "the patient feels an oppression and dejection through all the stages of the attack; simple animal life seems to be hurt and lessened, just as sensation is lessened when the brain is injured; the pulse is generally low and quick; the pain is obtuse, strong and oppressive, such as a patient can hardly bear." As the case progresses, the tongue becomes fiery red, inflames and ulcerates, and the lips, gums and cheeks are hot, dry and swollen—the fauces and esophagus take on similar appearances, and deglutition is quite

difficult. The pulse loses its tension, and is weak and thread-like and undulatory—the eye is red and suffused—the bowels are often little disturbed, but usually at first constipated; they are afterwards irritated into diarrhœa; the mind is affected with low muttering delirium; the matters vomited are very various—at first the contents of the stomach, then mucus with a little bile, perhaps, and towards the termination, a diversity of morbid secretions, and not unfrequently the black vomit; the extremities grow cold, circulation languishes, respiration becomes more and more difficult, and death terminates the sufferings of the patient at a period ranging from a few hours after the first access of the disease, to three, four or five days, or a week.

The Prognosis in idiopathic gastritis of acute character is always doubtful and usually unfavorable. It depends somewhat upon the probable cause which has given rise to the attack, and the previous condition of the patient. If it has supervened upon a chronic affection of any standing, there is great reason to dread a fatal issue. We are guided also in our expectations by the suddenness and violence of its access, the apparent rapidity of its progress, and the influences exerted upon the powers of life.

The Causes of Gastritis are ascertained without much difficulty. The acrid poisons, whether mineral or vegetable, are perhaps most frequently to be suspected, and a strict enquiry is demanded of us. Mechanical violence from without, is enumerated by writers among the circumstances to which it has been ascribed—exposure to sudden and impressive changes of temperature—the inordinate use of several common articles of food and drink, ardent spirits especially; violent passion, or emotion of mind; and the metastasis of other inflammations, as the athritic.

I once saw acute gastritis occur in every member of a large family, eleven in number, from eating a soup which had been kept and set on the table from day to day, until it had run into a state of incipient but obvious putrefaction. I suspected poison to have been administered, and on enquiry, was shown this soup, which was extremely offensive to the smell. Mushrooms, as you are aware, are commonly prepared as condiment or sauce,

and mistakes occur by the substitution of the poisonous for the edible and innocent; the use of the former being followed by a severe and dangerous inflammation of the stomach.

It is not my purpose here to enumerate the not unfrequent cases in which gastritis arises, sympathetically, in the course of other diseases; these require notice each in its proper place. I refuse to recognize, under this head too, the host of affections which the disciples of the French professor, in their vehement hatred of what they are pleased to call ontology, have chosen to include in the long list of gastrites and gastro-enterites.

When gastritis is not promptly relieved by the active employment of the proper remedial measures, it may run into the chronic state, to be spoken of by and bye, or it may terminate in suppuration or gangrene, or end in death, without any local lesion of structure. This latter is the most frequent conclusion of unfortunate cases. From the extreme sensibility of the organ attacked, and the peculiar nature and extent of its sympathetic connections with every part of the body, every function becomes disordered by its suffering, and the system rapidly succumbs under this general disturbance and excessive debility. Like all the other mucous membranes too, that of the stomach is liable to ulceration, but this is rather the effect of chronic than acute inflammation.

I have not seen any example of the termination in suppuration or gangrene described by authors—the fatal cases which I have met with, having proved so in consequence of the general irritation and subsequent exhaustion, rather than by the production of any local structural lesion or injury. The occurrence of gangrene is inferred, when there has been sudden and complete relief from gastric pain, with great prostration; troublesome hiccup; low delirium; cold extremities; countenance hollow and shrunken; the pulse is low, and the skin cold and clammy, and death soon ensues.

When suppuration has taken place, there is considerable diminution of local pain, with rigors or shivering, and a sense of weight at the scrobiculus cordis; hectic supervenes, and the patient sinks somewhat slowly under the general irritation which attends, and the debility produced by night sweats and colliquative diarrhœa; unless in a few fortunate instances, when, as is

said to have happened, the abscess has opened into the cavity of the stomach, the pus has been evacuated by vomiting and purging, and the ulcer has healed sooner or later.

Autopsy. The post mortem examinations which I have had an opportunity of making have been few. They have shown the vessels of the stomach turgid, and the whole surface of the villous coat covered with a scarlet or deep crimson tint. In some it has been easy to peel off with the nail this mucous turnic, but I have not found in any case either abscess or a single gangrenous spot.

Treatment. The indications in the treatment of gastritis are obvious and undisputed. Our attention is called to the most prompt and ready means of reducing local excitement and consequent general irritation. When any acrid matter or poisonous substance has been taken, it of course requires to be forthwith expelled; and if the spontaneous vomiting which almost always occurs early, have not taken place or have been insufficient to empty the stomach, an emetic must be immediately administered for this purpose, and the organ washed out completely with large draughts of tepid water. If the milder emetics of the vegetable class, as ipecac, will not act quickly enough, and a stomach pump be at hand, I would without delay employ this valuable piece of mechanism, and cleanse the stomach thoroughly. This is far better than to place confidence in any of the chemical antidotes, which, however, are often useful when, by their union with the poison, they form an inert body. A stomach pump and a plain well printed toxicological table, should form part of the furniture of every physician's office, and every dispensary and hospital.

The means above directed, may apply also to such instances as happen from the over distention of the stomach, by food in inordinate quantity; and I will mention one farther example, in which I would be disposed to exhibit the emetic—that namely, in which, after taking a full meal, the function of the stomach was suddenly interrupted, and the solution of the aliment put a stop to by violent passion or emotion of the mind, as may sometimes occur. I have spoken thus particularly of the administration of emetics in the above contingencies, because of the horror in which they are regarded by many physicians of the medicine

expectante and physiological schools, so called. It is important here to draw the requisite distinctions. When the stomach becomes affected with inflammation from any other causes than those I have alluded to; when it is not stimulated into morbid excitement by the presence of undigested or improper food—or of acrid and poisonous substances, I fully admit that nothing can be more unreasonable or injurious, than to urge on vomiting by the use of any emetics, and especially the mineral emetics, which are themselves almost all poisons.

But in the accurately defined cases of which I now speak, nothing but a choice of evils is left us, and it is the province of wisdom and experience to select the least of those presented. Substances which irritate the excitable surface of the stomach, whether by quantity or quality, must be got rid of with the least possible delay. If fluid or soluble, it is true they may be drawn off with the stomach pump, but if not, an emetic of sufficient efficacy is indispensable. After this means of relief has been resorted to, and at once, in cases other than such as I have pointed out as demanding it, we employ the lancet. General bleeding has been supposed by some, to be forbidden by the great prostration of muscular strength, and the low state of the circulation, the pulse being small and thread-like. But the powers of circulation are here oppressed, not depressed, that is, in the early stage of the case, of which we are now speaking. The pulse will often rise as the blood flows, becoming fuller, softer and less frequent. It will almost of course, be cupped and buffy. Venæsection must be carried to the utmost extent, that a due regard to the general condition of the patient will permit. Next in order stands topical bloodletting, which should in no instance be neglected. Leeches should, in great number, be applied to the epigastrium, and both the general and local detraction of blood be repeated as often as circumstances call for it, and it can be borne. If leeches are not at hand, cups should be applied; but the former are preferable, on account of the pain sometimes given by the cup at the epigastrium, where the slightest pressure is almost intolerable.

Thus far, we have detailed a mode of practice in which all will agree, but we now approach the debateable question, as to the employment of internal remedies. Those who take for

granted the identity of all modes of irritation, and who, conceiving every impression, made by whatever agent, to be calculated to increase irritation, argue logically for total abstinence. "Water," says one of these writers, "is in some cases too stimulating." Others allow draughts of cold water, or bits of ice; and others still, permit the use of mucilages. Some venture so far as to quench thirst with vegetable acids, but beyond this use no medicines. I need not remind you that I do not belong to this expectant school, and that I cannot content myself with this passive supervision of the farther progress of gastritis of any other character than that which has been produced by the acrid poisons. In cases of this kind, I would assure myself of the entire removal of the poison, or by the use of antidotes, correct the deleterious quality possessed by it. Having done this, I might perhaps satisfy myself, when I had bled the patient generally and locally, to foment his abdomen and extremities and give him ice and pleasant drinks, believing that the cause having been taken away, the effects would soon cease, or their violence, at least, decline. But where the disease arises spontaneously, as the phrase is, in an individual in whom the predisposition has gradually been built up, until some ordinary exposure to change of temperature or dampness, or some undue indulgence or slight excess has brought it into action, something more than the very proper and necessary preliminary measures above recited, will be required to save him. The morbid action which has commenced, will often prove too obstinate to be thus checked, and a farther resort to our therapeutical armoury will be demanded.

Experience has shown, that at this juncture it is of great importance and striking advantage to determine to the intestines, and procure large and free evacuations from the bowels. But the task is both delicate and difficult, and in some instances, we shall scarcely be able to offer any formula of internal medicine, which the stomach will not reject at once. We must not despair, however. Castor oil will sometimes be retained by patients laboring under violent inflammation of the stomach, to whom, in slight indispositions, the article was always disgusting and emetic. Some will take readily a simple solution of epsom salts, without any increase of nausea or gastric oppression. Calomel

will generally be willingly taken and easily kept down, though it may not operate as quickly as could be wished; small pills of calomel with opium, will hardly ever be rejected. Among these medicines, tact and experience enable us to select, and we are abundantly rewarded for our assiduities by the improvement of the patient, as soon as they prove freely cathartic. They must be assisted too, by the occasional exhibition of large laxative enemata. Perseverance in the use of these cathartics in sufficient doses, and at proper intervals, so as to keep up loose and free alvine discharges, has been followed, as far as my opportunities for observation have gone, by the most rapid and complete recoveries. The occurrence of ptyalism during such a course, is a circumstance of highly favorable import, every unpleasant symptom receding rapidly on its approach, if this takes place at any period before the actual disorganization of the stomach, or the fatal exhaustion of the patient's strength shall supervene.

In some unfavorable examples, we are exceedingly embarrassed to find our patient sinking fast, from the very earliest access of his disease—the extreme debility and prostration to which his system has yielded, scarcely allowing us any opportunity for the efficient employment of the measures of depletion so obviously indicated. Few cases can be more hopeless, but we must not abandon our unhappy client in despair.

When we can no farther venture on the application of leeches or cups, we may foment the abdomen with warm poultices on which mustard has been sprinkled, while sinapisms are extensively applied to the extremities. Some prefer to lay on a large blister over the whole abdomen, and this measure is often serviceable after the first stage of the attack has past.

In the meanwhile, we must give temporary support to the failing strength, by such stimulants as will add least to the local suffering and irritation. Turpentine is highly recommended by some writers, who advocate its employment in very large quantity—half an ounce, an ounce, and even two ounces having been administered at a dose. I will not deny its occasional usefulness here, but it has seemed to me better adapted and safer in the treatment of serous inflammations, as peritonitis, for example, than in those of the mucous tissue. Camphor will sometimes

be of benefit if sheathed in a mucilaginous solution. Opium, in some of its forms, is always more or less available. Infusion of cinchona has been tried with advantage, and even the sulphate of quinine in solution, has done unquestionable good.

Wine whey and weak milk punch, may be added to the number of our stimulants, as conveying also some nutriment. Let me repeat that the employment of the stimulants, of which I have been thus speaking, is to be regarded as a measure altogether transient, and adopted to meet an urgent and temporary indication. We are not justified in resorting to them, unless it is clear and evident that the patient must sink at once and die, if left to his own energies. We must closely watch, too, the moment of earliest reaction, to diminish, and soon entirely abstain from them.

The management of the patient during convalescence, will require much skill and judgment on the part of the physician, and on his own, not a little of self control. The function of the stomach is so much impaired by the attack, it is left so susceptible of irritation and disorder, that the nicest attention will be necessary not to disturb it. The mind must be kept quiet and free from care, the apartment well ventilated, the skin covered warmly and by woollen garments, and the diet for a long while strictly regulated in quantity, and in quality light and unstimulating, consisting chiefly, of mucilaginous fluids, as strained gruel, gum arabic water and arrow root. After he is sufficiently recovered to take gentle exercise, we may indulge him in toast and biscuits, with broths of veal and mutton, avoiding spices or condiment of any kind.

Chronic Gastritis—is a disease of not unfrequent occurrence, occasionally existing for a considerable length of time without being suspected. It is, as you have heard, among the ordinary consequences of long continued dyspepsia, with which the patient, and perhaps his physician, still confounds it. It is very frequently the cause of much of the sufferings experienced by old drunkards, in whom, however, it is combined with such a number of complicated ailments, the necessary results of their brutal habits, that it is often overlooked. From the slow and obscure manner in which it is developed, it is sometimes im-

possible to trace with any confidence, the source or origin to which we are to attribute it. The glutton and the sot seem to have an undoubted right to a malady, which forms so appropriate a penalty for their vicious excesses; but we meet with it also, in the temperate, the prudent, and the studious, and in delicate and refined women, whose whole course of life presents nothing to censure or correct.

I have spoken of the obscurity which often clouds over its commencement and progress. Nay, it may proceed to a fatal termination, after causing extensive or deep ulceration of the mucous coat, without having been suspected. It would appear strange, indeed, that an organ of such sensitiveness and of such importance in the animal economy, should labor thus under various kinds and degrees of inflammation, without its having in any manner, sensibly affected the constitution, or having discovered itself by any unequivocal symptoms.

Yet such, beyond doubt, is the fact occasionally. Pemberton mentions a patient who died of some disease of the aorta, "in whom there was found a large schirrhus in the stomach, with an open cancer, which had made its way through the stomach and into the left lobe of the liver. Still, though this must have been a disease of long standing, the body was but little emaciated, and the subject had never shown any one symptom from which the presence of such an affection of the stomach could possibly have been inferred."

Dr. Hastings relates the case of a woman "whose stomach when examined, was found every where ulcerated except at the large or candiac end, which was healthy. This stomach had performed its functions to the last, and the state of the alvine discharges proved that the food had been promptly digested."

Circumstances since known render it probable that the inflammation and ulceration of the stomach found on examining the dead body of the great Napoleon, had existed years before his banishment to St. Helena;—perhaps the consequence of his early misfortune in receiving at Toulon, psora, or some other cutaneous disorder, and undergoing for its removal improper and injudicious treatment.

In general, we may detect chronic or sub-acute inflammation of the stomach by a sense of fullness or distention at the epigas-

trium, almost constant, apt to be increased after a full or stimulating meal, and by long fasting.

In the lighter shades of the disease, the patient is somewhat relieved and rendered more comfortable by a meal of proper quality and in moderate quantity—but when it is more severe, and approaches more nearly the character of acute gastritis, all food occasions distress—oppression and nausea. There is considerable extrication of gas; the thirst is troublesome; the tongue is apt to be smooth and fiery red, although it frequently retains for a good while its natural appearance;—the appetite is irregular and depraved; the pulse usually small and weak; with some febrile exacerbation by night, exhibited in restlessness and jactitation, and a hot dry skin; the strength declines, and the muscles are flabby and emaciated. Too much stress is laid upon the test of pressure applied at the pit of the stomach. This will sometimes occasion pain when there is no inflammation present; and will often fail to give pain on the other hand, when the other symptoms which betray the disease give notice that it exists.

The Treatment is very similar to that which has been detailed as adapted to the management of acute gastritis. General bloodletting is not often admissible at the late stage at which patients apply for relief, but topical depletion is almost always useful. Leeches or cups may be employed occasionally. Entire abstinence from food for a sufficient length of time, for the complete reduction of the morbid local excitement, would be impossible; but the mildest and most unstimulating nutriment must be selected. Mucilages are generally preferred; but in some patients, they cannot be borne, as running readily into fermentation, and thus becoming highly irritating. I use in such cases diluted milk, soft boiled eggs, and thin broths, without any apparent inconvenience.

I need not remind you that the bowels must be kept in a soluble state, and by the gentlest means. Small doses of calomel—from half a grain to a grain, once, twice or thrice a day, with or without minute addition of opium, should be given, and if the mouth becomes lightly affected with ptyalism, the patient will usually be much benefited. The alkalies are also useful here, whether by merely correcting an acid acrimony in the morbid secretions, or by some other quality, I will not attempt to decide.

They seem often to act as tonics. In combination with rhubarb, in very moderate doses, I have found the carbonate of soda highly serviceable; and although it is not difficult to carry the system of purging in these chronic affections too far, yet under skilful direction, it forms one of our most hopeful plans for their management. Some of the worst examples that I have known, have been vastly alleviated, and some perfectly cured, by a few weeks residence at our watering places—Ballston, Saratoga, etc.

When the case has progressed to its latter stages—the mouth, cheeks, lips and gums are inflamed and ulcerated. Deglutition is often painful; diarrhœa comes on, and dropsical swellings accumulate. Tonics are now indispensable; and of these, iron, I think, deserves a preference. I prescribe the muriated tincture sufficiently diluted, or the tinct: æth: acet. Of the astringents, kino sometimes seems best adapted to relieve the diarrhœa which supervenes, but it is occasionally offensive, and cannot be borne. I have frequently derived the most obvious advantage from the use of acetate of lead, in small doses, and in combination with the tincture of opium, or solution of morphine.

During this whole course of treatment, the patient must be warmly clothed in flannel; frictions applied over the skin, the abdomen especially; and all exposure and imprudence carefully avoided.

He cannot hope for complete convalesence or perfect cure unless he assume resolution enough for a total abandonment of all the bad habits of intemperance and excess, which led to the formation of the disease. Of these, as I have already said, you will find the use of alcohol, in some mode, to be the chief.

CHAPTER XXIV.

ENTERITIS.

Inflammation of the intestines claims fairly the next place in our course, as being very nearly allied to gastritis, in history, causes and treatment. Indeed, as it is the same tissue which is affected in both, the inflammatory irritation is apt to be continued along the whole tract of digestive mucous membrane, constituting the gastro-enterite, so much written and talked of, at the present day.

Acute enteritis comes on usually with pain about the navel, gradually extending over the whole abdomen, and alternating with intervals of ease, so as to be mistaken frequently for ordinary colic. The relief from suffering is, however, rarely so complete as between the paroxysms of colic; and the pain is attended with a sense of burning, and an indescribable general uneasiness, and rapid prostration of strength. There is generally an inability from the first to bear pressure upon the belly—but let me strongly warn you that this is by no means the certain diagnostic which some writers consider it. I have seen two fatal cases in which this tenderness on pressure did not exist. In one of them the patient usually replied to my question on the subject by kneading his abdomen forcibly with both hands and telling me that he could thus excite a little uneasiness and but a little. He died with extensive gangrene of the mucous coat. In the second I could detect no shrinking from pressure applied, and indeed sometimes thought that there was the same indistinct relief given by it as in so many attacks of colic.

We draw the distinction from colic, farther, by observing, besides the comparative steadiness and constancy of the pain, the countenance, position and manner of the sufferer. The countenance is expressive of intense anxiety and depression of spirits; he is dejected and desponding; he lies on his back for the most part, with his knees drawn up, and though he tosses his arms about, rarely moves his lower limbs or rolls upon his face. Some patients readily distinguish the pain to be different

from mere griping, and they are soon led to remark, with great disappointment, that they obtain little or no relief from discharges of wind or alvine evacuations. The pulse, too, is early affected, becoming frequent and small; yet, though much contracted, it retains, through the first stage, a degree of tension and hardness, discoverable on minute examination. There is nausea with vomiting, and the matters ejected from the stomach, assume a great variety of morbid appearances. I have several times met with black vomit in advanced stages of the disease. Constipation of the bowels is a common symptom at first; but an irritating diarrhœa is apt to come on towards the unfavorable terminations, the stools consisting of mucus with bile—of serous and ichorous effusions, known as resembling lotura carnium, and of black matter similar to that thrown up. As the case goes on, the strength and pulse fail—the abdomen becomes tense and swollen, and exquisitely tender to the touch—the tongue is red and dry and smooth, or covered with small ulcers—the breath extremely offensive, and the patient sinks rapidly with low muttering delirium.

It is not easy to distinguish enteritis from peritonitis in all cases—the inflammation of the internal mucous surface from that of the external serous tunic; but it is of less importance, as the latter is rare, except in the puerperal state, and when it does occur, demands no material modification in the treatment.

Acute enteritis finds its termination, for the most part, as I have said of gastritis, in its general effects upon the system, the vital powers yielding, in a short time, to its oppressive influences. Mortification may take place, as I have witnessed, to a great extent, marked by a sudden relief of the distressing symptoms, with prompt failure of pulse and universal prostration of the patient. Ulceration more frequently occurs, but is not necessarily fatal; ulcers of various sizes, and in various stages of healing, having been found on examination of the dead subject. Suppuration is affirmed by authors to have supervened, and the purulent matter to have been discharged. I have not witnessed any thing of the kind, that is, I have seen nothing that I could regard as the formation of gastric or intestinal abscess. I have met with many instances of mucous inflammation of the diges-

tive tube, of or approaching to the character of dysentery, in which the discharges contained purulent matter variously mingled.

The Causes of enteritis have been already enumerated as giving rise to gastritis; the former proceeds, however, more readily from exposure to changes of temperature—cold applied generally or locally, as to the feet, or by means of wet garments or damp bed clothing.

In the Treatment of enteritis, we are to be guided by the same principles laid down for our government in relation to its kindred malady. The lancet must be employed boldly and freely; and in the first stages of the attack, if the diagnosis were clear, I should scarcely be deterred from venæsection by any inferences drawn from the state of the pulse. I would rather bleed, if it were even experimentally, and carry this mode of depletion as far as possible, nor tie up the arm until it became unavoidable from the occurrence of syncope or other sensible effect of the loss of blood.

If resorted to early, and with proper caution, venæsection is unquestionably the most valuable and important of all our remedies. I hope I need not warn you against the vague, empirical, I may add, desperate manner, in which it has been employed by some practitioners, who have not seldom carried it so far, as to sink irrecoverably the powers of the constitution, and procure, or at least hasten obviously the fatal issue. The blood is usually cupped and buffy—indeed, I have seen it separate into lymph and cruor, while flowing from the vein, so as to present a streaked or purulent appearance.

Topical depletion by leeches or cups, comes next in order, and we shall very rarely fail to derive, from this means of relief, definite and striking advantage. Large numbers of leeches may be applied from time to time, or the cups repeatedly put on. Nor should we fail to use the lancet as often as the pulse rises, and until the inflammatory excitement is fairly subdued. The danger is urgent—the indication clear and indisputable; we must act with unhesitating promptness and decision, tempered by prudence and cautious foresight. Some disputes have, of late, arisen as to the proper local applications to be farther made in this case, and some few practitioners of the (so called) physi-

ological school, have been bold enough to lay ice upon the abdomen. I adhere to the established principles and practice of revulsion, and prefer the persevering employment of warm poultices and fermentations. These encourage the free oozing of blood from the leech bites and scarifications made, while they promote derivation from the internal surfaces, and relax tension and soothe irritation.

It has been long since a contested question, whether in enteritis, purgative medicines are more liable to do good or harm, and many physicians, both of the old and new schools, have affirmed that they must necessarily add to the existing irritation and inflammation. However plausible this may seem, no prejudice can be more ill founded. Nor do I consider any point in practice better settled, than the importance and propriety of the administration of purgatives, in the case under consideration. Nay, it is asserted in round terms, by one of the most respectable of modern writers, that "if in the course of a reasonable time, free feculent discharges can be procured from the bowels, the pains will gradually diminish, the pulse abate in quickness, and the patient be in the way of recovery, and that the cure almost entirely depends upon our success in this point." I would not, perhaps, express myself so strongly on the favorable expectations thus conveyed, nor would I advocate the promiscuous employment of all or any of the articles known as cathartics. On the contrary, a very careful selection is necessary—the severe and drastic are to be absolutely prohibited, and the most gentle must be chosen; and fortunately for our purposes, the milder the laxative prescribed, the more efficient we shall probably find it. Castor oil, if it can be retained, deserves a preference. A simple solution of epsom salts, is often unobjectionable, and if not itself active enough, will admit of useful combination with rhubarb, or may be alternated with proper doses of calomel. This latter must be resorted to, when the nausea is great, and the vomiting frequent. It will rarely be rejected, and deserves our confidence, in almost every variety of case. I would persevere in its employment until ptyalism was induced, unless indeed the patient be previously restored to convalescence. If it proves too actively laxative, small additions of opium are called for, and will do much good.

If the constipation prove obstinate, as sometimes happens, we must assist the action of the above remedies, by the administration of enemata, and these also should be of the mildest and most unirritating efficacy. It will rarely, if ever, be necessary to have recourse to the mixtures which have been sometimes recommended, of tart: antimon:, tobacco or turpentine, these being rather adapted to cases in which the obstruction is properly or exclusively, as I shall hereafter describe, of spasmodic character.

When the patient will no longer bear even topical depletion, and the effect of the fomentations above advised, seems to have been diminished by their continuance and familiarity, we must, on the same principle of revulsion, blister the whole abdomen. Epispastics are also, with benefit, laid upon the upper and inner part of the thighs, on the calf of the leg, and on the wrists and ankles. They are, in these low stages of internal inflammation, of service, too, by acting in an unobjectionable way, as stimulants.

The pulse still sinking, and the powers of life failing more and more, we are recommended by many authors, to the exhibition of the spts: terebinth: either with castor oil, or in emulsion with mucilage. It is eulogized as an admirable remedy, in this low and almost hopeless condition of things, checking the troublesome hiccup which is often present, restraining the violent and exhausting vomiting, diminishing the pain, and subduing, as if by a charm, the inflammatory symptoms. You may recollect the analogous administration, and high praise of it, as adapted in the treatment of the last stage of yellow fever.

There is a singular circumstance noticed by some writers, as occurring in this disease, of which I myself have witnessed a remarkable instance; and it deserves your attention, as being calculated to sustain our hopes, under the most unfavorable appearances—"that even in the extreme moment of a seeming mortification, a sudden revolution takes place, and stools are evacuated, and this too, after the extremities have begun to grow cold, and deadly languor is overpowering the frame." Here we must seize the opportunity to rouse and restore the sinking powers of life, by the timely application of nourishment and stimulants, judiciously chosen.

A very old negro fellow under my care, had sunk into this

state, after an illness of three days, during which, I had attempted in vain to procure any alvine evacuations. He was prostrated to the lowest point, his pulse feeble and thread-like, his countenance haggard, his extremities cold, and his belly tumid and excessively tender. There was a sudden relief of pain, which I attributed to the supervention of mortification; he had next an inclination to stool, and his bowels became loose. Stimulants were resorted to without delay, and he recovered.

Of Chronic Enteritis, little is necessary to be said. Its existence is known by the same symptoms which mark the acute form, but in far less striking and obvious degree; and it often goes on to ulceration, without having shown itself by any unequivocal signs. The treatment is almost precisely such as has been recommended in chronic gastritis, with which, indeed, it is almost invariably connected. Its causes are likewise the same, and so are its terminations. It, however, serves as the foundation for a great many varieties of intestinal disease, according to the predispositions of the patient, or the tendencies of the season and climate. Diarrhœas, dysenteries, and dropsies follow in its train—emaciation and atrophy are its attendants.

It is important that the patient having been once attacked by enteritis should be extremely careful to avoid its recurrence, for there is, perhaps, no disease which leaves behind so strong a tendency to return and be re-excited. And such relapses are in the highest degree violent and dangerous.

The clothing should be warm, the flannel roller being worn round the belly, the diet light and unstimulating, though nutritious. If the means of the subject allow it, a proper change of climate should be made from time to time, so that he may always enjoy a summer temperature, and free exercise in the open air made habitual. The mind should be kept, as far as possible, free from care and anxiety, and all prudence displayed in avoiding such food, drinks and exposure, as may give rise to an attack of indigestion, which would most inevitably be followed here, by acute gastric and intestinal inflammation.

CHAPTER XXV.

MILK SICKNESS.

This is the proper connection in which to speak of a singular form of disease, known exclusively, so far as I am aware, in the southern and south-western States of our Union. I have never seen an instance of it, nor has it yet found a place in any regular or systematic treatise which may fall into your hands; yet, I think that there can be no reasonable doubt of its existence, as a separate and distinct malady, worthy to occupy our attention for a few minutes, as some of you are very likely to follow the practice of your profession in the very regions in which it occurs.

The fertile coves or deep rich valleys among the mountains of our own State, Tennessee, North-Carolina, Georgia, are subject to this singular malady, neither the nature nor the cause of which are clearly set forth in the few monographs which have appeared in the journals concerning it. Some attribute it to the ordinary malaria, which, before and since the time of McCulloch, has been supposed capable of originating every malady in the long catalogues of nosologists. Others again, as it seems to me, with more reason, have ascribed it to some unknown and undiscovered vegetable poison, confined in its growth to the spots above alluded to. Others still look upon it, reasoning from analogies of symptoms upon which they found their opinion, as the effect of mineral exhalations—perhaps of lead or sulphur or arsenic.

Whatever be the cause which gives rise to it in the lower classes of animals, it would seem that it never affects, directly, the human subject. Man is not attacked by the disease, unless after eating the flesh of herbivorous animals exposed to receive it, or using the milk or butter obtained from them. Other carnivorous animals are also liable to be attacked in the same way, if they eat of the diseased flesh. This exclusive liability of the herbivorous classes, appears to me to favor the hypothesis of its

vegetable origin. The cow and horse are most frequently its victims.

It derives its name from the fact, that as occurring in the human subject, it is most frequently met with as the consequence of eating milk rendered poisonous by the diseased condition of the cow from which it was taken. Butter made from such milk, is still more acrid; and the flesh of the animal, even when cooked, more strongly poisonous than either. It is fortunate that the localities in which it resides, are capable of being defined accurately. Such places are kept carefully fenced in from the intrusion of cattle, whose milk is then unhesitatingly used. The beautiful valley of Jocassa, in the neighborhood of the White-water Falls, in the upper part of this State, is one of these spots, and cattle are not allowed to range beyond certain well known limits. The cultivation of soil which has been known to produce it, seems to deprive it of this deleterious quality. If animals be kept within their enclosures until late in the forenoon, when the dew has entirely exhaled, and driven home again early in the evening, it is said they escape injury, even although allowed to feed within the known localities of this poison. It usually affects animals as a chronic disease, and they may not, in any way, appear to be suffering from ill-health, but sometimes attacks with great violence and rapidly proves fatal. My guide to the fine cascade above mentioned, informed me, that a valuable horse, belonging to a neighbor, which had strayed upon the dangerous ground and fallen sick, died before he could cross the mountain and return. He had gone to bring a dose of bear's oil, considered there a specific, and lost no time, but was too late to save the life of the poor creature. The incapacity to bear exercise, is said to be so complete a diagnostic, that the owners of cattle give them a hard drive before killing them; this excites the disease infallibly, if latent in the system.

The accounts which have been given of this disorder, from various sources, lead me to the belief, that it is a species of gastritis or gastro-duodenitis. Languor and lassitude are among the earliest symptoms of the attack, soon followed by nausea and vomiting, with great oppression at the epigastrium, and pain with a sense of heat and burning in the stomach. The thirst is great—the skin soon becomes hot and dry—the eyes are red and

suffused and glassy, and, as some say, a peculiar odor is exhaled from the surface. The pulse is affirmed by some to be little changed from its ordinary condition, while others declare that it presents a frequency and tension resembling that of typhus fever, to which, indeed, the whole history of this remarkable disease, after the first stage is past, presents a striking resemblance. Patients recover slowly and imperfectly, remaining long after, and perhaps for life, subject to indigestions and other complaints of the stomach.

There is as little agreement among those who have written of its treatment, as there is in the discussions concerning its cause. I have already alluded to the local prejudices in favor of the administration of oil, and especially of bear's oil, to domestic animals when attacked. The same practice has been tried on the human subject, and some writers declare that the success of such management is remarkable. The constipation is singularly obstinate, and purgatives are with difficulty retained on the stomach. One physician states, that in a case which resisted all his other remedies, he had used quicksilver with success. Calomel forms the chief dependence of the majority of practitioners, some of whom give it in very large doses and alone, while others combine it with opium, and employ smaller quantities. It is said to be very difficult to procure the excitement of ptyalism.

If a case of this nature were to occur under my care, I would propose to treat it as if the effect of an acrid poison, and one for which no antidote was known. If the stomach were not emptied, by spontaneous vomiting, of the deleterious food taken, I would wash it out with draughts of warm water or ipecacuanha. I would apply leeches or cups to the epigastrium or abdomen, and give the patient ice and cold fluids. The first stage being past, and excitement continuing and becoming more general, I would resort to venæsection, and administer such purgatives as could best be borne, perhaps preferring to employ castor oil, aiding them by proper enemata. When the bowels had been rendered soluble, I would depend, for farther advantage, upon the mercurials, combining them with moderate doses of opium, and persisting until the gums should become spongy, and the salivary glands be urged to increased secretion. Many physi-

cians place their exclusive dependence, we are told, upon the persevering employment of active purgatives, which they continue to exhibit for many days in succession. I confess, however, I cannot understand the adaptation of the drastics, as gamboge, aloes, etc. to the removal of such symptoms as they describe. Great care should be taken to guard the patient from improper food, when convalescent, and to protect him from the effect of sudden alternations of weather, by warm woollen clothing.

CHAPTER XXVI.

COLIC.

This distressing affection, in its various forms, is among the most frequent which demand the attention of the practitioner, and is fortunately one of the number of those over which we may exert the readiest control. In no other instance, perhaps, in the vast catalogue of diseases, is the skill of the physician, as exemplified in the successful application of the resources of our divine art, so easily appreciable by the most sceptical patient or observer; and in no other instance will he obtain, in reward for his humane and judicious exertions, a fuller expression of unreserved gratitude.

Colic is sub-divided by writers into a great number of species, in reference to the infinite variety of exciting causes capable of producing it, and the train of symptoms which may or may not be developed under the diversity of circumstances of constitution of the patient, and successful or unsuccessful treatment. Indeed, this sub-division may be almost endless. Cullen makes seven species—Good, six; many more might easily be added. We have colic arising from many purgatives—from many poisons of specific character—from mechanical obstruction in hernia, external and internal—from hemorrhoidal tumors—schirrus of the rectum—from enemata, whether of irritating quality or

of large quantity. I have known it produced in great intensity by an injection of tepid water. It arises from crude ingesta—occurs in the course of the exanthemata, and in many fevers. It may or may not be attended by stercoraceous vomiting or intussusception; but all these modifications, the enumeration of which seems to you, no doubt, an announcement of the causes, remote or exciting, which may give rise to it, have been treated of as separate species of a particular genus. I will yield so far to the common custom of American authors, as to admit and treat of three varieties of colic, viz.: 1. Simple colic, otherwise ileus or wind colic or flatulent colic; 2. Colica biliosa; and, 3. Colica Pictonum; reminding you, that while I follow this arrangement for the sake of convenience, I by no means acknowledge any specific difference to exist in the nature of the proximate or essential cause, which I hold to be identical and the same in each of these and in all other varieties of colic.

1. Simple colic may be briefly described as presenting the following symptoms:—Pain in the bowels, with a sense of twisting or griping chiefly about the navel, with nausea for the most part, and costiveness. The pain is accompanied usually with a sense of distention of the abdomen, and much general uneasiness. At first, there is no tenderness upon pressure, but rather a degree of relief is given by pressure, which is often applied forcibly to some particular part of the belly, frequently about the caput coli. There are "violent attacks of tormina, occurring at intervals, like the strong impulse downwards from the action of a drastic purgative, the action proceeding downward to a certain point and there stopping." The distention, from being merely a sensation of the patient, becomes sometimes very obvious, and a tympanitic inflation of the abdomen ensues, with great distress in breathing, from the upward protusion, no doubt, of the diaphragm into the thoracic cavity. The nausea and vomiting are more and more frequent, following the paroxysms of tormina above described. The contents of the stomach having been emptied, an inversion of the peristaltic action of the intestines is at last brought on, and stercoraceous matters are thrown out of the mouth, which symptom has given name to an often recognized variety of colic, known as the iliac passion. When there is no distention, the muscles of the abdominal

parietes occasionally become hard and inelastic, being as flat and firm as a wooden board.

At first the pulse is unaffected, but after a time increases in frequency, losing force and volume as the case progresses; cold sweats break out on the face and become general; and the patient if unrelieved, may sink at once, exhausted by the mere intensity of his sufferings. More commonly, however, an inflammatory stage will supervene, and enteritis of exquisite character be developed, with ulceration or even gangrene of large portions of the intestines. Post mortem examination, besides these terminations, not unfrequently exhibits a third described as intussusception of a portion of the tube within another portion, the internal being strangulated by pressure and running into rapid mortification. The occurrence of this terrible accident has even been ascertained in some cases before death, by the protrusion of the lower part of the strangulated bowel at the anus, as affirmed by Abercrombie.

Many of the Causes of colic have been already alluded to; it arises, perhaps most commonly, from the presence and irritation of crude and indigestible articles of food; it may be brought on by fasting for a long or unaccustomed period, and by exposure to cold and wet, especially when applied to the feet; it may be occasioned indirectly by any of the passions of the mind, and in general by the influence of all such circumstances, formerly enumerated, as interfere with the due performance of the digestive function. An extrication of air or gas, which distends the abdomen to an enormous extent in certain cases, has been mentioned as among the ordinary symptoms of the disease, and every one who has been the subject of colic, is aware of the great and immediate relief which attends its escape, whether upwards or downwards. Such gases, the chief part of whose volume seems to consist of sulphuretted and carburetted hydrogen, may be the product of the chemical decomposition of crude and undigested vegetable aliment. Dr. Hales tells us, that an apple, during this process, will give up above six hundred times its bulk of air, and there are several vegetables habitually employed as food, which are said to evolve even more air than the apple. But we cannot thus account for the tympanitic distention in all cases. To the

number of instances recorded by authors, in which the obvious evolution of gas was beyond all possible explanation, by any reference to any supposable state of the ingesta or their quantity, I will add a very remarkable case from my own practice. A patient laboring under scarlatina, in October, 1831, was affected with a very irritable state of the stomach and bowels, which admitted of the administration of neither food nor medicine, but in the very mildest form and in the smallest quantity. Tranquility and costiveness followed this expectant treatment, and after a very quiet day, it was thought advisable, in the evening, to empty the lower bowels by an enema, prepared in the usual way. This produced a severe paroxysm of colic with great discharge of air, both upwards and downwards, though no token of the presence of any had been previously observed. Twenty-four hours after, the enema was repeated, a mere mucilaginous solution (strained gruel) being employed. This was followed by the same consequences. The experiment was tried a third time, with simple tepid water, at the same interval, with the same result, so highly aggravated, that the sufferings of the patient were intolerable, and required to be allayed by free doses of opium.

I regard the supposition as therefore entirely plausible, and indeed probable that, in such and similar cases, the exhalent vessels opening upon the mucous surface of the stomach and intestines, may throw out, instead of their normal and habitual secretions, either gases of various kinds, or a fluid whose affinity for caloric is such that it assumes, as soon as evolved, the gaseous form.

Autopsy. "The most uniform morbid appearance, in fatal cases of colic, is a greater or less extent of the intestinal canal in a state of great and uniform distention." This distended portion may not be at all altered in structure. It may be found in various stages of inflammation, "from a recent tinge of redness to extensive gangrene." Other portions have been found contracted and agglutinated. I have already mentioned the frequency of intussusception. Organic disease of great diversity may be found constituting a part of the description of fatal cases of ileus; but these which have already been alluded to, and

some of them enumerated, seem to me entirely incidental and unessential; you will find a long list of them in Good, Cullen and Abercrombie.

The nature or proximate cause of colic is at present matter of much dispute. The last named writer, to whom our profession is deeply indebted for his valuable contributions to useful knowledge, lays down the position, in contradiction to all previous authority, and maintains it with much apparent weight of fact and much ingenious reasoning, that in colic the distended part of the intestine is the true seat of the disease, which consists pathologically in a muscular paralysis of a portion of the muscular coat in the intestine. He denies that the contraction (so called) of the contracted portion of the intestine, is effected by spasm; but supposes it to be "merely collapsed, because it is empty, its muscular action being unimpaired." He endeavors to explain the familiar phenomena of colic, by the supposition that the passage of the alimentary ingesta or flatus ceases at the point where the muscular impairment of the capacity for contraction exists, and that distention must begin there. To this distention progressively increasing, he refers the subsequent symptoms.

After the most impartial consideration of the subject, however, I must declare myself still disposed to adhere to the ancient doctrine, and to regard colic as depending in all cases upon spasmodic constriction of some portion of the intestinal tube. I find no difficulty in replying to the arguments urged against this opinion.

1. It is easy to explain why the evidences of disease should be more remarkably exhibited in the distended part after death. If death has occurred early, the spasm or constriction may have entirely disappeared; muscular contraction, whether natural or morbid, must cease when life is over. Nay, such spasm may have relaxed occasionally during the continuance of the disease, and returned again. The changes occurring as the result of this spasm are two-fold, being both local and general. The circulation is stopped in the mucous tissue of the intestine above, and congestion and inflammation and gangrene thus brought on. The general system is thus affected, first, by the impediment offered to the performance of the digestive function, and secondly, after a little while, by the inflammation of part of the digestive

tube. This inflammation is rapidly increased if the stricture be close and obstinate, by the internal pressure of the accumulated secretions, which may even rupture the tube, unless carried upwards by an anti-peristaltic motion and vomiting.

But on the other hand, if the case is sufficiently protracted to allow of the occurrence and extension of inflammation which shall agglutinate the contracted fibres, permanent and undilatable stricture is detected.

2. How shall we account for intussusception upon Abercrombie's view? It is difficult to conceive how a distended portion of intestine should enter into the collapsed tube below it, whose "tonic contraction" is not overcome by the regular propulsion of fœces or flatus. And if the smaller portion above, which is in a natural state, does descend into the enlarged part of the tube, this latter cannot contract upon it to form stricture. Now, it is plain, that a strictured part of the tube will be smaller than the part below it, which is collapsed, or in a natural state of tonic contraction. The strictured point, then, in relation to the necessarily distended portion above it, will represent the apex of a cone, which being pressed downwards, by the violent voluntary and involuntary efforts of the patient, will readily enter and pass along the tube below, even to the anus, as in one of Abercrombie's own cases.

3. The analogy with hernia may be allowed some weight in this matter. All the phenomena of ileus, attend upon strangulation of a rupture.

4. Distensibility is the natural condition of the intestine, and to be distended its passive function. The sudden production of colic, then, in instances where the distention cannot be large or inordinate, is not to be accounted for, otherwise than by the supposition of irritation and spasm. And how, but by the occurrence of spasm, can we explain the sudden stoppage in the course of a fluid or semi-fluid substance along a tube, urged, too, by a vis a tergo; for the distended portion may not be long, and the bowels are acting above it.

5. I would press lastly, the argument a posteriori, which, indeed, has been used by our antagonists themselves, in their reference to galvanism as a valuable remedy in colic. If colic be not owing to spasm, but to muscular paralysis and distension, whence

the utility of venæsection, the warm bath, opium, tobacco, remedies which I have chosen to mention, as they are selected and eulogized by Abercrombie. "There are cases," he says, "which yield to a full dose of opium," a fact, he tells us, familiar to every practical man. It is no wonder that he should allude to it, as illustrative of "the peculiar and intricate character of the disease." "The warm bath," he says, "is often beneficial;" is it by relieving distension? "The relief," he says, "from venæsection is often so immediate, that there is no time to raise the patient out of bed, before complete evacuation takes place." Finally, "the tobacco injection," he tells us, "is, as far as my observation extends, the remedy of most general utility in all forms and stages of ileus." This is conclusive, for tobacco is our most efficient relaxant, and exhibits here most remarkably, its valuable power of overcoming spasm.

It will be perceived, that I also place the disease in the muscular tissue of the intestinal tube; but this, though its prominent seat, is not the first acted on, the irritation having been first excited by the impression of some agent, directly or indirectly, on the mucous surface within. This I believe to be the true pathology of colic; but the irritation, when transmitted, may disappear altogether from its first locality, and leave no trace behind. I do not affirm that it does, for I am rather inclined to think, that a certain train of morbid action productive of vitiated secretions is, to say the least, a general concomitant of the iliac spasm. You will find cases on record, however, in which it is affirmed that the contents of the distended bowel were perfectly natural and customary.

The Treatment of simple colic is not usually a matter of much doubt or difficulty. In an infinite majority of cases, the domestic management is promptly successful. This consists in the administration of aromatics, of which the chief are, alcohol, æther, mint, camphor, ginger, etc. It is, I suppose, by their anti-spasmodic influence that these are useful, for they possess no other power in common. Perhaps they may, as stimulating the stomach, exert in a certain degree, a revulsive influence.

Colic which follows a full meal, or is occasioned by the taking of indigestible or deleterious articles, must be treated by the quick exhibition of an emetic, which will very often give entire

relief. If from exposure to cold or moisture, we must place our patient in the warm bath, and afterwards cover him up warmly in bed, applying large poultices, or other fomentations to his abdomen, and sinapisms to his feet. Opium is here specially serviceable. Indeed, I resort to it at once, without delay, in a very large majority of the instances which fall under my care, and have rarely any occasion to omit it. The purgative practice, as initiatory, or resorted to in the first instance, I condemn most unequivocally; believing it to be more likely to aggravate than diminish the sufferings of the sick man, if depended on previously to the relaxation of the stricture of the bowel by the proper means. A mild cathartic is a secondary measure of great importance and utility, and should not often be neglected. To prepare the way for the free evacuation of the canal, calomel may be at once added to the opium prescribed, and this will, of itself, frequently suffice. If it should not, the gentlest means which will effect our purpose, are next to be tried. When the stomach will bear it, castor oil is the best of these, and is almost always preferable for children. Some adults will not take it, who will be pleasantly acted on by rhubarb. And although I do not in general advise saline purgatives, under these circumstances, yet there are not a few, who consider the epsom salt entirely unobjectionable, in its manner of operation. You will sometimes find a return of the disease follow the exhibition of an unsuccessful purgative. Do not, in this case, press your cathartic, nor hope to move the bowels by increased doses. Return to your relaxants. If there be a sound constitution, use the lancet freely. It must never be neglected, if the pulse rises in force or frequency, or the belly becomes tender on pressure, or the tongue is dry and the skin hot. Repeat the warm bath and fomentations. Large poultices with a little mustard sprinkled over the surface, are the best of this class of applications, and should be laid upon the abdomen, and to the lower extremities. If nausea prevail to any great extent, abandon the exhibition of medicines by the mouth, with the exception of calomel and opium, which should be freely prescribed, in doses proportioned to the urgency of the symptoms.

In the meanwhile, enemata should be given. The ordinary mixtures should first be resorted to, and will generally be found

sufficient for our purposes. If they fail, we may try the more energetic formulæ, those for example, which contain turpentine, tartarized antimony, and tobacco. I am not fond of using any of these, and have seen little of their effects, but they are highly recommended by writers on the disease, and may, therefore, be numbered by you among your ultimate resources. When there is apparent torpor, without inflammatory symptoms, or obvious febrile action, the turpentine injection is to be preferred. Turpentine is highly stimulating and irritating, and ought not to be employed, where there is any reason to suspect an inflammation of the mucous surface, especially of the lower intestines. It is usually given rubbed into an emulsion, with mucilage or the yelk of an egg. When judiciously prescribed, you will have occasion to be pleased with its powerful cathartic effect.

The tartar emetic, administered in this way, is a most impressive relaxant. I have made use of it in a very few extremely difficult cases, to obviate obstinate constipation; but it is not unattended with danger to the patient, as it depresses his already enfeebled functions, and produces the most distressing sickness. Great caution should, therefore, be observed in its exhibition. I dissolve ant: tart: ℈i in a pint of water, throwing up into the rectum one half; if no evident effect be produced after twenty or thirty minutes, the remainder may be given. The consequent relaxation of every muscular fibre in the body, rarely fails to be followed by an alvine evacuation, which is copious and offensive, in a degree proportioned to the previous circumstances of the case.

The tobacco injection is attended with very similar dangers and benefits, as the solution of tartar emetic. It is, however, more generally resorted to, and is recommended by many writers of very high authority, among whom, Abercrombie does not hesitate to describe it as "the remedy of most general utility, in all forms and stages of ileus." All agree, however, that it requires to be handled with great caution. Not more than fifteen grains, infused for ten minutes, in six ounces of boiling water, should be given at first—to be repeated in increased quantity, after waiting from half an hour to an hour, until its peculiar effects are exhibited in vertigo, and general profound relaxation.

Thus managed, it may be considered as tolerably safe; but Earle proposes, as a matter of still greater security, the introduction of a half chewed quid into the anus, to be withdrawn, as the ordinary symptoms of prostration come on. A moistened segar may be used in the same manner, as a suppository, and for the same purpose. You are aware that the internal use of tobacco smoke, both by the mouth and rectum, is very common among old women and nurses, who relieve the colics of infants very frequently, by giving them water to drink, in which the smoke from a pipe has been blown for several minutes, and using the same as an injection.

I must not omit to mention to you a mechanical mode of overcoming the obstinate obstruction of the bowels, forming so principal a feature of colic, which was originally proposed by De Haen, and has received warm commendation from Cullen, and others. It consists in the gradual and progressive distention of the lower portion of the intestines, by pumping in large quantities of simple water. It is said that two gallons have been thus thrown up successfully. I cannot but regard this as a useful addition to our list of remedies. In one of my most unfavorable cases, it was attended with a happy effect, after the failure of all other means of cure assiduously employed. A negro fellow of nearly middle age, was brought to me in the month of September, 1827, from a plantation a few miles distant. He had been ill then three days, and his sufferings were described as extremely severe, during the whole of that time. They were intensely great when I first saw him; his belly was hard and inelastic as a board; there were thirst and delirium, with a full and bounding pulse; constant vomiting of every thing taken into the stomach, of stercoraceous matter occasionally during the fourth, fifth and sixth days, and occasionally of the component parts of the ordinary enemata which were administered from time to time. He was bled by me largely and repeatedly, and went through the usual routine of medicine in vain. On the sixth day, I pumped up, with Read's apparatus, (the stomach pump inverted,) as much water into his intestines as he would allow. After receiving a large portion, (which I had no convenient means of measuring,) he complained of the distention as absolutely intolerable; his pulse sunk to a thread, and his skin was

bedewed with a cold, clammy sweat. When I desisted, he felt, for the first time during his attack, an inclination to stool; but the effort was then ineffectual. Two hours afterwards, (the disposition having continued,) his bowels were freely evacuated, and he thenceforward recovered, though slowly. With a view, I suppose, to a similar mechanical removal of obstruction, but from above, large quantities of crude quicksilver have been frequently employed, especially by British practitioners. Abercrombie tells us that he has repeatedly tried it "in doses of one or two pounds." He says, however, that he has seen no other effect from it, than that "it certainly appeared to allay the vomiting." Pills of solid gold and silver, have also been administered, I presume, with the same mechanical purpose, for I can imagine no other mode in which they can be expected to fulfil any valuable indication. But this view is no less unreasonable than gross. It is surely overlooked, in this coarse speculation, that their weight, if it is by this quality they are to prove efficacious, will be as much opposed to their passage in some of the turns of the intestines, as favorable to it in others, so as in this way fairly to neutralize their effect.

2. Bilious Colic, a form of ileus recognized in a great number of American essays, is a modification of the disease which owes its characteristic peculiarities to the cause immediately instrumental in its production, to the constitutional temperament in which it exhibits itself, and to the season of the year in which it is most apt to be met with.

It occurs during the summer and autumnal months, affects persons of bilious habit of body, and such as are liable to hepatic disorder, and is attributed to the influence of malaria. The immediate intestinal excitement may be, not unreasonably, conjectured to arise from a morbid secretion from the liver, of an acrid and irritating fluid. Many writers have traced its close analogy with our autumnal remittents. It arises under the same circumstances, follows similar exposure, is sometimes (Rush incorrectly says, always,) ushered in with a febrile chill, and is frequently attended throughout, with the familiar symptoms of this type of fever, a full and frequent pulse, great thirst, the tongue being thickly furred, and of a brownish yellow hue; there is incessant nausea, with frequent vomiting, often of bilious matter;

pain and heat are felt at the pit of the stomach, with great distress and oppression of the precordia; there is frequently recurring disposition to go to stool, with intolerable griping in the belly, chiefly about the navel, but the constipation is obstinate and difficult to overcome. The patient rolls and tosses himself in every direction, crying out for relief from sufferings which he is unable to describe or sustain.

Treatment. The picture which I have drawn, will give you, I fear, but an inadequate idea of the violence of the attack of this formidable malady, or of the urgency with which the case demands prompt and judicious management. Venæsection is your first remedy. In no other instance can there be a more evident call for the use of the lancet, than in this; and there is none in which its bold and ready employment is attended with more satisfactory results. After opening the vein, let the blood flow freely from a large orifice, without regard to the quantity, until some sensible effect is produced; the patient declaring himself relieved completely, or falling into syncope. Should the pain return, and the pulse rise again, repeat the bleeding without hesitation; it may be necessary to do this twice or thrice. Persons liable to be affected with this form of colic, are almost always robust and plethoric, and bear venæsection extremely well.

Your next object is the free and perfect evacuation of the bowels—of difficult attainment, because of the spasmodic obstruction which prevails, and also, because the stomach becomes from the commencement of the attack, so irritable as scarcely to retain any thing swallowed. To meet the complicated indications arising from this state of things, it is my custom to prescribe calomel and opium, in as large doses as can be borne. The former is our best cathartic, under the circumstances, and the latter, so far from delaying its operation, as has been objected, rather promotes it, by relaxing spasmodic constriction and diminishing the hyper-excited sensibility of the stomach and bowels. It is indeed, necessary to relieve, with as little delay as possible, the extreme anguish of the patient. Nothing is better adapted to do this than opium. A dose of from three to five grains may be administered at once, with ten grains to ℈i of calomel, to be repeated in an hour or two, if required. In the meanwhile, place the patient in a warm bath, and when

he is taken out of it, cover the abdomen with warm poultices, containing a small proportion of mustard.

Enemata should also be promptly used. The ordinary forms may be at first tried. If these fail, resort may be had to the turpentine, tobacco or tartar emetic, or distention by large quantities of water. The cold bath generally, the shower bath, the dashing of cold water on the abdomen, feet and legs; the placing cloths moistened with iced water, or lumps of ice upon the belly, have been recommended, and there are authentic testimonials to the success of these remedial means. I have not yet found it necessary to resort to them, and am disposed, upon my views of the pathology of the disease, to prefer relaxants of the opposite class. I must not be understood to object to the internal use of ice and cold fluids; these, I believe to be, not only pleasant and palliative of suffering, but directly remedial. Indeed, I have always allowed them in the treatment of febrile disease, and have never, so far as I recollect, had occasion to regret the indulgence.

To assist or continue the cathartic effect of the combination above advised, other purgatives may be substituted, when the stomach is calm enough to bear them. Of these, the least irritating in general deserve a preference; castor oil will answer the purpose well in most cases. In some, the epsom salt is unobjectionable. I employ the latter very frequently, in mixture with rhubarb and some aromatic. A loose state of the bowels must be kept up for some days; the patient generally requiring to be treated very nearly as if ill of bilious remittent.

The same observation will apply to the state of convalescence; recollecting that peculiar caution is to be observed in the management of the diet of the patient, which, for a long time, must be extremely plain and abstemious.

3. Colica Pictonum—Colic of Poitou—of Devonshire—Painter's Colic. This form of intestinal disease has received these several denominations, from the localities in which it has been most frequently met with, and the trade or occupation which renders men most liable to its attack. It has been pretty clearly proved, I think, to be in all cases attributable to the poisonous influence of lead and its salts. These agents are used for so many different purposes in the arts, and even, I might almost say, in do-

mestic economy, that any one may readily become subject, unawares, to its deleterious impression. Thus, in Devonshire and Poitou, above referred to, it has been long and much employed, to diminish the acidity of the weak wines and ciders for which they were noted. Much of the ardent spirits (gin especially,) and malt liquor, used by the lower classes in our own country, are more or less strongly impregnated with it, either by direct admixture, or by being passed through tubes or pipes constructed of it, at least in part.

House-painters, glaziers, plumbers and printers are likely to be seized by this species of colic. It has been known to affect those who sleep in newly painted houses; nay, what is most of all strange and unaccountable, it is alleged to have been produced and kept up by the effluvia thrown off from the clothes of those who make much use of it in their daily occupations, as plumbers and painters. This statement, which would be absolutely incredible upon any other than the best authority, comes to us supported by the respectable names of Sir G. Baker, Dr. Reynolds, Sentin and Good. If these exhalations, so impalpable and so minutely diffused, can exert so impressive an influenee as is thus asserted, we can surely find no difficulty in referring all the cases which have hitherto been ascribed to other causes than the absorption of lead, as the use of acids, mineral and vegetable, to slight impregnation of these fluids with this common and useful metal. Thus, Thomas, who maintains the possibility of Colica Pictonum originating from other causes than the use of lead, and founds his objection to the doctrine of the exclusiveness of this cause, upon the fact that the disease is frequent in the West Indies, goes on to observe, in the very same sentence, "that there is only a very small quantity of lead in the mills employed to extract the juice from the sugar cane." It is remarked to be of very common occurrence among animals in the neighborhood of smelting houses, and I have known it fatal to dogs, &c., belonging to painters, from their drinking out of the vessels in which the brushes were occasionally kept in water.

Colica pictonum may be considered as belonging, for the most part, to the catalogue of chronic diseases. It commences with a dull pain at or near the pit of the stomach, extending down-

ward to the navel, where it fixes and increases to extreme severity. The abdominal muscles become sore to the touch, and are drawn backwards to the spine, with much pain in the loins and back, whence the name Rachialgia.

There is obstinate constipation, with occasional but ineffectual desire to evacuate the bowels. There is often, but not invariably, nausea and retching, and a green porraceous bile is thrown up with mucus. The pulse is small and not particularly tense, but rather preternaturally frequent. Dimness of sight, double vision, and even total blindness, have been known to occur in the progress of the case. The patient becomes feeble and much emaciated, and prefers a bent posture, leaning forward on his knees. Hiccup is troublesome in the last stage, and deglutition difficult and painful.

The duration of the disease in this, its peculiar and characteristic form, is various, extending from days to weeks. Under proper management and in favorable circumstances, it may yield readily and terminate in perfect recovery; but it is apt to recur, and still more apt to leave behind it, a train of obstinate and troublesome effects. Among these, epilepsy is not uncommonly met with; but the most frequent of the consequences of colica pictonum, is a remarkable paralysis of the upper extremities, sometimes affecting but one, sometimes both hands. In this local palsy, the joint at the wrist becomes loose and flaccid, and there arises a tumor on the back of the hand, with wasting of the muscles of the forearm and arm.

Autopsy presents nothing satisfactory or uniform; bowels generally pale; sometimes appearances of inflammation, but rare; intestines contracted in some places, in others irregularly distended.

The Treatment of colica pictonum was formerly a matter of warm discussion among physicians, but at the present day, there exists but little difference of opinion as to the indications of cure.

Opium is by almost all regarded as a principal remedy, and is employed largely and freely. Its efficacy is by no means limited to its immediate benefit in relieving pain, in which it excels; but by the relaxation of spasm, and the subdual of irritation, it

paves the way for the successful exhibition of cathartics, which indeed operate most gently and perfectly, when given in combination with it. Pemberton highly eulogizes a formula containing castor oil with tinct: opi: and some aromatic; while others substitute epsom salt as a preferable purgative. Either of them will answer our purpose generally.

Irritability of stomach presents, in some instances, a very great difficulty in the management of the case, the nausea and vomiting being so readily excited, that nothing is retained for a moment. Here we must administer our opiate in an enema, or by persevering friction, as recommended by Ward, who speaks very highly of the tranquilizing effects of its application to the surface. We may introduce it into warm poultices, which should be laid upon the abdomen, while sinapisms are applied to the extremities. If the pulse be tense and chorded, or the strength of the patient admit, the lancet will be found useful, though we cannot, generally, bleed largely or frequently the subject of colica pictonum. In these most severe attacks, the preferable cathartic will perhaps be calomel, which will remain on the stomach more readily than any other, and which it will often be proper to continue in smaller doses until ptyalism is induced. Combined with opium, it forms one of our most certain and useful resources in the most obstinate cases, and will often effect a cure without any farther prescription.

If, after the use of these means, however, the patient should still suffer from protraction or return of his intestinal disorder, epispastics should be applied over the abdominal surface and upon the inner part of the thighs; and the bowels kept soluble by the occasional use of ol: ricini or sal: epsom. The sulphate of alumine, common alum, is affirmed to exert a favorable influence in these circumstances. The high names of Grashuys, Richter and Percival unite in its praise. It is given in a dose of from six to fifteen grains every three, four or five hours. Nutmeg also has been recommended as possessing no little efficacy here.

During convalesence from colica pictonum, great caution is necessary in the diet allowed to the patient, which should be light, nourishing and rather laxative. Flannel should be worn next the skin generally, and a flannel roller round the trunk of

the body, and the feet carefully kept warm and dry. A return to former occupations, if they necessarily exposed him to the influence of lead, should be avoided.

You will be much embarrassed in the treatment of the paralysis of the arms and hands, so frequently met with as a consequence of this disease. I have been accustomed to resort to the combination of opium and calomel in small doses, while I kept the hand and arm constantly supported by the carved splint recommended by Pemberton. It is a remark of DeHaen, which I believe to be true, and which will encourage the fearless use of opium, "that paralysis succeeds less frequently when the cure is effected by this remedy than any other." The gentle catharsis that will be kept up under the plan advised, will be found useful; and a slight ptyalism, maintained for some time, will do much towards the restoration of the power of the muscles paralyzed.

Strychnine has been experimented with, and as is affirmed, with gratifying results. Veratrine, also, we are told, has been successfully used. Two cases of cure, by the nitrate of silver in large doses, have been reported. Cold affusion has been of obvious service, in some instances, with stimulating frictions and bandaging. Electricity and galvanism have not yet received a sufficiently fair and persevering trial. I cannot account for this neglect; these agents seem to me to be clearly indicated, and I indulge much favorable expectation from their energetic employment.

CHAPTER XXVII.

CHOLERA.

SYDENHAM has given of this disease—commonly called by a strange pleonasm, (perhaps emphatically, as "morbus," "the disease," *par excellence*,) Cholera Morbus—a description at once so vivid and so faithful, that it is copied by most writers, as admitting scarcely of amendment or addition. "Vehement vomitings,

and difficult and painful dejections of ill-conditioned fluids; agony and inflammation of the intestines and abdomen, cardialgia, thirst, a quick pulse often small and unequal, heat and anxiety, nausea and colliquative sweats, spasms of the arms and legs, fainting, coldness of the extremities, and other symptoms of great danger, which terrify the by-standers, and kill the patient in twenty-four hours."

The picture thus drawn, is truly fearful to contemplate; but, far from being in any degree overstrained, it rather falls short of the real horrors which attend the disease in its worst and most aggravated forms. I have myself seen fatal terminations, in common or sporadic cholera, in eight, and twelve, and twenty hours. And in the malignant cholera, which originated in India, but with which the whole civilized world has now, alas! become but too familiar, death has not unfrequently happened in from four to seven hours, or even in a shorter period of time; the constitution being at once struck down or paralyzed by the causative agent, and deprived of all powers of resistance, as from the effect of the more intense poisons.

Yet, while we consider the history of this justly-dreaded malady, and read with shuddering, the gloomy records of its ravages in the East and elsewhere, we cannot but reflect, with high gratulation, on the resources of our divine art, and the triumphs which it has obtained even over this fell destroyer. In the report of the Secretary of the Medical Board at Bombay, published in the second or third year of the prevalence of epidemic cholera in that region, it is asserted, that "there is melancholy reason to believe, that every individual unblessed with professional aid perished, twelve hundred and ninety-four such instances having occurred in this single district; no case having recovered in which medicine was not administered, while, on the other hand, the proportion of mortality was, by the treatment generally resorted to, reduced to less than seven per cent."

Let us, then, hear no more of the alleged inefficiency of our science, so sneeringly spoken of by sciolists and sceptics, nor of the highly-boasted restorative influences of the vis medicatrix naturæ—alas! how vain and futile.

It will be perceived, from these remarks, that I am not unwilling

to recognize or acknowledge, for convenience sake, this common appellation of the two forms of Cholera, so constantly distinguished, in speaking of this subject. But, indeed, no one can hesitate to admit the necessity of such a distinction. The ordinary sporadic cholera is one of our most familiar maladies. Although not without its alarming appearances and real terrors, yet its proportional mortality is certainly within the average limits of other serious disorders of the same season and climate. Its causes are for the most part obvious, definitely known and easily avoided.

Not so, however, the malignant or epidemic cholera, which is easily traced through a brief but most extraordinary existence. Its history presents some of the most impressive phenomena that have ever been recorded. No form of pestilence has ever exceeded it in mortality. Its causes are unknown, undefined, and present topics of angry and unremitting discussion.

Whether or not, therefore, we assume the identity of these two modifications of cholera in nature and pathology, we must allow that the question of cause is still unsettled. I shall proceed, on that account chiefly, to treat of them under the separate heads of Common or Sporadic, and Malignant Cholera.

I. Sporadic Cholera—the cholera morbus of vulgar language, generally makes its attack at night. It comes on with restlessness and oppression at the stomach, which rapidly increases to nausea, and brings on violent and repeated vomiting. A griping attends early, with a feeling of distention and twisting of the bowels; the retching produces an irresistible propensity to stool, and the contents of the alvine canal being discharged, large and thin evacuations are thrown out with great force, and extreme severity of intestinal pain. The pulse becomes weak and frequent—the skin is bedewed with sweat, and soon becomes cool and relaxed; there is great prostration of muscular strength, with remarkable depression of spirits. This anxiety and dejection are followed by a light wandering or delirium. The painful and involuntary contractions of the stomach, give rise to similar cramps of the abdominal and other muscles, adding infinitely to the agonies of the sufferer.

These symptoms, if progressing unrelieved, may so far debilitate the patient, that death may occur at once from the sinking produced by the immoderate evacuations upwards and downwards. Yet, even when these are checked, or have subsided spontaneously, another train of circumstances will often be pressed upon our attention. The patient, after a short sleep, perhaps, which seems, in some measure, to have restored his exhausted energies, recovers the usual temperature of his surface, and loses the haggard and ghastly expression of countenance so often a trait, even of the milder forms of this violent malady. His skin regains its warmth and becomes dry and ruddy; but the re-action thus exhibited, does not stop at this proper point. The cheek flushes darkly—the eyes sparkle, and are suffused—the surface is harsh and hot—the abdomen is a little tender on pressure, and fuller than natural; there is propensity to stool, but without evacuations, or only a very small quantity of mucus is discharged. The epigastrium also betrays some soreness, with heat and thirst, and, in the course of a few hours, a well marked gastro-enteritis is fairly developed. The attendant fever generally assumes a low typhous type, with red lips and mouth, and dry tongue, with gloomy muttering delirium and jactitation.

Causes. A large majority of the cases of sporadic cholera which we meet with, may be traced directly to proceed from crude ingesta, such as indigestible and undigested articles of food, which irritate the stomach and intestines. This is most likely to occur, when any improper aliment is taken at supper and just before going to bed; hence the great proportion of attacks at night or early in the morning. There are certain kinds of food which seem particularly apt to disturb the stomach in this manner, as shell-fish, and, indeed, all fish, to those who use them rarely as diet—unripe fruits—vegetables insufficiently prepared by cooking—meats which have commenced to decay—vegetables in a similar condition. Fruits brought to market in cities for sale, are generally plucked immature, and undergo an imperfect maceration or softening, instead of ripening properly; hence it is, perhaps, that fruit so often produces cholera, especially when taken in any large quantity. Occasion-

ally a transient cholera follows the administration of many of our medicines, as gamboge, colchicum in free doses, sulph: sodæ, and the antimonials, etc.

It arises also under circumstances which forbid us to refer it to any thing taken into the stomach, being undoubtedly attributable to a morbid impression sympathetically transferred to that susceptible organ. Exposure to sudden changes of atmospheric temperature—to cold and moisture—sitting in a current of air at night—getting the feet wet—remaining in damp clothes—are among its causes. It often supervenes upon repelled eruptions of whatever character, and follows sudden and careless exposures after the subsidence of the exanthemata, measles especially. Of this last mentioned kind, was the most promptly fatal case I ever witnessed in an adult.

Dissections show various conditions of the stomach and intestines, in accordance with the duration and violence of the attack. If it terminate rapidly, the fatal issue seems to be brought about simply by prostration of the strength of the patient and exhaustion of the vital energies; and here, we can find no trace of any lesion. I have examined subjects dying under these circumstances, and have found all the viscera in an entirely natural and sound state, the villous coat of the stomach and small intestines being just tinged with the slightest imaginable blush, not more than one would readily believe to be altogether consistent with perfect health.

Where the case has been protracted, all the changes which follow inflammation of the mucous surface in its several stages, are detected. The abdomen is often greatly distended, and the peritoneum sometimes found to contain a considerable secretion of a curdy or purulent fluid. Unequivocal marks, too, of cerebral congestion, and inflammation of the brain and its membranes, are not unfrequently met with, especially when the irritative fever has existed for any length of time, or has been more than ordinarily developed.

From time immemorial, it has been the fashion to attribute attacks of cholera to disturbance of the stomach from bile secreted in inordinate quantities or variously vitiated in quality, and the practice every where resorted to, was in general accordance with this view of the etiology. The offending fluid must be

dislodged from whatever portion of the alimentary canal where it might be imagined to be lurking—must be got rid of by whatever means were most efficient, and the poor patient, already exhausted by the repeated evacuations upward and downward, was still urged with emetics and diluents and cathartics, until he sank too often (as might have been expected) into the repose of death. It is hardly necessary to remind you, that such gratuitous assumptions no longer guide us in these later days of more enlightened pathology; we no longer set ourselves importunately to solicit bilious discharges. The hepatic secretion, so far from being the exciting cause of the alvine irritation here, either by its undue abundance or its morbid properties, is for the most part obstructed in a greater or less degree, nay, it would seem, in many instances, entirely suspended; the evacuations being thin and colorless, consisting generally of serous and mucous effusions mingled at first with the contents of the canal, and afterwards unmixed. Yet, I would not go with Johnson, to the opposite extreme. I would not affirm this obstruction or deficiency of bile to be a matter of regular and uniform occurrence, nor consent to regard it, as he seems disposed to maintain, as a constant attendant, or an essential constituent, if not absolutely the cause of the attack. On the contrary, we meet, not unfrequently, with violent cases in miasmatic regions and through the hot months of summer and of autumn, during the prevalence of what are styled bilious disorders; nor can I conceive any reason why a vitiated secretion from the liver, poured into the duodenum, should not prove by its acrimony, like other irritating contents of the abdominal canal, a cause of cholera. Indeed, I have been satisfied, in more than one instance, that this was the actual state of the facts, and that the cases deserved the appellation which has been assigned to designate one species or variety of the disease, bilious cholera.

The general Prognosis in sporadic cholera is, as has been already hinted, favorable rather than otherwise. The cause which produces it is, for the most part, transient. Irritating ingesta of whatever nature or quality can scarcely fail to be promptly removed by the vomiting and purging which they have excited, and the irritation to which they have given rise gradually subsides. The patient sleeps and awakes refreshed

and restored. In feeble constitutions, the poisonous influence exerted by the causative agent, is however sometimes so intense as to prove immediately fatal. I have seen a child sink thus from an over-dose of emetic tartar, and another vomited and purged to death in a few hours after eating an orange. Yet, this is not the ordinary mode in which the unfortunate result is brought about. As I have already stated, it is by the supervention of gastric or enteric inflammation, and sometimes by a similar affection of the brain and its membranes. Any symptoms, therefore, which indicate these tendencies, augur unfavorably for the patient. Tenderness on pressure, or tumefaction of the abdomen—a return of vomiting, accompanied with febrile excitement—redness or soreness of the tongue, lips and mouth—headache—a dark flushing of the cheek—a low muttering delirium, with great thirst; these are all tokens of imminent danger, and require special care and assiduity.

The Treatment of cholera requires to be modified by the cause which has brought it on, as well as by the condition and circumstances of the patient. If you are present at the very commencement of an attack, preceded by a full meal or by the use of articles of diet of difficult digestion or improper and dangerous quality, it will be best to empty the stomach at once of its deleterious contents, by a mild but efficient emetic. Ipecacuanha, I think, deserves an unhesitating preference, on account of the gentleness of its operation, its well known relaxant or anti-spasmodic influence, and its diaphoretic powers. If it fail to act, or act slowly, the sulphate of zinc may be substituted. Should any alvine uneasiness remain after the vomiting, an enema may be given, or a very mild cathartic administered, as castor oil to those who bear it well, or a proper dose of calomel with opium.

These observations, and this practice, it is evident, will not apply in cases originating from any other cause than irritating ingesta, as exposures to cold and moisture, or malaria, or from mental emotion and the like. Besides this, attacks of ordinary cholera are not generally alarming at their onset, and the physician will seldom be sent for, or if sent for, will hardly reach his patient before he has been pretty thoroughly evacuated both upward and downward. In addition to the oppressive nausea

and propensity to stool, he now labors under severe spasmodic pains, not only in the stomach and bowels, but in the abdominal muscles—nay, even those of the legs and arms, the hands and feet, are affected with annoying and distressing cramps. He is sensible of the utmost degree of weakness, and disposed to syncope—perhaps faints outright after an evacuation; and mutters indistinctly and incoherently.

Here, we are presented with two plain indications, which require to be fulfilled with the utmost promptness and decision. We must subdue irritation, which has not only brought on profuse secretion from the vascular surfaces affected, but has also excited spasmodic contractions of the muscular structure of the digestive tube in the first instance, and, secondarily by sympathetic association in all the sets of muscles over the whole body, both voluntary and involuntary; and we must support the strength and vital energies of the sick man, now in the most imminent danger of being exhausted, as well by the intolerable pain he endures, as by the loss of fluids effused from the vessels.

Happily these our objects are not only perfectly compatible with each other, but the accomplishment of the one, is best promoted, by the very means which we must resort to, to effect the other. Opium—magnum Dei donum, is here our chief reliance, and a remedy of inestimable value, perfectly efficient alone to remove the disease in a large majority of cases. I prefer, as Sydenham did, "liquid laudanum," to any other of its preparations. It is true, as is affirmed by writers, that a pill (from its form) will sometimes be retained when any fluid is promptly rejected; yet, nevertheless, the tincture, even when thrown up, will often be found to exert a more soothing influence than a pill retained. And this apparent paradox is easily explained. The nerves of the disturbed stomach are at once impressed by, and admit, the anodyne influence of the fluid opiate, as it comes in contact with and washes over their sentient extremities; while the pill remaining undissolved, or dissolving slowly, in the fluid contained in the cavity (corpora non agunt nisi soluta) produces an effect proportionally slow and imperfect, perhaps acting in the meanwhile, by its bulk and hardness, as an additional cause of uneasiness and disturbance to a surface whose sensibilities are excited to the highest degree of morbid intensity.

With these views, I do not confine myself to measured doses of the opiate, nor restrict myself to any limit of regular interval in its administration. To an adult, I usually give at once a teaspoonful of laudanum in a little water, and repeat this quantity with a frequency proportioned to the urgency of the pain and vomiting. If, as will sometimes happen, the expulsive action of the stomach is so stormy and incessant, as not to allow of any thing being taken, the effort to vomit being consentaneous with, and absolutely overcoming, the attempt to swallow—administer your opium by the rectum, throw up an enema composed of a small quantity, not more than an ounce or two of some cold mucilaginous fluid—starch, gum arabic water, or the like, with two or three teaspoonfuls or a tablespoonful of the tinct: opii, and let this also be repeated with a frequency proportioned to the urgency of the symptoms. In the meanwhile, apply warm poultices with mustard to the epigastrium and extremities, and let the belly be well fomented with hot spirits and laudanum—bladders or bottles of hot water, or hot bricks, being kept to the soles of the feet and the thighs. If the strength yield, add to your opiate some stimulant and nutritious fluid—arrow-root with brandy, or, if this be not retained, small doses of æther or camphor may possibly be less likely to be rejected on account of their smaller bulk.

In some cases, all stimulants will be refused by the patient, as adding to the uneasiness and discomfort which he suffers at the stomach. His thirst will lead him to ask for cold fluids and ice, the latter of which is not only a most grateful and pleasant indulgence, but is actually, in a high degree, remedial occasionally, and, as far as I can judge, unlikely to do injury. I am in the habit of allowing its use almost ad libitum, and have never yet seen any evil result from it.

By these means, as above recited, we shall generally succeed in allaying the particular irritation of the stomach and intestines, in which cholera consists, and having thus checked the inordinate secretions, which were poured out from the immense mucous surface affected, and obtained a suspension of the convulsive and spasmodic actions which threatened the immediate destruction of life, we may, in common cases, consider our task accomplished, and leave the patient to the enjoyment of quiet

and repose, advising him to remain at rest, and enjoining, for some time, strict abstinence from everything but the smallest portions of some mild, light, nutritive fluid, at proper intervals.

We are not always, however, thus fortunate, and will occasionally meet with instances in which our success will prove to be less complete. Whether from a more than ordinary intensity of cause or peculiar susceptibility of constitution, or from other circumstances more or less obvious, we shall sometimes find our patient, instead of continuing to improve, begin or persist to complain of uneasiness and weight at the pit of the stomach, with a sense of heat and tenderness upon pressure. He is thirsty—the skin becomes harsh and hot—there is restlessness and tossing, and the abdomen feels sore and distended. The case has now assumed a new character. A sub-acute gastro-enteritis has obviously supervened, and requires appropriate management. It is not necessary or proper to consume your time, by repeating here, what has been already said, of the treatment of that modification of disease. I will only add, that my principal reliance is placed unhesitatingly upon the combination of calomel with opium, so often and so justly eulogized. "Calomel," says James Johnson, "must never be omitted, because it answers here a triple purpose; it allays the inordinate gastric irritability—it excites the action of the liver, and it corrects the constipating effects of the opium, so that, when the spasmodic orgasm is over, some gentle laxative may with it carry off the diseased secretions."

When the brain becomes affected prominently in this consecutive manner, I would diminish or subtract the opium, and rely upon calomel in small doses, with cold applications to the head, and sinapisms and blisters to the extremities. I scarce need remind you, of the importance of blood-letting from the arm if the pulse and strength admit, and at any rate, from the epigastrium and temples and behind the ears, by the employment of the proper number of leeches, from time to time, as the protraction and other exigencies of each individual case may seem to require.

II. Cholera Maligna—Epidemica—Asphyxia—Asiatica—Indica. Hyper anthraxis. Having thus briefly spoken

of the history and treatment of cholera as under ordinary circumstances it occurs sporadically every where, and has been for ages familiar to the profession, it is requisite in the next place that I should go on to offer you some account of that more malignant and terribly destructive malady, known under the same name, which showing itself in Hindostan in 1817, spread with fearful rapidity over the whole of Asia, depopulating many of the most flourishing and thickly inhabited districts of that most ancient quarter of the globe. What countries has it not since then invaded!—what favored portions of the human race have escaped its dark dominion! Africa, Europe and America have in turn groaned under its unchecked ravages; its progress has extended over every ocean and continent, embracing in its unlimited range by sea and land, every variety of surface of country, of soil, and of temperature. Of all the devouring pestilences that have in ancient or in modern times devastated the nations, it has been the most fatal. Neither the black death of the fourteenth century, nor the sweating sickness of the sixteenth, nor the gloomy plagues of Eygpt, of the Levant, or of London, have equalled it in mortality. Several years since the number of its victims was calculated (by Moreau de Johnès) at upwards of fifty millions.

It made its appearance as an epidemic, and diffused itself with a progress more appalling, a sway more potent, and an influence more extensive than had ever been known in any former example. It has prevailed to a degree equally violent in all climates, and in every season of the year; in regard to temperature—from the frosty atmosphere of Moscow, (from September to January inclusive,) when the thermometer had sunk below zero, to the burning plains of British India, when the mercury stood above 100 of Fahrenheit; "in regard to moisture—during the continuance of rain for months, to that dry state of the air which scarcely leaves a vestige of vegetation on the surface of the earth."—Sir G. Blane. It has not been observed to follow the course of prevailing winds or currents, but in this, as in all other respects, seems independent of all sensible influences. It often selects for peculiar prevalence, portions of country of high repute for salubrity, and passes by low and unhealthy regions. Not the least impressive of its features is the unaccountable sudden-

ness of its appearance and disappearance. In one of the English regiments of Bombay, it showed itself on the 21st of September, and committed dreadful ravages before night; on the 25th it had abated remarkably, and in three days more, had vanished entirely. As a general rule, however, it seems slow to leave altogether a position which it has once occupied; occasional cases continuing to recur from time to time.

Symptoms. In the history of malignant cholera, we are presented with certain prominent phenomena which deserve special attention. It is alleged, plausibly, that none of these are new features; nor do they indeed afford us such lines of regular or exact division as may seem clearly to distinguish in all cases the Asiatic or epidemic, in its early stages, from ordinary sporadic cholera. Nay, it is probable that each of them may have been now and then met with in an insulated and severe example of cholera morbus, popularly so called. But here they occur in masses, and present themselves with great uniformity during the reign of the epidemic. In deference to the views of the best authorities, I will describe the disease as offering three stadia or periods, separable without difficulty, and demanding a notable difference in the treatment properly adapted to each.

1. The Incipient, by some called the premonitory stage. In an immense majority of instances, a diarrhœa precedes the other symptoms of cholera. It is attended with languor and sometimes nausea. The discharges at first consist of the common contents of the bowels, then become thin and watery, and finally assume the serous appearance regarded as characteristic. They are apt from the beginning to be very copious, and pass easily without much griping, and are followed by great weakness, the pulse being slow and feeble. This condition of things lasts, in different individuals, from a few hours to four or five days.

2. The purging is now attended with oppressive nausea and frequent vomiting of a similar thin or serous fluid. The patient is apt to be thus attacked at night, or towards morning. Cramps first of the stomach and intestines, and afterwards of the muscles of the body and limbs, come on at brief intervals, and are productive of intolerable anguish to the unhappy sufferer. After this spasmodic or convulsive vomiting and purging have continued a short time, not often beyond eight to twelve hours, the

evacuations are less frequent and profuse, and the patient sinks into the state of collapse. His pulse, which has become gradually more and more feeble, is now scarcely if at all perceptible. The skin is cold and pale, or even livid, bronzed or blue, and covered with a clammy sweat; while a sense of distressing heat, and of thirst, is often complained of. The hands are icy cold, and the skin of the fingers is sodden and wrinkled, as if long soaked in water. The tongue is moist, pale, and colder than natural. There is a feeling of weight and oppression at the præcordia. The voice is husky and feeble, and this whispering tone is considered by some as characteristic, the "vox cholerica." The face is haggard and hippocratic; the features shrunk and wan; the eye hollow. A peculiar appearance of this organ is described by Magendie, who has laid greater stress upon it, than any other writer. The sclerotica, he says, becomes transparent, as in bodies sometime dead, giving a most ghastly and corpse-like appearance to the person of the sick; the respiration is slow; the mind usually clear throughout; the secretion of urine is often absolutely suspended, and also that of bile. Few survive who have fallen into this extreme condition. In milder cases, whether from the inferior vehemence of the attack, the greater energy of the constitution, or the success of the remedies employed, the vomiting and purging subside; the diarrhœa ceases; the cramps abate; the tongue and skin grow warm; the pulse rises; the secretion of urine is resumed; bile is discharged by vomiting or purging, and the patient recovers. But he does not at once pass into a state of perfect health.

3. A third stage of this dreadful malady ensues, which has been differently regarded by different writers. The majority consider and style it a consecutive fever, excited by the vehement irritation of so many organs or tissues as have been affected, or perhaps, (like the febrile disorder so often consequent upon large losses of blood,) as the result of an inordinate and ill directed re-action, after the prostration and exhaustion from the discharges that have taken place. Others, however, regard cholera as properly a distinct type of fever, of which the former symptoms are merely the initial or cold stage, and this the hot or principal stadium. And this is the view, which, upon maturest consideration, I am myself disposed to entertain. But I

will admit that it is not indisputably established. The patient now complains, perhaps, of headache; his eyes are suffused and intolerant of light; the skin becomes dry and hot; the pulse is contracted, but evidently more voluminous than before, and assumes some tension and frequency; the tongue is clean and red, and hard and dry; afterwards with the teeth and lips becoming incrusted with sordes; there is often a low, muttering delirium. In short, the description of typhus mitior applies, with certain modifications, to these cases, which it should be remarked, occur more frequently in some of the localities invaded by cholera, and in some seasons than in others. Nay, a few writers declare, that they have failed to meet with any examples of this sort. It was certainly rare in India, the original seat of this pestilence, so much so, that after it had invaded Europe, Dr. Russell, one of the physicians sent by the British government to Russia, to acquire information concerning its existence and history there, remarks, that this consecutive fever was "a new feature to him;" while he nevertheless, asserts most promptly and positively, the identity of the epidemic, with that known to him familiarly on the banks of the Ganges. It was, perhaps, most general in France and Russia, less so in England, (though Brown asserts that he always met with it,) and still less so in this country. Instead of it, we meet not very unfrequently, with a strange and peculiar condition of the sensorial system. The patient is drowsy, but not comatose, dull, but not incoherent. "I feel no pain nor sickness," said a negro patient to me, "I am only sleepy, and I'm afraid I shall die that way;" as, indeed, he did. The pulse is slow and full, but not hard; the pupil somewhat dilated; the tongue and mouth dry, with thirst. The breathing generally easy, but sometimes stertorous, with occasional moaning and muttering. Respiration is always very slow. The patient requires to be spoken loudly to, or shaken, to rouse him, but when awaked, speaks clearly, and sometimes promptly and with alacrity. The stomach and bowels are tranquil, generally, in this stage; the strength is almost gone, so that if the body is raised from the recumbent posture, the pulse fails, the jaw falls, and the skin becomes covered with sweat, with every other sign of extreme prostration. Blood, when drawn, is very dark, coagulating slowly, with little or no serum. This condition

is not described, so far as I know, by more than one writer—Dr. Keir, of Moscow, who regards it as a "congestive, sub-inflammatory state of the brain and spinal cord."

It cannot be expected that I should attempt to describe the frequent anomalies which are exhibited during the course of so horrid a pestilence, or point out the numerous varieties of mode in which the malady makes its dreaded assault, or in which death seizes on his devoted victim. Some die at once, probably from spasm, without either vomiting or purging; their torments ending in less than an hour. Others sink gently exhausted by painless diarrhœa.

Convalescence is usually slow and tedious, and irregular. Great irritability of the digestive tube remains for a long while. The hair falls off. The voice continues rough and weak, the whole body is feeble and emaciated, and in many instances, the patient seems to have rapidly grown older by many years.

Prognosis. In no disease is the proportional mortality greater, on the whole. It is true, that in particular localities it has assumed, comparatively, a less murderous aspect. It is true, that by proper attention to the wants of the sick, and prompt, and skilful, and assiduous employment of remedies, many lives are saved. It is true also, that many physicians claim to have enjoyed, in their peculiar modes of treatment, a degree of success, that would be utterly incredible, even if affirmed of the most common and slightest ailments, a mere cold, a colic, an intermittent fever. Yet, notwithstanding all this, the ratio of deaths in epidemic cholera, is truly frightful, varying from seven to fifty, and even seventy per cent., if we select as the basis of our calculation, documents not totally inadmissible from exaggeration. Well then, might the French physiologist have applied to it, when he first examined its appalling features, the phrase which has since become so familiar. After his visit to Sutherland, Magendie being asked what he thought of cholera, declared that "it began where all other diseases end—in the death and cadaverization of the patient."

The individual prognosis seems to be drawn, most clearly, from the degree of collapse. This condition, (which I regard as a mode of capillary paralysis,) is, when exquisitely formed, an absolutely hopeless state, and the degree of its intensity is a very

accurate measure of the danger. Even if the patient do not die in collapse, he is likely to fall into a secondary or consecutive fever, of proportional violence and risk; or emerge into the strange condition of sensorial torpor, attempted to be described above. The vomiting and purging are not so much to be dreaded, it would seem, as was at first imagined. The suppression of urine is a very bad symptom; so also is a marked coldness of the tongue and mouth, and the sodden appearance of the hands and feet. Vascular re-action, and the return of deficient secretions and excretions, as of bile in the evacuations, and of the urine, afford us the best hope of recovery.

The Diagnosis can only refer to the line of distinction, which we may be called on to draw between sporadic and epidemic cholera. In the earlier cases of invasion, this may be attended with some difficulty. The characteristic circumstances have been dwelt on. The prompt tendency to immediate failure of the circulation, whence the phrase cholera asphyxia; the collapse or capillary paralysis, shown by coldness and shrinking of the surface, coldness of the tongue, and blueness or lividness of the skin; the total absence of bile from the evacuations, and their peculiar character as albuminous, resembling so remarkably, thin gruel or rice water; the violence of the spasms; the rapid emaciation; all these form a picture which can never fail to be immediately and clearly recognized.

Autopsy. The external appearance of the body is striking. The solids are shrunk with seeming emaciation, not so much attributable to absorption of the fat, as to the previous draining of the fluids. The surface is livid, bronzed or blue; the skin of the hands and feet corrugated; the nails purple; the fingers often rigidly contracted by spasm, which may, indeed, continue to affect the various muscles, several hours after death, in cases of short duration. The arteries are empty, nay, this is the fact in some instances, even before death; the radial, and even the carotid, having been cut open without the escape of a drop of blood from their gaping orifices. The cutaneous veins not unfrequently refuse to bleed, when pierced. The mass of blood seems to be collected in the large veins of the trunk and viscera. The blood has undergone some remarkable changes. It is black and viscid; if it coagulate at all, it does not separate into its

usual constituents, having lost, by the inordinate serous evacuations, much of its water and its peculiar salts.

The morbid appearances of the viscera differ, relatively to the duration of the case. The vessels of the brain are usually found full, though not uniformly so. In the thorax, the lungs are much congested or loaded with blood. The heart is generally distended with blood on the right side, sometimes on both, and sometimes even the aorta is thus filled. The veins in the neighborhood of the heart, are uniformly much engorged. The veins of the abdomen, of the liver and mesentery, especially, are distended.

If the fatal event have occurred early, we shall discover few or no marked changes; a slight redness of both the serous and mucous surfaces, has been noticed, but in general, it is stated by writers, that there is presented very little trace of disease. On the contrary, in protracted instances, notable alterations are found to have taken place. The brain shows its vessels filled and turgid, in cases that have exhibited the symptoms of consecutive fever; sometimes with serous effusions between the membranes. The lungs are rarely altered in structure, even where respiration has been much affected during life. They are, however, sometimes hepatized, and sometimes unaccountably collapsed. In the abdomen, a certain degree of redness and turgidity is perceived, over the peritoneal covering of the intestines; they sometimes adhere from inflammation. The stomach is (rarely) found empty or contracted. The mucous coat is so variously changed as to offer a great diversity of appearances. There are tokens of congestion, and of active inflammation in different parts; it appears softened, thickened, friable, and Scott says, sphacelated. The intestinal tube is sometimes collapsed, but more generally filled with air, or with the rice water fluid described as forming the principal portion of the evacuations; its internal surface sometimes shews the marks of active inflammation. The urinary bladder is found empty and much contracted, but not diseased. Buere de Boismont affirms the spinal marrow to be uniformly affected; sometimes, he says, there is effusion of blood, sometimes of serum, and sometimes of gelatine in the canal. Dr. Schnurrer notices a peculiar feel of the bowels. "They have lost," he says, "their usual polish, they

are flaccid and yielding; the mucous membrane is doughy, and the submucous tissue congested." Although, for the most part, cholera corpses are rigid, yet Dr. Davy has, in some cases, found the muscles extremely flaccid, as in animals killed by fatigue or electricity.

It is a very curious fact, however, that after the disease had prevailed in numerous portions of the civilized world for seventeen years; after it had engaged the most earnest attention of the physicians and pathologists of the old world; after the performance of almost innumerable autopsies in the hospitals of Russia, Germany, England and France, by Jahnicker, Searle, Craigie, Louis and Andral, it was reserved for an American to discover the specific lesions produced by this modern pestilence. Dr. Horner, Prof: Anat: in the Pennsyl: University, published in the May number of the American Journal, 1835, a paper "the object of which is to prove, that in Asiatic cholera, the following morbid anatomical characters are found in the alimentary canal: 1. A copious vesicular eruption, entirely distinct from the tumefaction of villi, muciparous follicles or glands, and which pervades the whole canal; 2. A lining membrane of coagulated lymph, which exists in the small intestines at least, if not in the stomach and colon also, and resembles, in texture and mode of adhesion, the membrane of croup; 3. Vascular derangements and phenomena, which are confined almost exclusively, if not entirely so, to the venous system; 4. An exfoliation of the epidermic and venous lining of the alimentary canal, whereby the extremities of the venous system are denuded and left patulous." For his cases, and the observations and reasoning upon them, I refer you to his essay with but one remark, viz.: that statements so definitely made as these, must ultimately receive definite confirmation or confutation. I cannot wish that any of you should have the opportunity to examine the matter for yourselves; but, if you should, I hope that it will not be suffered to pass by unimproved. In the meanwhile, I am unable to yield an unhesitating credence to details differing in their alleged uniformity from, and thus contradicting, all former accounts, which, until now, agreed in the ascription of extreme irregularity to the local affections in cholera.

Pathology and History. The nature and origin of this terri-

ble pestilence, have formed the theme of innumerable essays. It is a question adhuc sub judicê and still most warmly contested, whether we are to regard it as identical in character and seat, with our common and familiar cholera. No one can deny, that in their modes of access, their symptoms, and the manner of termination, there is, to say the least, a great similarity; while even in violence and rapidity, some of our accustomed sporadic attacks approximate closely, if they do not fully rival their foreign congener. The difficulty of drawing a precise line of distinction, has been noticed every where, when the invasion occurred. At Orenburg, (in Russia,) the physicians did not pronounce upon it for several days, as offering any thing peculiar; and in Sunderland, (England,) opinions were for some time divided upon the question, whether it was endemic or Asiatic cholera. It is said to have been, in many localities, foreshown by cases of ordinary cholera of remarkable malignity; although I would receive such accounts always, with large allowance. Ever since the attention of the medical world has been drawn to this pestilence, bad and rapidly fatal cases of sporadic character have been much talked of whenever they occurred, and have given rise to occasional panics, which, when they died away, left upon the minds of those who had participated in them, obscure impressions extremely unfavorable to the drawing of accurate distinctions in future. Hence those who had not partaken of the alarm, became affected with a degree of scepticism likely to prevent their ready acknowledgment of the true nature of an actual invasion. Thus the periodicals teemed with histories of severe sporadic cases, which had been met with in Great Britain, during the few months previous to its irruption there as an epidemic. It is singular that these were so little dwelt on at the time, though so well remembered afterwards. Thus, every where in our interior country, instances are seen from time to time, which are pronounced to be malignant or Asiatic in their aspect. I am inclined to believe, however, that such have always occurred at intervals, in all places, but failed to attract special notice until they assumed a new importance, as predicting or forerunning the arrival of a dreaded plague.

Some contend that this is not the first instance on record, of the epidemic prevalence of cholera, although from its vehemence,

its pestilential mortality, its wide extension and long protracted duration, it stands prominent in the history of the world. It is said to have diffused itself in every part of Europe, in 1600; (Bontius, physician to the Dutch settlement of Batavia, states that) it was extremely prevalent in Asia, in 1629. It prevailed thus in London, in 1669 and 1676; in Switzerland in 1696, and in Paris, in 1750. Sonnerat, who travelled in Hindostan, between 1774 and 1781, describes it as epidemic on the coast of Coromandel, and affirms that more than sixty thousand persons perished, during one of its visitations in the country between Cherigam and Pondicherry. Paisley mentions it as an epidemic, in 1774, and Curtis, as ravaging the southern provinces of India, in 1782. It seems to have been unnoticed, from this period until Aug., 1817, when it attracted attention in the town of Jessore, about sixty miles from Calcutta, which city of palaces it invaded before the end of the month, raging there with great violence.

From this its origin, in the Delta of the Ganges, it is not inappropriately called Indian cholera; to distinguish it, by reference to its wide and rapidly extending sway, (as influenza is separated from common catarrhal fever,) it is entitled epidemic cholera; and from the remarkable prostration or stagnation of the vascular function, it is proposed to denominate it cholera asphyxia. It would be useless to enumerate the several other names by which it has been designated.

A brief sketch of its progress to the present time, may interest you. In about a year after its appearance in Bengal, it reached Bombay and Madras; invaded Ceylon in January, and the Isle of France in November, 1819; in 1820, the Isle of Bourbon, Bankok, the capital of the kingdom of Siam, where it proved widely mortal; and Canton, in China. In 1821, it appeared at Muscat, in Arabia, and extended to Shiraz and Ispahan, in Persia, and to Bagdad; in 1822, spread into Palestine; in 1823, accompanied the British army into Burma, with which kingdom the English masters of India were then at war, and committed dreadful ravages in China, especially in the cities of Nankin and Pekin; in 1825, it crossed the great wall of the Celestial Empire, attacking the trading place or mart of the inland commerce of the Russians and Chinese, Kiachta; and in 1827 reached Cocu Choton, in Tartary. In 1829, it prevailed in Russia, at Oren-

burg, near the Tartar frontier; in 1830, at Astrachan; from this town, which lies at the embouchure of the Volga into the Caspian Sea, it disseminated itself over all the eastern and northern parts of Europe. It attended the Russian armies in their march over unhappy and trampled Poland, adding to the almost unexampled wretchedness of that devoted people, and almost depopulating her war-worn and starving metropolis, (Warsaw.) In 1831, it showed itself in prompt succession at Moscow, Constantinople, Vienna, Berlin and Hamburg, crossing the German sea to Sunderland, and thence spreading over Great Britain. Paris was not attacked until March, 1832. In that fatal year, it passed across the wide Atlantic, with the stream of British emigrants to Montreal and Quebec, in less than a month, appearing also at New-York. From these central positions, it can readily be traced along our sea coast to Philadelphia, New-Haven, Boston, Baltimore, Richmond, Edenton, (N. C.,) Mobile and New-Orleans, and along the St. Lawrence and the Lakes, to the upper Mississippi. In the fertile valley of that father of rivers, and his tributary streams, it found a congenial and favorite abode, and long prevailed in many of the towns and villages of the great West, with potent sway. It had not, until the summer of 1836, placed its dreaded footstep within our city, except in a transient visit, which shall be noticed particularly. The nearest points of prevalence to us, had been, on the north, Edenton, and Savannah river, on the south, where it attacked several plantations near the city of Savannah. During 1835 and 1836, it spread over the West Indian Islands, and seems to have fixed itself tenaciously at Havana. It committed the most dreadful ravages in Italy in 1837—Rome and Naples, and in Sicily, Palermo experiencing its worst terrors. I was shown a letter from an official person in the latter city, stating that upwards of one thousand persons died of it daily, and that, such were the panic and distress of the people, the corpses would have remained unburied, but that their interment was made part of the duty of the large body of government troops garrisoned there.

The westward progress of this dread malady, has been calculated to average about eighteen miles a day, or as others say, a degree in a month. What can check its career? Where may this plague be stayed? Nor climate, nor season, nor soil, nor

locality, nor national habits, nor commercial restrictions, nor military nor municipal regulations, have availed to repel its advances, or protect against its invasion. Nor seas, nor deserts interpose an effectual barrier. The actual mortality of cholera has been estimated at considerably more than fifty millions. Its proportional mortality varies much in different situations, and, let it be regarded as one of the proudest triumphs of our divine art, it has uniformly observed an inverse ratio, to the facility with which medical aid can be obtained. Of the barbarous and semi-civilized tribes, over whom it has swept with its dark wings, more than half have probably perished, and in many instances a larger proportion even than this. Its horrid features have seemed less appalling, when intruded amidst the enlightened and well ordered among the nations. Yet even here, its approach is calculated to excite the most impressive terror. The extreme muscular debility, the syncopic state of the circulation and sudden loss of genial animal heat, the exhausting and painful evacuations, the cold, blue, clammy skin, and the torturing cramps of the limbs and trunk, form a picture of intense agony, which all must regard with the deepest sympathy and dismay; the only mitigated feature, indeed, of this pestilence, is the brief limit of its inflictions, and the prompt arrival of death.

In the investigation of the Etiology of epidemic cholera, the question of its contagiousness is truly one of fearful and pressing interest, and demands from every philanthropist in the profession, a deliberate and careful consideration.

Cholera, if contagious, can be in some measure restrained in one of its modes of propagation. If non-contagious, but merely endemic and epidemic, whether we refer it to atmospheric or tellunic sources, there is no human probability of arresting or checking it in its course, and we must submit with sullen passiveness to the decrees of an irresistible fate; decrees more terrible, because, though like other epidemics, it has its periods of increase and diminution, yet it does not, like these its congeners, subside and disappear. The evil of its introduction is not only incalculable in extent, but as far as we yet know, unlimited in duration; "it takes deep root," "says a writer," in the soil which it has once possessed.

If we come to the first conclusion, and believe that it is within

our power, however partially and imperfectly, to restrain the progress of this pestilential disease, we shall at once adopt and institute the measures best adapted to this purpose. We shall recommend commercial restrictions, careful and despotic quarantines, cordons sanitaires, and other military and munipical regulations. These measures fall heavily upon mercantile men, and distress and embarrass all civilized communities. Business must languish or die, and national as well as individual prosperity receive a severe shock. A view of these consequences, however, should only have the effect to stimulate us to enquire with the utmost patience and caution; to investigate conscienciously, and weigh well the offered testimony; it must not be allowed in any degree to influence our decision. This must be frankly and fairly deduced from the premises. Truth alone must be sought for. At her feet we must, like the Magi guided by the star to the stable of Bethlehem, cast away our prejudices and lay down our wealth, our myrrh, our frankincense, our treasures of gold and silver. Her only must we worship.

We must not allow ourselves to be embarrassed by the false yet prevailing notion, that there is any incompatibility in the possession of the two properties of epidemic extension and contagious communication. I have had occasion, more than once, to allude to the epidemic prevalence of contagious disease, and I am fully persuaded that an impartial review of the facts in the case before us, will prove that this remarkable pestilence, like the plague itself, offers a striking instance of this mode of propagation. It would be well to lay down, in a definite way, the kind and amount of evidence required to prove its contagiousness.

1st. It is true, we cannot here apply the experimentum crusis; there is no palpable secreted matter with which we may inoculate, as in small pox. But we cannot inoculate for typhus, nor mumps, nor hooping cough. This test, therefore, is not of essential force.

2d. Cholera does not affect every one who approaches the sick, nor even a majority; nay, it may fail to attack any one of those who surround a patient. But the same is true of small pox and every other contagious disease: how else could they ever pass away, or suspend their ravages? "During nine months," says Dr. Haygarth, "while the small pox prevailed epidemically in Chester,

I attentively marked its progress. At the beginning, two or three families were seized, not immediate neighbors, but in the same quarter of the town; then the children of a neighborhood, comprehending an entry; but it did not spread from thence as from a centre; in no part of the town has it spread uniformly from a centre." I challenge any one to show the transmission of small pox, in any instance of its prevalence any where, from house to house, and from person to person, as is required of us to do in regard to cholera. These remarks will of course apply more forcibly in the instance of the plague, hooping cough, measles, etc. Writers omit to consider, or choose to forget, that diseases acknowledged to be contagious, differ very much in the degree or intensity of this power. Nay, the same contagion spreads more rapidly at one time than another, under the influence of causes utterly unknown to us. Small pox is probably the most powerful of the contagions, and depends least for its extension upon extraneous contingencies. Yet even this spreads often feebly and irregularly, and soon dies out after its introduction into a neighborhood. Now in the argument on this question, the anti-contagionists unfairly require—not only that cholera should be equally communicable with the most forcible of known contagions, but that it should be communicable in all the different modes and under all the various circumstances predicable of each of this diversified class of maladies.

I have already suggested that the most contagious diseases, are not capable of propagating themselves during all the several stages of their duration, but only at certain periods or points of time and condition. Drs. Russel and Barry state that the consecutive fever, so common in Russia, was scarcely known in India. They also say that the number of medical men and hospital attendants attacked with cholera was also beyond comparison greater in Russia than in India. Hence it would seem logical to infer, that this consecutive fever is the contagious stage emphatically, though perhaps not exclusively, of cholera.

3d. We must here allow the usual and logical preponderance of positive over negative testimony. From "want of susceptibility," a great variety of unknown protective circumstances being included under that phrase, thousands escape the influence of all the causes of disease, and of contagion among the rest,

Whose experience and observation do not furnish him with examples of this sort? Who has not escaped measles or pertussis at one time, to fall into them at another? Cobbett mentions that his wife nursed all her children, eight in number, when successively inoculated for the small pox, being herself unprotected, yet never took it. I have both vaccinated and inoculated, many times, a young lady of this city in vain. Her family have suffered extremely from varioloid, and she nursed assiduously a sister who died of small pox. Yet she never received it. The argument that cholera cannot be contagious, because it fails to affect the physician, nurses and friends who surround the sick, proves too much, if it prove anything. The disease exists about and among them; some cause or causes must be efficient in the production of new cases; it is, they say, epidemic. But these persons are not only exposed to contagion, but to atmospheric and telluric vitiation, and to all causes whatsoever. If their escape prove cholera to be not contagious, it proves also that it is not epidemic. Such examples, after all, only go to show that no cause of disease is universally or omnipotently efficient. "Thus far and no farther shalt thou go!" is the providential fiat; and our feeble and miserable race is thus preserved from utter extinction.

4th. In the examination of alleged facts, we must rather dwell upon the obvious and concurrent inferences to be fairly drawn from them, than the minute difficulties which may be suggested by the ingenious special pleader. A ship, bringing persons ill of cholera, or recently convalescent from it, arrives at a certain sea port town, and in a short time afterward, the disease makes its appearance there. Similar examples occur again and again, and the opinion arises that cholera has been propagated by transportation and contagion. But no! exclaims a philosophic doubter. I must have proof that the first who was taken ill, in the specified town, had direct intercourse with a patient from on board the suspected vessel, and from him you must trace it to the next, and so on. This test, however, I hold to be inapplicable in any case, even of the most undoubtedly contagious malady, and maintain the satisfactory nature of that evidence, which shall establish a repeated coincidence in point of time, between the

approach of a source of contagion, and the infection of a region or community previously healthy.

Let us now proceed to apply the above rules to the case immediately under discussion. 1st. Cholera, since its eruption in 1817, in the Delta of the Ganges, has made regular, but not very rapid progress, over the world. In this point, it shows striking correspondence with the movements of a known contagion.—Influenza, whether contagious or not, travels, in some of its visitations, infinitely faster. 2nd. Cholera has followed, in thus extending itself, the usual channels of commerce—the great lines of human intercourse, by sea and land. It accompanies armies, attends the march of caravans, and is transported in ships. Whenever it has reached an island, or crossed the sea, the first place of its appearance has been, uniformly, on the sea-coast, a fact of itself, sufficient to render probable, if not establish, its contagiousness.

Among the statements offered in proof of the doctrine I have advocated, the following has seemed to me to be specially striking and conclusive.—On the 31st October, 1832, the brig Amelia, bound to New-Orleans from New-York, was wrecked on Folly Island, about twenty miles from our city. Some of the passengers labored under cholera, which prevailed at New-York when she sailed. They were all landed safely, and lived in the few buildings on the island and in tents. There they continued to sicken with the disease. A boat's crew of wreckers had gone to the stranded vessel to save her cargo, and on their return to town, one was seized with cholera, and died. The rest of the crew were ordered to the island to perform quarantine with the persons landed from the brig, and one was taken on his way and died in the boat. There were four negroes on the island. Three physicians were sent from the city to attend the sick, and a detachment of the city-guard was detailed to enforce the quarantine. Let us see what was the result of this intercourse, upon neutral ground, between healthy and sick men. Of the wreckers, thirteen in number, several were sick, and eight died of cholera. One of the physicians, Dr. H., was ill of it, but recovered. The nurse of the wrecker above mentioned as dying in the city, himself sickened and died after being sent to the

island. Of the four negroes residing there, three died; of the guard sent down, eighteen in number, ten were sick and one died. Such are the undenied facts, and all the ingenuity of the most practised sophist, cannot impair the force of the inferences to be deduced from them—That cholera is communicable—that it can be transported by sick bodies to healthy localities, there to infect healthy bodies—and that quarantine institutions, however imperfect, may yet avail to protect maritime cities. I do not doubt that Charleston owed her exemption from cholera, at that time, under Providence, to the energy and wisdom of her Intendant and Council.

Much has been written upon the subject of the assignable causes of cholera, besides those included under the heads of epidemic distemperature of the air, and contagion and infection; for some, offering at a distinction without a difference, have been willing to speak of it as infectious who denied its contagiousness. Malaria reigns in Bengal, the low and swampy region where it first appeared, with perennial and despotic sway. But we must affix a new meaning to the word, when we employ it to refer to an agency powerful in all climates and at all seasons, and in every district of country. There can be no identity between the malaria of the alluvial coast of Hindostan, under the influence of the burning sun of August and September, and that which may be supposed to exist during the frosty winter of Poland and Moscow. Telluric emanations have been much talked of; but nothing can be more absurd, that the notion of an alleged similarity between the exhalations of the marshy soil of India, the arid plains of Tartary, and the paved streets of London, Paris and Boston. Animalculæ have been considered the generators of this pestilence by Hahneman, Neale, Monjon, and others. Some who hold this opinion, acknowledge that their existence cannot be exhibited or detected—it must be inferred; while others tell us, that, notwithstanding their minuteness, these little creatures can be traced by their immense numbers, and they talk of clouds, "darkening the air and making the sunbeams dim," as having accompanied or preceded cholera on its march in India and elsewhere.

Food. The discussions first entered into in relation to the effects of improper food as a cause of cholera, have been re-

vived by Dr. Tytler. In 1818, he pressed his sentiments upon the authorities in India, but they were not generally received. He professed to trace the disease every where to the use of rice, whether in Asia, Europe or America. We feel here the ridiculousness of this notion. Moorshadabad in Bengal, and Charleston, in South-Carolina, until 1836, have reason for grateful exultation at their escape from cholera, though surrounded by it and threatened in every direction. It cannot be proved, that we eat better rice than our less fortunate neighbors, while it is obvious, that in both cities we consume more of the grain in its various qualities than is eaten either in Paris or London, Vienna or Moscow. Damaged rice, however, ranks with the improper articles of food which have been among the most influential of exciting causes, and hence the disease has always prevailed most extensively and fatally in the lower ranks and poorer classes of every community. Excesses of all kinds increase the susceptibility to it, and enhance its violence. This is especially true, as is stated by every writer, of intemperance in the use of ardent spirits. During its prevalence, the employment of acrid and irritating ingesta should be avoided—flatulent vegetables—shell-fish—unripe fruits, and all aliments which tend to bring on attacks of sporadic cholera. Exposure to alternations of temperature, dampness and cold, must be shunned. Flannel should be worn next the skin, with thick, warm shoes and stockings. The apartments of the sick should be carefully ventilated, and their excretions immediately removed.

Of the Treatment, I cannot, even now, venture to speak with much confidence. The accounts of the results of different modes of management, are so various and conflicting, that it is exceedingly difficult to decide where truth and accuracy are to be found. The English East-Indian surgeons, whose reports stand first in point of time, and exhibit great skill, ability and success, if they saw the patient early in the attack, bled freely and largely, and then administered calomel and opium in full doses, applying warmth and counter-irritation, in every form, to the surface of the body and limbs. A similar mode of practice has been very generally followed in Russia, Great Britain, and in our own country. But it may be as well to speak of the various remedies proposed in succession. The lancet has had

many advocates, and its employment is, by some practitioners, urged under circumstances the most forbidding, even during collapse. I should prefer to follow the general rule here. I would shrink from the attempt to bleed a patient in this condition of vascular debility; in truth, the blood will often refuse to flow, whether from vein or artery when cut. The temporal has been divided—the radial, nay, the carotid, and from its gaping diameter, not one drop has issued. "The fluids are stagnant," says Magendie, pithily and truly. When there were spasms or gastric or intestinal uneasiness, with a pulse that would bear it, I would resort freely to V. S., and would not hesitate to repeat it, the same circumstances requiring and permitting. Topical blood-letting is an unobjectionable remedy. I would use the cups in preference, applying them to the epigastrium, spine and temples, pro re nata. Opium I regard as of indispensable utility. In mild cases, and in the early stage, it is often found to be the only medicine required. It has lost reputation in the hands of some practitioners, because, 1st. Too much was expected from it; and, 2nd. It was misapplied. It was believed capable of curing all forms of the disease. It is not indicated in those attacks in which the stomach, struck torpid, fails to empty itself of its irritating and poisonous secretions. It is not sufficient in itself for the removal of the collapsed condition; nor is it adapted to the secondary stages of gastro-enterite and choleric fever, as it has been called. But in a vast majority of ordinary invasions, it is most useful. It allays spasm; it soothes irritation and diminishes the frequency and amount of the evacuations; it tranquillizes spinal and cerebral disturbance, and brings on quiet and refreshing and restorative sleep. Calomel is the article of the Materia Medica perhaps most universally exhibited. In all the stages of the attack, this drug has been prescribed, and in every varied quantity—from Ayre, of England, who gives repeated small doses of a grain or two every five or ten minutes, to Cooke, of Lexington, who, aiming at the maximum dose, offers a tablespoonful pro re nata; all but the followers of Broussais, Hahneman and Thompson, advocate and resort to it. The preponderance of evidence in its favor is immense. I would administer from 5 to 20 grains at intervals, as circumstances might indicate.

The acetate of lead, recommended by Graves, has been eulogized by several practitioners. I have certainly seen it do good service. I combined it sometimes with opium, and occasionally dissolved it in the mist: camphorata. It requires to be given in free doses to make any definite impression. It is useful as an astringent enema, when the discharges are frequent as well as profuse.

Emetics cannot be often applicable to ordinary cases. If the circulation became feeble early in the attack, with coldness and blueness of the skin, and collapse impended without great previous exhaustion from discharges, I would follow the authorities which advise a stimulant emetic. Mustard seems to be generally preferred. Half an ounce to an ounce may be given diffused in warm water. Common salt is much used for the same purpose; other emetics, as sulph: zinci, ipecac:, etc. are occasionally combined with them. Cathartics are employed by few physicians in the early stages of cholera. In certain prolonged cases, when a species of inflammatory affection of the stomach and bowels is developed, the milder articles of this class are occasionally beneficial. If calomel does not suffice, castor oil, magnesia or rhubarb may be added in moderate doses. Of stimulants, properly so called, I should wish to avoid the administration, if possible. If they become absolutely necessary, beyond opium, which is, incidentally, the very best of them, I would use capsicum, camphor and ammonia, in quantities proportioned to the urgency of the case.

Heat is almost uniformly applied to the surface, though disputes have run high, whether it ought to be in the dry or moist form. Hot, dry air, is extolled by one; vapour baths by another, or hot water; and by still another, the whole body is directed to be enveloped in poultices, of as great warmth as can be borne. If the skin is relaxed, I prefer the dry form, and lay about my patient bags of hot salt, hot bran, etc. Mustard may be advantageously applied, in poultices or by dry friction, to irritate the suface. Nitric acid and capsicum, and a great variety of irritants are used also, as ointments and embrocations. In protracted cases, epispastics are of unquestionable service, both as stimulant and revulsive. Some practitioners, finding that these heating formulæ are so often complained of by patients,

as adding to their sufferings, have gone to an opposite extreme, and have advised cold affusion, and even frictions with ice, upon the blue or bronzed skin, covered as it is, with a chill and clammy perspiration.

Camphor has been proposed by Hahneman, upon homoiopathic principles, as "the true and only remedy for cholera," and he ventures to assure any one, who will "take it in sufficient quantity, and proper zeal and perseverance, that he will not die." The remedy has gained much celebrity even in our own country, and is much employed every where as prophylactic. Large draughts of tepid water have been recommended, on the one hand, and on the other, a Dr. Hardwicke Shute, has reported a prodigious success from the drinking of indefinite quantities of cold water exclusively. Broussais gives pellets of ice—Magendie hot punch—Baird, of Newcastle, relaxes with the tobacco enema—Fyfe, (of same place,) stimulates with glysters of mustard and of brandy. Sulph: quinine, nux vomica, galvanism, electricity, and acupuncture, have their advocates. Sir James Murray suggests the placing of the body in an exhausted receiver, to determine to the surface in collapse. The idea is plausible and ingenious—it is dry cupping on a large scale. The blackness of choleric blood has induced the exhibition of oxygen, and its mixtures, as nitrous oxyde, etc.; but the reports of the results of the experiments, are not favorable. Dr. Latta, and others, have injected into the veins, warm water in large quantities, holding in solution the salts drawn off in the serous discharges peculiar to this disease. The attempt is a total failure. Dr. Stevens, who entertains peculiar views of the chemical changes of the fluids in disease, and of the paramount importance of saline remedies in fevers, has extended his treatment also to cholera; and the reports of the success of his plan in the management of the epidemic in the Cold-Baths-Fields Prison, London, were highly flattering. They have not, however, received any farther confirmation from any quarter.

The highest degree of success, in the encounter with this terrible malady, that has yet been attained in this or any other country, is claimed for Dr. Cartwright, of Natchez. His statements are supported by a mass of collateral evidence, and the most flattering testimony borne to his merits by the community

among whom he resides. The newspapers tell us, that a silver vase, of great value, has been presented to him by his neighbors and patients, bearing an inscription, which affirms, that he has had under treatment more than three hundred patients without a single death. His plan, as described in his publication, consists in the free exhibition of calomel, capsicum and camphor.

It may be observed, generally, that in the doubtful and tentative management of this terrible pestilence, to which even the most sagacious and scientific physicians were driven, those prescriptions have obtained most reputation which contained some or all the articles thus mentioned. Of these, perhaps, the capsicum was, at least in the Southern and South-Western parts of our own country, the most relied on, and has been combined with morphine, quinine, æther, etc. I was much pleased with the effect of a formula, which I frequently exhibited, differing from Cartwright's chiefly in the addition of opium or morphine. The quantities of camphor, calomel, capsicum, and morphine, were carefully adapted to the age of the patient and the apparent urgency of the case. If any symptoms of narcotism presented themselves, I omitted the opiate and substituted ammonia.

Some writers have fallen into the error of attributing the cerebral torpor or comatose condition of the latter stages of cholera, to the previous use of narcotics. The fallacy of this notion is evident, from the fact, that these tokens of sensorial disturbance have been most strikingly notable, and of most frequent occurrence, in those parts of the world where opiates were least confided in, as among the Broussaians of France, and the Homoiopathists of Germany. But it is easy to satisfy ourselves on the subject by experiment. I saw this condition exquisitely developed in several patients who had taken no stimulant, and to whom I had suffered no anodyne to be administered.

I repeat, that I regard this pathological state, as a part of the full history of cholera—as one, indeed, of its characteristic stages. It is not shown, of course, when the patient dies in the first or congestive stadium, or sinks, under the exhausting discharge of fluids, into collapse or promptly fatal prostration, or is suddenly put an end to by vehement and universal spasm.

Nor do we meet with it when we have been successful in arresting the progress of disease, and substituting remedial and healthy re-action and excitement for the series of irritations and inflammatory lesions and obstructions to which its current tends. So, to compare small things with great, we may put a stop to a paroxysm of intermittent fever, in the cold stage—the stage of incubation which ushers it in, or in the hot stage; by bringing on, in the first, a recuperative re-action, and, in the hot stage, a remedial instead of the impending morbid cutaneous determination and relaxation.

CHAPTER XXVIII.

DIARRHŒA.

That disorder of the bowels which has received this significant title, is so frequent an attendant upon other diseases, that many writers, with the great Cullen at their head, have expressed considerable reluctance to give it place as a distinct malady in systems of nosology. I have not hesitated a moment, on this point. Diseases are not palpable to us, unless as a series of cognizable symptoms, effects of certain definite causes; and it is in this combination of cause with regular and uniform effect, that each disease, practically considered, must be allowed to consist. In the case now before us, there is doubtless present some peculiar and characteristic condition of the mucous membrane lining the intestinal tube, as exhibited by the increased secretion from its exhalent vessels, and the consequent or symptomatic increase of peristaltic action of the muscular tunic of the same tube.

Diarrhœa, then, may be defined to consist in morbid frequency, fluidity and vehemence of the alvine evacuations. These circumstances are usually connected with pain and griping preceding each motion, and more or less relieved by it. For the most part, there is loss of appetite and gastric uneasiness,

amounting occasionally to nausea and vomiting, perhaps. The tongue is furred and whitish—the pulse small and rather frequent, but free from febrile irritation; there is early loss of strength, and when the discharges are abundant, or the attack is protracted, emaciation goes on to a striking degree.

Nosologists have made a variety of distinctions in diarrhœa, founded upon the causes by which it is brought on, and upon the nature of the fluids voided; thus, we have mucous, serous, lienteric, bilious and gypseous diarrhœas. These phrases explain themselves with two exceptions. Lientery is an old word, referring to that looseness of the bowels connected with almost total defect of digestion of the food taken, which passes unchanged, or nearly so, though mixed with fluid. Gypseous diarrhœa is a phrase of Good, who takes for granted the calcareous nature of the white or chalky discharges sometimes passed. This assumption is, as far as we know, unfounded, for no chemical proof is offered, that a secretion so improbable and unnatural has taken place from the intestinal vessels; and the color may be owing to defect of bile, or the presence of much albumen. The same writer speaks also of a variety which he denominates tubular diarrhœa—membranous flakes, of different shape and size, coming away, some of them moulded upon the inner surface of the alimentary tube. This is a rare phenomenon. I have never met with it, unless following or connected with a high degree of inflammation of the membrane, as in enteritis proper and in dysentery. I cannot regard it either as correctly considered, a form of diarrhœa, or even as one of the symptoms of that affection.

The Causes of diarrhœa are numerous and diversified. In a general way, we may affirm, that it is likely to follow the entrance into the bowels of anything which has bid defiance to the solvent and assimilating powers of the gastric fluids. Thus, the husks and seeds of fruits, rarely fail to promote the alvine evacuations, and are used, figs for example, and unbruised mustard seed, as laxatives, by many invalids. Undigested food, under whatever circumstances, whether the failure be owing to weakness of the stomach, permanent or temporary, if not got rid of by vomiting, is apt to excite diarrhœa, and thus promote its own expulsion. Not only the husk and seeds, but the juices

of many fruits, and the substance of many vegetables, are irritating and laxative to those unaccustomed to their use as diet. Indian corn, cabbage, the sweet potato, the beet, apples, pears and berries, may be enumerated as showing this quality. The waters of many sections of country are purgative to strangers. I need not do more than allude to the long catalogue of cathartics to be found in treatises of Materia Medica.

It usually occurs, that diarrhœa excited by these modes of irritation, terminates promptly; the morbid causes having procured their own expulsion, by the peristaltic action which they have excited, the disturbance and ailment gradually subside, health being at once restored. On the principles of revulsive derivation, with which you are all familiar, and which you can readily apply here, many slight indispositions of which the patient had complained previously, are found to be thus relieved, and he enjoys better health than he did before the attack. Hence diarrhœa in its milder form, has come to be regarded as a salutary sort of malady, and its spontaneous appearance often looked upon as critical. It was easy, and not irrational to reason a little farther, and infer that its artificial production by cathartics, was likely to prove beneficial in disease generally, and thus the extensive employment of this class of medicines is accounted for. Hence also, the use of cathartics as preventive of certain ailments—the habitual use of "spring physic," and other domestic prescriptions, and the currency of the maxim so pithily expressed by a Scotch physician, that to live comfortably in this world, and prepare thoroughly for the next, it was only necessary to "keep the conscience clear and the bowels open." Against the whole tissue of these ancient opinions, the modern school of Broussais and his followers, has set itself with a zeal worthy of a better cause, and with great ingenuity and equal bitterness, has endeavored to prove, that the mucous surface of the intestines, instead of being the best outlet of disease, is the readiest of all its points of entrance and invasion. But truth is a rock against which the waves of error and innovation dash themselves in vain.

There are other causes of diarrhœa besides those which directly affect the alimentary tube. The ready reciprocity of action or impression which connects the cutaneous surface and the abdo-

minal viscera is matter of familiar attention, and we are here presented with a striking example in illustration of it. The skin, when in a moist and perspirable state, being exposed to the influence of a damp or cold atmosphere, its vessels undergo a severe constriction, the fluid that filled them being expelled; the cutaneous transpiration is obstructed or checked, and often obviously vitiated in quality, and determination of blood necessarily takes place to the internal organs and surfaces. Particular predispositions, original and accidental, permanent and temporary, decide the current of these internal determinations. If the bowels receive the full shock of the morbid impression, we may have either enteritis or diarrhœa, or dysentery or colic, according to the various modes of morbid action which may be excited. The irritation affecting the mucous surface expends itself sometimes on the secretory vessels, and there is an inordinate effusion of somewhat vitiated mucus, perhaps mingled with serum; this excites, by its presence and distention, the peristaltic movement of the muscular structure of the tube, and is expelled. The discharge is often so acrid as to occasion a burning pain with tormina, as it passes along the alimentary canal, and give rise to annoying tenesmus. Nay, as the upper lip is inflamed by the coryza of catarrh, so the anus and neighboring surface may be inflamed by this discharge. From a supposed analogy referring to the similarity of cause, of surface affected, and of effused fluid, some have entitled this catarrhal or rheumatic diarrhœa.

Morbid impressions made upon the liver, whether mediately or immediately, sometimes occasion a large secretion of vitiated bile, which either by its inordinate amount, or some change in its qualities, becomes a source of irritation to the intestines, and produce what is not improperly distinguished by many writers as a bilious diarrhœa. This variety of the disease, it is evident, may occur under a great diversity of circumstances, and show itself during the existence of many maladies, sometimes adding to the danger, and sometimes regarded as critical and salutary. Sympathetic or symptomatic diarrhœa is of frequent occurrence whether from extension or metastatic transference of morbid irritation. We meet with it as the result of repelled eruptions; at the subsidence of the exanthemata, as when measles are drying away upon the skin; in irregular gout, and occasionally in

rheumatism. It supervenes also pretty regularly during the last stages of certain diseases, as in phthisis pulmonalis, and constitutes, so to speak, the "initiatory stage" of others, as in epidemic or malignant cholera, and sometimes of dysentery.

Diarrhœa, I have said, exhibits in a very great majority of cases, a disposition to spontaneous subsidence, either from the expulsion by alvine discharges of the crude and irritating matters which had given rise to it, or from the relief, to the disordered vessels of the mucous surface, by the effusions which they pour forth. This relief, however, does not always attend; the irritating cause is not always got rid of in this summary manner, but sometimes originates a degree of irritation which progresses from one step to another, until inflammation being lighted up, we have, on the one hand, dysentery; or, on the other, a tenacious habit of morbid action is acquired, and the disease runs into a chronic form. This is a singularly obstinate and unmanageable affection, bidding defiance to our best remedies, and enduring, through an indefinite protraction, from a few weeks or months to several years. Under these circumstances, the condition of the patient is truly to be pitied, all capacity of comfort or enjoyment being totally destroyed, and a gradual and prolonged atrophy and exhaustion leading him downwards to a lingering death.

Prognosis. In its early stages, diarrhœa is very rarely difficult of cure.

Treatment. In general, perhaps, it might suffice to put the patient in a recumbent posture, and at rest, for muscular motion and an erect attitude favor, as all nurses know, the disposition to inordinate frequency of alvine discharges, and to inculcate abstinence from every thing but fluids adapted to quench thirst, if it be present, and even these should be taken in very moderate amount. A mild anodyne diaphoretic will seldom fail to remove at once every unpleasant symptom; a small dose of the elix: paregoric or tinct: camphor is often used.

Few rules in practice have been more generally received than that which advises the exhibition of some gentle cathartic in incipient diarrhœa; and this homoiopathic maxim is applied in all instances, from whatever cause arising, and with whatever symptoms attended. The object avowed is here two-fold; the

purgative is supposed, on the one hand, to carry off all crude or feculent matters which may be present within the canal and acting on any part of its surface, as a source of irritation; and on the other, by soliciting a free effusion from the excited secretories to diminish the irritation present, whether primary or sympathetic. Now, although I will not deny the propriety and efficacy of the cathartic in particular instances, yet I cannot reconcile myself to its general or promiscuous administration. A distinction may, for the most part, be drawn, without difficulty, between those cases in which it is indicated, and those in which it is not admissible. Where indigestible or improper articles of food had been taken, and there was reason to believe they had not been expelled, but remained within the digestive tube, I would not withhold a mild laxative. So also, if on inspection of the evacuations, they were found to contain no feculent matter from the first, or to present no trace of bile naturally mingled with them, being white or clay colored, I would prescribe a cathartic. Some care is necessary in the selection of a proper article or formula. The drastics should be avoided, and the least irritating laxatives employed. Rhubarb has been long considered entitled to a preference. I usually select, when the stomach will bear it, castor oil, which operates at once mildly and freely. If it be offensive, I combine rhubarb either with the sal: epsom, adding a little aromatic, or with calomel. This latter combination is specially adapted to cases in which the liver is torpid and the stools clay colored, from defect of the hepatic secretion. A few grains of the mercurial, with a proper dose of opium, gives quickest relief under the opposite condition of that large and important gland, when it is pouring out an inordinate amount of its secretion, or gives it forth vitiated in any manner in its qualities.

Experience has long since proved the value of the aromatics, in attacks of diarrhœa. Mint, aniseed, ginger, etc., may be employed in mucilaginous solutions; with the addition of a slight opiate, they relieve the gripings which attend, and frequently put an end to all complaint on the part of the patient. These remedies having been prescribed during the day, if bed time should arrive and find him still annoyed with his looseness, let him take a full dose of Dover's powder—ten, twelve, or fifteen

grains, applying for an hour or two, warm flannels wrung out of brandy and laudanum, or a warm mustard poultice to his abdomen. A hot pediluvium will be a useful adjuvant, especially if the skin be harsh and dry, or the temperature of the surface unequal. The warm or hot bath, if convenient, may be resorted to with great advantage. I employ occasionally, in cases which seem disposed to protract themselves, the Dover's powder combined with a small amount of rhubarb, at proper intervals throughout the day. Under the use of this formula, the stools will assume a degree of consistence, and be passed in diminished number, without pain or inconvenience.

Many practitioners are in the habit of commencing the treatment of diarrhœa with an emetic, which they occasionally repeat, if necessary; they assert that the morbid train of associated actions, in which the disease consists, being thus early broken in upon, health is at once or very readily restored. I have no objection to this method, but that it is, in relation to the majority of cases, unnecessarily harsh, and that the exercise of a little forbearance, or the employment of the gentler remedies, above pointed out, will answer every purpose. The emetic is indicated, if from the commencement of the attack the tongue is thickly furred, with gastric oppression and anxiety, and ineffectual attempts to vomit. Ipecacuanha should, I think, be preferred, as least irritating, and yet thoroughly effectual in its operation. The emetic may be prescribed at any period, during a protracted and obstinate case, for the purpose of exciting new and revulsive action, by the sudden impression or shock which it gives to the system. Some more active and harsher article must be here added to, or substituted for the ipecac:, as the tart: antimony, sulph: cupri and sulph: zinci. This last is highly recommended by Mosely, whose well known "solution" will be frequently found useful.

In all cases of prolonged diarrhœa, the use of absorbents and astringents will be absolutely demanded. The prepared chalk may be mingled with our mucilaginous solutions, and made the basis of our formulæ. To this may be added the tinct: kino, in sufficient quantity. An extensive experience enables me to confirm all that its eulogists have said, in praise of this valuable article. Pemberton in England, and Bally in France, have writ-

ten much concerning it. The former believed it to be possessed of some specific virtues, and thought it an astringent, only when diarrhœa is present, not universally. He prescribed it in substance, and combined it with opiates. Bally has given us in detail, the result of numerous experiments made with it, at La Pitie, in Paris. In recent cases, it almost invariably effected a cure promptly. He succeeded with it in one case, of not less than three years' standing. In chronic diarrhœas, it seems to have been equally beneficial, whether they were or were not attended with febrile and inflammatory symptoms. The writers of the new school, without venturing to impugn the statements, "confess their surprise at such results." Other astringents have also their advocates. Catechu, the rind of pomegranate, the decoction of blackberry root, logwood and galls, are among vegetables, the most generally trusted to. It is well to be aware that a change from one to another of these, is useful in obstinate cases, the first losing its influence by habit. Alum is highly commended, among others, by Cullen; some prefer to administer it in substance, combining it with nutmeg or any other aromatic; but in general, the whey is preferred. The acetate of lead, is a very favorite prescription with me. Combined with opium, it will scarcely ever fail in any ordinary case, and even when we have to contend with the most tenacious protraction of the disease, it is our best resort. The doses may be increased from one to five grains, adding opium pro re nata. The sulph: cupri is highly recommended by Elliotson and some other British practitioners. They combine it often with opium, and regard it as best adapted to cases of long standing. I have not often seen it beneficial. The nitrat: of silver is more serviceable in my hands; it is indicated, and will do good service, when there is deep fiery redness of the lining membrane of the mouth, tongue and fauces, or aphthous ulceration of the mucous surface.

In the meanwhile, we shall derive much advantage from the exhibition of our astringents as enemata. Opium and the acet: plumb: are here best adapted, and are best given in small quantities of starch, or any other glutinous or mucilaginous solution gently thrown up into the rectum. On the principle of revulsive determination by counter irritation, some apply blisters to the abdomen in troublesome cases, and others to the extremities, the

wrists and ankles. With similar views, perhaps, or it may be merely as a powerful alterative, a few of our American physicians, as well Northern as Southern, have strongly urged a resort to the mercurial treatment, carried to the extent of a moderate salivation. I have not, in any instance, perceived from it the beneficial effects which they have promised us, but on the contrary, have found it productive of a great degree of suffering and inconvenience, which was not compensated for. I do not now speak, you will observe, of its exhibition in those examples of diarrhœa, which are complicated with, or depend upon visceral obstruction and derangement; in these, it may be indicated, and may prove indirectly advantageous.

The mineral acids have also been proposed here, partly as alteratives and partly as astringents, and it is affirmed, have been occasionally of great service. The nitric, sulphuric and muriatic are used. I have, now and then, seen a patient derive some benefit from the sulphuric, the vitriolic elixir a combination with some aromatic, being the formula generally chosen. I have thought it succeeded best, when administered with a light tonic, as cinchona or quassia.

In chronic diarrhœa, the general management of the patient is of great importance. His diet should be light, but nourishing, and even gently stimulating, consisting, when the stomach will bear it, of solid food, such as biscuit, toast, soft boiled eggs, poultry and tender beefsteak. If he cannot take these, give him broths pretty well seasoned, jellies, sago, arrow root, or rice gruel, rendered cordial by spices. Nothing acescent should be allowed him; fruits and crude vegetables must be altogether forbidden. His drinks should be in small amount, no more fluid being taken at any time than is absolutely necessary to quench thirst, all superfluous fluid being laxative. A little sound madeira or sherry may be permitted, or perhaps, in preference, port wine.

Great advantage has attended the use of the flannel compress on the abdomen, and the roller, as advised by Dewar.

Your patient should guard himself carefully against all vicissitudes of weather, and avoid every exposure to cold and moisture. Let him exercise much in the open air, if he is able; let him leave his home and go through a long journey, on horseback, should his strength permit, seeking a warm and dry cli-

mate; finally, if all these means fail to restore him, send him on a long sea voyage. However we may explain the fact, no one doubts that the general effect of confinemement on board ship is, in a healthy man, to render the bowels costive; so in diarrhœa merely habitual, the very first access of sea sickness is often perfectly effectual in putting an end to the diseased propensity, and restoring tranquillity, or even inducing torpor of the bowels.

CHAPTER XXIX.

DYSENTERY.

Although at the present day, the seat and nature of this painful malady are well known and understood, yet there has been much dispute among pathological writers of past times concerning its proper classification. Akenside, Richter, Stoll and Parr, no inferior names among our moderns, agree with Cœlius Aurelianus, and other ancient authors, in regarding it as a rheumatic affection of the intestines. Sydenham viewed it as "a fever," to use his own coarse but significant phrase, "turned in upon the guts;" Cullen also admits it among fevers, but adds contagiousness, as an essential characteristic; Linnæus and his followers, ascribe it to the irritation of a specific animalcule, the acarus dysenteriæ; Sir G. Ballingall treats of it as mere colitis; Chapman and Caldwell, of our own country, look upon it as primarily a gastric affection; while James Johnson attributes it to cutaneous and hepatic derangement and disorder. Sydenham, notwithstanding his pithy definition given above, describes two forms of dysentery; the first, simple dysentery without fever; the second, of a more violent nature with fever; and this distinction is received by Good, and incorporated into his system. Eberle differs little from Ballingall, except that he considers it a mere diffused inflammation of the intestines. Let me call your attention for a moment, to the inaccuracy and want of correct diagnosis implied in these definitions, which confound

dysentery, on the one hand, with diarrhœa, and on the other, with enteritis. It is true, as I have already stated, that diarrhœa is the initiatory state of many dysenteries; but some attacks come on without any previous diarrhœa, and diarrhœa may and does exist, without inflammation of the intestines; nay, according to my views, it ceases to be simple diarrhœa, when this has supervened. It is therefore true, that inflammation of the mucous coat of the bowels is an essential element of dysentery; but there are other elements equally essential, without which, it would not be dysentery, but mere enteritis, a confusion which no physician is likely to make at the bedside.

The violent peristaltic movements of the bowels, irregular and spasmodic; the peculiar secretions and foul discharges of mucous, sanguinolent and purulent matter; the shifting pains and urgent tenesmus; these are as uniform parts of the history of dysentery, as the mucous inflammation, and they surely do not belong to the description of enteritis. Like enteritis, dysentery is essentially pyrectic also; but the constitutional derangement differs exceedingly, in the two cases. Writers dwell upon the small, oppressed, sinking pulse of intestinal inflammation, so usually connected with true gastritis. "Animal life is hurt and lessened," says Hunter. In dysentery, on the other hand, the pulse is full and bounding, and the general excitement, for the most part, is of open character and high grade.

Sydenham, Good, and such others as treat of a dysentery simple, and without fever, have committed an error, according to my views, in mistaking for it an unmanageable form of diarrhœa, as even Elliotson speaks of diarrhœa, with ulceration of the intestines. The nature of the morbid alvine discharges, and the great variety of appearances presented by the evacuations, have led them astray, and occasioned the confusion among authors, who assert that it is a matter of difficulty to distinguish between diarrhœa and dysentery. In practice, it is true that we shall meet with cases of a transitive character, partaking of the symptoms of both, and it may be, that we shall doubt for a short period, as to the proper designation of such cases; but our doubtful or erroneous nomenclature, will by no means lead us to error in the treatment, nor perhaps even in the general diagnosis. When the symptoms are thus mingled, there

must in all likelihood, be some complication in the nature of the attack, requiring a corresponding modification in our plan of management. Theoretically, the diagnosis is easy. Diarrhœa consists in morbid secretion and vehement peristaltic action, the results of irritation of the mucous digestive surface. Dysentery implies inflammation, with its consequences—ulceration, hemorrhage and morbid secretion, with spasmodic action; an interruption of peristaltic movement by constriction of, or in some part of the intestinal tube, being a frequent attendant.

Symptoms. Dysentery is a painful affection of the bowels, with fever; there is a feeling of soreness in the abdomen, with occasional griping and tenesmus; there is strong propensity to stool, recurring at short intervals, the dejections being mucous and bloody; fœculent matter is discharged seldom and in small quantities, sometimes not at all.

The attack sometimes commences with a chill; at others, the pains in the abdomen precede; not unfrequently, there is no rigor, but after an uncertain period, the skin becomes hot and dry; the pulse is frequent, hard, and full and tense; the tongue is covered with a thick yellowish or whitish fur; there is thirst with restlessness and jactitation; dejection of spirits and loss of strength, and great anxiety and distress about the præcordia. As the disease progresses, the alvine discharges become very frequent and offensive, attended with excessive tormina and tenesmus, unrelieved by the evacuations, which consist as above described, of a thick mucus, resembling jelly colored with blood, or in the latter stages, of a watery serous fluid highly fœtid, resembling the washings of putrid flesh; pure blood is sometimes passed in considerable quantity. Small round lumps, sometimes consisting of hardened fœcal matter, and sometimes of fatty and of fibrinous substance, which have obtained the technical name of scybala, are occasionally voided, and generally to the relief of the patient. The presence of these scybala, is, however, by no means so common an occurrence as you would infer from the mention of them in your books.

The intestinal pains are, in many cases, intolerably severe, inducing great debility of body, and light delirium; the stomach sometimes becomes very irritable. Mortification occasionally ensues, the pain ceasing suddenly, offensive stools flowing,

almost without interval, from the anus, unnoticed by the sick; and death soon relieves the sufferer from his torments, and the attendants from an object, now loathsome to look upon.

Such is the usual course of the symptoms, but the various cases met with, present, from time to time, many irregularities. Thus, I have seen fatal dysentery, with very little abdominal pain, the patient seeming to sink merely under the debilitating effect of the large and frequent discharges of blood and mucus.

Necroscopy. Autopsic examination uniformly reveals to us all the appearances of high inflammation of the intestinal mucous surface; patches of this tissue are deeply injected and softened, and if the case have been of any duration, ulcers are found, of various size and shape, extensively diffused. It is to their erosion, that we attribute the free hemorrhage, most generally venous, but in rare instances arterial also, that occur. The canal is sometimes found constricted, especially at some part of the colon. Gangrene and sphacelus, sometimes separating considerable lengths of the tube, are known to have taken place.

Causes. Dysentery occurs sporadically, and as an epidemic; in the latter form, its ravages have at times been dreadful indeed. Cullen, as I have told you, asserts it to be uniformly and essentially contagious, and the doctrine has received very able and extensive support from others. I myself have never met with a single instance, which I could attribute fairly to this source. I cannot consent, however, to set aside the recorded instances and proofs of this opinion, coming from the best authority, and derived from a most extended observation. And even among those who refuse to consider dysentery as in itself, uniformly or essentially contagious, there are few who doubt that it may assume this character or quality, under particular circumstances—as when in camps, jails, hospitals, and other crowded and ill ventilated places, the attendant fever takes the typhoid type. Indeed, we find that it is chiefly under such contingencies, that this contagious property is contended to have been active in spreading the infection.

In this climate, dysentery belongs to the list of autumnal maladies, and is produced by all the agents which give rise to bilious attacks, as the phrase is—cholera, bilious remittent, inter-

mittent and cholic; malaria, for example, exposure to sudden and unexpected alternations of temperature, to cold and moisture; the chilliness of a dewy night, after a hot day; wet clothing, damp beds, sleeping on wet ground, as when troops bivouack in the fields. It developes itself, occasionally, in combination with our malaria fevers, both remittent and intermittent, adding very much to the suffering and danger of the patient. The most malignant and rapidly fatal case of country fever, which has ever fallen under my care, was of this nature.

A strong predisposition to dysentery, is generated by continued fatigue; by long use of bad and innutritious diet; by confinement to bad air, whether vitiated by putrid animal or vegetable effluvia. Under the influence of these causes, arise those dysenteries which prevail with fatal sway in particular localities, as in ships and prisons, depopulate whole communities, and drive armies from the field.

I have not known it, in this city, so rife as to deserve the title of epidemic, though in particular seasons, the attacks have been both frequent and severe. Malaria is now universally regarded as one of the causes of dysentery. In all hot climates, it originates so evidently, from the same contingencies that produce the endemic fevers, connected with hepatic derangement, as to have received from writers on the subject, titles expressive of this obvious connection; as bilious fever, with flux; hepatic flux, etc. Careless examination of the alvine discharges, has led to the belief of a frequent combination of dysenteries with vitiated secretion of abundant bile; but this, I agree with James Johnson, is not likely often to happen. I am not certain that I have ever met with it, though I will not deny the possibility of its occurrence.

Dysenteric evacuations are, as I have said, exceedingly diversified in their appearance. Mortification has frequently been inferred, but too rashly, from the peculiar fetor and offensiveness of the sanious and ichorous fluids poured out; and the membranous films thrown off are assumed to consist of sloughing portions of the villous coat of the intestines. But recoveries happen after both these phenomena have been noticed, and so readily and perfectly, as to be altogether inconsistent with the idea of gan-

grene of the alimentary tube. The films, I suppose to be similar to the membranous or fibrinous deposites met with in trachitis, and in the tubular diarrhœa of Good.

It is not easy to understand how the sebaceous lumps found in dysenteric stools, are generated. Sir Edward Home has endeavored, it is true, to prove that it is among the ordinary functions of the intestines to secrete fat; but here the healthy functions and secretions are all interrupted and obstructed. I told you that the presence of scybala is not, by any means, so uniform or frequent a circumstance, as you would infer from a perusal of the books on the subject. In a considerable majority of the cases which have come under my care, they have not been observed, though it is my constant habit to inspect the alvine discharges, and to enforce the same attention upon the nurses employed. Ulceration and erosion of the intestinal tunics, give rise, at times, to proper hemorrhage, from the lesion of some large vessel. Mosely affirms pure arterial blood to have been voided in a stream, at brief intervals, from such lesions, and the patients to have thus bled to death. I have myself seen, more than once, considerable venous hemorrhage. The ordinary mixture of blood with mucus, seems to be the result of the yielding of the vessels upon the villous surface, to the intense inflammatory congestion, by diapedesis or transudation, without ulceration, in the first instance, or breach of continuity by rupture. In one fatal case, in which I took great interest, fallacious hopes were frequently aroused by the alternation of bright yellow fluid and feculent stools, interposed among the foulest sanious and muco-sanguinolent evacuations.

Prognosis. The prognosis in dysentery is in the greater number of instances readily drawn, depending, for the most part, upon obvious conditions evidenced by unequivocal symptoms.

In the sporadic cases which so frequently occur in all seasons and in every climate from the application of transient causes, such as exposure to cold and moisture, and the use of articles of food of indigestible and irritating character, the prognosis is generally favorable. Allowance however must be made for the constitutional peculiarities of the patient, who is likely to suffer much and run not a little risk, if subject to frequent attacks of diarrhœa or other bowel complaints.

Epidemic dysentery may be pronounced to be always a serious and dangerous malady, and in low, damp situations is fatal in pretty large proportion. The autumnal epidemic dysenteries of hot climates are always dreaded, and with just cause.

The greatest amount of mortality, however, is met with in the typhous form, which is generated in crowded and ill-ventilated places, as in jails and prison ships, and spreads itself in camps, where the sick are of necessity deprived of the proper solace and comfort of good shelter and careful nursing. It is under these circumstances that it has exhibited the most obvious proofs of a contagious character and property, a character which I am disposed to think almost always results from typhoid combination with every other form of disease. But of this I have spoken before.

Among the most important of the symptoms to which we look as affording us a test of the true state and probable prospects of our patient, I am inclined to regard the degree of tenesmus present, and the frequency of the calls to stool. From the latter, indeed, we draw our least fallacious conclusions. Tenesmus, when peculiarly urgent, and it is sometimes ceaseless and intolerable, gives a similarly unfavorable impression, as to the condition of the bowels. The occurrence of apththa in the mouth, or a deep redness with smooth and dry state of the lining membrane of the cheek, and gums, and the tongue, offer a gloomy presage. Hiccup, a low delirium and a relaxed state of the sphincter ani, are, for the most part, immediate precursors of a fatal issue.

In a gentleman of this city, who died some years since, this total relaxaton of the sphincter occurred as long as four days before his death, the orifice being permanently dilated to the extent of one-half or three-quarters of an inch. From the beginning of the attack, I was led to entertain a gloomy presentiment in this case, on account of the urgent and ceaseless desire to go to stool, which so annoyed him, that during his whole illness he had not an interval of more than five to ten minutes. Notwithstanding which, he never conceived himself to be very ill, as he suffered very little pain, speaking comparatively, had very little fever, with a tongue and pulse not strikingly altered, and retain-

ed his muscular strength, and a certain degree of cheerfulness and hope to the very last.

On the other hand, we infer a favorable change in the prospects of our patient, when we observe a diminution in the degree of tenesmus, and the urgency and frequency of the returns of the propensity to stool, the intervals being attended with more notable relief of the abdominal uneasiness, the bowels becoming less tender on pressure, the lining membrane of the mouth and tongue less red, and moister, with a more natural coating on the latter, the evacuations improving in appearance, by assuming the feculent aspect and odor, the surface of the body becoming of a more regular and uniform temperature, with general perspiration and refreshing slumbers.

I think we may safely pronounce dysentery to have become, of late years, a far less formidable and fatal malady, than in times past, thanks to the zeal and talent of the British medical officers of the army and navy, especially, who deserve, for the important additions which they have made to our knowledge of, and power over this, as indeed, many other diseases also, the abiding respect and gratitude of the profession. Among these writers, I would notice here the names of Pringle, Ballingall and James Johnson; the brief treatise from the pen of the last of whom, ought to be carefully studied by all of you.

Treatment. The indications which are to guide us in the treatment of ordinary dysentery, whether sporadic or epidemic, are clear and undisputed. Our object is primarily, to effect as promptly as possible, the removal of spasm and the reduction of inflammation, two parts of the description of this disease, which I have maintained to be uniformly and essentially characteristic. As besides this inflammation and spasmodic state of irritation, we have also almost constantly, a species of entonic hemorrhage from the intestines, there cannot be a reasonable doubt of the necessity of venæsection. Some physicians, indeed, have trusted the management of dysentery entirely to the lancet, carrying to an enormous extent their detractions of blood. Among those who have spoken highly of this extreme venæsection, and boasted of their success with it, under the present circumstances, are Dr. Whyte who treated the disease in Egypt, and Dr. Somers on the European peninsula. But although I believe there is no

case in which the remedy is more distinctly called for, and in which, when judiciously employed, it will do more obvious service, I cannot advocate the indiscriminate and copious blood lettings thus extolled. Consider in each case the actual condition of the patient; calculate not only the force of local inflammatory excitement, but the tone, the resiliency of his system; the resources of his constitution. Reflect upon the danger of general and irremediable prostration to which you may subject him, if without regard to his capacity of enduring them, you resort rashly to impressive measures of inordinate depletion,—nor must you forget that if the morbid action prove too tenacious to be thus unseated, and the disease goes on while the patient is in this condition of artificial debility, his prospects are gloomy indeed, if not altogether hopeless. Some obvious distinction may however be noted. Sporadic and vernal dysenteries bear venæsection infinitely better than the epidemic and autumnal forms. When of typhous character, and spreading by contagion, the lancet is most clearly contra-indicated, and can do nothing but injury.

If you determine in favor of the propriety of venæsection, open a large vein, and do not check the flow of blood until it has produced some sensible effect upon the patient, removing the pain in the abdomen, and reducing the vascular excitement. In autumnal attacks at least, you will seldom enjoy opportunity for a repetition of the remedy. The influence of our hot season on the body, is such as to predispose the system to sink with readiness under all modes of active depletion, and you will often find the strength decline with great and frightful rapidity. I do not mention this to deter you from the operation, but merely to inspire you with just and prudent caution.

A great deal of stress is laid, by some modern writers, upon the means of topical blood-letting, and they are, no doubt, very often of great benefit, besides that they are attended with little risk of any coincident injury. A large number of leeches may be laid to the abdomen, or, if these are not at hand, cups should be applied pretty extensively over the surface. The flow of blood from the leech bites and scarifications, should be promoted by the employment of warm stupes, which also tend very much to sooth and comfort the patient, and may, therefore, be perse-

vered in throughout the whole duration of the case. I have often had occasion to see very great relief to the tormina and tenesmus given, by the application of these warm fomentations and poultices, which may, after a while, be rendered somewhat stimulating by the addition of mustard or of hot spirits.

Emetics have been esteemed, from the earliest times, among our most valuable remedies in dysentery, and many physicians advise their early administration in the incipient stages of the attack, and repeated resort to them throughout its whole progress. With those who regard the disease as a gastric affection primarily, the reasonings which have led to this practice, must be irrefragable; but, I will confess, that I have not been satisfied either with their pathology or therapeutics, having met with frequent disappointment, in my hope of benefit from the class of medicines thus highly recommended. Wherever there is present any considerable degree of gastric oppression, with nausea or retching, and a foul tongue, or the patient has been living on a bad diet, or has eaten any thing acrid or indigestible, which has not been evacuated, it may be proper to unload the stomach of such irritating crudities. This is, however, so far as I have seen, all that we can gain from the exhibition of emetics; the patient is rendered less uneasy, but no strong impression is made upon his tormenting disease. With a view to procure complete evacuation of the alimentary canal, a combination of some cathartic with the emetic, is a very common domestic formula, such as the mixture of sulph: magnes: or sulph: sodæ with tart: antimon. This rough treatment is sometimes successful, when the case is attributable to improper ingesta; and sometimes, by the excitement of an artificial cholera, the train of morbid action is interrupted, and by the substitution of a new disease, the first is put an end to. Yet, I cannot advocate this coarse method of cure, as it is sometimes unsafe, and occasionally aggravates the intestinal irritation in a very serious degree.

Purgatives, either alone, or in combination, are employed by a very large majority of practitioners, without scruple; but all acknowledge the necessity of making among them a judicious selection, and the risk of doing grave injury, by inattention or unskillfulness in this matter. The purpose to be aimed at, is the free and complete evacuation of the annoying ingesta, (if

there be any,) and the foul secretions of the alimentary tube, by means that shall not add to, but diminish, as far as possible, the inflammatory and spasmodic irritation present, and productive of painful and often obstinate constriction, which, to overcome, has been considered as of great importance. To accomplish these purposes, a great diversity of medicines and formulæ are proposed. Calomel alone, is prescribed by one; another conjoins it with opium, as an anti-spasmodic and anodyne; a third objects to this union, and prefers to substitute hyosciamus as free from astringency, and therefore more likely to remove constipation. Antimonials are highly extolled by Cullen, who advises them to be given in small doses, and at such intervals, as to determine their operation by stool, and not by vomiting. With this view, both Dr. Young and Sir John Pringle, have given the weight of their powerful sanction to the exhibition of the vit: cerat: ant. Rhubarb, so unhesitatingly condemned by Cullen, has nevertheless its advocates, and is very frequently used, though chiefly in combination. Cleghorn, whose opinions are always entitled to respect, speaks, without reserve, of ipecac: as useful both by its emetic and purgative effects. Playfair administered it in much larger doses than we are accustomed to employ, and, as he informs us, with very great success. He gave the dose of ʒss. to ʒi., adding from 30 to 60 drops of tinct: opii, keeping the patient for some time at rest in a horizontal posture. He tells us, that though the first portion was sometimes rejected, the second was almost invariably retained, and proved gently and beneficially cathartic. Clark exhibits the same article in the form of enema, and bestows a warm encomium upon its virtues as displayed in this mode of administration. He orders ʒiii. of the bruised root to be boiled in a quart of water down to a pint, which injection may be repeated twice or thrice in twenty-four hours. In both these last formulæ, ipecac: is singularly effectual, we are told, in relieving spasm, and procuring free and feculent stools. To this beneficial operation of ipecacuanha in dysentery, I can indeed bear, from my own experience, the most decided testimony. I combine it with ol: ricini, and can safely aver, that I know no purgative formula gifted with equal efficacy in the case before us. In the proportion of a grain or two grains of the powder, mingled with one

or two tablespoonsful of castor oil, it will rarely fail to relieve the intolerable tormina and tenesmus, and obtain, what is so much desired, a free evacuation of feculent matter, bringing away from the bowels masses of scybala, and other contents that have the appearance of having been long retained, to the great solace and comfort of the patient.

Among the documents offered us, from time to time, by the medical officers of the British army and navy, a highly intelligent and useful body of men, none do them more credit, as I have already said, than the papers which treat of this disease. In the ships and armies under their care, they meet with it frequently in all parts of the world, and especially, perhaps, in the East and West Indies, whose climates so nearly resemble ours. These gentlemen agree almost universally in the recommendation of the mercurial treatment of dysentery, and display a remarkable unanimity in speaking, in the warmest terms, of its astonishing power over the disease, when urged with sufficient energy. It has not been unusual, as I before stated, to prefer to all others, the mercurial purgative, in the early stages of dysentery, and many practitioners have continued to prescribe it, at intervals, throughout the whole course of the attack, either alone or in combination with opium, with a view to its cathartic operation and its ultimate alterative influence. But, by the very respectable authority to which I am now referring, it is exalted to the eminence of being designated as our principal and most important remedy, capable of fulfilling, alone, most or all the indications of cure, though certainly aided very much by the judicious application of auxiliary means. They represent it as a matter of much consequence, however, to prescribe it in the proper and effective dose. If offered in too small amount, it will often disappoint you by its inertness, or vex you by giving rise to some irritation or uneasiness of the stomach or bowels. We must administer it largely and freely, so as to produce a prompt and forcible impression upon the system. For this purpose, scruple doses are recommended by Johnson and Cunningham, who speak of this as the maximum, and caution us against any farther augmentation, as likely, in some manner, to prove a source of injury. We smile at this attempt at precision. It is not permitted, at the present day, to talk of a definite limit

in the exhibition of any article of the Materia Medica, or to venture to predict the effect of whatever additions to the established doses of ancient formulæ. Rasori, and his contra-stimulant followers in Italy, and Cooke with his Western school of practitioners, in our own country, have been prescribing, every day, as familiar draughts and boluses, quantities of our most heroic medicines, which, a few years ago, would have been thought absolutely poisonous, and would have rendered them liable to indictment and trial for intent to murder. But to return. It is affirmed, that calomel, administered in this free and bold manner, will, in the worst forms of dysentery, almost at once alleviate the sufferings of the patient and arrest the progress of the distemper, diminishing the tormina and tenesmus, and lessening the propensity to go to stool—that within a short interval, that is from twenty-four to seventy hours, it will bring on ptyalism, and that with the occurrence of sore mouth, there will coincide a striking and permanent subsidence of all the bad symptoms—in fact, a removal of the disease.

To test the correctness of these strong statements, and to ascertain clearly the powers of the remedy thus eulogized, I have repeatedly selected, among our most threatening autumnal attacks, cases in which I have prescribed nothing but calomel in the scruple dose, as above directed; and thus far, I may aver, that I have found the accounts given, of the proportional success of this mode of treatment, faithfully true, having as yet lost but a single patient among a considerable number thus managed exclusively. By the mercurial, the bowels were gently but fully moved—the vitiated condition of the alvine discharges corrected, and bilious and feculent evacuations substituted; and ptyalism supervening with its attendant influences, the sick became convalescent in shorter time than I have witnessed under any other course.

But, gratified as I have been, with the strikingly beneficial action of mercurials, and their frequent adaptation to the necessities of the case under discussion, I would, by no means, fall into the rude, unscientific error of maintaining either the uniform or the exclusive efficacy of any remedy in any disease. You will, without doubt, meet occasionally with cases in which the plan, so justly extolled, will be inapplicable, either altogether, or so far

as to render it an unsafe reliance. Certain constitutions bear mercurials badly. In some stomachs, they produce oppressive nausea; their purgative action upon some persons, is attended by griping and cramp, accompanied with spasmodic affection, perhaps, of distant muscles. Some suffer from an immediate salivation, which, when the result of this sort of predisposition, and arising from the first dose or doses, seems to be a merely local evil, and unconnected with those general changes in the state of the system which we consider alterative and therapeutic. Nay, you would not subject a patient to the sufferings of ptyalism, in any instance, rashly or mechanically, without a due regard to the exigencies of his situation, and considering conscientiously the question, whether you may not relieve him by easier methods. Besides all this, we find the remedial action of mercury on the system totally lost by repetition, nothing of its agency remaining but its cathartic and sialagogue effects.

The employment of opium, in some form of preparation and combination, for the relief of the torments of this harrassing disorder, is almost universal; but I am disposed to regard it as of higher value than a mere palliative. I have, perhaps, expressed too strongly the sentiment of its general reception in practice, some physicians having gone so far, on the opposite side of the question, as to denounce it. Cullen, for example, affirms opiates to be worse than useless, "by occasioning an interruption of the action of the small guts, and thus favoring the constriction of the colon,"—neither the fact, nor the speculative explanation, being consistent with the real condition of things. It is true, that opium may be useless, or even injurious, if administered before any effort has been made to diminish the general febrile and local inflammatory excitement by venæsection, etc. Premising these necessary measures, however, or combining our opiate with a well selected cathartic, as calomel or castor oil, we shall derive from it unequalled advantage and comfort. No less beneficial is its action as a diaphoretic, and, to give it this effect, we unite with it ipecacuanha, an article already noticed with due commendation. The Dovers' powder may be prescribed in moderate quantity, at intervals, through the day, and at night in as large a dose as the stomach will bear. If the ipecac: disagrees in this way, we may offer it in form of pill, increasing the

proportion of opium pro re nata. This medicine does not seem to me to interfere with, but rather, indeed, to promote, the good effect of whatever other medicines we are pursuing.

I would gladly impress on your minds, the unhesitating conviction which I feel, and upon which I never fail to act, that it is our professional duty, always to relieve pain and suffering when it is in our power, and that, in all diseases in which pain is one of the elements or uniform conditions, its relief or palliation is so far curative. Pain enhances irritation, and urges it on to its worst results—excites spasm—aggravates inflammation—deprives the patient of slumber or repose—and thus, by its direct and indirect influences, prostrates his strength and exhausts his vital powers. Opium, if its exhibition be properly timed, will never fail to subtract from the intensity of pain, if it does not subdue it altogether; it relaxes the harsh surface into a soft, warm perspiration, and procures the inestimable blessing of refreshing sleep—a respite to the worn out sufferer, how unspeakably grateful, how restorative!

Of the diaphoretic plan of treatment, so vehemently extolled by those who, with Richter, have advocated the rheumatic or catarrhal pathology of dysentery, I would say, that while it offers us many valuable auxiliaries, it does not deserve to be confided in exclusively. It is true, that the relaxation of cutaneous constriction, and the return of natural softness and moisture of the surface, are among the most favorable symptoms, yet these tokens of recovery are found, not only in dysentery, but in all other inflammatory affections of internal viscera, to follow much more readily, and with far greater certainty, the judicious employment of the general anti-phlogistic regimen, including venæsection, and the gentle cathartics above enumerated, than the exhibition of the mere diaphoretics. In fact, I am not inclined to repose any special confidence in remedies chiefly adapted to procure sweating, unless as in the instances of opium and ipecacuanha, and perhaps the antimonials, there be also conjoined with this sudorific property, an anti-spasmodic, purgative or anodyne effect.

It ought to be noticed, too, that it is in the dysenteries of winter and spring, rather than those of the summer and autumnal season, that we shall be able most clearly to trace the imme-

diate benefits of the diaphoretics. Here, we shall derive great advantage from the use of the warm bath ; and after the patient has been put to bed, the assiduous application of warm fomentations to the abdomen. Under these circumstances, many advise the exhibition of camphor as an aromatic and sudorific ; I would not trust to it alone, but have seen good effects follow its combination with opium, ipecac: and calomel. From the employment of the more stimulating articles of this class at least in the early stages of dysentery, so commonly depended upon in domestic practice, not only in this but in all other affections of the bowels, nothing but evil can result.

The hemorrhagic character of the dysenteric discharges, does not, for the most part, deserve or require any special notice. Sometimes, however, the flow of blood is so profuse, as to threaten speedy and permanent loss of strength, if not checked. This may be owing to ulceration and erosion of some vessel or vessels of notable size. Various astringents are employed to restrain such hemorrhage; kino, catechu, pomegranate rind, among vegetable articles, are to be preferred. Kino, especially as combined in the cretaceous julap, is well adapted to instances in which the evacuations are composed chiefly of serous and mucous secretions, mingled as they often are with bloody transudation, and thus highly colored ; but in the true hemorrhages, of which I am now speaking, I am not willing to trust to any astringent less impressive than the acetate of lead. This may be prescribed alone, but is generally and advantageously combined with opium and ipecac. Its dose must be proportioned to the urgency of the case; from one grain to five, every two or three hours, will usually answer every purpose.

In the earlier stages of dysentery, the annoyance and suffering to which the patient is subjected, are plausibly attributed, at least in part, to the presence of feculent and acrid matters in the intestinal tube ; but surely, after free evacuations from the bowels have been procured, we are to regard the morbid and acrimonious excretions as the consequences, rather than the causes, of diseased action. Hence, though it is still incumbent on us to provide for the expulsion of such irritating accumulations, it is yet a far more important object to correct that unnatural condition of the affected tissue upon which depends their

formation. Now, I am well satisfied, that the acetate of lead has no feeble tendency to influence, in this beneficial way, these mucous surfaces, diminishing inflammatory irritation, constringing the distended vessels, and correcting the vitiated character of the secretions effused. I am in the habit of prescribing it whenever these are poured out in inordinate quantity, without regard to their nature and composition, and whenever the degree of pain and distress is particularly severe.

In the relief of these symptoms, much aid may be procured from the judicious use of the proper enemata. In the very first stages of the attack, tepid water thrown up alone or mingled with some oil or mucilage, promotes the full and easy evacuation of the contents of the lower intestines. When this has been accomplished, a proper amount of opium may be added to the mucilaginous fluids employed, and will be found effectual in relieving the tormina and tenesmus complained of. Cold water alone is, in this second stage, a very grateful and soothing application, and often very eagerly desired by patients; when they are thus too frequently indulged, however, I have suspected it of inducing a degree of debility in the sphincter ani, which renders them incapable of retaining the alvine discharges, and occasions some inconvenience, if not more serious evil. The acetate of lead has been found useful here, in restraining both the frequency and abundance of the discharges, and quieting the annoying irritation of tenesmus. This is a symptom so grievously complained of by the sick, that physicians have, every where, with praiseworthy zeal and benevolence, busied themselves in efforts for its removal. We must remember, that it is prominently a sympathetic, not a local affection, and refuses to yield to any local remedies, subsiding when the internal mucous inflammation and vehement peristaltic excitement upon which it depends, are subdued, and not until then. It is very liable to be increased by the very measures suggested for its palliation, and this, indeed, will certainly happen, if the parts at the extremity of the rectum are injured by too much handling, or subjected to the rude manipulation of an unskilful nurse.

Abercrombie proposes for the relief of this tormenting annoyance, injections of limewater diluted with milk or thin arrow root, some opiate being added. Opium, indeed, deserves your

chief reliance, and besides being thrown up in these mucilaginous solutions, may be introduced in pill or powder, mingled with fresh butter or lard. Some recommend fresh melted butter to be injected in considerable quantities—half a pint at intervals.

Leeches applied at the margin of the anus, are occasionally very efficient in subduing pain and diminishing the restless urgency of the tenesmus, and I have seen similar palliation obtained by fomentation with a soft, tepid poultice of chamomile, or of hops or poppy-heads.

In the earlier stages of the attack, you will derive benefit, as I have said, from the use of stupes and poultices, warm and somewhat irritating, laid assiduously on the abdomen; and, perhaps, if convenient, at the same period, the warm or hot bath would be found still more impressively derivative and sudorific. But, as the case progresses, we shall find it necessary, to have recourse to measures of more active and energetic revulsion. Epispastics may be laid, in succession, to the upper part of the thighs, and to the sacrum. Should these fail of sufficient effect, the whole abdomen may be covered with a vesicatory, which, if necessary, may be replaced again and again, when it heals so as to admit of the repetition.

There are certain general rules for the management of your dysenteric patients, which it may be of much importance to you to follow. "In no disease," says James Johnson, "is patience, on the part of the sick, a greater virtue, or more calculated to forward the good effect of medicine. If obedience be paid to every call of nature, the straining which ensues, is highly detrimental, and augments, in many cases, the discharge of blood; every motion of the body, indeed, increases the desire for an evacuation." You should strongly urge upon the sufferer, therefore, the necessity of resisting, with fortitude, the urgent and almost ceaseless desire to rise to stool. Among the best means of control, in this respect, you will find the substitution of the bed pan for the easy chair; in the reclining or half-supported position in which the first is used, there is much less opportunity for the muscular exertion in bearing down, to which he feels too strong a propensity. And we thus gain, also, two farther points—his strength is better husbanded, and he is less exposed to sudden changes of temperature. To guard against this latter evil, it

will be proper, in all exposed situations, as in army and navy practice, and in some hospitals, and the imperfect dwellings of the poor, to envelope the trunk of the body in folds of flannel. We should remember, in regard to this matter, that although the temperature of an apartment may be to healthy sensation sufficiently regular and comfortable, yet, we shall find, in many diseases, and particularly in abdominal affections, a morbid sensibility to very slight changes. When fomentations are ordered, and when medicines are administered with a view to their diaphoretic action, very special caution will be requisite to prevent the occurrence of a chill on changing the clothes, or permitting the patient to rise. Care should always be taken, too, to keep the extremities as warm as the trunk of the body.

Every evacuation should be immediately removed, and the strictest possible attention paid to cleanliness of the apartment, bed, and person of the sick. No one can doubt the propriety of this rule, whatever opinion he may entertain of the contagiousness of the malady under discussion, which, if admitted, would be felt to make its observance doubly incumbent upon us. Full and free ventilation must be insisted on, whether the season be cold or warm, while pains should be taken to guard the patient from all direct draughts or currents of air.

The drinks allowed during the progress of the case, should be of the mildest and least stimulating kind, although the old notion, not yet, indeed, entirely obsolete, of giving mucilages for the purpose of sheathing the inflamed surfaces, as the phrase was, from the irritation of the acrid matter contained in the bowels, is too mechanical to be worthy your consideration. The tormenting thirst which distresses the sick man, may be quenched with toast-water, strained gruel, arrow root, etc., which hold in solution small proportions of nutritious matter. These and the aromatic infusions, and herb teas, which he may be using as drink, are supposed to be beneficially acidulated with some one of the mineral acids, of which the nitrous is selected as deserving a preference. It is alleged, that besides being grateful to the taste, and more serviceable in quenching thirst, they tend to diminish the sense of uneasiness and gastric oppression so much complained of.

I repeat, here, an observation made in treating of diarrhœa,

that large quantities of fluid, taken at once, are apt to excite the peristaltic movements of the intestines. You must, therefore, limit your indulgence by spoonsful, which, however, may be accorded frequently enough to prevent any unnecessary suffering from thirst.

During convalescence, the lighter bitter infusions have been much relied on as tonics. Simarouba or common quassia, and colomba, are often employed. An astringent may be occasionally added with advantage, the kino being the best, and a little alkali, the carbonate of soda or of potass will be found useful. Generally speaking, I trust rather to the mineral, than the vegetable tonics, here, and prescribe the acetate or muriate of iron. The prussiate, also, has been highly recommended.

Where dysentery is obviously of malarious origin, or has been connected with fever of remittent or intermittent type, it will be well to resort, as early as possible, to some preparation of cinchona. I would chose to administer the infusion, combining it with serpentaria, or small doses of camphor. The sulphate of quinine is generally preferred. In either formula, the addition of proper quantities of opium, may be required, to check or control the abdominal irritation and disorder.

The diet of the convalescent should be nutritious, but light and unstimulating. Arrow root, tapioca, rice properly boiled, chicken water, mutton broths, and unseasoned jellies, will furnish, at first, sufficient variety, while great attention must be paid to the observance of strict moderation in quantity. He may be gradually allowed an extending license in the use of the digestible meats—beefsteak, poultry, etc., but he should be cautioned, for some time, to avoid vegetables, especially those of acescent or flatulent tendency.

Gentle exercise, such as sailing, and riding in an easy carriage may be resorted to as soon as his strength will allow. He should wear flannel next his skin, and observe the most scrupulous care in avoiding every exposure to night dews, damp air, and all abrupt changes. His feet should be guarded particularly from cold and moisture.

There are few disorders which exhibit so pertinacious a disposition to recurrence or relapse, and the difficulties of cure are indefinitely multiplied in every successive attack, until the un-

fortunate sufferer sinks exhausted, or the chronic form of the disease fixes itself upon him—than which, there is no morbid condition more tedious, tenacious, or distressing; poisoning, while it lasts, every source of enjoyment, and rendering even life itself an intolerable burden.

CHRONIC DYSENTERY is usually the consequence of the acute attack imperfectly cured, or protracted indefinitely, until the immediate or more vehement constitutional sympathies have, in some measure, subsided; and the local affection of the mucous lining membrane of the intestinal tube becomes of prominent and paramount importance, in the disturbing influences exerted directly, upon the structure and functions of that part of the digestive system. It sometimes happens as the result of violent and unmanageable diarrhœa—a transition which, however natural and easily explained, has tended still farther to increase the confusion so often made between the two varieties of disease.

It may be described as presenting nearly the same train of symptoms, already enumerated as constituting the history of the acute form, but in greatly diminished intensity. There is less soreness and pain in the abdomen; the calls to stool are less frequent and somewhat less urgent; yet the alvine movements are attended with sharp pangs and severe griping, and the discharges are mucous and bloody, or ichorous, or mucopurulent, or serosanguinolent, mingled occasionally with more or less feculent matter. There may be little fever, but an exacerbation is perceptible in the evening, and the nights are restless and uncomfortable; there is some appetite, variable usually, and capricious, and indulgence in taking food, is apt to occasion pain in the stomach and bowels, and to be followed by a call to stool. There is an annoying and constant thirst, and the tongue and mouth are of a deep red hue, and disposed to dryness. Emaciation goes on steadily, with loss of strength; œdematous swelling of the feet is noticed, first in the evenings, afterwards continuing through the day, with some puffiness of the face; the surface is harsh and dry, and of unequal temperature, the trunk being hot and the extremities cold; an unpleasant odour is exhaled from the body, and the breath is fœtid; the abdomen becomes hard, and painful on pressure; apthtæ cover the

tongue and cheeks, and the unhappy patient, after weeks, months, or as the case may be, years of protracted torment, dies worn out with suffering.

Autopsy. On examination, the mucous membrane is found extensively inflamed and ulcerated, the colon being generally the seat of such lesions. I have seen these ulcers as large as from a fourth to half an inch in diameter, and in great number. Coincident with this state of the alimentary tube internally, there are often found spreading inflammations of all the abdominal viscera, whose vessels are deeply injected, and whose external surfaces are agglutinated by deposition of organized lymph.

Some have doubted whether intestinal ulcers ever heal; but on this subject, as I before said of the stomach, there can no longer remain any reasonable question. Latham, Troilet, and others, have collected abundant evidence to establish the affirmative; and I have myself seen the process of reparation, in several of its stages, and inspected the eschars of ulcers entirely healed.

The Prognosis in chronic dysentery is, on the whole, unfavorable; although we are not permitted to despond. Few maladies are so intractable; few so likely to return, after a seeming cure has taken place. The favorable symptoms are obvious; such as show, on the one hand, a subsidence of the local irritation and inflammation, and on the other, a progressive resumption of the natural and physiological functions of the parts affected. The diminution of the urgency and frequency of the tormina and tenesmus, the substitution of fecal for sanguinolent discharges, and the improvement in weight, by proper filling up of the emaciated frame, will give fair reason for hope of ultimate, though probably irregular and distant convalescence.

In the Treament, we must lay principal stress upon the general management of the case. A careful avoidance of all causes of irritation is to be enjoined, whether affecting directly the alimentary canal, as in the use of improper ingesta; or indirectly, through their influence upon the general system, as in exposure to moisture or atmospheric vicissitudes, or residence in malarious districts. The patient should be kept very much at rest, and in a recumbent posture, and spend most of his time in a

warm and well ventilated chamber. When the atmosphere is dry and genial, he may be indulged in a sailing excursion, or a ride in an easy carriage. He should wear the flannel roller over his abdomen, and take pains to keep his extremities warm and dry. His food should be light and nourishing; and as far as the stomach will bear it, consist chiefly of solids.

There is no very great certainty in the exhibition of any of our formulæ of medicine. I would advise a mercurial course, combining small doses of calomel or of blue mass, with cret: pp: or Dover's powder, repeating at proper intervals throughout the day, and administering full doses of anodyne at night. I would endeavor to procure the alterative effect of mercury, with as little of its irritative influence upon the salivary glands as possible, and when ptyalism supervened, I would desist from it at once. Some of the diaphoretics are alleged to exert beneficial powers here. James' powder, or the pulv: antimon: of the shops, and ipecac in minute quantities, are thus employed. I have derived advantage from the use of the infus: serpentariæ, with camphor and opium.

The astringents, both mineral and vegetable, are constantly recommended and much prescribed. Yet their efficacy is apt to be transient, and if not promptly serviceable, they will be apt to disappoint you. The kino stands pre-eminent among them, and may be given alone, or with some alkali merely, as the carb: soda and potass, or combined, as in the ordinary cretaceous julap. The other vegetable astringents—the catechu, pomegranate, etc., are not much relied on. Elliotson and Granville have highly eulogized the efficacy of the sulphate of copper, in these protracted cases. On their authority, I mention it to you, though I have not succeeded with it. I am much better pleased with the effect of the acet: of lead. It may be combined with ipecac and opium. If the stomach be irritable, the most inoffensive of all formulæ will be found to be the addition of the requisite amount of acet: plumbi to a mucilaginous solution of the acetate of morphine. This may be persisted in for a considerable length of time, too, without losing its influence, or annoying in any way.

The nitrate of silver deserves special mention here. It seems to be very generally applicable, and a patient perseverence in its administration, will seldom fail to palliate the symptoms present,

in a notable degree, if it does not effect an absolute removal of them.

Some of the inter-tropical practitioners praise loudly the nitric and nitrous acids, for their influence over chronic affections of the bowels generally—chronic dysentery among the rest. The former is combined with opium, in requisite amount, and advised to be taken for a considerable length of time. Like the salts of copper and silver, just spoken of, it is supposed to exert some specific power locally, upon the numerous intestinal ulcerations, disposing them to heal, and at any rate, correcting the foul secretions from the diseased surfaces. With similar views, charcoal finely levigated is offered, and is unquestionably useful to a certain extent. Abercrombie mingled it with pulv: doveri, and thought it of service.

In attacks of long standing, it has been customary to resort to some of the terebinthinate or balsamic preparations. Pemberton and Cheyne unite in speaking favorably of the copaiva rubbed with some mucilage. Pemberton also recommends it as enema, for the relief of tenesmus.

I have seen the spirits terebinth: used in both ways, and in acute, as well as chronic dysentery; and though a certain degree of diminution of suffering was obtained for a time, yet I cannot help suspecting it of ultimately injurious irritating consequences. I am unwilling to advise or trust to it.

I ought to mention, however, that in the histories of this most obstinate and unmanageable disease, we have authentically recorded, many strange stories of direct and unequivocal benefit, resulting from the most unpromising and capricious treatment. Such statements are worth preserving among "the curiosities of medical experience," although we cannot venture to guide ourselves by the analogies which they seem to suggest. Thus, there is often quoted in the books, a case given by Forestus, of cure effected by indulgence in eating unripe apples; and the medlar and other harsh varieties of this very flatulent fruit, are affirmed by others, to have been similarly beneficial. I knew a gentleman, who, while suffering under chronic dysentery, which terminated fatally after many years' protraction, resorted by the advice of a farmer, to the free use of hard sour cider. This remedy, which he did not employ until the most extensive and

faithful trial of all regular medical resources had resulted in a total failure—acutally suspended for some time his tormenting disease; but even this lost at last its efficacy. Thus also, you frequently meet in the newspapers and journals, with wonderful relations of recoveries from chronic intestinal disorders, apparently promoted by indulgence of some morbid or whimsical appetite felt by the patient, who desires odd and revolting articles of food, such as cheese parings, raw onions, rancid bacon, etc.

The best expectation of a permanent cure, is to be founded, I think, upon a change of residence—a removal, indeed, if it be in the power of the patient, to another and distant climate. All changes of place and of habit, seem to promise somewhat. All modes of travelling are serviceable, but if the saddle can be borne, a journey on horseback should be advised. A long sea voyage often makes a decided and favorable impression upon the constitution, by breaking up suddenly and thoroughly all established habits, and substituting for them a new train of movements. The direct and immediate effect of the tossing of a ship on the ocean, is, as every one knows, to interrupt the regular custom of daily alvine evacuation, and check the peristaltic action of the bowels, thus giving rise to costiveness, sometimes of long duration. This state of things is particularly favorable to invalids, who have suffered from undue determination to, and morbid irritability of the intestinal tube, with too frequent propensity to stool. Such torpor is not only a condition of great comparative comfort to them, but occasionally, the harbinger of a complete recovery; and even if ulceration have taken place, it gives the best possible opportunity for the supervention of the healing process and the formation of eschars.

CHAPTER XXX.

CHOLERA INFANTUM.

Under this term, it has become customary with American physicians, to treat of every form of bowel complaint to which children are liable beneath a certain period of age, yet, all seem disposed to admit, that there is something peculiar or specific in the character of the cases thus referred to. Nay, some of them, Professor Potter, of Baltimore, for example, intimate clearly enough their belief, that Cholera Infantum is a distinct malady, exclusively confined to these United States, while they acknowledge the strong analogy presented in the similar affections described by Cruveilhier, Billard and Copeland, to which names, I will add those of Underwood and Ayre.

The history of the disease, usually received, differs little from that first given by Dr. Rush, and will be found to comprise attacks of cholera, properly so called; of diarrhœa, both acute and chronic; of dysentery, also in both forms; of atrophia ablactorum, or true scrofulous marasmus; of bilious remittents, affecting children of tender age; and of febris infantum remittens or worm fever. Nevertheless, I feel no disposition to refuse it a separate consideration in my course, my aim being rather practical utility, than nicety of classification; and in a practical point of view, so many modifications of treatment become necessary, on account of the peculiarities of the infant constitution, that the management of such disorders, as assailing young children, will be doubtless better discussed apart and in detail. You will, therefore, bear in mind, that we are entering upon the consideration generally, of the bowel complaints of children, within the three first years of life; and that by the use of the received phrase, I by no means intend the acknowledgment of any specific morbid condition. If any restriction of the name be attempted, I would prefer, with Copeland, to regard it as denoting an affection essentially pyrectic—he calls it Choleric fever—and partaking of the nature both of diarrhœa and dysentery.

Its Causes have been duly investigated. It has been attribut-

ed—justly, as it appears to me—to the irritation of dentition, to the influence of high atmospheric temperature, and to the effect of malaria, or air otherwise vitiated and impure.

I consider it as capable of arising from either of these causes alone, though their combined agency is, of course, much more efficient in its production. Hence it is often met with in unhealthy situations, liable to malarious diseases, at the commencement of the hot weather of our American summer, and when the child is teething. In our large cities, especially in their narrow, ill ventilated lanes and alleys, it prevails annually, though it is not unknown even in remote country places. Cases occasionally, though perhaps rarely, occur in winter; these, we may ascribe simply to dentition; and in situations where it is familiar, it makes its appearance early in the summer—even in April and May—when few, or no other malarious attacks have yet been noted.

In our climate, it is met with between March and October, the greatest number of instances presenting themselves in May, June and July. It seems also most rife in seasons otherwise unhealthy—as in the spring preceding a yellow fever endemic in the city, or the epidemic prevalence of bilious remittents through the country. Dentition predisposes to it so strongly, that children between eight and fourteen months old at the beginning of summer, rarely escape an attack, of greater or less violence. The attempt to wean a child while teething, and the substitution of paps and other kinds of improper food, for its natural and healthy aliment—breast-milk, often proves fatal, by exciting a diarrhœa, which soon becomes irritating and pyrectic. The unwholesome secretion from the breast of a pregnant mother, called by the nurses, not improperly, "bad milk," is very apt to disturb and annoy the stomach and bowels of a teething child.

These disorders may follow, indeed, the use of any indigestible or inappropriate food. Fruit is among the most common causes of them, a point concerning which, I am obliged to differ from Dr. Rush, who expresses his belief, that a moderate use of ripe fruit, rather tends to prevent, than to induce them. It ought to be remembered, too, that fruit exposed for sale in the markets of large cities, is not often properly ripened. It is, of course, brought from various distances, and is usually plucked

while still somewhat crude and hard, that it may bear transportation; it may hence be said more correctly, to be softened by pressure, bruising, or incipient decay, than to be duly matured. Besides this, I am persuaded that in the stomach of early childhood, there is little power of assimilating vegetable aliment of any kind, and that it is probably altogether incapable of the assimilation of the acescent vegetables. Before children have cut a sufficient number of teeth, or have properly learned the use of them, they are apt to swallow their food unchewed, and unmixed with saliva. They ought to be taught to masticate all solid articles given to them, and especial precautions should be taken, as to those matters which they are fond of, and if left to themselves, will swallow greedily and in haste. I have, without doubt, seen many instances of cholera infantum, induced by the use of ripe fruits, and in some of them in but moderate amount. Inter multos alios—I recollect a fine boy, only son of a gentleman of this city, who was quite well before eating a part of an orange; in less than an hour after, he was seized with colic, followed by vomiting and purging, of which he died. I have seen death twice follow promptly the eating of nuts, by children who chewed them imperfectly.

Exposure to abrupt and improper atmospheric vicissitudes, also, and inattention to the requisite changes of clothing, often give rise to attacks of this sort; a strong predisposition to which, is generated by uncleanliness, whether of person, garments, or chamber.

The most fatal modification of cholera infantum, is that which supervenes upon a scrofulous diathesis hereditarily derived, and hence we find it specially frequent and mortal in certain families, whose hopes are thus cut off in the bud, during a long procession of years.

I will attempt a brief detail of the symptoms which present themselves, in the most ordinary class of cases. The attack usually commences with fretfulness and inquietude. The child is more uneasy at night; its lips are hot and its mouth parched; it seems to be in pain, and when it doses, moans and starts.. Vomiting is frequently one of the earliest marks of disorder, or the stools are observed to be watery, passed urgently, rather abundantly and unduly frequent. They are variously altered in hue, being clay colored,

or greenish, or sanguinolent, or mucopurulent, and often very offensive and acrimonious.

I have already said that I agree with Copeland, as to the pyrectic character of this affection. There is always some febrile excitement present, at some period of the twenty-four hours—being usually most obvious in the evenings. If dentition is going on, the child bites his fingers, or any thing put into his hands; his gums are swollen and inflamed; his head is hot, and he shrinks from light and is annoyed by sound; he grinds his teeth, both when asleep and awake. After a time, in almost every variety of case, if not uniformly, diarrhœa prevails, and becomes the symptom of paramount importance; dysenteric appearances not unfrequently present themselves, in addition, the discharges consisting of mucus, colored with pus or blood, and passed with violent straining, fretting and crying. The belly becomes tumid, and pressure is complained of as giving pain; the tension is often elastic and tympanitic. The child lies on his back, with his feet drawn up, tossing his arms and rolling his head from side to side. An annoying cough sometimes supervenes; emaciation progresses rapidly, with great muscular feebleness; the pulse is frequent, quick and weak. The lips and lining membrane of the mouth are fiery red, polished, and dry; in protracted cases, ulcers show themselves upon it, usually apthous and superficial, but occasionally deep, destructive and severely painful. The extreme emaciation which belongs to these latter stages, gives to the countenance a most ghastly expression, remarkable above all in scrofulous subjects, whose marasmus is owing to innutrition, from the enlargement and induration of the mesenteric glands, and general failure of the assimilative functions. As death approaches, the little sufferer lies moaning and languid, but still restless; the eyes are injected with an inflamed look, though perhaps quite insensible, flies having been seen to light on the cornea between the half open lids, without exciting notice or motion; there is sometimes a muttering delirium, the patient wasting his little strength in vain, unquiet struggles, and even biting at its nurse's or its own hands. Livid spots sometimes form on the surface, and coma or convulsions are the immediate precursors of dissolution.

The duration of the disease varies much, observing a corres-

pondence with the forms it is wont to assume. The modification above described—chronic diarrhœa or marasmus, as it is often called, may be protracted for weeks, or even months. I have seen it put on the shape of true cholera, in which the irritability of stomach was the most urgent symptom, and the little patient sunk exhausted by the irrepressible vomitings, and the frequency and quantity of the serous discharges from the bowels. I have known cases of this sort, terminate in twelve and twenty-four hours; the alvine discharges consisting of the serous or albuminous fluids, so abundantly effused in cholera maligna.

I do not entertain a doubt, that verminous irritation may excite this state of disease in young children, or may complicate with it their familiar symptoms; hence we find some writers enumerating under this head, all the phenomena which go to show the presence of worms—irregular bowels, capricious appetite, foul tongue, fœtid breath, convulsions, etc.

A hydrocephalic variety is also recognized by some authors, because of the gastric and intestinal disturbance which arises, as a matter of course, in the advanced stages of this cerebral affection—but the diagnosis is easy and obvious.

The post mortem appearances must differ with the nature of the attack. In the rapid cases just mentioned, little change of condition is to be observed. In two such, I found a very slight blush overspreading the external surface of the stomach and intestines; I could perceive no alteration of the internal or mucous coat. In chronic dysentery, this tissue offers abundant traces of inflammation, and is occasionally found ulcerated. The mesenteric glands are often enlarged and indurated.

The Treatment of cholera infantum—as you will readily infer from the history above given—will require to be varied with the diversity of forms which it presents, and with its different modes of access or invasion. Like the cholera of adults, it often arises from some temporary cause, some transient mode of irritation. Improper food may have been taken, or some excess in ordinary diet committed. The primæ viæ will, for the most part, be thoroughly evacuated by the early discharges upward and downward; but if not, a mild emetic of ipecacuanha or a moderate dose of castor oil may be given, to obtain the complete expulsion of all crude or undigested matters. After this, we

must resort to the most soothing management. Aromatics and anodynes must be administered in efficient doses. The best combination of these is the old fashioned paregoric elixir—a very happy union of several useful ingredients. Laudanum fomentations should be applied assiduously to the abdomen, and frictions made with warm laudanum, to the spine and limbs. The stomach is occasionally in so stormy a state, that nothing can be swallowed or for a moment retained, not even the water for which the little patient in the torments of an intolerable thirst cries urgently. We must depend here upon the administration of our opiates in enemata. These are to be made of mucilaginous solutions, containing a proper proportion of tinct: opii; they should be thrown up gently and carefully, and repeated pro re nata. The warm bath should in the meanwhile be resorted to, and sinapisms applied to the trunk and extremities.

When the attack arises from the annoyance of dentition chiefly, there occur, superadded to the ordinary symptoms, or combined or alternating with them, the effects of undue or morbid determination to the brain. The child cries much, shuns the light, appears distressed by noise, starts at sudden sounds, throws its hands up to its head, which is hot and its cheeks flushed, while the feet are apt to be cold; the gums are swollen and red; there is great thirst; the bowels are irregular, being sometimes costive and at others loose with griping. It is often proper to scarify the gums, and when this is done, we should pass the instrument used, down upon the tooth, relieve the tension of the membrane, and bleed it freely. When well timed, this little operation will often give much relief; but I cannot recommend it to be performed promiscuously or indifferently. I dissent from those who regard the cicatrices formed upon the healing of these small wounds, as of similar texture and equally absorbable with the original textures. On the contrary, I think it proved that an eschar or cicatrix is always hard and unyielding; in parturient women for example, we always find cicatrised parts of firmer consistence and less easily dilateable than the original tissue in which they occur.

Beyond this local aid, we must relieve the organ principally assailed, the brain, by such means of revulsion as are best adapted. If the bowels are confined, we must exhibit a purgative. Castor oil answers well in general; some prefer the combination of rhu-

barb, with magnesia or with calomel ; I have no objection to either, though Rush expresses—I know not why—a strong dislike to the use of rhubarb in any of these cases. The head meanwhile must be kept cool by proper refrigerants, and the extremities well wrapped and warmed, and somewhat irritated by sinapisms. If convulsions threaten or coma supervene, cold affusion on the vertex must be had recourse to ; and, if the pulse do not forbid, leeches applied behind the ears, to the angle of the jaw, or upon the temples.

In that type of cholera infantum which I have described as the most common among us, and have attributed, in part at least, to a malarious origin, the stomach appears to be the primary seat of the disorder; this soon extends itself to the rest of the chylopoietic viscera, deranging variously the function and condition of the liver, and bringing on a diarrhœa which exhibits a remarkable proclivity to protract itself into the chronic form, or run on into dysentery.

In the earlier stages of this modification, many practitioners are in the habit of employing emetics ; and I have seen some benefit from them, when the tongue is foul and the breath fœtid, with anorexia and nausea, with or without retching. I prefer the ipecacuanha, but even this mild article, I am unwilling to repeat frequently. Of the cathartics so generally employed, the least irritating should be chosen ; and for this, among other reasons, I select calomel. The mercurial is especially indicated when there is torpor or obstruction or engorgement of the liver ; which may be detected by fullness or intumescence of the organ perceptible on examination, or shown by clay colored stools. In addition to the indispensable remedy just named, we may find advantage also in the use of the muriatic acid bath, as a pediluvirum for the little patient, whose feet and legs are to be kept immersed in it for some minutes at a time, at intervals. Whatever laxative be exhibited, it should be given in moderate doses, and at such periods of repetition as shall keep the bowels gently moved, and regularly, so as to present that alternation of looseness and costiveness so common and so injurious.

It is a good custom to add some alkaline preparation to all our formulæ. The digestive function is of course greatly impaired, and the contents of the stomach are apt to undergo a constant

fermentation, giving rise to the presence of an irritating acid. Alkalies not only correct chemically this vitiation of the fluids effused or taken into the stomach, but they exert some peculiar power beyond this, in tranquillizing and giving tone to that organ. Where constipation exists, magnesia may be chosen: if on the other hand there is diarrhœa, lime water or the carb: sodæ or potassæ should be used.

When we have reason to suspect the presence of worms in undue number, productive of or increasing the abdominal disturbance, we must resort to some anthelmintic remedy. Of all the vermifuges, I regard camphor as most deserving our confidence, and would propose an aromatic infusion of it as an eligible basis for such other medicines as may be indicated. Even when we fail to procure the expulsion by it of any the troublesome parasites aimed at, camphor rarely fails to sooth those annoyances which are imputed to them. The infusion of spigelia acts in a similar way, though, I think, with somewhat less certainty, and if pressed too far, will impress unpleasantly the nervous system, occasioning double vision, strabismus, and even convulsions. It is, perhaps, as a mild narcotic, that the spigelia is useful here, diminishing sensorial and vascular excitement. Camphor may, perhaps, exert a like operation, though the question is unsettled whether it is prominently a stimulant or sedative. As an aromatic, in diffuse solution, as I employ it, I consider it to be a tonic and cordial diaphoretic, pleasantly stimulating the stomach, and by determining to the surface, restoring the impaired circulation and action of the cutaneous vessels.

To promote this centrifugal determination, we shall find the warm bath an admirable auxiliary. You will sometimes see children, placed in it in a condition of severe suffering or heavy languor, revive promptly and re-assume an unexpected degree of cheerfulness and playfulness. When the temperature of the body is unequal, the head hot, and the extremities cold—when the abdomen is tense and intolerant of pressure, the stomach uneasy and urged with frequent retching, and the muscles agitated with cramp or spasmodic twitching or convulsions, the bath should be promptly resorted to. When there is great debility, it may be made stimulating, by adding salt or mustard, cayenne pepper or ardent spirit. Warm wine, suggested by

Rush, is too expensive to be among the resources of practice in this country. Some children, ill-managed in health, have so great a dread of water, that we cannot get them into the bath without an unpleasant and perhaps injurious struggle. In such cases, and when any other contingencies offer an objection to the immersion of the patient, we may substitute fomentations and poultices.—Of all these, heat and moisture combined form the common remedial principle; and we indulge mothers and nurses in the choice of any of them which they may fancy to be specially applicable. Ordinary bread or meal—aromatic herbs crushed and stewed, and flannels wrung out of hot ley, and hot spirits, afford sufficient variety.

I am by no means in the habit of urging the mercurial treatment in cholera infantum—yet, it is not to be denied, that in certain cases, we may derive very great benefit from the cautious employment of calomel as an alterative. The well-known aspect of our low-country children, born in the neighborhood of swamps and rice-fields—the sallow visage, with puffed eye-lid and cheek, emaciated limbs and tumid belly, will often improve under this course and no other. I usually add to the mercurial a certain proportion of opium and ipecacuanha. A child of twelve or fifteen months, may take 1-4 or 1-2 grain of the former with 1 gr. or 2 of Dovers' powder, every third or fourth hour. This combination determines to the surface, corrects the morbid secretions of the digestive tube, allays febrile excitement, calms the intestinal irritation, disgorges the swollen liver, and subdues tormina and tenesmus, thus substituting tranquillity forrestlessness, and inducing quiet and refreshing sleep. Dr. Miller, of New-York, in one of the earliest treatises on this disease, urges a resort to mercurial frictions. I have no experience with them. If the stomach will not bear the Dovers' powder, opium must be given in some other form. The alkaline diaphoretic mixture may be alternated with the mercurial.

Epispastics are still employed, by many physicians, among the means of revulsion in these cases; but, for my own part, I have great reluctance to inflict a vesicatory upon an infant, if it can be avoided. The delicate skin suffers much, at this age, from the painful inflammation thus produced, which often becomes

diphtheritic, or extends widely, assuming an erysipelatous character, and is exceedingly slow to heal, ulcerating deeply in patches, or giving rise to annoying boils. Sinapisms or poultices with mustard, will act more promptly, and will effect every thing that can be desired from revulsives.

It is almost unnecessary to direct your attention to the assiduous employment of astringents and tonics, when the diarrhœa has run into the chronic condition, and is, by its protraction, wearing out the strength and constitutional resources of your little patient. Of the mere tonics, colombo and cinchona have been generally preferred; but it is difficult to administer bitter medicines to young children. Some resort to arsenic and iron, but I must confess, that they have not proved of the advantage I had hoped for in these cases, and I place no confidence in them. One of the metallic preparations has, however, gained of late a good deal of reputation here, whose modus operandi is not very obvious. I allude to the nitrate of silver, which is affirmed by practitioners, of high respectability, to exert a peculiar and unequalled influence in controlling the gastric and intestinal disturbance, restraining the morbid secretions and restoring the functions of the affected tissue. The dose is, of course, a small one, from 1-12 to 1-6 of a grain, repeated every third or fourth hour. Of astringents, we have in our hands a large number and variety, but they must not be indiscriminately used. An almost universal preference is adjudged to the kino, both by the French and English physicians, who were long anticipated, however, in this matter by our countrymen. It is, indeed, an invaluable remedy. Some would restrict its adaptation within narrow limits, and advise to abstain from its use whenever fever or intestinal inflammation are observed to be present. This view of its utility, seems to me, to be a mistaken one. I would hardly administer it in an acute enteritis, or in the violent invasion of a bilious remittent with dysentery; but it seems applicable in all protracted cases occurring in children, and I have not found it necessary to wait either for the subsidence of symptomatic fever, or the subdual of inflammatory irritation, to obtain its good effects. The best formula for prescribing it, is the familiar one of the cretaceous julap, to which

may be added, with advantage, a proper proportion of opiate, either in the old elixir paregoric, or as combined in the Dovers' powder.

Among the domestic astringents in good repute with nurses, there are some quite serviceable. An infusion or tincture of the rind of the pomegranate—an infusion of the root of the dewberry or high blackberry, of galls, and of logwood, are all much employed. Dr. Miller, already quoted as an early authority on this subject, extols the common alum as well-fitted to do good. He administered it in doses of 1, 2 or 3 grains, combining with it some anodyne, such as Dovers' powder. The acetate of lead is a frequent and favorite prescription with me, apportioning the dose carefully to the age of the infant. I dissolve it in some mucilaginous mixture, to which I add a small amount of the acet: morphine or tinct: op: camph. It is willingly taken, and besides its astringent effect, certainly seems to control the irritability of stomach so often present.

The selection and employment of well-adapted enemata, will aid us much in the management of this troublesome disease. In the earlier periods of an attack, if it be our object to obtain free evacuation of the crude and feculent contents of the alimentary tube, and thus to diminish the general morbid excitement, we may throw up into the rectum tepid water alone, or containing a little salt or molasses, or olive or castor oil. After this, the mucilaginous solutions will be found serviceable, and may be made vehicles for our opiate, or mingled with astringents, either vegetable or mineral, as the solution of acet: plumbi or the infusion of pomegranate rind or of logwood or galls. These should be injected cold and in small quantity, and retained by external pressure.

Much will depend upon the general regimen observed. The diet requires especial care. Such articles deserve a preference generally, as are least liable to undergo acescent changes. If a child has been weaned too early, return it to the breast of its mother, or provide a healthy and suitable wet-nurse for it. If it has been weaned at the proper age, substitute for its mother's breast milk, now no longer procurable, diluted milk from the cow, tepid, with a little sugar, or some light, farinaceous food. Thin corn or rice gruel, arrow-root, coonty, boiled biscuit or

bread panada, may be tried in succession. Broths suit well with some children, as chicken, veal or mutton broth or beef tea. Others suck the juicy meats underdone. The books record strange perversions of appetite under these circumstances. Dr. Rush mentions a child of sixteen months, who recovered on a diet of rancid English cheese, and Port wine drunk undiluted. They are often pleased with strong flavors, and become fond of salt fish and salted meats. I have seen children in a moribund state, exhibit this tenacious fondness for ham, which they held in their hands, constantly sucking.

The clothing should be warm, consisting of flannel or cotton, according to the season. When the weather is damp or chilly, or changeable, the flannel fold and roller applied about the abdomen, will be found useful. Perfect cleanliness of the person, the bed and body clothes, and the apartment of the child, must be enjoined. Removal and change of air, must always be regarded as one of our most efficient remedies. It is of importance, that we should not too long delay the experiment, and if well-timed, we shall find the mere transition from the confined streets of a city to the open fields, the elevated ridges of pine land, or the sea-shore, of itself and at once restorative.

After all that has been said, however, it must be acknowledged, that the treatment of cholera infantum, whether from anything inherent in the nature of circumstances, or from defect in our methodus medendi, is far from being as successful as we would desire; and the bowel complaints of spring and early summer, are justly dreaded by every parent. It is, therefore, strongly incumbent upon us, to attend assiduously to the prophylactic management of young children and infants, so as, by our counsel, to evade or prevent attacks which we find, confessedly, so difficult of cure.

When it is in the power of the parents, children born and resident in cities, should always spend a part of the year in the country. The results of all observation go to show, that the concentration of large masses of human beings, however advantageous it may be to their progressive intellectual development, has an inevitable tendency to occasion their ultimate physical deterioration. This is, at first, and most strikingly notable, in the degenerate vigor and imperfect growth of their children;

and it is during this early stage of life that disease assails, and predispositions are formed, and the constitution takes so often a morbid bias.

Yet, it is not in every one's power to avail himself of the knowledge of these truths. The imperious calls of business confine men with their families wherever the means of living are most attainable; we must, therefore, accommodate our directions to the necessities of the case, and lessen, by proper regulations, the force of evils we can hardly hope to shun.

Children should have free exercise at all times, and in every mode suited to their age and physical powers. They should live as much as possible in the open air; sun-light is as important to animal as to vegetable health. Their dress should be attentively accommodated to atmospheric vicissitudes, guarding them from cold and moisture. Their sleeping apartments should be elevated and dry, and cleansed and ventilated perfectly and always. Cleanliness of person and clothing must be strictly enforced. The bath should be used daily—cold, if it be well borne and the subject robust, tepid for infirm and delicate children. They should not be weaned until dentition is sufficiently advanced for the effectual mastication of soft food. During the process, the gums should be examined from time to time, and swelling or inflammation relieved by incisions. After weaning, the diet should be as above indicated, allowing a latitude proportioned to the appetite and obvious powers of digestion in each little subject. Crude vegetables should be forbidden, and fruit permitted in very small amount, if at all;—animal food may form a gradually increasing proportion of the food. Rush recommends a moderate quantity of salted meat occasionally, and speaks in high terms of the advantage of offering a little sound old wine from time to time. Both these suggestions are valuable; the latter, however, in reference to children of rather more advanced age than the usual subjects of cholera infantum.

These general rules of regimen and diet, require to be attended to with most peculiar care, in families where there is reason to suspect the prevalence of a strumous diathesis. If the mother have suffered from any of the forms of open scrofula, or being a descendant from a scrofulous stock, has exhibited the

well known tokens of that vicious constitution, I would unhesitatingly advise, that the child be taken early from her and put to the breast of a healthy nurse. None have ventured to deny, that an infant nourished from such a morbid source, is likely, sooner or later, to fall an easy victim to predispositions thus engendered or made more intense.

CHAPTER XXXI.

WORMS.

As PLANTS are observed to be preyed on by parasitic plants, so also all animals are infested by parasitic animals. The natural history of these is highly interesting, and constitutes already an extensive department of knowledge, which is widening every day. Some of these dependents belong probably, in an essential manner, to the organization to which they are attached, and this seems especially true of many classes of animalculæ found in the normal secretions, as, for example, the spermatic animalculæ of the various orders, the spermatozoa. Others seem to connect themselves closely with, and arise out of diseased secretions and morbid conditions of parts. Hence, some pathologists have been led to attribute a great number of diseases to the irritation of particular and specific varieties of animalculæ ; thus, psora, dysentery, and cholera, have been alleged to originate—and, indeed, many others, as small-pox, cancer, measles, plague, syphilis, and hydrophobia.

How these creatures are generated, in the first instance, is matter of most obscure speculation. Many of them, as the hydatid, seem incapable of re-production, while others comprise within their structure an apparatus of organs for the purpose. It would be an almost endless task to attempt the mere enumeration of these entozoa, both animalcular and of larger size. Man has his full share of these troublesome attendants. There is no part of the animal body in which such parasites have not

been found—in the skin, the cellular tissue, the muscles, the eye, the heart, the brain, the liver, the kidney.

It would be out of place here, to treat of any but those which infest the organs of digestion; and even among these, as my object is, of course, specially practical, I shall confine myself to the discussion of the presence, effects and means of expulsion and prevention of Intestinal Worms.

The human intestines are scarcely ever found entirely untenanted by certain familiar species of worms, besides being subject to the accidental presence of rarer varieties. Those most frequently met with, are the lumbricus, ascaris, and tænia.

The lumbricus—ascaris lumbricoides—round-worm, is the most common of the human entozoa. Children may be said to be almost uniformly subject to the presence of the lumbricus, and indeed adults also. Their existence in the body does not seem productive of any necessary or definite effect, and is often unthought of until after they have been expelled. From the fact, thus alleged, of their universal domiciliation in the bowels, and their occasioning no definite mischief unless when in extraordinary number, or when, from some incidental change of condition, the system is enfeebled or rendered irritable, Parr was induced to describe them as "forming a part of a healthy constitution, and as scarcely injurious but from accidental circumstances." Nay, our own Rush, with an unaccountable perversity, not only inferred their harmlessness, but even believed in their absolute utility, and suggested, that the want of them might sometimes occasion disease in children.

Now, although it cannot be denied, that they have been known to infest the bowels, for great lengths of time, without giving rise to any notable evil, yet, on the other hand, it is perfectly certain, that, whether as cause or effect, their existence in any considerable numbers, is usually coincident with a depraved state of the general health, and with an infinite diversity of morbid symptoms, to be hereafter spoken of. Individuals of lymphatic temperament, such as inhabit low and damp localities, and subsist on scanty or gross and indigestible food, are most obnoxious to them, and the multitudes generated in the bowels of such subjects are prodigious. In the examination of the body of a negro girl, about ten years old, we found it

impossible to take hold of any portion of the intestines without including between the thumb and finger one or more lumbrici. I have known thirty at one time, and, at another, forty of these worms, expelled in one evacuation. In the case of a poor emaciated and miserable humpback, a black boy of about fourteen years, I saw a mass which had been discharged in the course of a single night, amounting, as I was assured, and as seemed probable from appearances, to not less than one hundred and sixty.

This worm is, as its name imports, of round, elastic body, with a smooth, shining surface, of a whitish or yellowish hue, from five to twelve inches in length, of about the thickness of a writing quill in the middle, and tapering to the extremities, of which the anterior is most attenuated, commencing abruptly by three tubercles which surround the mouth. The lumbricus was once supposed to be of the same class with the earth-worm, which it certainly resembles a good deal; but a minute examination, shows many essential and striking points of dissimilarity both in the external and internal structure. Thus, for example, the earth-worm is hermaphrodite; but in the lumbricus, there is evident distinction of sex. It usually inhabits the small intestines, but is found in all parts of the abdominal canal, being known to crawl from the anus, and not unfrequently coming up the æsophagus and finding its way with coughing or vomiting, excited by its tickling motion, through the mouth and nostrils.

The ascaris vermicularis—ascaris—thread-worm—maw-worm, inhabits in masses composed of large numbers, the cavernous cells of the colon and rectum. It is round, white, and highly elastic—filiform in appearance, from one-fifth of an inch in length to an inch. The sexes are separate, the males being smallest. "The vivacity," says Brera, "with which it skips and bounds is amazing. If touched with the finger, or brought near the flame of a candle, it contracts very remarkably. It is, perhaps, to this vivacious contractility, that we are to attribute those enormous irritations of the intestines, and especially of the anus, which torment those infested by them."

The trichuris—tricocephalus—tricocephalus dispar—tailed thread-worm, is usually enumerated among the intestinal worms. It is very rarely met with, and therefore, perhaps, deserves to be regarded rather as a pathological curiosity. It is an inhabitant

most commonly of the cœcum and colon, seldom seen in the small intestines, and has been found occasionally loose in the abdominal cavity, having perforated the coats of the intestine. For about two-thirds of its length, it is of capillary slenderness; the remaining portion is thicker, terminating obtusely.

The tænia or tape-worm is one of the most annoying and injurious of all the parasitic entozoa. It infests a great many animals, and is met with, not unfrequently, in man. Two species, which naturalists tell us belong to different genera, are found in the human body, and these are said to observe a singular geographical or national distribution. "The Swiss and Russians," says Owen, "are troubled with the bothriocephalus latus; the English, Dutch and Germans, with the tænia solium; both kinds occur, though not simultaneously, in the same individual, in the French." The former, he says, may be readily distinguished from the latter, by the shape of the segments of which it is composed, which are of greater breadth than length, by the position of the genital pores in the middle of one of the flattened surfaces, and not as in the tænia solium, at the margin of each segment, and by the head which is elongated, with two lateral longitudinal fossæ, instead of the four round oscula, characteristic of tænia proper.

The tænia solium, which is the true tape-worm that you are likely to meet with, consists of flattened, whitish looking pieces or segments; separate joints, once regarded as a special variety, the lumbricus cucurbitenus of Heberden, so called from their somewhat resembling gourd seed. It attains sometimes a great length, from ten feet to many yards. Brera says there is one in Padua two hundred and thirty feet long. Wilson, in a case recorded in the Philadelphia Journal, states that three hundred feet at least, had been discharged by the patient. The worm is usually solitary, but not always, so that the pieces collected may belong to or constitute parts of several individuals. I saw on one occasion ten yards brought away from a female patient, eight of which were connected, the remainder being in small pieces. In each piece there is an ovary, containing often a prodigious number of eggs, expelled, when mature, through apertures in the margins. The animal is a hermaphrodite or androgynous. It inhabits the upper part of the intestinal canal, and is supposed

to feed on the chyme and other nutritious juices imperfectly animalized. The head is usually towards the upper portion of the tube, and is said to fix itself in the mucous membrane firmly, by means of fangs or hooks. We know it to be very difficult to dislodge, and unless the head is brought away, the patient is by no means freed from the worm. It is affirmed to be in a very peculiar degree tenacious of life. It is asserted that "they have been known to live for hours vigorous and active in boiling veal broth." The head, for which we should examine with great care, is small, nearly hemispherical, broader than long, and truncated anteriorly; its four mouths or oscula, are situated on the anterior surface, and furnished with a double circle of small reversed hooks.

The origin of these parasitic entozoa, is a question of extreme difficulty and obscurity. Their production is one of the best apparent examples of spontaneous or equivocal generation. They are found in existence no where but in the situations indicated within the bodies of other animals; and they all perish in a brief period after their expulsion or removal. They all increase by ordinary propagation, however, and multiply in vast numbers. That there are particular conditions which foster their increase is evident. The national distribution of the several varieties of tape-worm has been mentioned. Nothing is better known than the greater liability of children than adults to the annoyance of lumbrici and ascarides. This liability is most notable between the time of weaning and the age of puberty; perhaps from the third to the eighth year of life. I have seen but two unweaned children much troubled with them; each about one year old.

They are apter to prevail in individuals who live on a poor and innutritious diet, and whose organs of digestion are by any cause or causes enfeebled. Hence, from transmitted peculiarities, there has been supposed to be in some families a hereditary verminous tendency. It has even been maintained that they cannot resist or sustain the action of the perfectly healthy secretions of the gastric and intestinal surfaces, endowed as they are with powerfully solvent properties; but this notion is untenable, as their presence is consistent with the enjoyment of the best health, and they are frequently discovered accidentally in persons who have suffered under no mode of disorder.

The effects of verminous irritation are exceedingly diversified. It is indeed to be doubted whether there are any peculiar or characteristic phenomena which serve clearly to show the presence of the most common, the round worm or lumbricus; nor can we clearly point out any symptoms as being definitely connected, even with their inordinate numbers, in the constant relation of cause and effect. "There is scarcely a disease," says Rush, "or symptom of a disease belonging to Cullen's class of Neuroses, which is not produced by worms." Febrile affections are often ascribed to this source, and I have already treated in detail, of ordinary worm fever. Among the infinite series of maladies attributed to lumbrici, I will merely enumerate epilepsy, chorea St. Viti, hydrocephalus, and many varieties of pulmonary and bronchial disorder, as shown by cough, diarrhœa and atrophy. The train of symptoms developed in connection with the presence of the worms, seems to be influenced much by the constitutional predispositions of the subject affected, and they bear a relation as well to the mobility and sensibility of the patient, as to the number of worms present. During the age at which children are most liable, their intestines abound with a tenacious mucus which offers a convenient nidus to these vermin; at this time, too, they are apt to eat without caution, and immoderately, of every thing in their reach.

Among the symptoms alleged to be most commonly produced by the presence of lumbrici, we may specify the following as familiar to parents and nurses, though by no means unequivocal in their import, or decisive as to the existence of an exclusive cause. The child is languid and fretful; his appetite is irregular, often deficient, but sometimes voracious; the abdomen painful and tumid; stools loose and offensive, with straining and griping; the tongue foul and the breath fœtid; there is emaciation and loss of strength; the sleep is uneasy, with moaning, starting and muscular twitching; the patient grinds his teeth and picks his nose; there is occasionally a teasing, dry cough, with more or less febrile excitement at uncertain periods and intervals; determination to the brain is a frequent attendant, with frightful convulsions. Yet although the concurrence of many or most of these phenomena in any case, would justify you in regarding it as verminous, and treating it accordingly,

the expulsion of worms is the only proof of their agency, if even this be regarded as sufficient; indeed it has seemed to me, in more than one instance, clear, that although they were brought away by the evacuants employed, there was no good reason for ascribing to them the disorder of the patient.

I shall not go at length into the discussion of the remedies for lumbrici, the anthelmintics treated of in abundant detail by my colleague of the chair of materia medica. Let me remind you, in passing, however, that these medicines are too powerful in their specific influences to be employed promiscuously, or in mere reference to their vermifuge property. The choice should be carefully adapted to the actual pathological condition of the patient. If the principal irritation affect the nervous system, you will do well for the most part to avoid the narcotics, spigelia, melia azedarach, etc., and employ the cathartics, as calomel, castor oil, turpentine, etc., which in their turn, become improper when the bowels are excited with diarrhœa; and so of the rest.

It is a difficult thing, in many individuals, to prevent their rapid multiplication and often recurring annoyance. The free use of salt is urged by one, as prophylactic; the occasional administration of wine, of pungent articles of food, as cheese, onions, garlic, and the like, by others of equal authority. I have been best satisfied with the exhibition of camphor, in very diffuse mixture with water, as in domestic practice among the Italians. A dram of the spts: camphorat: being mixed with ʒviij of water, and made in any way agreeable to a child, he may be induced to take this quantity during twenty-four hours, for many days in succession. Whether it be that the aroma of this substance is particularly disagreeable to the lumbrici, I will not pronounce, but I have known many of them come away from the body during this course, to the great relief of the patient.

The thread worm, ascaris vermicularis, produces either no annoyance at all, as is said to be the fact with regard to the trichuris, or it gives rise to more definite symptoms than the lumbricoides. These are described as follows: There is great uneasiness in the rectum, and an intolerable itching of the anus, seldom troublesome before the evening, and much aggravated on going to bed, with heat in the part, and frequent tenesmus. These little creatures are found in the stools, entangled in a

bloody mucus, and sometimes in the beds of children, having crawled forth spontaneously. They are exceedingly difficult to get rid of, so that many persons have passed their lives, without ceasing to be troubled by them. They are not absolutely confined to the lower intestines, but are also met with in the stomach, whence one of their names, maw worm. They there give rise to indigestion, with "an uneasy, faintish feeling at the pit of the stomach; a capricious or depraved appetite; pains in the abdomen, with itchiness and redness of the nose."

The best relief seems to be given by active purgatives and aperient enemata. Of these latter, I have seen the best effects follow from the administration of solutions of aloes and of assafœtida; warm milk and oil used in this way, diminish the tenesmus; camphor, turpentine, and the essential oils, are also of benefit. Brera recommends their mechanical extraction, by introducing a bougie or candle into the rectum, smeared, as others advise, with mercurial ointment, which, when drawn out, often brings away great numbers. Howship proposes the occasional introduction of the finger for the same purpose.

These palliatives are much aided by a proper attention to the diet and habits of the patient. The former should be simple; all stimulants, both of food and drink, being abstained from. The bowels should be kept regularly soluble, either by laxatives or by occasional enemata, and great cleanliness of the person observed. This injunction should be specially attended to by females, in whom pruritus vulvæ may be brought on by their irritation.

Tænia, or tape worm, deserves at our hands a more particular consideration. It is of the tænia solium that I am about to speak; the lata or bothriocephalus, I have never seen. The influence of the presence of this worm, has been variously described by many writers, the majority of whom admit, without hesitation, that it may exist long in the body, without occasioning any disturbance whatever. Its proper habitation is the upper and smaller intestine, and some suppose that it only becomes annoying when, by its growth, it has extended into the larger portion of the tube. It surely does happen, as I myself have known, that portions of the worm, or joints, have come away from individuals, apparently in excellent health. That it does present itself low down

in the bowels, is strangely proved by a case recorded in the Med: Chirurg: Journal, in which it is mentioned "that the patient was in the habit of ridding himself of large fragments of his tormentor, by introducing a stick into the rectum and twisting it round the worm till it broke." It is still questioned, whether there are any symptoms which distinctly prove the presence of tænia, previous to the expulsion of one or more segments of its body. I think there are none such; yet the concurrence of morbid sensations is somewhat peculiar, and not likely to occur in any but those who are suffering from this parasite. Louis gives us the results of his observations of ten cases, at La Charité. Among these were a father and son. I have had under my care, an old gentleman and his great grand son; from which facts, may arise suspicion of predisposition hereditarily transmitted. In almost every case on record, there seems to have been a voracious, though somewhat irregular appetite. My patients have, with scarcely an exception, complained of a dragging sensation, attended with cramps, and a perception of uneasy or convulsive movements in the bowels. There is pain in the abdomen, which some describe as colic, and others speak of as peculiar and indescribable. Some are teased with diarrhœa, others merely with tenesmus. Some emaciate, others do not. My two first patients presented, in this respect, a most striking contrast. One, a male, was a skeleton, completely atrophied; the other, a female, was very plump and in good condition. Dr. Baillie recites, as the symptoms most indicative of the presence of tænia, "a gnawing uneasy feeling in the region of the stomach, diminished or removed by eating; an appetite commonly somewhat voracious, though occasionally deficient; frequent nausea, colics and vertigo." Louis states, that the functions of the body generally, were impaired, in all his cases, though in very different degrees.

It is singular to remark, that when joints of the worm have begun to come away, this does not only show itself in the stools, but pieces are found in the beds of the patients, and fall from the anus at times, while they are walking.

In the Treatment of tænia, I have no hesitation in adding my testimony to the abundant records of the preference due to the spiritus terebinthinæ. I have not failed to bring away more or less

of the worm, in every case in which I have resorted to it freely, but the doses required may be large. From one to two drachms are generally given, at intervals, either alternating with, or followed by proper doses of castor oil. Fenwick prescribed two ounces, to be repeated in two hours, if no effect was produced, and even a third time, if required. Exhibited in this way, I had the satisfaction to see expelled from a female patient, as I have already mentioned, not less than ten yards in one day, of which eight yards were in connected segments, the rest consisting of loose joints. This lady remained a long time well; indeed, I know not that she was ever annoyed with tape worm again, although I failed to find the head, for which, as I told you, we are enjoined to make diligent search. There is, perhaps, some risk, in these large quantities, of producing strangury and irritation of the bowels. My patient suffered for a short time from the former. Prof. Elliotson has carried this plan so far, as to administer two or three ounces of turpentine every second day, for a fortnight, taking care to follow every such dose with castor oil, which purging briskly, at last expelled the worms.

Bremser, one of the best authorities on this subject, speaks with highest eulogy of an empyreumatic oil, (Chabert's) made by mixing empyreumatic oil of hartshorn with oil of turpentine. Rudolphi and Brera, also recommend it as a most valuable vermifuge. If given too largely, it may excite, however, a severe and troublesome degree of intestinal and cystic irritation.

Louis met with uniform success, he tells us, in the employment of a quack remedy, Darbon's potion, a secret nostrum. It seems to have been as safe as it was powerful. In one instance, it was stated to have procured the expulsion of the heads of seven worms at one evacuation. Chomel, Lerminier and Fouquier, are said to attest these facts. A recent writer suggests, that this nostrum may possibly consist of some preparation of the root of the pomegranate, a remedy which has long enjoyed a great reputation in the treatment of tænia. A pretty strong decoction is made of the dried bark of the root, of which an ounce or two ounces are given every half hour, until there is nausea, giddiness and pain in the bowels, which symptoms are almost always shortly followed by the expulsion of the worm.

It seems to act specifically, of which it is regarded as proof, that a living tænia, plunged into such a decoction, writhes, suffers much, and dies soon. Elliotson, who thinks highly of the bark of the pomegranate root, prefers the powder to the decoction. Some advise it to be followed by a purgative, within a few hours, and that no food should be taken in the mean time.

The male fern, polypodium filix mas, has also been much extolled. This is the basis of the Swiss remedy, purchased by the French government, from Madame Nouffer. While some rely confidently on this medicine, others speak of it with contempt. Cullen regards its good effects as depending entirely on the drastic cathartics, with which it is combined. It is of little consequence to decide this point, but I cannot help thinking the evidence preponderates in favor of its specific vermifuge power. Three drachms of the root reduced to a fine powder, form a dose for an adult, to be taken in any simple water. Two hours afterward, a bolus is to be administered, consisting of calomel and scammony each grs. xii, gamboge grs. v. If the purgative do not operate sufficiently, some neutral salt must also be taken, at a proper interval.

Odier prefers to all other cathartics here, the simple castor oil, which he used with this view, perseveringly and in large quantities.

Rosenstein expelled tape-worms, he tells us, by mere purging; during the operation, causing his patients to drink profusely of cold water, which he supposed rendered it liable to be detruded by the peristaltic action of the intestines. The water should be very cold or even iced. He urges the taking of a glass every four or five minutes until a gallon has been swallowed.

Some of the mechanical remedies are said to have succeeded well, of which the filings of tin and the cowhage are examples. Dr. Parr affirms, that he has witnessed the most happy effects from the administration of the coarse raspings of a pewter plate. The amalgam of tin with quicksilver, by whom suggested, or with what view originally, I know not, has been highly spoken of by certain writers, among them the justly celebrated Darwin. An interesting example of the results of its incautious employment, for the expulsion of tape worm, may be found in the Phil.

Journ:, vol: 1st and 2nd. The patient took of this amalgam, not less, it would appear, than twenty ounces, which, failing to pass off by stool, remained massed together and impacted in the intestinal tube during the remainder of his life, occasioning, as may be supposed, many and severe inconveniences.

CHAPTER XXXII.

HEPATITIS.

Of the organs contributory to the function of digestion, the liver is the largest. Indeed, it is the largest of the human viscera, its ordinary weight, in a healthy adult, being calculated at about three pounds. It would also seem to be among the most important, whether we argue from its size, its almost invariable presence in the different classes of animated beings, or the large supply and singular distribution of blood sent to it.

Of the immediate agency of the liver, or the particular uses of the bile, which it secretes in so large quantity, in the process of digestion, it may be frankly confessed that we know little or nothing. But we cannot hesitate to accord to it a principal place, in a pathological point of view, when we reflect upon the extent of its sympathetic connections with the various parts of the system, and the influence of its diversified morbid conditions, upon both the mind and body. In warm climates, especially, this influence is more striking and clearly marked, and forms one of the points to which, in your future practice, your attention must be closely and steadily directed. In miasmatic regions of country, indeed, you will scarcely meet with an instance of disorder, either of the circulatory or digestive functions, in which the liver is not primarily or secondarily affected, in a greater or less degree. Numerous exemplifications of this fact, have crossed us at every step of our progress, as in bilious fevers, dyspepsia, dysentery, etc.

Many pathologists have attempted to account for this peculiar

liablity of the liver to derangement in hot climates, but in plausibility and apparent soundness, their speculations are all excelled by those of a writer, whom I have had lately occasion to quote more than once: I allude to James Johnson, and his treatise on the Influence of Tropical Climates, a book which has received just commendation from the highest professional names of the age.

This author has advanced the opinion, and maintained it with no little ingenuity and force of argument, that there exists between the skin and the liver, a direct and close sympathy, rendering them liable to be equally, regularly, and similarly influenced by particular agents, acting upon either. Thus, from this connection or consentaneous action of the extreme branches of the vena portarum, and the extreme cutaneous vessels, it follows that the biliary secretion and the perspiration will be obstructed or increased, by the synchronous effect upon them, of any agent applied to either. Heat, therefore, which invariably stimulates the exhalents of the surface, and vastly increases the quantity of perspirable matter thrown off, necessarily urges the liver also, to proportionally increased secretion of bile. But it is well known and acknowledged, that if any organ be stimulated to inordinate action, it either falls into occasional torpor and exhaustion, or if this inordinate action be kept up, for any length of time, by the incessant application of unusual stimulus, serious injury, and even structural alteration will be the consequence. And this doctrine of cutaneo-hepatic sympathy, (for the proofs of which, I refer you to the work itself,) will be found, he argues, to account for, and explain all the various derangements and disorders of the liver, so commonly met with in warm climates.

Whatever form of hepatic disease may be generated by extreme heat, as above specified, it will be apt to give rise to, or run into an inflammatory condition of the liver, and the inflammation may be either of the acute or chronic character.

The distinction between these two species of hepatitis, you will observe, does not simply refer to the time occupied in their course, or the rapidity of their progress, but is generally understood to imply a difference in kind, as well as in degree. Thus many believe acute hepatitis to consist in an inflammatory

state of the membranous envelope of the organ; and chronic, in inflammation of its parenchyma. Others attribute the acute species to an inflammatory condition of the ramifications of the hepatic artery, and the chronic, to a like state of the vena portæ.

To decide these disputed points, is, I confess, altogether beyond my power; yet, I am disposed to think there is some reason for the first of these distinctions. The pain in acute hepatitis is often extremely severe, and much unlike the deep seated aching connected with inflammation of parenchymatous structures generally. Yet, neither can I doubt that they, at times, run into and produce each other; the acute leaving often behind it the chronic inflammation; and the chronic, needing, in many instances, only the application of some exciting cause to become acute also. Here it is evident, that both the intestinal structure and the external surface or membranous coat, must be affected at the same time. "When in disease of the liver," says Baillie, "inflammation is confined to the membrane of the liver, it is not frequently extended over the whole of it, but more commonly takes place in that portion of it which covers the anterior or convex part. I have also seen inflammation or its effects, on that side of the liver which is in contact with the stomach and the duodenum. When the membrane is inflamed, the substance is sometimes inflamed which lies immediately under it."

Acute Hepatitis commences with rigors, and an accelerated hard, jerking pulse; there is a pungent pain in the right side, which is felt under the margin of the ribs, shooting to the back and to the top of the shoulder. The pain is permanent, usually without sickness at the stomach, but occasionally, if extremely severe, attended with nausea. The tongue is whitish and furred, and the skin hot and dry, and there is much thirst; the bowels are irregular, but for the most part, costive. The respiration is hurried and uneasy, and a deep inspiration increases the pain in the side. Cough comes on, short and dry, some hours after the access of the disease.

It is not always easy to distinguish an attack of hepatitis from pleurisy. We have a case related with great candor by Cleghorn, which he imagined to be pleurisy; the patient died on the twelfth day, and on examination there was found a large abscess

in his liver, his lungs and pleura being quite sound. The diagnostics, however, are not usually so difficult. We have in hepatitis, the pain at the top of the right shoulder, a symptom difficult to explain or account for. Much insisted on by writers generally in hot climates, its frequency and importance are both denied by McIntosh, Andral and Stokes. I have always met with it. There is at first, no cough, which comes on in pleurisy simultaneously with the pain and fever. The patient complains of pain lower down in his side, placing his hand, when desired to point out the seat of his sufferings, upon the cartilages of the false ribs, and when the hand is pressed pretty firmly inwards and upwards under the ribs, he shrinks and starts back. Exploration of the thorax and abdomen, carefully made, will obviate any farther liability to mistake. If the lungs be unaffected with inflammation, resonance or percussion will be unimpaired, and the respiratory murmur will be distinguished. Allowance must be made, however, for some projection upward, of an inflamed and swollen liver, which will encroach somewhat, on the usual limits of the thoracic cavity, by pressing up the diaphragm.

Heat, though as you have heard, the principal predisposing cause of acute hepatitis, and capable in itself of generating it, as it would appear, is not yet the only source of the disease. It is liable to be brought on by the application of other agents or excitants; among them, the chief may be considered alternations of temperature. "Cold," says Dr. Mosely, "is the cause of almost all the diseases in hot climates, to which climate alone is necessary." The application of even a slight degree of cold, is affirmed by Johnson, to be pregnant with danger, in the debilitated state of the extreme vessels of the skin and liver, consequent upon the continuance of heat for some time. "For not only is the animal heat too rapidly abstracted, but both these sets of vessels are instantly struck torpid; the biliary secretion and perspiration are both arrested; the passage of the blood through the liver is obstructed, and congestion and inflammation are the results." Any excess, either in eating or drinking, indulgence of any of the passions, exposure to rain or moisture, night dews, etc., have all been known to bring on attacks of this form of disease.

Acute hepatitis may terminate in various ways; either prostrating the patient like other inflammatory diseases and running at once to a fatal issue; or giving rise to a chronic affection of the organ; or ending under favorable circumstances of habit and constitution, and skilful, energetic treatment, in resolution more or less complete. It occasionally produces suppuration, when one or more large abscesses will be found in the organ. The secretion of pus in the liver is known by chills and rigors taking place, a sense of weight and heaviness in that part of the abdomen. Sweats about the face with increased frequency of pulse are also enumerated by Pemberton among the tokens of the occurrence of suppuration. This is always an alarming circumstance, though not necessarily fatal. Annesly, in the East Indies, has met with several examples of cicatrization of the liver, after "cured hepatic abscess." One such case occured in the Meath hospital, in a soldier formerly serving in Hindostan. The cicatrix, described by Stokes, consisted of a depression, with puckering of the hepatic tissue and deposition of cartilaginous structure. If adhesions have preceded the suppuration, the pus may point outwardly, and the abscess open on the side, in which case the patient may ultimately recover. Adhesions have connected the diaphragm with the upper surface of the liver, and the lungs with the diaphragm; and ulceration taking place, the matter has found its way into the lungs, and been spit and coughed up in large quantities. By similar adhesions it has made a passage into the stomach or intestines, and been discharged by vomiting and purging.

Pemberton mentions his having seen a large abscess in the liver, capable of containing, at least, two quarts, which by a very gentle pressure, could be made to ooze through the diaphragm by innumerable small orifices, into the lungs which were adherent. In the matter of the abscess, he informs us, were great numbers of hydatids, from the size of a pin's head to inches and a half diameter. Hydatids, by the way, are found in the liver, as frequently perhaps, as in any other part of the human body. It would form an interesting, but difficult speculation, to endeavor to account for their production, taking for granted the generally received opinion, that they are actually animated creatures. They are of very different sizes, and ac-

cording to Baillie, sometimes enclose each other in a series, like pill-boxes. You will find a case related by Thomas, in which sixteen pints of water were drawn off from a tumor in the region of the liver, probably a very large hydatid.

The Treatment of acute hepatitis, requires nothing peculiar in principle, but must be directed by the rules below given for our government, in all active inflammations of internal organs. Our most important remedy is, in the first place, venæsection, and this must be carried to the fullest extent compatible with the strength of our patient. Bleed until you have relieved the pain, or brought down the force and frequency of the pulse; and if the circulation appears excited again in an hour or longer period, bleed again to the same result, and repeat the operation as often as the same circumstances may demand it. Local abstraction of blood by leeches and cups, is here of great importance, and should without delay be had recourse to. Active purging, is our next reliance. Calomel, so much recommended by some, does not seem to me adapted to the case. I prefer, infinitely, the neutral salts, which tend much more clearly to the rapid diminution of the inflammatory excitement. I may observe here, and would wish your particular attention to the remark, that in the inflammation of parenchymatous structures and of the mucous membranes, mercury is unrivalled in its beneficial influence; while upon inflammation of the serous membranes as of the peritoneum, pleura, (dura mater) etc., it has comparatively little remedial effect, unless when the affection is of a chronic form. In the case under consideration, your safer dependence will be upon the free administration of the neutral salts. as sal: epsom, combining perhaps some antimonial, which will slightly nauseate and determine to the skin; or an active cathartic, as the compound powder of jalap and sulph: potass: may be prescribed with similar addition. Local blood letting may be still employed from time to time; cups or leeches being applied and re-applied followed by assiduous fomentations until the vascular excitement, local and general, has been sufficiently reduced, when a large blister should be put on the part in pain, which may either be kept running or renewed as often as necessary. These impressive measures being entered on with sufficient promptness, and carried into energetic execution, the disease will rarely fail to

yield at once. Indeed I have never seen a fatal case of the kind. When the nature of the attack has been mistaken or imperfectly understood, the patient not seen until the morbid action was too well established to be subdued, or the case improperly managed, we must expect it to issue in one of the unfavorable terminations formerly enumerated, the rapid prostration and exhaustion of the patient, the supervention of the suppurative process, or the establishment of inflammatory action of an obstinate low and chronic form.

If suppuration has distinctly come on with great reduction of the pulse and general prostration, the patient's strength must be supported by a nourishing diet and tonics, of which the bark will be preferable, if it be retained on the stomach. If not, any of the bitters may be substituted. The bowels must, however, still be kept in a soluble condition. If any tumor should appear upon the side about or under the ribs, it should be opened, and a free vent given to the matter, which being thus evacuated externally, and the patient properly supported, offers us hope of his restoration to a certain degree of health. Graves has proposed, ingeniously enough, to invite the matter contained in a hepatic abscess to the surface, by the following operation.—Having ascertained the condition of the liver by careful examination, he lays open, by a free incision over the tumor, the various tissues that form the abdominal parietes down to the peritoneum, preventing the union of the incised parts. The pressure being thus removed, the pus within projects the walls of the abscess at the uncovered spot, and escapes readily through a puncture made there. An incidental, but important advantage, is supposed to be gained here, by the occurrence of adhesive inflammation, which unites the external investing membrane of the liver to the opposite surface of the peritoneum, thus preventing the admission of the matter into the abdominal cavity when the abscess is opened. An attempt is recorded, to substitute caustic for the knife, in a case of this sort. It was a failure; the pus getting into the abdomen, brought on peritoneal inflammation, of which the patient died. It has been observed, that abscesses in the liver sooner heal, when opened, than similar affections in other parts of the body. I should, however, very much doubt the possibility of a complete recovery of the powers of digestion,

after so extensive a lesion of the structure of an organ, the due performance of whose unknown, yet certainly important functions, seems to be absolutely necessary, not only to the ordinary process of fœcification, but to the assimilation of our food, the proper elaboration of the sanguineous fluid, and the due nutrition of the various parts of the body.

CHRONIC HEPATITIS—as being of much more frequent occurrence in our climate, than the acute species, claims from you a particular attention. Indeed, it is scarcely possible, that any of the numerous agents which, especially in hot climates, affect the liver, should not produce, in a greater or less degree, the sort of morbid condition intended to be described under the above title. For, whether torpor or exhaustion, or venous congestion, or arterial or secretory obstruction, be the primary consequence of the application of the various causes of hepatic disease formerly noticed, inflammation, in some shape, must be the almost necessary result of the irritation thus produced.

Chronic hepatitis is, for the most part, developed slowly, and the symptoms which denote its presence, are at first obscure. There is a sense of weight and fulness, with a dull pain in the right side, yet so slight, that no notice would be taken of them, if enquiry were not made. On pressing with the fingers upwards and inwards, the patient will usually shrink, and the edge of the liver will be felt thicker and heavier than natural. In instituting this examination, we direct the patient to make a strong inspiration, so as to force it down as far as possible by depressing the diaphragm. "When the liver becomes enlarged," says Bell, "its hard margin comes down, so as to be felt through the abdominal parietes under the ribs. This enlargement of the liver, and consequent descent of its margin, is to be felt more easily by grasping the integuments of the belly, as if you expected to lift up the acute edge of the liver, than by pressing with the point of the finger. By this means, we shall be sensible of the elasticity and softness below the liver, and of the resistance and firmness of its margin. The physician, however, should not forget," he goes on to observe, "that the depression of the diaphragm, and the consequent protrusion of the liver by disease in the thorax, may give the feeling of enlargement and

hardening in that organ." There is generally pain and uneasiness, too, at the top of the right shoulder. I have seen cases of hepatitis marked with sufficient distinctness, in which the pain was in the left side and the top of the left shoulder. In these, the left lobe of the liver was probably the seat of disease. "The left great division of the liver," says the writer just now quoted, "is, perhaps, as often diseased and enlarged as the right, in which case, it is more difficult to ascertain it by examination." The appetite and strength are diminished—the spirits are dejected; there is emaciation more or less perceptible. The tongue is usually whitish; there is some thirst; the sleep is harrassed and disturbed with disagreeable dreams. The bowels are irregular, sometimes rather costive, but most frequently loose with ill-conditioned passages, showing a deficiency or vitiation of the bile; and this state of the intestines has obtained the specific appellation of hepatic diarrhœa. It is, indeed, of no little importance, to observe the qualities of the alvine evacuations, and to note the various changes in the appearances of the bile mixed with them. These appearances are exceedingly diversified, from a thick molasses or tar-like color and consistence, to yellow, bright and healthy bile, the discharge of which is, perhaps, the most favorable token of the restoration of healthy, hepatic action. A scalding sensation in the bowels and at the anus, marks generally the evacuation of bile highly vitiated. The pulse is quickened, and somewhat tense and corded, though contracted and small. There is a sallowness of the countenance, a yellowish tinge of the adnata of the eye, and the face seems somewhat tumid. There is a febrile exacerbation every evening, and an increase of a dry, tickling cough, which usually attends. The patient lies most comfortably upon the side affected. In the progress of the case, the feet and ankles are swollen, and the strength of the patient is more and more rapidly sunk by the continuance or increase of a chronic looseness or diarrhœa. Those err who anticipate jaundice as among the ordinary results of hepatic inflammation, whether acute or chronic. It is more apt, indeed, to follow a duodenitis, than a hepatitis, for a very obvious reason. The former has much the most direct tendency to induce swelling and closure of the duct, and thus prevent the passage or elimination of the secreted bile.

Among the variety of causes enumerated by authors as producing the disease, are excess in the pleasures of the table, and in the use of alcoholic liquors, and in the indulgence of the various passions; exposures to atmospheric vicissitudes; moisture in its several modes of application; fatigue, etc. It has been affirmed to have followed as the consequence of obstinate quartans, having been affected in lieu of the spleen, the usual seat of internal congestion and inflammation from this class of agencies. I have seen it developed in three young females, without the application of any evident or prominent exciting cause; a strong predisposition to hepatic disease was however in one of them hereditarily derived.

Chronic hepatitis is more likely to run into suppuration than acute, as affecting already the internal structure of the liver. I have myself seen, in a long standing case, the whole viscus converted into an immense abscess, a seeming bag containing pus, the sides of which were diminished, by absorption, to the thickness of half an inch. These abscesses may point or break outwardly, as above mentioned, or find a vent through the lungs or through the stomach or intestines. I have more than once, however, seen the patient sink and die from the irritation and hectic state connected with this morbid condition of the liver, without the abscess bursting. This slow form of inflammation terminates, too, in schirrous induration of the liver, in which state the patient drags out a miserable existence, tormented by all the harrassing symptoms of dyspepsia, with the most intolerable depression of spirits, sleepless nights or horrid dreams, and gradual wasting and decay. These are among the ordinary consequences of intemperance.

Prognosis. In the first instance hepatitis, whether acute or chronic, does not necessarily imply anything beyond a marked disorder of the functions performed by the vessels of the liver. This however will, in a longer or shorter time, according to the violence of the attack, or the intensity of the causes producing it, run into a morbid derangement of the very structure of the organ, a case evidently differing from the first very widely in both danger and obstinacy. We can, in general, without very great difficulty, restore to the liver its proper tone, and bring it back to a correct state of action, provided the disorder with

which it is affected is simply functional; and this is done by taking away the causes which induced the morbid excitement, and applying the remedial means spoken of. But I fear that the regeneration of healthy structure, after it has become altered, is altogether beyond a reasonable hope. We may, by prudent management, check and restrain its farther progress, and enable our patient to lead a life, perhaps, of comparative comfort, but no more.

It may be set down, then, as a rule generally correct, but admitting of exceptions, that in proportion to the duration of the complaint, will be the danger of an unfortunate termination, and the difficulty of treatment. Allowance must here be made, as has been remarked, for the intensity of the causes. Habitual and excessive intemperance affects the liver almost irrecoverably, and that, too, in very short spaces of time, in certain instances.

The Treatment of chronic hepatitis, differs as much from that of the acute species, as in the probable primary seat of morbid action. The lancet may be used with advantage, if the patient be young and robust, and the pain in the side considerable; and moderate venæsection may be repeated pretty frequently in these cases. But, in the employment of this remedy, be careful to observe whether the detraction of blood does not rather sink the powers of the patient, than make an impression on the disease. If the former effect is disproportionably great, you will afterwards abstain from further depletion in this way. Topical blood-letting, by cups and leeches, will then be your best substitute, and indeed can scarcely ever be omitted with justice to your patient.

Mercury holds the very first rank in the farther treatment of chronic hepatitis; it should be introduced into the system slowly, and its influence upon the secretory vessels, as exhibited by a slight soreness of the mouth and gentle ptyalism, kept up for some length of time. In the meanwhile, however, it will be necessary to have the bowels regularly and freely open, and to promote a due determination to the surface. For these purposes, I am accustomed to prescribe calomel in small doses, in combination with pulv: antimon: adding jalap or pulv: rhœi in sufficient quantity to affect the bowels moderately. This plan will,

however, require to be persevered in, as no immediate beneficial results are to be expected from it. "The mouth," says Pemberton, "should be kept in this state of gentle salivation, till all symptoms of the disease disappear; and the practitioner must, therefore, modify the quantities of mercury to be used, by the effect produced." Next, in efficacy, to mercury, we rank the mineral acids, which may often, indeed, be successfully employed as substitutes for mercury, when any circumstance contra-indicates its use. After a great deal of discussion upon the subject, it seems now to be agreed on, that the nitro-muriatic acid, formed by mixing equal parts of nitrous and muriatic acids, deserves a preference. I have, however, been much pleased with the use of the nitric alone; the muriatic unmixed, is said to be less applicable. The nitro-muriatic acid may be administered, internally, in the dose of from 3 to 10 drops, three or four times a day, in any pleasant vehicle—some mucilaginous syrup is generally employed. The nitric may be given in the same manner. Care should be taken, in prescribing these strong acids, to preserve the teeth from injury or corrosion; the patient should, therefore, be advised to wash the mouth completely after each dose, or, as some recommend, to suck up the fluid through a cane or glass tube, or pour it down the throat from the spout of a proper vessel, introduced far into the mouth; nor is the external application of the acids wanting in power or effect. The facts tending to the proof of their efficacy, when used in this way, are nnmerous and strong, and are triumphantly recorded by Dr. J. Johnson, as confirming his theory of the close and direct sympathy between the skin and the liver.

The feet and the legs of the patient are to be immersed in the warm nitro-muriatic acid bath, from twenty minutes to half an hour, just before going to bed, every night or every second night. It is said to cause a prickling sensation, and a warm perspirable state of the feet and legs of the patient. The effects attributed to the use of the acid, either internally or as a bath, are said much to resemble those of mercury, in exciting the secretions and the excretions. It induces very considerable perspiration, and sometimes augments very suddenly and remarkably, the secretion and flow of bile, and occasions, in some persons, faintness and an increased flow of the saliva. Internally, I have

often prescribed the acid, and with much satisfaction. Taraxacum, the tomato, and various compounds of aloes, scammony, colocynth, and other drastics, have been urged upon us, and highly eulogized as substitutes for mercury. I am not willing absolutely to deny them any efficacy, but whatever benefit may be occasionally derived from their use, it is not such, by any means, as to enable us to dispense with our most invaluable alterative. Iodine, in several forms of preparation, has been recently employed in the treatment of obstinate chronic hepatic affections. I cannot speak very confidently of its effects when uncombined, yet I think I have derived advantage from it in very minute doses, as in the diffuse solution of Lugol, one grain to 2 pounds of water, persevered in for a considerable period of time. As similarly diffused in many mineral waters, the White Sulphur Springs of Virginia, for example, it has gained, and justly, I think, a high reputation. I am disposed, too, to place much reliance upon the exhibition of the deutiodide of mercury and potassium in these tediously protracted cases, and am now much in the habit of resorting to it, after the preliminary measures necessary for subduing general and local excitement have been duly carried into effect.

While pursuing the means above detailed, we should not neglect the topical remedies applicable to the case. If there is much pain, we may, in addition to the moderate venæsection directed above, or when this mode of general depletion is inadmissible, detract blood locally, from time to time, by leeches or cups applied to the side—after which, a large blister should be put on, and a succession of them made use of, in preference to keeping open the vesicated surface by other stimulating dressings. Flannel should be worn next the skin, for the purpose of promoting free perspiration, restoring, in some measure, the regular balance of excitement, and preventing the evil influence of atmospherical vicissitudes, which are among the agents most prejudicial to the sufferer in chronic hepatitis, and which must, therefore, be carefully avoided by every means in our power. Exercise in the open air, will form an essential part of the regimen to be observed when the weather is warm, equable and favorable, and the patient's strength and circumstances as to

pain, etc. will admit of it; when otherwise, you will find the swing an excellent substitute.

Rigid temperance must be strictly enforced. The food must be of the plainest kind, and prepared in the least stimulating manner. Rice, with boiled meats, as poultry, mutton, etc. will constitute the utmost limit of indulgence in the pleasures of the table. No distilled or fermented drinks are to be allowed; water, however insipid and disgusting it may seem to a palate and stomach long accustomed to the factitious excitement of wines and ardent spirits, must constitute the chief beverage. The moderate use of tea and coffee is all else that can be permitted.

Chronic hepatitis becomes connected with, and indeed gives rise to dyspepsia and other modes of morbid action of the digestive organs. In such cases, a resort to some mineral spring will be of much service. The gently purgative waters are to be preferred—indeed, continued mild purging, of itself, seems often adequate to the removal of the lighter forms of the disease now under discussion.

I have mentioned the singularly deep depression of spirits so invariably the result of an improper and diseased performance of the hepatic function. This, too, is best relieved by the society, amusements and bustle of a fashionable watering place; and some have even doubted whether these are not quite sufficient to account for the recoveries which occur at such resorts, without the supposition of any curative property inherent in the fountains themselves. Be this as it may, a residence at such places, is among our most successful remedies in the case before us.

In obstinate chronic hepatitis, however, we should not fail to recommend, if within the reach of our patient's means, a sea-voyage and change of climate. These are not only useful, by their own remedial influence, but they seem often to be necessary, in order to renew the susceptibility of the system to the effect of our medicines. You will readily infer, from what has been said, that some attention must be paid to the kind of change which we advise; thus, we should not send a patient from a warm climate to a cold one in winter, where he will be

sure to sink under the chilling effect of such a sudden decrease of temperature, or will be rendered liable to an attack of acute supervening upon his chronic state of inflammation of the liver. Nor, on the other hand, would you permit him to venture into a more southern region during the heats of summer or autumn, there to encounter, in increased intensity, the same causes which had previously exerted, on his hepatic system, so injurious an influence. By a careful consideration of the circumstances, you will be enabled so to direct his course, as often to effect a wonderful improvement in his health. But you are not to inculcate in him the expectation, that a removal or voyage will obviate the necessity of observing the plan of treatment above detailed.

In conclusion, I cannot fail to impress upon you, the importance of the prophylactic or preventive mode of conduct, so strongly indicated in a climate like ours—warm, relaxing and miasmatic. Temperance not only as regards the grosser indulgences of eating and drinking, but as implying the avoidance of excess in the gratification of all our appetites and passions, should be strongly enforced upon the community, for the care of whose health you will be responsible, not only by your precept, but by your example. So shall you escape many, or most of the evils "that flesh is heir to,"—so shall the days of your early manhood be like the morning sunshine, bright and unclouded—and so shall you descend into the evening of life, after a long course of usefulness and enjoyment, tranquil and honored.

CHAPTER XXXIII.

ICTERUS—JAUNDICE.

Our present subject affords us a very striking instance of the conventional application of a nosological term without definite significance. In using the word Jaundice, physicians seem to mean nothing but an allusion to an unnatural color of the skin,

which, in a vague way, and, doubtless, originally from mere analogy of hue, they refer to a suffusion of the integument with bile. This again, they connect reasonably enough, but indeterminately, with some unknown condition of hepatic disorder, expressed by the phrases obstruction, engorgement, torpor, etc.

It is assumed, that, on the one hand, the secretion of bile being suspended, it remains mingled with the other component parts of the blood, which its non-separation occasions to acquire a yellow or brownish tinge, noticeable on all the surfaces and tissues; and, on the other, that having been elaborated by the hepatic vessels, its excretion is impeded or prevented—it is reabsorbed to be mixed again, mechanically, as a foreign ingredient with the circulating fluid, which being itself thus discolored, dyes the whole body more or less.

The sallow hue, universally regarded as characteristic of this disease, is indeed the only constant symptom of jaundice. Coincident with it, for the most part, we have anorexia or impaired appetite, loss of muscular strength, diminution of all the energies of the system, physical and mental, dejection of spirits, constipation, and absence of the natural brown tint of the alvine discharges. The tongue is usually coated with yellow mucous saburra, and a bitter taste is perceived in the mouth; there may be nausea and occasional vomiting, especially in the mornings. In some instances, a fulness, weight, or pain, is felt in the right hypochondrium; the lower extremities become ædematous, and anasarca or ascites gradually supervenes.

Less frequently, the patient is attacked, in addition to these symptoms, or perhaps first in the train, with violent pain at the epigastrium or in the right side—dyspnœa—retching and vomiting—great anxiety—extreme oppression, with a sense of swelling, and, indeed, actual intumescence of the abdomen, which quickly becomes intolerant of the lightest pressure. The bowels are acted on slowly and with difficulty, and stools, when procured, are clay-colored or quite pale—perhaps, on careful examination, we may find small concretions—"biliary calculi" voided with them.

I have said, that the discoloration of the skin is the only constant token of the icteric state. The skin, and the adnata of the eye, are of a deep orange yellow; the urine is high colored,

giving a yellow tinge to paper or white cloth dipped in it; the perspiration sometimes discolors the linen. "Milk alone," says Heberden, "of all the secretions, is not thus changed in jaundice." Marsh, however, tells us of a case, in which "the breasts were full of a yellow fluid possessing the properties of bile;" and Eberle says, that he tasted bitter milk from the breast of a jaundiced patient.

Poets and philosophers have, in all ages, made frequent allusion to the fact, that the jaundiced eye sees all objects clouded with its own sickly hue, from the peculiar suffusion of its humors. It has never happened to me, to meet with an instance in which this affection of vision was alleged to occur, although I have not failed to enquire concerning it of all the subjects of the disease under my care. McIntosh, however, asserts that he has "known several individuals who saw every object discolored," and speaks of one in whom this was "the first circumstance that excited attention." Good affirms, that the phenomenon actually took place in his own person. Be this as it may, I am, with Gregory, disposed to doubt the often repeated statement, that the solids also, as well as the fluids, are universally stained—at any rate, I have not met with any example of it.

The discoloration of jaundice is spoken of habitually as yellow, and such it is, indeed, in an infinite majority of the cases. But in times long past, icterus was divided into species, in reference to the variety of discoloration presented, whether of the bile discharged, the mucous secretions, or the general surface. Thus three forms of jaundice, can be recognized—the yellow, the green and the black; and these distinctions are not left to rest upon tradition merely, or ancient authority. Baillie recognizes and describes the two first. Good retains the division and acquiesces in its correctness and propriety. Marcard of Hanover, regards the distinctions thus offered as truly specific and characteristic; not dependent on intensity alone, as has been imagined.

In the month of August, 1825, I chanced to meet with a strongly marked example of icterus viridis, in a negro patient, who was attacked while apparently convalescing, though slowly, from small pox. Of course no change in the hue of the skin was here perceptible, but the conjunctiva was strikingly green

with a slight tinge of yellow; the tongue and the mucous lining membrane of the mouth were greenish, and the saliva and bronchial mucus which she coughed, hawked, and spit up were perfectly green—deeply grass-green. Her alvine evacuations were also of a deep dark green.

That there is, as has been contended, something peculiar and specific in these cases, is rendered probable by the fact that icterus viridis almost always ends fatally, while the prognosis in the ordinary form, known as yellow jaundice, is very generally favorable, making due allowance for the causes which brought it on, and the constitution of the subject affected. Baillie saw but two recoveries from icterus viridis; Good and others represent it as almost uniformly fatal. It seems disposed, in a majority, to protract itself indefinitely, proving slow and chronic, and enduring for years perhaps. My patient died in about a month from the commencement of the attack, worn out with atrophy and miserably emaciated.

Jaundice has been divided by some authors, under the heads of idiopathic and symptomatic; but the distinction is hypothetical, and besides, is not capable of being observed with definite clearness. So many causes indeed, have been assigned for the phenomena which are brought together under the general term icterus, that it will not be found easy to connect or classify them. I shall endeavor to enumerate the most prominent, constant and familiar of such as are fairly made out, and then go on to offer as satisfactory a rationale of their influences as I am able; noticing afterwards in a brief way, the conjectural sources to which pathologists have attributed the attacks that arise from contingencies not obvious.

In following out the attempt above alluded to, and laying down the distinction of jaundice into primary and secondary, it will, I think, be very difficult to establish the existence of an idiopathic, primary, or as it has been called simply, "hepatic" jaundice. It will be seen on an examination of its numerous alleged causes, that few, or more probably none of them, can be proved to possess any direct influence, or to exert any direct impression upon the liver; which indeed they all seem to affect and act upon sympathetically, and by previous disturbance of the sensorial system, the cutaneous functions, or the gastro-enteric mucous membrane.

1. Every obstetrician and nurse is familiar of course with the "yellow gum" or jaundice of the new-born infant. This is attributed, with much plausibility, to the greater promptness with which the absorbents commence the exercise of their offices than the emulgent vessels begin theirs; or the bowels take on their peristaltic movement to discharge their contents. Some ascribe it to the mechanical obstruction of thick mucus impacted in the duodenum at the mouth of the ductus communis choledochus, preventing the passage of bile into the intestine. It is an affection attended with no serious consequences, and for the most part, easily removed. A single mild cathartic puts an end to it at once, or it subsides of its own accord within a few days.

Similar to this probably, both in nature and cause, is the attack which we sometimes meet with in an adult, betrayed by no sign but a transitory sallowness of visage; the health of the individual being so little deranged that but for the remarks of his friends, or the information caught from his mirror, he would not know that any thing was wrong with him.

2. Jaundice—as the consequence of mental emotion—is not at all uncommon. Fear has been often known to produce it suddenly; the sallow complexion is almost as certain and well known an effect of long-continued care and anxiety, as the haggard expression of the countenance; but grief seems of all the passions, most adapted to occasion it. In such cases as these, pathologists have supposed the direct impressions made upon the brain, to be promptly though sympathetically communicated to the liver, whose functions become soon deranged and icterus thus results. The whole train of evils may perhaps be more rationally ascribed to an intermediate disturbance of the stomach, the shock to the digestive apparatus so readily diffused by means of the ganglionic nervous system to all the abdominal viscera, whenever the mind suffers in any manner.

It is doubtful whether we should properly arrange here, the attacks alleged to follow protracted and vehement mental application. I am disposed to question whether study alone, however intense and long-continued, can exercise directly or in any other mode than its widely influential effect in depressing the physical tone of the general system, a morbid impression upon the hepatic function. The great magician of modern times, Sir

Walter Scott, has been referred to as an instance of the production of spasm of the hepatic ducts and consequent icterus by mere "mental application"—hard labor of thought and pen; but, besides his habits, those of his age and circle, of free living, he had been, when assailed, struggling long with the anxious cares that pressed upon him, in his efforts at once to prop up a failing copartnership, and to gratify his violent ambition of becoming a large landholder.

3. Icterus is the concomitant or sequela of several other maladies. It connects itself, indeed, with a very large proportion of the autumnal diseases of hot climates; a tawny darkening of the complexion being a symptom, not only of the yellow fever of tropical regions, but of the ordinary remittents and intermittents; its ratio to the whole number of subjects of such fevers, varying from one year to another, in dependence upon contingencies not understood. In my own case, a transient, but oppressive attack of jaundice followed a few hours intense seasickness, occasioned by a rough sea, in crossing the British channel, from Dover to Calais. I have seen the same thing, also, happen to others. We now and then meet with it during convalescence from our common cholera, especially in summer and autumn.

4. Nothing is more generally acquiesced in, than the belief that the malaria of miasmatic districts, acting readily upon the skin and liver, is exceedingly apt to produce icterus; but it has not been so distinctly noted as it deserves to be, that as I remarked above, the malaria of certain years is distinguished by some undefined modification, which very strikingly increases this tendency. Cleghorn, in his "Observations upon the Diseases of Minorca," mentions as "a common distemper in July and August, of the year 1746, a slight jaundice without a fever, which soon yielded to purgatives and saponaceous medicines." A similar prevalence of jaundice was observed in this city, in the autumnal and winter months, of 1824. During that season we had been visited with bilious and yellow fevers, and convalescents from both these, were almost universally affected with jaundice, as the cold weather set in. Nor were they the exclusive subjects of such attacks; for many were similarly assailed, who had previously enjoyed good health throughout the year. The cases

were usually mild and manageable, but their great number seemed to me unaccountable, except by reference to such a constitution of our atmosphere, as Sydenham would have called "epidemic."

5. In many individuals, examined after death, the gall bladder is found occupied by concretions of various form, size, and chemical composition. It happens that such concretions are occasionally voided in icteric stools. This may take place without inconvenience or suffering, and the excretion of such bodies may seem of no consequence whatever; but in general, about, or a little before the time of the passage of a gall stone, the subject of such accident, labors under certain definite symptoms, of which, jaundice belongs to the usual train. The inference is easy, and not illogical. We suppose, that in cases of this sort, the following history is applicable. A gall stone or biliary calculus, however unfelt or inert it may be in the gall bladder, if by any agency it is thence expelled and forced to travel onward through the duct, towards the duodenum, finds more or less difficulty in its progress; its size or form, often angular, prevents its easy transmission; its presence at every step of its passage, gives more or less pain and irritation, obstructing, meanwhile, the regular and necessary flow of bile through its usual channel, into the primæ viæ. Hence we have discoloration of the surface, from its absorption into, and diffusion throughout the mass of blood, and hence the other symptoms, whatever they may be, which result from default of mixture of bile with the other contents of the alimentary tube, and those which flow by radiation or sympathetic communication from the irritative excitement mechanically created by the position of the calculus.

6. It sometimes happens that all these symptoms show themselves concurrently, in a given case, without our being able to detect, on the most careful and unremitting inspection, any biliary concretions in the alvine discharges. Yet we have every proof of obstruction to the passage of bile—of its resorption and diffusion, pain in the very region affected by pain when a gall stone is passing, and all the sympathetic irritation aroused by its progress through the ducts. Here we cannot but infer the closure of the duct, but the question arises, as to the mode of

occlusion. From the suddenness with which the attack comes on, from the equal suddenness of the relief obtained sometimes, and from the nature of the remedies most generally successful, a topic which we shall discuss in its proper place, it is inferred that the duct may be, and is affected with spasm. Such, indeed, seems to be very probably the fact, in certain instances. But I am disposed to agree with those who regard such attacks as not unfrequently inflammatory in their nature, and refer their origin to an obscure duodenitis, which has given rise to a continuous inflammation, extending into the ductus communis choledochus, and perhaps the smaller branches of the same excreting canal; the thickened condition and irritable state of whose internal membrane, may well account for all the phenomena. Nay, it does not seem to me unreasonable to believe, that inflammation of the mucous tissue of the duodenum alone, would, by its swelling and pressure upon the orifice of the duct, produce all the results in question.

7. Finally, I must not omit to allude to that form of icterus, occasioned, as writers allege, by the presence of abdominal tumors within the abdomen—enlargement and schirrhus of the pancreas, etc., lying in contact with, and forcing together the sides of the hepatic and common ducts. This condition of things, I have not been so unfortunate as to encounter.

After the above enumeration of the various contingencies with which icterus is associated, or upon which it is dependent, no comment is necessary to impress you with the obscurity of the subject, or with the extent of our ignorance, as to the true pathology of the disease. In this discussion, indeed, are involved some of the most difficult topics of physiological inquiry. The nature and uses of the bile; the consequences of its non-secretion, of its superabundance, of its non-elimination; the modes in which it may be vitiated; the possibility of the retention of its constituent elements in the blood, and the consequences of such retention; the probability of their chemical union in the mass of circulating fluid and the formation of bile in the blood by the action of chemical affinity; the possibility of its being taken up by the absorbents within the substance of the liver, immediately on its secretion there, its passage through the ducts of that organ being

in any mode obstructed; its absorption from the gall bladder—all these demand investigation and elucidation, before we can fully comprehend the nature and pathology of jaundice.

The symptoms of icterus present themselves under circumstances apparently contrasted; thus, whether the secretion of bile be deficient in quantity, defective by imperfect elaboration, or obstructed in its passage to the intestines, we shall observe sallowness of the visage, a gamboge tinge on the conjunctiva, and an impairment of the digestive function. Though the bowels are usually costive, they are sometimes irritated with diarrhœa, the stools being generally of a light or whity-brown color, the spirits are deeply depressed, the physical powers diminished, the pulse slow. Cullen refuses to admit (§ 1818,) that these symptoms are in any case, the result of non-secretion; but it cannot be denied that they occasionally present themselves unattended with any uneasiness whatever, in the region of the liver, any feeling of fullness or weight, and go off as gradually as they have been developed; and it must not, without proof, be assumed that the defect of separation of the coloring matter and the other constituents of bile may not, as well as their resorption and the defect of their mixture with the chyme of the digestive tube, give rise to all the consequences detailed as portions of the icteric state.

That icterus is often a simple derangement of function appears from the fact, that post mortem examinations so frequently betray no lesion whatever; and indeed, some of its forms supervene and subside too readily, and with too much seeming spontaneity, to allow of any structural changes being connected with them. It is a chronic disease, and generally unattended with fever. The discoloration of the skin, is not usually associated with any irritation, but some patients complain of itching, especially at night.

The consequences of jaundice, are more apt to be serious and troublesome than we are led to apprehend, from the want of violence in its course; or rather, it is, not unfrequently, as I am disposed to believe, one merely in a train of evils resulting from some obscure defect or impairment of constitution of the patient. Thus, we see it followed by dropsy, by chronic diarrhœa, by a species of atrophy, and as some writers say, by cerebral affec-

tions, among which, apoplexy is enumerated. I cannot consider these as properly the sequelæ of jaundice, but rather as the coincident or successive effects of some common cause which has produced them all. The modifications of icterus, most of all to be dreaded are, that which is connected with the passage of gall stone, and that which is attended by the same symptoms, though without our being able to find any secretion, and usually spoken of as spasm of the duct. In both these, I have been much struck with the liability of the patient to inflammation of the intestines, as cause, perhaps, in the latter, of all his sufferings—in the former, as the consequence of the presence and passage of the calculus. In either case, it is well to be aware of the risk. Some of these attacks exhibit all the tokens of a gastro-duodenitis of great severity and obstinacy, combined with the other elements of distress and injury. A more diffused enteritis sometimes supervenes, extending to the colon and rectum. The most extensive mortification of the intestine that I have ever seen was of this nature, more than two feet of the mucous coat of the lower bowel having become gangrenous.

The Treatment of icterus must obviously depend very much upon the contingencies with which it is associated; the apparent or probable cause, the state of constitution, and other circumstances of the patient. Referring to the divisions formerly instituted, I shall treat of these varieties separately.

1. Infantile jaundice is, as I have said, attributable to the non-elimination of bile in the new born child, and its consequent diffusion over the body, by admixture with the circulating fluids. Some suppose a mechanical obstruction to exist in the fullness of the duodenum, which they imagine to contain a sufficient quantity of thick mucus, to press upon and close the oblique orifice of the ductus communis. Others take for granted, a want of propulsive energy in the canal itself. Others again, assume, in these cases, and in certain similar attacks suffered by adults, that the bile is in some manner imperfectly elaborated, and undergoes obstruction in the ducts, by an undue "viscidity," (McIntosh and Gregory;) a sort of insipissated condition, if I comprehend the language of the books, "its own viscosity," (Good.) We have on record, instances of immense accumulation of this thick concentrated bile in the gall bladder, when the

liver has gone on secreting and pouring it into this receptacle. Good tells us of its having amounted, in one instance, to eight pounds. It is even said to have given rise to fulness and engorgement of the organ itself, producing an obscure and dull variety of hepatitis.

The practice here is usually very simple, and readily successful. It is rarely necessary to do any thing beyond the exhibition of a cathartic. For the infant, a dose of castor oil is to be chosen; the adult will require an active purgative, such as calomel, with rhubarb or jalap. If this fail, an emetic should be administered; and the antimonial is to be selected, unless there be present some contra-indication to its use. It deserves this preference, because of the more active succussion which it gives to the whole of the abdominal viscera, and the greater excitement which it communicates, through the stomach, to all the chylopoietic organs.

In obstinate cases, we must examine if there be any fulness of the right side, or pain aroused by pressure there. Leeching or cupping may be required, but for the most part, there is evidence of torpor, rather than of irritation or inflammation. We should then direct frictions over the whole region of the liver and the abdomen generally, with the hand, flannel, the flesh-brush, or the hair glove. Fomentations should also be assiduously applied. Shocks of electricity across that part of the trunk, are advised by Darwin, who ascribes to this agent a remarkably beneficial influence, in a case of supposed paralysis or torpidity of the bile ducts. Perhaps a gentle current of the galvanic fluid, kept passing for some time through the inactive viscus, would prove an efficacious excitant. Rough and harsh exercise, such as riding long distances on a hard trotting horse, has been found useful. Care must be taken, meanwhile, to keep the bowels regularly soluble by aloetics and mercurials, in moderate doses, and at proper intervals. Saponaceous formulæ have been long in vogue here, with some obscure chemical purpose; and the common "turpentine soap" is affirmed to possess a specific energy and adaptation.

2. Jaundice from mental emotion, requires very similar treatment to that detailed above. "Time, the great consoler," is, indeed, the best remedy here. Its gentle influence may be aided

by the prudent use of the saponaceous and aloetic laxatives, combining with them small and distant doses of opium, or some one of the salts of morphine, and above all, by advising a removal from every object likely to awaken painful associations. In this especially, but indeed in all the forms of jaundice, a visit to some pleasant and gay watering place, is apt to be very notably beneficial. The gently purgative springs are, perhaps, to be preferred; those which, as at Ballston and Saratoga, contain a large and exhilirating proportion of carbonic acid gas, are most useful. The natural hot baths, too, do excellent service, by the centrifugal determination which they excite and keep up, thus relieving internal congestion and visceral engorgement.

3. Icterus, as a sequela from whatever mode of previous disease, is very likely to subside, when convalescence has been perfectly established; yet this may be a very slow process, and may demand to be aided by some of the measures above indicated. Horseback riding, if the patient is able to bear it, is among the best of these. Frictions upon the side, and the employment of galvanism or electricity, may be recommended.

4. Spontaneous icterus—the jaundice of hot climates and malarious districts—endemic and epidemic jaundice, as it has been styled, is not usually of serious character, or difficult of cure. It disappears in many, with change of residence to a better air, or the return of cold weather, and is often dispersed by active exercise. If it protract itself, an emetic should be exhibited, or an efficient mercurial cathartic. Persevering efforts have been and continue to be made, to discover some medicine or combination of medicines, capable of acting on the liver as mercury is supposed to do—stimulating this gland to more abundant secretion, while it removes at the same time all obstructions, and enables it to disgorge the bile freely through its natural outlets. The ill consequences so often following the injudicious, mechanical and extravagant administration of mercurials, have given great interest to this search after substitutes, and several have been proposed, drawn chiefly, though not exclusively, from the vegetable kingdom. Cook recommends to our special confidence, a combination of aloes and rhubarb. Pemberton presses the claims of the taraxacum or dandelion, with little foundation, I fear, having often tried it altogether in vain;

and of late, one of our western brethren, Dr. Bennett, of Chagrin, Ohio, maintains that the tomato, so much employed upon our tables as an acid sauce, possesses similar efficacy with calomel, being entirely free, at the same time, from any evil tendencies. An extract has been prepared, which is said to embody and concentrate its peculiar properties; but I have been unable to procure any definite results from its use.

As mineral substitutes, the muriates of gold and of barytes have been brought forward, but are not received with any confidence. I mention with far more approval, the nitro-muriatic acid, so highly eulogized by Dr. Scott, who introduced it into practice in the East, as applicable to all the forms of hepatic disease, whether engorgement, torpor, obstruction, etc., provided no token of active inflammation be present. The internal administration of this formula, is not very much dwelt on by its advocates; but its application as a partial bath, to the extremities, is alleged to have exerted, in numerous instances, a prompt and energetic influence upon the liver, exciting without delay, the desired hepatic action, and procuring at once a free discharge of bile through the proper emunctories. Wallace proposes, as decidedly preferable to this nitro-muriatic pediluvium, the immersion of the whole body in the chlorine vapor or gas. Fumigation thus made, he assures us, renews and augments the hepatic secretion, and relieves the oppressed organ with more certainty and readiness, than can be obtained from any other remedy. A peculiar cutaneous eruption, known as the "chlorine rash," is produced by the action of this stimulating gas on the surface, which is considered as beneficially revulsive, and its appearance regarded, therefore, as a highly favorable symptom.

It is in this form of jaundice that the tonics, especially the vegetable bitters, have done most service. I prefer to unite them with some mild laxative, as the bowels are so generally slow and torpid. The combination of colombo with rhubarb and an aromatic, is a convenient formula.

5. Icterus, from obstruction associated with, or occasioned by the presence of biliary concretions—gall stones, next demands our notice. These bodies are of very different constitution and appearance. They are mostly of a dark brown color, often yellowish grey, greenish, etc. I have seen them of an intense jet

black, beautifully polished and lustrous. They are of every shape and sometimes attain a great size. Heberden tells us that a calculus weighing two drams, was found in the gall bladder of Lord Bute. Baillie mentions one as large as "a pullet's egg." Small ones in great number, are collected in some patients. The author last named, says that he saw more than a thousand taken out of one body. Some of them are intensely bitter, others quite tasteless. They are soluble in boiling alcohol, in heated oil of turpentine, in æther, and in nitric acid. They are generally inflammable; but Baillie describes a species of very dark hue, "which did not melt or blaze, but burnt like a cinder." They often consist, externally, of concentric lamellæ, being internally radiated or partly crystallized.

Writers distinguish these calculi into three varieties—1. The cholesterine, of whitish or grey color, or brownish, crystallized, shining, lamellated. Cholesterine is a peculiar animal principle, erroneonsly supposed by Fourcroy, to be identical with adipocire. It is partly soluble in boiling acohol; melts in a high heat, and sublimes in a vacuum. 2. Mellitic calculus, the most common species of gall stone; of a brownish color; always exists in numbers, and of course, takes an irregular polygonal shape. The outer crust is composed of concentric layers of cholesterine, crystallized in small rays inclining to the centre. The nucleus consists of inspissated bile, picromel, and other animal matters. 3. Concretions of inspissated bile; these are not common, but their existence is undenied.

How these concretions originate, or by what vitiated state of the hepatic secretion they are generated, is not known. They are formed, at least in the vast majority of instances, in the gall bladder, where their presence seems to give no uneasiness. In the case of Lord Bute, above alluded to, the monstrous calculus there mentioned, had produced neither jaundice nor any other derangement of health. I have myself, often found such concretions in subjects presenting no additional appearance of disease of the liver or its appendages. To this rule of their entire inertness within the gall bladder, there are, however, some exceptions on record. Soemmering states that he has seen several instances in which their presence had brought on ulceration of the inner surface. Baillie tells us he had met with but a single

example of this kind. Generally speaking, it is only when one or more of them has entered the cystic duct, and is passing onwards to the duodenum, that the patient becomes affected with any definite symptoms. Yet this membranous canal is so distensible and yields so readily, that it is not rare, on examining the alvine discharges, to find in them calculi of notable size, which have made their way without difficulty or annoyance. Baillie tells us, too, that he has seen the duct dilated to nearly an inch in the transverse diameter.

The presence of gall stone, which from its size or shape is hindered in its passage, is inferred from the sudden occurrence of great and very acute pain at the epigastrium, soon extending itself into the right hypochondriac region; it is complained of as intolerably severe and depressing, and is attended with dyspnœa and orthopnœa; the patient cannot sit erect, but chooses a bent posture, leaning forwards. There is sometimes pain at the top of the right shoulder, as in hepatitis. Nausea comes on, with great languor, frequent retching and vomiting. The abdomen feels full and oppressed, and all the clothing about the person is eagerly loosed; and this sensation is soon followed by actual distention, a tympanitic resonance and elasticity being perceived on examination. At this stage, the pulse is little if at all affected; it is not until some hours have elapsed that it becomes tense and corded.

The effects of this mechanical irritation and obstruction are threefold: first, we have the liver engorged, and its acini and smaller tubuli filled with its secreted fluid; the whole organ thus suffers, and must either be relieved by the resorption of bile into the system and its diffusion through the circulating mass, or hepatitis must ensue, of more or less acute character, according to circumstances. In either case, we have icterus produced—simple or complicated. Next, we have the digestive function impaired for want of the due admixture of bile, which, whatever may be the nature of its agency in the affair, cannot be dispensed with. Without it, we know that fecification is, to say the least, incomplete; the contents of the primæ viæ are unnatural, and give rise to irregular and irritative movements, and assimilation ultimately ceases. Thirdly, a very important train of consequences may set in, not sufficiently dwelt on in your books, perhaps, not clearly pointed out hitherto by any patholo-

gist. The mechanical irritation of the duct, gives rise in certain instances, to a degree of inflammation, which, either by continuity of structure or from functional sympathy, is readily carried out along the intestines. Hence we have a duodenitis, sometimes obscure, it is true, but occasionally well marked and violent. Nay, I have seen from this source, inflammation supervene of the stomach and bowels, gradually running on in two cases to a fatal issue; in one with very extensive mortification. Blagden relates a case, in which inflammation of the duct caused an abscess which pointed outwardly, discharging a calculus of an oblong shape, of nearly an ounce and a fourth in weight. Thomas and others give us similar histories.

We cannot in practice distinguish from the cases thus described as depending upon the actual presence of biliary calculi, such attacks as have been attributed to mere spasm and inflammation of the ducts themselves. Indeed, the only diagnosis possible between them would be the discovery of these concretions in the stools. Some have doubted the occurrence of a spasmodic closure of the duct in any instance, preferring to ascribe the obstruction to the inflammatory fullness and thickening of its tissues; but the suddenness with which the attacks come on, and the abruptness with which they subside and terminate, point out, I think, a condition different from the more permanent changes thus indicated; and where we cannot, with every proper attention, detect the existence of a calculus, we may not unreasonably infer that there is spasm of the duct. Perhaps it would even be proper to say that in so dilatable a membranous tube, the supposition of a spasmodic constriction is absolutely necessary to account for the detention of a concretion of moderate size, and all the consequences following thereupon. And if the irritation of a gall stone may produce such spasm, such constriction, why not the passage of morbid, vitiated, acrimonious bile! The occurrence of these attacks is almost entirely confined to persons who have lived in malaria districts, have been affected with miasmatic diseases or liver complaints, and have suffered from alvine discharges of a highly acrid, nay almost corrosive and burning acrimony. I saw in many paroxysms of this sort, assailing suddenly and—until the last fatal attack—subsiding as promptly, a medical friend whose constitution had been broken

up by practice in our low country. Examination of his stools made for several months failed to detect a single gall stone; nor did we find one on post mortem inspection.

The symptoms of this class of cases are precisely similar to those recorded under the last head; pain at the pit of the stomach; sometimes also in the right hypochondrium and at the top of the right shoulder; nausea and vomiting; flatulent distention; tenderness on pressure over the belly; meteorism; obstinate costiveness or teasing diarrhœa with unnatural stools, acrid and inflaming the parts about the arms; great mental anxiety; the pulse not affected for some hours, but afterward excited, frequent and tense; the eyes and whole surface assuming a deep yellow or orange hue.

The predisposition to this form of icterus consists, doubtless, in some obscure hepatic derangement which the minutest examination after death has failed to point out. The exciting causes are generally such as disturb the digestive function; a meal of improper food, or the undue use of acids; violent agitation from any passion, more especially grief and anxiety; exposure to cold, moisture and sudden changes.

The Treatment applicable to the two last classes of cases is precisely the same. If the patient be of ordinary strength and vigor of constitution, venæsection must precede every other remedy, and requires to be carried out with a boldness and freedom proportioned to the urgency of the symptoms. The patient should he kept in the erect posture, or near it, in order that a more prompt and complete relaxation of the whole system may be effected. The warm bath will aid very much in bringing on this condition. Opiates must be freely administered and repeated until the intensity of pain is subdued. If the stomach will bear it, the tincture of opium should be preferred; solutions of the salts of morphine are less offensive, but sometimes the pill only will be retained. Full doses are required; I prescribe from two to four grains of the drug or their equivalent repeating every hour pro re nata. It is well to combine with it calomel also in efficient amount. Opiate enemata should also be exhibited without delay, and fomentations or warm mustard poultices applied over the whole abdomen, but especially to the pit of the stomach.

When we have thus obtained some respite, an active cathartic must be given. If the patient can retain castor oil, it is to be preferred; if not, the neutral salts may be substituted, and the use of these in proper doses and at requisite intervals should be continued for a considerable period, in combination with some of the resinous purgatives—aloes or rhubarb. Mercurials do not seem to me to be of the special necessity or advantage so often contended for, until the case has been protracted into its chronic condition, and the sufferings of the patient, whether from mechanical or specific irritation, have, at least in great measure, subsided. They are now of great utility; small doses of them may be persevered with until the production of a light ptyalism, the disappearance of the sallowness of skin and eyes, and the return of appetite and alvine regularity mark an established convalescence. In this stage we may also make trial of the nitro-muriatic bath, whose inventor, Dr. Scott, affirms that he has "often known it when used in the midst of a severe paroxysm of spasm in the bile ducts, operate like a charm, giving almost immediate relief."

Some practitioners are in the habit of prescribing emetics in these attacks, with the hope of promoting the more rapid advance of the calculi through the duct into the duodenum. They select, for this purpose, the mildest and most relaxing articles, such as oil or ipecac:, and administer them in such doses as to give rise to prolonged nausea and full, free vomiting. But the cases that I have met with, have all been attended with retching and vomiting, frequent and abundant enough to render any farther efforts in that way unnecessary, if not injurious and improper. Nor do I place any confidence in the exhibition of the proposed solvents of biliary calculi—turpentine, æther, nitric acid, etc., though recommended by Durande and others. I do not understand how their agency can be applied, and, except æther, they are all irritating and unsuited.

It is highly desirable to prevent the recurrence of these paroxysms, as they are attended not only with unspeakable suffering to the patient, but with urgent risk of enteritis, and must, by repetition, break down and destroy the firmest constitution. I know no means which promise more benefit than those already advised, as tending to promote, hasten, and render permanent,

the lingering, irregular and uncertain convalescence from chronic hepatitis—a change of climate, carefully avoiding the summer and autumn of hot malaria districts; annually repeated visits to the established watering places, purgative and diuretic springs, such as Ballston, Saratoga, the White Sulphur, etc.; great prudence in abstaining from all excesses, mental and physical; the observance of nice temperance in the pleasures of the table and the use of vinous and alcoholic drinks; the wary adaptation of the clothing to alternations of atmospheric temperature and condition; the abandonment of all sedentary and indolent indulgences; and the establishment of resolute habits of energetic occupation and systematic exercise.

7. It only remains to speak of that form of icterus which occurs, as authors tell us, from local pressure in cases of physconia, where visceral enlargement or schirrous induration occasions an impediment to the passage of the bile along its proper ducts. It is obvious that this may happen, though it is rarely met with; it is equally clear, that our treatment, under such circumstances, must be directed to the relief of the deranged organ, and that the sympathetic jaundice which depends upon the cause assigned, admits of no cure, or even palliation, from any other measures than those which tend to restore the health and diminish the enlargement of the affected viscus. It would, of course, be out of place to enter here into any consideration of this subject, which divides itself under various heads, to be discussed in proper order and succession.

CHAPTER XXXIV.

SPLENITIS.

In all warm climates, subject to the influence of malaria, enlargement and induration of the Spleen are familiar phenomena. As the consequence of intermittent fever, it is, indeed, well known, wherever that disease prevails, whether in Lincolnshire,

Walcheren, or South-Carolina. The nature of this enlargement is not well understood. The organ is of the erectile structure, and is liable to sudden intumescence, as has been repeatedly observed during the chills of a tertian. Andral noticed remarkable changes of bulk in the spleen of a dog, during a painful experiment upon the animal. Ague-cake is supposed, by some writers, to be a mere passive congestion or hypertrophy, and sometimes attains, from the repeated concussions of ague, an immense size. Lieutaud mentions a woman who had for seventeen years a spleen that weighed thirty-two pounds. Sauvages speaks of a schirrous spleen weighing thirty-three pounds. The largest that I have ever seen, weighed but ten pounds; some of the most enormous in bulk do not prove, by any means, proportionally heavy.

I am satisfied, that this ordinary condition of mere hypertrophy degenerates not unfrequently into a chronic inflammation. It may—though this must be very rare indeed—it may give rise to acute splenitis. Yet, I am unwilling to allow even this, unless some incidental contingency be added, some influential and energetic cause of novel character brought into play. Among all the numerous cases of enlarged spleen that I have had occasion to see, but a single one has terminated in this way. A little girl æt: five years, who had suffered much from fever in our low country, and had labored under a chronic inflammation of the spleen with great enlargement, giving rise to much suffering and extreme inconvenience, was seized, while on a visit here in May, 1838, with scarlatina. She passed through the disease, which treated her severely enough, but when convalescent, complained anew and loudly of her side, which was very much distended and painful when pressed upon. After some weeks' illness, she died vomiting pus in large quantities and of very offensive odor. I was not permitted to examine the body, but was fully satisfied that the matter flowed from a splenic abscess, which, by adhesion, had connected itself with the stomach, and burst into its cavity. In a very large majority of cases, the swollen and indurated viscus remains little changed throughout life, giving annoyance by its weight and bulk, and inducing anasarcous swellings of the lower extremities, and perhaps even ascites, by its mechanical pressure upon the abdominal vessels.

"There is a prevailing notion among the French pathologists," says Marshall Hall, "that the source of intermittents is in the spleen." He refers to Louis, Cruvelhier, Piorry, and Andral, the first of whom, he quotes, as affirming that "this organ is affected in the commancement of such fevers," and the last, as putting the question, "whether the change in the spleen is the cause or effect of intermittents." I have seen many instances in which an intermittent of short duration or few repetitions, was not attended by any apparent affection of the spleen. The coincidence is by no means uniform, except in protracted attacks.

I have had under my care two well-marked instances of chronic splenitis, neither of which had any connection with previous fever. Their cause was obscure; in one the termination was fatal—the other, after suffering many months, has perfectly recovered her health.

The symptoms are not likely, I think, to be in any degree equivocal. The locality of pain complained of—the bulk of the tumefied viscus, and the absence of the specific tokens of disorder of other organs, leave little or no room for error; and these remarks apply as well to the acute as to the chronic variety of splenitis.

The changes which the spleen undergoes from the action of disease are various; suppuration, hemorrhage, tuberculation, hypertrophy, with induration, on the one hand, and softening, on the other, and a peculiar alteration or dissolution of its substance. This latter is described by Heberden and Abercrombie, and is affirmed to have been the usual consequence of fatal attacks of the celebrated Walcheren fever. The term schirrous is often employed in speaking of indurated spleen, but Baillie denies its propriety.

It is not well understood, why this organ should suffer so much in fever. Andral has suggested, that in malarious cases it is owing to changes wrought in the blood itself by the miasmatic poison. But it occurs in typhoid cases also, in forty-six dissections of which by Louis, the spleen was found natural only in four. Rush, and some other physiologists, have imagined the function or use of this organ to be, to serve as a diverticulum in fevers universally, and the idea is at least plausible. The distensibility of its vessels is remarkable, and

it is peculiarly liable to passive congestion. Its tissue seems deficient, too, both in elasticity and in tenacity. It is subject to rupture of vessels from many causes, and to laceration of its substance, an accident that frequently occurs from external violence.

The Treatment of splenitis is unsettled, and by no means successful. In acute cases, depletion by the lancet, cups, leeches and saline purgatives, is indicated, and must be carried into effect promptly, and with as much energy as circumstances demand and admit of. If it assume the chronic form, our task is a very difficult one. The mercurial treatment, formerly so much relied on, has of late fallen into comparative disuse. A majority of modern physicians prefer to depend upon the continued exhibition of drastic cathartics, as the combinations of aloes with rhubarb, colocynth, etc. Some, borrowing from the practice of the Hindoos, who give vinegar and steel while they purge the patient actively, have added tonics to their purgatives, and prescribe both iron and bark alternately with their cathartics.

For my own part, I cannot recommend any particular formula with great confidence, in this obstinate malady. I think I have found most benefit from the use of iodine combined with mercury, as in the dentiodide of mercury and potassium, while the patient's bowels were kept soluble by the employment of blue pill with rhubarb in such doses as were requisite, never pressing this matter very far. Cups or leeches over the tumor relieve pain. Fomentations applied to the side are also useful.

The diet of the patient should be light and nutritious. Tonics may be occasionally required, in which contingency I have been disposed to prefer iron, especially in the new preparation known as the tinct: æth: acet: ferri. If the pain be constant and annoying, I do not hesitate to resort to anodynes and sedatives; many have recommended conium and hyosciamus, but the preparations of opium and the salts of morphine are the only articles of this class that deserve the least reliance.

CHAPTER XXXV.

PAROTITIS—MUMPS.

Among the affections of the collatitious viscera, we must not omit to notice this familiar form of disease, which derives some importance, indeed, from the very fact of its frequent occurrence. It is, as its name imports, an inflammation of one of the salivary glands—the parotid; arranged in Cullen's nosology as a species of Cynanche C. Parotidœa, and entitled by Parr, Angina Parotidœa. From the difficulty of opening the mouth to speak, and the sullen expression of countenance produced by this enforced silence and the attendant swelling, it has received the English appellation of Mumps, by which it is universally recognized.

It consists in a painful swelling of the parotid, which renders all motion of the lower jaw difficult and uneasy; there are occasional paroxysms of severe suffering, intense aching, in which the ear of the swollen side is apt to partake; deglutition is very inconvenient. Both glands may be affected, but it is often confined to a single one; in the former case, the tumefaction occasionally becomes enormous, extending over the neck beneath the chin, down upon the breast, impeding respiration more or less, and up along the cheeks and eye-lids and forehead, so as very much to disfigure the countenance. It is attended meanwhile by symptomatic fever, with the usual phenomena—hot, dry skin, hard, frequent pulse, thirst, furred tongue, gastric uneasiness, sometimes running on to retching and vomiting, general distress, restlessness and dejection of spirits. It is specifically contagious, and attacks but once.

A singular and interesting point in its history, is the remarkable disposition which it exhibits to metastasis—translation of the morbid affection from one gland to another, from the part originally assailed to other and remote organs. In males the testis, and in females the mamma, are liable to this secondary inflammation, which occurs only at or after the age of puberty. A similar metastasis, or transfer of morbid action, or obscure sympathetic extension of inflammatory excitement, is sometimes

determined to the brain, producing phrenitis. Of this, which is denied by some writers, I have myself known three very serious and perfectly well-marked instances.

The duration of parotitis, when it runs its ordinary course in a single gland, and subsides without metastasis, is not generally more than four days, and the patient, especially if a child, may complain very little, except when eating or after talking freely. If it extend to both sides successively, a day or two will be added to the indisposition. If a metastasis occur, as I have said is very apt to take place in the adult, the protraction of the case is irregular and indefinite, depending somewhat upon the constitution of the patient, and not a little upon the energy and propriety of the remedial management pursued. Suppuration of any of the glands thus inflamed, whether the mamma, testis, or parotid, is a rare termination. A perfect resolution sooner or later ensues, whether spontaneously, or as the effect of judicious treatment.

I have met with a few instances of a lingering tumefaction, or, as some have styled it, an induration of the parotid, which continues enlarged, hardened, and somewhat painful on handling; but even this is not permanent. I have, however, known this affection of the gland twice terminate in suppuration, after lasting several weeks, in children three and four years old.

The breast and testicle sometimes fall into a contrasted condition, when the first stages of inflammatory excitement pass off, the injured gland wasting away, softening and remaining smaller than its fellow, with a morbid degree of sensibility to external impressions, such as cold, pressure, or slight blows.

The general Prognosis in mumps is of course favorable, although, as above stated, the metastatic attacks may be productive of some risk. This is particularly true of the cerebral affection, which occasionally seems to occupy this relation to the original inflammation of the parotid.

Treatment. Under all the ordinary contingencies of this familiar disease, very little medical interference is required. It is precisely to such cases as these—transient, destitute of malignancy, and self-limiting in the true sense—maladies which run a definite course, and then spontaneously subsiding, pass entirely away,—it is precisely to such cases, that the medicine

expectante, and its German modification in homoiopathy, are adapted. It is from such as these, that it was at first derived, and spread, by timid and illogical inference, over the whole field of rational therapeutics. Yet, even here, although in general it is as well to advise merely rest, seclusion and abstinence, you will not do wisely to neglect your patient. The local symptoms may assume an inordinate intensity—the constitutional irritation may run unduly high, and your patient may derive from your prudent and judicious interposition, a very notable and grateful palliation of his sufferings. The administration of a gentle cathartic—the application of a few leeches upon the tensest point of the swelling at first, and afterwards of tepid fomentation, will give some relief. If the glandular enlargement persist more than two or three days, the skin over the tumor may be irritated moderately with the lin: volatile, or some other mildly stimulating embrocation; a strip of flannel being worn around the neck and jaws.

When the patient on the third or fourth day complains of a feeling of uneasiness, weight, or tenderness, in the mamma or testis, matters have assumed an entirely different aspect; the secondary affection has nothing of the self-limiting character which belonged to its original, and a vigorous interference on the part of the medical attendant becomes necessary to avert impending evil. The diseased action thus transferred or extended, must be subdued promptly, or a foundation may be laid in these structures newly disordered, for troublesome and lasting mischief. Venæsection, if it can be borne, is at once to be resorted to, and carried to as free an extent as circumstances permit. Topical depletion is not less important, and leeches should be applied, in large numbers, to the painful parts. Warm irritants are advised to be applied upon the parotids, to invite the malady back to its primary seat. There is no objection to this measure but its absolute futility; the speculation upon which it is based, is not more groundless than the practice is unavailing. The period of parotid affection having past away, returns no more.

Purgatives are useful here both as depletory and revulsive, and the neutral salts deserve an unqualified preference. Indeed, the anti-phlogistic regimen, in its full extent, must be carried

into strict execution. Some physicians lay great stress upon the efficacy of emetics frequently repeated. The course appears to me unnecessarily harsh, but I place not a little confidence in the sedative influence of antimonials, in doses which nauseate slightly or not at all. The solution of tart: antimon: or the pulv: antimon: with nitrate potass: may be employed in quantities sufficient to reduce the force of the circulation and keep up a free diaphoresis. I do not hesitate to relieve pain and subdue restlessness by the use of anodynes. The pulv: doveri, or solutions of the salts of morphine, may be given pro re nata.

As local applications, I prefer, at first, warm and relaxing fomentations; they promote the flow of blood from the leech bites, and diminish the tension and pain complained of. After a while they become irksome, and should be abandoned, substituting for them, not abruptly, but after a short interval, sedative and astringent lotions of acet: plumbi, etc., alum-curd, etc. The recumbent posture should be long and steadily persisted in, and the male convalescent, when he rises from bed, directed to keep his testicle suspended properly and carefully. Females must be warned to avoid all undue pressure from stays, corsets, and other articles of dress, which will give rise to prolonged or repeated inflammation of the gland, and may even produce schirrus and its results.

These swellings may become indurated and indolent by protraction. Epispastics should be laid upon them from time to time, or iodine lotions and ointments, while the solution of iodine is administered internally and with perseverance, occasionally interposing frictions with mercurial ointment externally, and the internal administration of a few grains of calomel or of blue pill.

When the brain becomes the seat of consecutive or metastatic inflammation from parotitis, the system of unshrinking depletion must be carried out promptly and decidedly. Here we have at once developed a wild delirium or furious mania, with turgid visage, blood-shot eye, a full, hard, bounding pulse, and every token of high febrile excitement.

The lancet holds the first place among our remedial means. The patient should be placed in a sitting posture with his head erect, and bled freely, from a large orifice, until syncope or

yielding of the strength warns us to stop. The hair should be cut close or shaved, and cold affusion made repeatedly upon the scalp; purgatives, the saline especially, freely given; and sinapisms, and afterwards vesicatories laid to the extremities.

But the minute detail of the treatment demanded by this class of cases, will be more appropriately offered under the head of phrenitis, which is hereafter to receive a due share of our attention.

CHAPTER XXXVI.

SORE THROAT.

Sore Throat. I employ here in preference, the phrase by which, in common conversation, we denote every variety of inflammation in the throat, whether with or without abscess or ulceration, because it is sufficiently significant and expressive, and better adapted in a general way, than any term in the technical nomenclature of the books. "Cynanche," a word which Cullen has brought into use, and under which he has included a large number of diseases, "agreeing," as Parr has it, "in no one principle but affection of the parts connected with the neck," is like "Angina," derived from, and indicative of a single symptom only, and one that is often wanting in this class of maladies, viz: a difficulty of breathing, suffocation, or strangling. "Paristhmia," by which Hippocrates denotes a "throat affection," in a very literal way, and "Paristhmitis," a coinage of Good, to express the same meaning, or rather to convey, while he preserves a uniformity of terminations, the idea of "inflammatory affection" of the throat, are unobjectionable nosologically speaking, and may perhaps come into general usage.

Sore throat then—paristhmitis—may be divided first into common and malignant. The former, in its several varieties, is one of our most familiar diseases, and is designated variously to point out its exact location, as well as the different modes in

which the part is affected. Thus we have simple superficial inflammation—inflammation with the formation of plastic lymph or false membrane, diphtheritis—inflammation with ulcer—and phlegmonous inflammation or abscess.

Malignant sore throat may be either diphtheritic or ulcerous, yet it is important to be aware, that whatever may be the inconvenience and annoyance of the membranous depositions, or the destructiveness of the ulceration present, the local disorder is comparatively of little consequence, whether we look on it as primary and essential, or merely as a symptom. It is accompanied by fever of the lowest grade and most adynamic form, and a grave and prompt prostration of all the vital powers is among its most characteristic conditions. The local affection, however, is of peculiar nature and appearance, and shall be carefully described.

1. Simple superficial sore throat, is occasioned by any, or all the causes that give rise to catarrhal fever, with which, indeed, it is very often connected. Exposure of the neck or head to a current of cool or damp air, damp clothing, wet feet, sudden changes of temperature, bring it on, and repetition gives a remarkable susceptibility to it in certain delicate subjects, so that the very slightest difference in their dress, or alteration in any of their habits, as in being out under the open sky at an unaccustomed hour in the evening, will be followed almost inevitably by an attack.

The patient first perceives a slight sensation of dryness in the throat, and a pricking or uneasiness in swallowing, and an irritating frequency of the desire to swallow his saliva. This uneasiness soon amounts to pretty constant and severe pain, which gradually extends itself, and very often, indeed, reaches into the ear of one or both sides—perhaps from continuous inflammation of the eustachian tubes. Fever comes on early with or without a chill, the pulse being full, quick and hard, and the skin hot and dry: the headache is usually great, with some gastric discomfort and much thirst. On looking into the throat, which is best done by placing the patient opposite a strong light, and pressing down the back of the tongue firmly with a spatula or the handle of a spoon, we distinguish the deepened redness of the mucous surface and the engorgement of its vessels, the in-

tensity of the hue corresponding generally with the pain complained of; it is greater on one side than the other, and at particular points; the uvula is deep red and swollen. The dysphagia is occasionally extreme, the saliva flowing largely and giving out an offensive odor, and fluids attempted to be swallowed, returning with a gush through the nostrils. There is not often any notable impediment to respiration. After three or four days of this suffering, the febrile symptoms subside, the dysphagia grows less and less, and an entire resolution of the inflammation ensues. In very severe cases, however, the restoration is not thus complete; the uvula is sometimes left relaxed, elongated and œdematous; sometimes the mucous surface, especially of the pharynx, appears roughened or as if papulous with slight pointed eminences scattered over it; or the vessels remain—as after some opthalmias—permanently enlarged, giving a feeling of lasting irritation and annoyance.

2. In certain constitutions, such as we term plethoric perhaps, and under some undefined contingencies, the inflamed surface becomes covered with a coating of plastic lymph. This false membrane which is often mistaken by careless observers for an ulcer, should always be distinguished. I will not say that it always portends evil, for I have occasionally met with it in cases not otherwise remarkable, and which recovered quickly and perfectly; but I would always regard its presence as suspicious. It is precisely identical with the so-much dreaded membrane of croup, and in children there is great reason to fear that the tendency to deposit it will spread from the pharynx or fauces into the larynx—a combination of maladies full of menace and very often promptly fatal. It is apt to be attended with great local inflammation, and much constitutional disturbance. By its presence it mechanically increases the difficulty of swallowing, and may even somewhat impede respiration by the loosening of tenacious shreds which fall over and irritate the glottis. The vessels of the surface beneath it sometimes effuse blood, which discolors it, and the flakes thrown off thus infiltrated, being of very offensive odor, have been frequently mistaken for sloughs, to the great alarm of the inattentive and inexperienced.

I have met with cases in which, this tendency to the deposition of adherent lymph assumed a sort of chronic character. In

one of these, a lady—the disease lasted a year; during the whole of which time she was annoyed by the mechanical irritation arising from the flakes or shreds of fibrinous membrane scattered over the back and upper part of the pharynx behind the uvula, the surface beneath continuing red and roughened. I suppose it to be owing to the same tendency in less degree, that we must ascribe the formation of a thick, condensed and highly offensive concretion, gathered in the foveæ or crypts which indent the surface of the swollen tonsil. These small hard lumps whose whitish or yellow surfaces are seen through a thick mucus, are easily mistaken for ulcers. I sometimes press them out with a probe, to the great relief of the patient. If they remain in the cavities in which they are found, they occasion swelling with much pain, and perhaps are loosened by suppuration and hawked out.

2. Paristhmitis ulcerosa. Ulcers occurring upon this mucous surface present a very great diversity of appearance, which to describe in minute detail, would occupy much time, without leading us, so far as I am aware, to distinctions of specific character, or affording us inferences of any very definite practical utility. Indeed the supervention of ulcer upon inflammation of the lining membrane of the throat, does not seem to modify in a material degree, the treatment necessary to be pursued, unless in cases of chronic obstinacy, or such as are connected with some peculiar morbid constitutional condition, such as the syphilitic strumous etc., of which I do not propose to speak at present.

This modification of sore throat, is often from the first very sharply painful. The surface of the ulcer is gray or whitish, interspersed with red points; the edges being swollen it seems excavated; it is disposed to extend itself in all directions with a rapidity proportioned to the intensity of the inflammation connected with it. After a time, if the ulcers do not heal, they become indolent, stationary, chronic; while the sympathetic constitutional irritation subsides slowly or in part. They occasionally extend slowly down the esophagus, healing at some points and spreading at others, with irregular cicatrization, which contracts the tube and renders deglutition exceedingly difficult and painful.

3. Phlegmonous Sore Throat—Cynanche tonsillaris—Quinsy.

On looking into the fauces, if we find one or both of the tonsils projecting forward, with a fiery and glossy surface, exhibiting great fullness of the vessels and much distention, we have reason to fear the formation of abscess. Their enlargement becomes in some instances enormous, touching and pressing against each other, so as to close up the passage, rendering deglutition impossible, and impeding very seriously the respiration of the patient. Collections of highly offensive and fœtid pus, find their way out or escape by artificial opening, and the sides collapse and heal. The repetition of these attacks, even when we succeed in procuring resolution, gives rise to enlargement and permanent induration of the tonsils, which impair both the hearing and the intonation of the voice. This condition mechanically predisposes too, I think, to all the forms of throat inflammation, and adds to their risks and inconveniences. Abscess, now and then, though perhaps rarely, forms at the back of the pharynx; I have seen it occupy that situation; and we have on record a few terrible instances of abscess in the esophagus, an affection full of suffering and danger, and very little within the reach of the resources of our art.

The Prognosis in the ordinary inflammations of the throat, which I have been describing, is generally favorable. The degree of risk bears a certain relation to the particular form or locality, and to the age and circumstances of the individual. Simple superficial sore throat is scarcely ever fatal; ulceration of the surface does not add very greatly to the chances of serious injury, except in young children, who seem less sensible to the pain than adults, and who frequently do not complain or give us any notice of the state of the fauces, until the fetor of the breath, or the dysphagia or the regurgitation of fluids through the nose, in swallowing, compel us to make an examination.

Diphtherite, I have said, is never to be lightly regarded. This, also, is far more menacing to the child than the adult; both the ulcerous and membranous inflammations show, in the young subject, much disposition to extend themselves through the glottis into the larynx, producing a combination of diseases almost inevitably mortal. I have spoken of the ill effects likely to follow the inflammation of the tonsils; these also, are more

frequent in the younger subjects; but I have never met with quinsy below the third year.

The Treatment of inflammation of the throat is plainly marked out, and is usually efficient and successful. We resort at once, as in all the other phlegmasiæ, to the antiphlogistic regimen. In the simple forms, nothing more will be required than a purgative followed by some diaphoretic, while we confine the patient to a warm chamber and absolute diet, for a day or two. In the severer attacks, occurring in young and robust subjects, the lancet may be called for, but I rarely find it indicated. Some scarify the inflamed surface, making incisions with a lancet across the engorged vessels; Crampton, of Dublin, passes a leech directly into the fauces—doubtless an efficient mode of topical depletion, but one which my patients have refused to submit to. If there be any considerable swelling externally, it will be well to apply them in proper numbers, to the angle of the jaw. It is my custom to prescribe, as in catarrhal fever, a full anodyne at night, with pediluvium, and a warm mustard poultice round the neck.

Gargles are, in domestic practice, remedies, almost of course; but in the early stages of all these throat affections, I strongly disapprove of their use. While the surface is thus newly inflamed and painfully irritable, they can do nothing but harm. Their employment requires the fauces to be thrown into vehement action, by which the local excitement is notably augmented. A vastly preferable substitute is the inhalation of warm vapor, which relaxes the swelling and tension of the parts, and promotes a free flow of saliva and the other mucous secretions, to the great relief of the engorged vessels. The simple steam of water, not too much heated, answers every purpose, but is often medicated by adding vinegar or camphor, or infusing aromatic herbs. This inhalation has also the advantage of acting very often as a most effectual general relaxant and sudorific.

It is, I think, to Velpeau that we are indebted for the practice of applying powdered alum directly to the inflamed part. This is often very useful, nay, it sometimes arrests abruptly the inflammatory processes, probably by its strong constringent action on the vessels.

In quinsy, the tonsils should be deeply incised—at first, to bleed freely from the affected part, which is our best means of procuring resolution, and putting an end to the disease; and afterwards, to give vent to the pus deposited within the substance of these bodies. It was formerly, and I fear, with some practitioners continues to be the practice, to resort here to the forcible action of emetics "to rupture the abscess." If this class of remedies can be beneficial under any circumstances, it must only be by their sedative and sudorific effects. The vehement muscular efforts in vomiting, cannot fail to give great and unnecessary distress to the patient.

Cases occasionally occur, as we are told, for I have never been so unfortunate as to see any thing of the kind, in which the swelling of the tonsils and parts adjacent, has been so enormous as entirely to occlude the passage of air into the glottis. Here it becomes necessary to give relief, and save the subject from impending suffocation by the operation of tracheotomy.

It often happens that an indolent enlargement of the tonsils remains as a permanent result of the attack—productive of considerable annoyance, and affecting unpleasantly the speech, hearing and deglutition. This is an obstinate condition of things. The cure may be attempted by means of stimulant and astringent gargles, deep and frequently repeated scarifications, pencilling the indurated tonsils with strong solutions of iodine, or sulph: cupri, or merc: corros: sub: or nitrat: argenti—and if these fail, by their extirpation with the scalpel, or scissors, or Tieman's ingenious instrument. The operation, as far as I am aware, is attended with no risk, and very little pain, comparatively, and is not followed by any evil consequences.

The chronic diphtherite, of which I spoke above, is also an obstinate ailment. I have found it best relieved by the use of a gargle composed of a small portion of merc: corros: sub: dissolved in lime water—the yellow wash, as it is called in some of the books.

The chronic protraction, even of the simplest and most superficial sore throat, is sometimes so tenacious and indomitable, as to wear out our perseverance and exhaust our resources. Under these circumstances, gargles, which I have objected to in the first instance, become indispensable. The milder astringents and sedatives may be first tried, the sulph: zinci, the acet: plumbi,

alum, infusion of cinchona or of the red oak bark; mixtures containing camphor, the tinct: kino, catechu, myrrh. The sulphate of copper is much used, and when the case has lasted long, the infusion of cayenne.

It is perhaps among the worst consequences of this variety of paristhmitis, that the uvula becomes edematous, relaxed, elongated, reaching down upon the back of the tongue, and by irritating the epiglottis giving rise to a frequent and troublesome cough. Hence follows, as has been believed, a sympathetic or secondary irritation and inflammation of the respiratory organs, running on into actual phthisis. To prevent these evils, it is proper to remove the pendulous portion of the uvula by excision. We owe this suggestion to Dr. Physick, though the honor has been unjustly claimed by the French, for a M. Cuynat.

I have already alluded to the chronic tenacity of ulcerous sore throat. It becomes occasionally, a merely local affection, and in this state, may endure for months, and even years, harrassing the patient beyond measure, and embarrassing, and indeed, foiling the most sagacious practitioner. In some examples, the ulcer remains stationary and indolent, unaffected either by our remedies or any other contingencies. In some again, it assumes from time to time a healing aspect, and when we are flattering ourselves with sanguine hopes of a speedy and complete cure, suddenly begins to spread anew, and in a few hours attains its former extent, or attacks a fresh portion of the surface. It takes its course, sometimes, down over the back of the pharynx and along the esophagus, destroying the capacity of the parts for their natural actions, or perhaps rendering deglutition mechanically impossible, by the contraction attendant upon the cicatrization of the lining membrane of the tube. In these unhappy cases, with few exceptions, the patient sinks ultimately, exhausted by the long continuance of the irritation he endures, or worn out by the annoyance inflicted in the attempt to aid him—the painful application of caustics, or the forcible introduction of dilators; or worse still, as it would seem, from actual inanition and thirst, after being tantalized by our vain efforts to sustain him by thin fluids conveyed through tubes, and by nutritive enemata.

Chronic ulcer of the throat is best treated, I think, by a slow

and gentle mercurial course, carried to the extent of incipient ptyalism, and persevered in for some time, while we administer cinchona, and give farther tone to the system by a change of air. Among the local applications recommended, are the pyroligneous acid, kreosote, the mineral acids generally, but especially the nitric and nitro-muriatic. When the discharges are offensive, I employ the chlorates of lime and soda. Revulsion should be instituted, meanwhile, in the most efficient modes. The throat and upper part of the chest should be vesicated again and again; and a seton or issue inserted in the back of the neck or in the arm. The diet should be ordinarily, rather nourishing and generous; the clothing warm and well adapted to the weather; the apartment in which the sick man resides, must be kept neat and well ventilated; and if his strength will suffice, exercise not only permitted but enjoined.

An entire change of climate should be advised in the last resort, and the warm and equable atmosphere of the islands in high latitudes preferred. There is, besides, some favorable influence produced by the diet of inter-tropical regions, consisting so largely as it does, of fruits and fresh vegetables, throughout the prolonged summer of their sunny year.

Malignant Sore Throat—Cynanche Maligna. To the history of this terrible and destructive form of disease, as given by Cullen, succeeding writers have added but little. Concerning its specific nature and its origin, there has been considerable dispute. Although a sporadic or solitary case may occasionally be met with, yet it almost always occurs in masses, and is therefore regarded as epidemic, and its characteristic peculiarities ascribed to some diffused or atmospheric influence. Its contagiousness, too, is maintained by a very large majority of those who have described it; although, as usual, the doctrine is warmly debated and strenuously denied by others. The evidence adduced on the affirmative side of the question, seems to me entirely satisfactory; and I never fail to adopt all prudent measures of precaution, to prevent the spreading of a malady so grave and unmanageable.

Persons of all ages are liable to be seized by it, but it affects principally young children, and among them its proportional

mortality is very great. Weak and infirm people, in every period of life, are subject to its attack. The fever, which constitutes an essential part of its description, is of the lowest grade of typhus. Its access is usually ushered in by chilliness or slight shivering; the patient complains of great anxiety, uneasiness and dejection; is languid and feeble. The stomach is oppressed, and disturbed sometimes with nausea and vomiting. The voice is observed to have undergone a change, being in some, unnaturally shrill and sharp, in others, hoarse and husky. There may or may not be present soreness or pain in the throat, nor is there apt to be any serious complaint of difficulty in swallowing; but on examining the fauces, we shall find at first, a dusky redness overspreading the tonsils, uvula, pharynx, etc.; one or more ash-colored ulcers soon appear, spreading with considerable rapidity, but in general, with no very severe pain or local suffering, and usually throwing off successive sloughs, thus becoming deeper and deeper.

The surface of the body is of very irregular temperature; the skin dry and harsh; the tongue, at first foully and thickly furred, becomes red, smooth and aphthous; the thirst is unquenchable; the pulse is frequent, small, and easily compressed. There is great and rapidly increasing prostration of muscular strength, with obvious tokens of sensorial disorder; the hands and knees tremble; the eyes glitter with an uncertain expression, and a vague, wandering gaze; the visage is pale, and a slight incoherence of thought and language displays itself early, and remains throughout.

In a very notable proportion of instances, there occurs in the course of the attack, an efflorescence upon the cutaneous surface, in patches of a dull red color. This is looked upon by many pathologists, as a symptom uniformly attendant and characteristic, and hence they have drawn the inference of an essential connection, or to speak more clearly, an absolute relation of identity, between scarlatina maligna and cynanche maligna. I cannot coincide in this view of the matter. I have met with repeated examples of the pestilence under discussion, in which the eruptive affection was wanting altogether; and this in severe as well as in the less violent cases. Besides this, it is, in my experience, very rare, to find the sore throat of scarlatina consist

in a malignant or putrid ulceration. It may be so, doubtless, but is much more frequently diphtheritic, and very often consists merely of an intense superficial inflammation, without any breach of the surface. The pulse sinks more and more; is irregular, rapid, intermittent; a low muttering delirium supervenes, or a sort of affected liveliness and playfulness, forming a striking contrast to the haggard hippocratic countenance of the patient. I have seen a child sitting up in her cradle, in the very last moments of waning life, without pulse, and almost without voice or breath, busily and cheerfully engaged in play, as she imagined, with her usual train of little associates.

The ulcers in the throat, which we described above, put on as the disease progresses, a marked gangrenous tendency. They assume a livid or even black hue; give out a fetid and oppressive odor, sometimes producing nausea and syncope in the attendants, and discharge an abundant thin ichorous fluid, which inflames and excoriates the nostrils and lips, and seems to excite in children, who can scarcely help swallowing it, (for even an adult voids it with difficulty, disgust and fatigue,) a diarrhœa, with sharp griping and much gastric and intestinal irritation.

It may happen, that the inflammation and ulceration extend themselves from the pharynx into the larynx, especially if the weather be cold and damp. This combination proves almost irretrievably fatal—exhibiting itself in the stridulous hoarseness, ringing cough and hurried panting of croup, the patient dying quickly suffocated.

Instead of ulceration of the throat, and indeed, sometimes combined with it, we may have diphtherite—the deposite of fibrinous layers upon the mucous surface. Nay, this condition seems particularly ready to connect itself with the low form of inflammation and general typhoid state, of which we are speaking. This is a most gloomy and appalling modification of disease, perhaps not necessarily hopeless, but admitting, very seldom, of recovery.

It is in these typhoid diphtherites that we most frequently meet with the irregular efflorescence, so much dwelt on by writers; and these constitute the intermediate cases—a sort of connecting link, as it were, between scarlatina and cynanche maligna, that have given rise to the error, above alluded to, in confounding them.

The general Prognosis in malignant sore throat, I need hardly announce to you, is unfavorable. The proportion of mortality is very great, and especially when its epidemic influences are strongly pronounced. The hope of recovery is somewhat better, in cases occurring sporadically. We distinguish the milder attacks by the less degree of physical prostration and sensorial disturbance, and by the higher apparent powers of resistance in the constitution. The patient is more sensible to the pain and inconvenience of the ulcer, which is of a more florid hue, throwing off its livid or ash-colored surface; the breath is less fœtid; the stomach and bowels less disturbed; the skin softer and more diffusedly of pleasant temperature; the countenance more expressive and mind less wandering, while the pulse improves in force and volume.

In the Treatment of malignant sore throat, we are to direct our special attention to the condition of the general system, regarding the local affection which has given name and character to the disease, as in truth one only of its specific symptoms. Essentially pyrectic, it belongs to the worst grade of typhus, which it resembles in all its dreaded peculiarities—its contagious property, and its epidemic tendencies.

The indications presented, and the means of fulfilling them, are also very much the same as were formerly detailed, in speaking of typhus gravior. To restore and keep up the subdued energies of the sensorial and vascular organs; to relieve oppressed viscera by proper derivation to secretory surfaces, especially by determination to the skin; to regulate the intestinal discharges, partly upon this principle of revulsion, and partly to get rid of foul and irritating excretions,—these are the objects whose attainment we are to aim at most assiduously. To accomplish these purposes, it will, in a large proportion of cases, be well to employ at the commencement, an emetic—one of the few points of practice here, on which physicians seem generally to have agreed. Various formulæ have their advocates. The combination of ipecac with an antimonial, is proposed, as at once mild and efficient, cleansing the stomach and bowels effectually, and determining forcibly to the surface.

The sulphates of zinc and copper are well adapted, when the strength is so much enfeebled as to make us afraid of the ef-

fects of depletion or evacuation. They nauseate little, acting promptly, and occasioning no depression or prostration. The latter seems to exert, besides, some usefully specific influences upon the ulcerative inflammation. If the bowels are not spontaneously moved, a cathartic will be indispensably necessary. Calomel deserves our preference here; its alterative effect is beneficial as far as it goes, and as a purgative it is most gentle, most easily regulated, and least likely to induce exhaustion or increase debility. The dose should be small, and repeated at proper intervals. Ptyalism is unnecessary, and should be avoided.

Early recourse should be had to diaphoretics, of which those articles possessing also some stimulating qualities should be selected; and deserve to be considered indeed, perhaps, as our chief remedies. Ammonia—both the carbonate and acetate, may be added with benefit to the infusion of serpentaria or of seneka; or camphor exhibited in the same combination. The compound infusion of cinchona and serpentaria is also highly useful. Acidulated slightly with the vitriolic elixir, it is pleasantly aromatic, and corrects the fetor issuing from the fauces and mouth.

When the tokens of typhoid prostration increase in force and intensity, we must not hesitate to administer the diffusible stimuli in such quantities as circumstances may demand. Wine-whey, wine undiluted or made more cordial with spices, brandy and æther, may be mingled in such preparations as are most convenient, and given largely and freely to excite the flagging circulation. We shall have need of all our ingenuity and perseverance to induce a proportion of our patients to swallow a sufficient quantity of these prescriptions to exert any efficiency in sustaining them. The best tempered and most manageable children sometimes become sullen and indocile under the discomfort and dejection of this disease, and refuse doggedly whatever is offered them. Among the several modes of obviating the difficulties presented here, we must not omit the employment of the same or similar articles as enemata, in triple or quadruple amount. We may also use baths, medicated and made stimulating with salt, mustard or ardent spirits. Frictions must be resorted to, over the whole trunk, while we irritate the extremities with sinapisms extensively and frequently applied. The employment of vesicatories under the present contingencies, is a

point much disputed. While some practitioners recommend them highly as well adapted to prove beneficial both by their excitant and revulsive action, others advise a careful abstinence from them on account of the tendency to gangrene and sloughing which they allege to be frequently observed in the blistered surfaces. I prefer the sinapism, as equally efficient and freer from inconvenience; yet I have not met with the evils thus ascribed to the epispastis. If applied in the earlier stages of the case—where only they are called for—and before the cutaneous circulation has sunk too far—there seems but little risk of sphacelation. I make little use of them, as I have already said, except where stridulous hoarseness and a ringing cough menace the supervention of croup; an evil to be prevented by every possible means. I have observed that a blister applied to the throat where there is diptherite, is apt to heal very slowly, its surface being covered with a soft spungy albuminous or fibrinous exudation, and irritable and sore.

Local applications to the ulcerous fauces, though by no means our most important remedies, as some have regarded them, are yet of much utility and must not be neglected. The infusions of cinchona and of red oak bark are made vehicles for the acids, especially the nitric and muriatic—these correct the fetor of the surface and its discharges. So do the chlorates even more perfectly. Kreosote is thought specifically remedial. The nitrate of silver—the deuto-chloride of mercury—the sulphate of copper, enjoy a similar reputation.

Adults sometimes cannot, and children often will not gargle. We wash the affected parts thoroughly and frequently with the preparations just mentioned, by passing down to them a bit of lint well fastened on the end of a probe, and previously soaked in the solution preferred. It may be proper to resort occasionally to a still more effective mode of cleansing the throat, when the foul mucous secretions are abundant and thick, and the sloughs tenacious. Some mild liquid, as tepid water, alone or mixed with milk, or acidulated slightly with vinegar, may be thrown in by a syringe, exerting a moderate degree of force in the injection.

I have not yet mentioned a remedy which is held very generally in great esteem both in the professional and domestic man-

agement of malignant sore throat. I allude to the capsicum or cayenne pepper. The infusion is employed, and is administered internally, as well as used as a gargle. I cannot but regard it as one of our best stimulants; though I have often seen it become worse than inefficient by the violent resistance made to its administration on the part of the patient, who complained of its severe pungency. Yet in the cases in which it is best adapted, we are not likely to find the sensibility, either local or general, such as to interfere with its use, and you will do well to make trial of it.

During the treatment of malignant sore throat, it will be requisite to enforce the strictest attention to cleanliness in the chamber and about the person and bed of the patient. Every thing discharged should be immediately removed, and the vessels which receive his offensive saliva or into which the gargles and washes are emptied very frequently changed; and the most complete ventilation established, which the temperature of the season will permit with safety and without actual discomfort.

Whatever may be our habits of thinking on the hotly-disputed doctrines of contagion, and in whatever light we may be disposed to view the disease under discussion, in reference to its supposed endowment or non-endowment with this dreaded property, it is our unequivocal duty ever to lean to the side of ultimate and general safety in the regulations which we establish for the management of the sick. The abandonment of the plague-struck and suffering which in days past—we hope forever—resulted from the prevalent and unmanly dread of the contagious influence of many maladies, cannot be too severely denounced as the height of cowardice, inhumanity and impiety. But a certain degree of caution is surely reasonable and necessary in cases like the present, allowed by the most sceptical to be at least suspicious. We should, therefore, enjoin that none but the requisite attendants be admitted to the bed-side of the patient, and if a child, his little companions must, for a time, be totally separated from him; a measure which, indeed, can be considered in no point of view objectionable.

Convalescence from this cruel malady is slow, irregular, and apt, for a long time, to be imperfect. It requires to be aided by a judicious management of the regimen and habits. The clothing should be warm, the diet nourishing and generous. Tonics,

of which cinchona and wine and iron are the best, may be prescribed pro re nata; and if diarrhœa—as is not unfrequent—supervene, astringents advised, the tincture of kino being the best. Exercise must be taken when the weather will admit, and, if possible, a pleasant voyage or journey resorted to for change of air.

I am unwilling to conclude without offering you one or two remarks upon the prophylactic management of such subjects as show a special liability to attacks of sore throat. Great pains are usually taken to guard these persons against the exposures to which, as exciting or occasional causes, we ascribe the invasion of the disease, and they are enveloped with peculiar care in additional garments, or imprisoned within doors when the sky is inclement or threatening. Experience has fully proved the fallaciousness and inefficiency of this course, which indeed can never be carried into operation without interfering with all the duties of active life, and seclusion from all ordinary pursuits and amusements. It creates, too, a peculiar and morbid susceptibility which will not fail to be affected by any interruption of the customary protection, and some such must, from time to time, happen both from accident and necessity. Habitual familiarity, on the other hand, with all the common atmospheric vicissitudes of cold, heat, dampness, etc., tends much to diminish the sensibility to the impressions which they make upon the body. It is found, that we may thus anneal the constitution so as to enable it to bear with impunity all exposures within a certain range of reasonable prudence. Among these means of hardening, as the phrase is, the safest, and one of the most efficient, is the transient application of cold, frequently made by the ablution of parts occasionally and irregularly exposed. I have succeeded in banishing sore throat from families in which it was an almost constant guest, by thus enjoining a daily and liberal use of cold water as a bath to the head, arms, neck, breast, and lower extremities.

"Your face does not suffer from the cold wind or rain," said a naked savage, "and I am all face." From this, we may learn a lesson of much utility, with regard to the physical education of children. As far as is consistent with the established habits of

civilized society, and with the increased mobility and delicacy of constitution necessarily produced by these habits, let us endeavor to make them, as nearly as possible, "all face," and thus render the entire surface as little susceptible of abrupt and serious impressions from familiar and unavoidable exposures.

CHAPTER XXXVII.

DISEASES OF THE RESPIRATORY SYSTEM.—EXPLORATION OF THE THORAX.

Next in order, we proceed to treat of the diseases of the organs of Respiration, under which head we include the larynx, trachea, bronchi, and lungs. Here we shall meet with many of the most destructive, and some of the most rapidly fatal maladies to which the human constitution is liable. The necessity of an adequate supply of atmospheric air, and of its easy and unimpeded access to the cells constructed to receive it, is urgent and absolute. Any affection of the pipe or tube through which it passes to the lung, must therefore be distressing and dangerous, in exact proportion to the degree of impediment presented to its entrance and escape, thus presenting an obvious mechanical risk in addition to the general irritation, and other ill-consequences, which may arise from the nature and ultimate effects of such disorder.

The functions of this set of organs are complicated as well as delicate, in a peculiar degree. Some chemical changes evidently occur from the admission of air, and its contact with the blood diffused over the pulmonary tissue; these are cognizable to the senses, both as regards the blood and the air. But these constitute only a portion of the results; certain other changes of a vital and undefined character, are inferred with little less clearness, although they cannot be made the subject of experiment and calculation. I allude to the animalization—the assimilation of the chyle, which is now conceived to be in great mea-

sure effected, during the passage of the blood with which it has just been mingled, from the right to the left ventricle. This blood is found to be not only redder from its loss of carbon and union with oxygen, but more highly vitalized and better fitted in every way for the support and nutrition of every part of the organism. Diseases of the respiratory organs may then become fatal in three modes, of which we shall meet with examples—1. By their general influence upon the constitution, depending upon their nature and the sympathies which they excite, and analogous to the effects of similar derangements located elsewhere. 2. By impeding or impairing the assimilation of chyle, and thus depriving the blood of a due supply of its nutritive and stimulating materials, whence emaciation, exhaustion, and fatal debility. 3. By impediments offered to the passage of air in the air-tubes, producing mechanical suffocation.

It is but of late years that the Exploration of the thorax and abdomen has claimed the special attention of the practitioner, and has been made the source of important and definite inferences concerning the actual state of the organs contained in these cavities. We find it always easy to go back beyond any alleged discoverer, and to prove that the first idea did not originate with him, but that he was anticipated by somebody else who lived and speculated in earlier ages. Thus, Harvey is accused of having taken the doctrine of the circulation of the blood from a cotemporary, Warner, whom the injustice of that and succeeding times has permitted to sink into obscurity, or more indirectly from certain ancient philosophers and modern anatomists; thus, Newton is affirmed to have borrowed, without acknowledgment, from Flamstead, and others, those speculations that make his name a household word—and our own Fulton is shown to have been preceded in his application of the illimitable power of steam to navigation, by half a dozen unheard of adventurers of all nations on the globe. As it is undoubtedly true, that "brave men lived before Agamemnon," so it is very possible, that the chest was explored before the time of Laennec; yet nothing is more certain, than that we owe to this illustrious Frenchman all our present satisfactory knowledge on this subject. In a thorough history of this matter, we should be obliged to begin in the early ages. We must refer to the Father of Medicine as

the author of the succussion which bears his name to this day, and which was intended to detect the presence of fluid in the chest by its agitation. We should then come down to Avenbrugger, in 1761, for the suggestion of percussion, which he boasted of as "novum inventum," but which attracted little attention until extolled by Corvisart in 1808. The distention of one side of the thorax in hydro-pleura, obvious to the eye, is mentioned by early writers, and dwelt on by Cullen especially. The "crackling of the lung," the mucous râle of catarrhal fever, has been heard, felt, and often commented on; and the wheezings and sibilations of asthma and croup are familiar, and have always been to every professional ear. But these observations formed "a rude and undigested mass," until Laennec was led to arrange and classify them—to investigate the sources of all these phenomena, and ascertain the inferences proper to be drawn from each. It will not be pretended that he committed no errors, or allowed no deficiencies. Nothing is at once perfect; but he has opened a mine of clear and undisputed truth, from which succeeding laborers have continued to extract the most valuable matter. The fall of an apple was a simple and common event, but it led, in the mind of "a patient thinker," to new and important deductions. Listening to the thoracic noises, immediate auscultation, had been a common thing doubtless with physicians—nay, Laennec himself had been accustomed to resort to it for information, with Bayle; but it was not until 1816, when he was obliged to find a substitute for the close application of the ear, that he was led to ponder on the variety of sounds discovered, their definiteness, the mechanical conditions to which they were to be attributed, and the causes which produced these mechanical changes or structural alterations.

There are still a few practitioners who speak lightly and affect to think slightingly of mere physical methods of enquiry and diagnosis, but I trust none of you will be induced to follow their example. Truth—the only thing valuable or worthy, is to be sought in every possible mode; and we should feel deeply grateful to all who exhibit to us any additional modes of putting nature to the question, and rendering our knowledge less vague and more positive. After every effort in our power, made with conscientious deliberation, zeal and perseverance, there are many

things which will still remain indeterminate and doubtful; and we shall often be obliged to proceed to act upon conjectural and uncertain premises, in the endeavor to save life and to relieve suffering. Our only solace under the mortification of failure then is, that we have omitted no means of examination, and neglected no inlet of knowledge.

I shall not detain you with any farther preliminary remarks, but proceed to a brief history of the physical exploration of the thorax. 1. When there is nothing to prohibit the exposure of the upper part of the body, the patient should be stripped and carefully examined with the eye and hand. Any want of symmetry of form; any inequality of, or difference between the two sides of the chest, must be carefully noted. Observe if the whole structure is heaved and elevated regularly, by the motions of respiration; making the subject respire slowly, and deeply, and rapidly. Note the relative position of the sternum and the arch of the cartilages, and examine the spine. There are many deformities which are consistent with the enjoyment of health, such as the one sided projections of the cartilages and sternum, denoted by the phrases "cuirass," and "pigeon-breast," and so on. All these, however, as implying, of necessity, a flattening of some part of the ribs, on one side or the other, interfere more or less, with the prospect of recovery from pulmonary diseases.

2. It is next proper to inquire into the capacity of the thorax. Unless in extreme cases, it is perhaps right to acknowledge, that no great stress is to be laid on this method, considered absolutely; but in a comparative point of view, it is of great value. If the capacity of the lungs to admit air diminish sensibly from time to time, it is evident that the situation of the patient must be getting worse; on the contrary, we draw the most favorable inference from the fact, that his inspirations are becoming fuller and deeper. It should be farther admitted, that none of our methods of examining into this question of thoracic capacity, are very definite. There are three modes proposed. The first is a careful measurement externally. This being done accurately at proper intervals, we shall know if the flattening of the chest on either side increases or diminishes. The second is, I think, more to be relied on. It consists in breathing into a

gasholder or bell-glass or common large bottle filled with water and inverted over a trough or basin. It is easy to mark how much water is thus displaced, and to compare this quantity at different periods in the progress of a chronic case. The third is often intuitively resorted to by patients for their own information. A subject whose lungs are capable of containing a large amount of atmospheric air, may retain his breath a greater length of time than one who labors under any disease which renders the lung contracted in its capacity. The latter must breathe oftener to supply the demand for the depuration of venous blood sent into the pulmonary vessels. There is scarcely anything which annoys a patient more than the quick panting to which he finds himself a prey; it distracts and fatigues him. The extent of capacity differs in different individuals—some divers remain under water a full minute or even more—but to retain the breath or inspire slowly from thirty to fifty seconds, is good proof, I would say, of average capacity. Of course, we are better satisfied with comparative than with absolute inferences, yet the comparison must be fairly made. We must allow for the contingencies of accelerated circulation from fever or muscular action, which hurry the breathing greatly; and for the diminished cavity of the thorax after a full meal.

3. Of the Hippocratic succussion, I shall say little. It is not in every case of thoracic effusion, that this sort of agitation will detect the anticipated sounds. No result will follow the most abrupt movement or arrest of motion of the trunk in the manner proposed, unless where both an ærial fluid and a liquid are contained together in the sac of the pleura, as in pneumo-thorax, or in a large abscess or tuberculous cavity in the lung. Here we have a noise similar to, and produced in the same manner as the gurgling of water in a half-filled bottle. It is not heard in simple empyema nor in hydro-thorax, as many thoughtless experimenters seem to expect. Although, as I have said, it may occur in a large pulmonary cavity, yet this so rarely happens, that it is now assumed as a positive diagnosis of pneumo-thorax. To hear this sound, you shake the patient by his shoulders to and fro while sitting before you, and then stopping the motion suddenly, listen for the fluctuation described.

4. We come now to Percussion—Avenbrugger's valuable

suggestion. It is easy to point out to any one acquainted with the most elementary principles of acoustics, the rationale of all the inferences drawn from the reverberation of the chest when struck upon at different points. Suppose the thorax of a healthy subject dried with all its contained air, it would return, upon being beaten like a drum, a hollow sound similar to what we hear from that instrument. The yielding nature of the soft intercostal tissues in the living state, will obviously give less resonance than the rib when struck, and hence, Dr. Todd, of Connecticut, a sagacious disciple of Avenbrugger and Corvisart, was accustomed to examine exclusively, by tapping each rib separately, and all round, from the sternum to the spine, with the end of a single finger. It is clear, still farther, as the sound depends upon the air within the chest immediately beneath the part struck upon, there will be less resonance just over the heart than on either side of it; and as a drum is muffled by being overlaid with any soft or comparatively inelastic material, so the thoracic resonance is impaired by solid deposit externally, as in corpulence, and by effused fluid, as in anasarca, and is less distinct under the scapulæ than elsewhere. When you have learned the kind and degree of resonance to be expected at the various points of a healthy thorax, you will be prepared to detect the presence of disease by the modifications and impairment and want of resonance. These are occasioned by all the causes that affect the access and amount and movement of air within the pulmonary structures. Fluid contained in the pleural sac, will of course make the sound beneath it dull. Solidification of the tissue, from whatever change of condition, has the same effect in proportional degree—whether it be constituted by hæmorrhagic or inflammatory congestion or hepatization, or tuberculous deposition, or any form of infiltration.

It is important to be aware, that the resonance may be too great as well as defective in intensity. This augmentation may be combined with fluctuation in pneumo-thorax—may exist in asthma, and in perforating ulcer of the lung. You will thus perceive, that the inferences from percussion require to be corrected and rendered definite by collation with the other modes of examination—a remark which, indeed, applies with equal truth to all or nearly all. Scarcely one of them is so obviously

diagnostic, that we may venture to rely on it independently of concurrent observations made in different modes. Percussion is applied mediately and immediately, and Piorry, who is justly celebrated for his experience and his sagacity, preferring the former, has laid much stress upon the use of the pleximeter, as he entitles a plate of ivory upon which he directs the percussion to be made. Leather and caoutchouc have been also employed. With Piorry, I generally depend upon mediate percussion, but I use no other pleximeter than the fingers of my left hand, pressing them closely on the surface and striking upon them with the ends of those of my right. Some have talked a good deal of "the tactual sensations" communicated to the tips of the striking fingers, and therefore object to mediate percussion or the interposition of any pleximeter. I am not able, I confess, to appreciate these sensations, and therefore am obliged to depend exclusively upon the sounds elicited.

5. Manual examination of the thorax and its movements, and the vibrations which these produce, is always of some importance, and should be made available, unless some prohibition present itself. It is most useful in the cases of children, in its reference to affections of the respiratory organs. In all, it gives very definite information of cardiac disease. We thus discover the enlargement or violent and irregular action of this viscus, and detect its displacement by pulmonary derangement or thoracic effusion. This mode of exploration, however, it should be observed, rather exhibits to us the locality and degree of disorder, than its nature.

6. Auscultation. This is divided, like percussion, into mediate and immediate, and is defined "the listening to, or perceiving the various sounds produced in the chest during the performance of the functions of the viscera contained therein, whether in a healthy or diseased condition." Direct auscultation is effected by laying the ear flat upon the chest at the point to be examined. This is always desirable to be done, when it is within our option; but it will be at once obvious to you, that there are very numerous cases, of every day occurrence, in which this is totally forbidden—and it was in an example of this sort, that the ingenuity of Laennec suggested to him a resource in the employment of a medium for the conveyance of

sounds. Recollecting the facility with which a solid body communicates an impression made upon one end throughout its whole length, and a tube transmits the vibrations of air that produce sound along its canal, he "rolled a quire of paper" thus "into a kind of cylinder, and applied one extremity of it to his patient's chest and the other to his ear, and was not a little surprised and pleased, to find that he could thereby perceive the sounds within the chest more distinctly than by the ear."

Thus was constructed the first Stethoscope, an instrument which, since that time, has undergone many changes of substance and of form. They have been made of various woods—of ivory, bone, horn, paper, and caoutchouc—with and without a central bore—of one, two and three pieces. I prefer a stethoscope made of a single piece of light but not too porous wood—cedar and apple are generally chosen—with a pretty large central bore. A solid cylinder is said to be better adapted for examination into the cardiac sounds; the one I show you, is made for listening to the vocal and respiratory noises, but here is a plug fitted to a concavity in one end, which converts it partly into the solid cylinder for exploring the movements of the heart.

It is necessary that I should offer you a brief description of the natural sounds heard within the healthy thorax, and in contrast with these, such as are produced by disease of the several organs: and first,

Of Respiratory auscultation. The normal sounds elicited in the acts of breathing, differ somewhat in the various regions in which we hear them; the general sound is known as the "respiratory murmur." This you must ascertain for yourselves, and become experimentally familiar with; as a just appreciation of it can only be acquired by personal attention. This murmur is naturally louder in children than in adults—whence the phrase "puerile respiration;" it is perceptibly louder in inspiration than in expiration. There is a notable difference, which however is not easily conveyed to you by description, between this respiratory murmur, as it is heard in the pulmonary air cells, in the bronchi, and in the trachea. Vesicular or cellular respiration is properly a mere murmur; tracheal respiration gives you the impression rather of a rushing—slight, but similar to that made

by the passage of air through the nostrils or a bellows nozzle; and bronchial respiration partakes of both: in health it is distinguishable only over the largest bronchi. In an entirely natural state of things, the respiratory murmur is heard most plainly at those points which are most loudly resonant upon percussion, as upon the anterior chest, above the clavicle, and in the axilla. These sounds are liable to simple increase and diminution of intensity. A mere increase of the respiratory murmur in an adult, known as "puerile respiration," belongs to a stage of disease. The highest intensity of tracheal or bronchial respiration, is heard in a broken-winded horse, or a roarer, as the jockeys call him: it is a species of defect proving, generally, a diseased state of the organs, but, as we learn from high authority, both on the bench and in the saddle, sometimes consistent with "soundness" in the technical sense at least. Puerile respiration in any part of the lung, gives the inference that the remainder or some considerable portion of it is occluded or impeded, and performs its office imperfectly. It occurs in all diseases which impair the functions therefore of the lung, as pneumonia, hydrothorax, etc. Wherever it is very extensive, without obvious cause, we may suspect an obscure or insiduous tubercular deposition to have been commenced.

The respiratory murmur is defective, wherever the cells and tubes refuse to admit air, as in pneumonia, congestion, hepatization, infiltration; and wherever any effusion is interposed between the parietes of the thorax and the lung, as in empyema, hydro-pleura, pneumo-thorax. Always compare the results of percussion with auscultation to prevent mistakes.

Of new or adventitious sounds produced by a morbid state of the respiratory organs, we have a considerable number noted and described by authors. I shall speak of those among them which are most frequently met with, which I myself have heard, and can recognize when I hear, and from which I am prepared to draw specific and definite inferences.

1. The mucous râle or rhoncus you are all familiar with; it is heard in common colds, catarrhal fever and humoral asthma; it is loudest just when a patient is about to cough and expectorate.

2. The crepitous râle is heard in the early stages of pulmonary

inflammation, either acute or chronic. It resembles the sound made by the healthy lung when pressed in the hand. This is variously compared; by Dr. Williams, to the rustling of a lock of hair rubbed between the finger and thumb; by Laennec, to the crepitation of salt on a hot iron; by Andral, to the crackling of a piece of parchment. I infer it to be owing to a slight impairment of the polish or smoothness of opposed membranous surfaces, and perhaps some diminution of their pliability and extensibility.

3. The gurgling or bubbling sound is owing, as Forbes says, to the presence of a very great quantity of mucus; or, as I am disposed to believe, to the undue tenacity or viscidity of the fluid present, as where mucopurulent matter is effused and expectorated.

4. A cooing or purring noise is in some patients very distinct; it depends, I would suggest, upon partial occlusion of certain portions—rather extensive than abruptly defined—of the bronchi, the air cells or vesicles beneath them being permeable. I have met with it constant for months in two young subjects of bronchitis; it is loudest during a febrile exacerbation, when active exercise is taken, and just before a fit of coughing.

5. The sibilant, hissing or whistling sound. This I attribute to an occlusion—less extensive than the former, but more abrupt, and making a small aperture in the tube through which the air forces its way. It is less uniform or constant than the above.

6. The metallic tinkling—"tintement metallique" of Laennec, is said to resemble the sound emitted by a cup of metal or glass when gently struck by a pin, or when a grain of sand or a minute pebble is thrown into it. He ascribes it to the fall of a drop of some fluid from the top to the bottom of a large cavity, where it strikes on the surface of a similar fluid, and causes the sides of the cavity to resound. You will not often hear it. I do not think the rationale just given at all clear or satisfactory, and if I may venture to differ from such authorities as Laennec and Forbes, would attribute it to the same cause which produces the tick or clicking sometimes heard; the resistance, namely, to the passage of air made by some very viscid secretion, which suddenly yields and gives way.

Of Vocal sounds. On laying the ear to the chest of a healthy

person speaking—or applying the stethoscope—we perceive the same thrilling sensation that is felt by the hand; if it be sound, it may be described as a diffuse vibratory murmur. If we place the concave end of the instrument on the trachea, we shall hear, though with some indistinctness, the articulated words he is uttering. Over the largest bronchi we may still perceive articulation, though with still more indistinctness and somewhat confused with bronchial respiration; the vocal resonance lessening as we proceed along the tubes, until it disappears. As puerile and bronchial respiration are the first effects of impairment of the function of the lungs, so we shall find bronchophony to extend itself in the earlier stages of pulmonary inflammation. When this has been some time protracted, it is converted into what Laennec has chosen to call "ægophony," as resembling the bleating of a goat. He explains it thus. "I consider ægophony to be owing to the natural resonance of the voice in the bronchial tubes, rendered more distinct by the compression of the pulmonary texture, and modified by its transmission through a thin layer of fluid, in a state of vibration." This fluid must of course be in small quantity; if the amount is much increased, the sound is lost. He affirms, that he observed it in almost every case of pleurisy under his care. Forbes says it is most noticeable "in a zone from the lower angle of the scapula following the lines of the ribs round to the nipple." I have seldom met with it.

7. Pectoriloquy means, as the phrase imports, articulation or speaking within the thorax—breast-speaking, as it might be translated. It is one of the earliest and most striking discoveries of Laennec, and its explanation is obvious. It occurs only when there is a large cavity filled with air, into which opens freely a large air-tube. The articulatory vibrations are continued downwards, from the larynx into this cavity, and there renewed or repeated, so as to give rise to the phenomenon. Whenever it exists, we are made aware of disorganization somewhat extensive; the softening and evacuation of a tubercle, the emptying of an abscess. It is usually attended with loud resonance on percussion.

Of the sounds perceived in the examination of the Heart, I shall say little, because of my want of opportunities for making

any extensive investigation of the subject; the few occasions that have presented themselves, of verifying (by autopsy,) such observations as I have made; and lastly, my failure to perceive clearly and distinguish accurately, the peculiar noises or modifications of sound described by authors, and to comprehend definitely their relations with the several conditions to which they are ascribed.

On listening carefully to the movements of the heart, Dr. Hope tells us, we shall first become sensible of the ventricular systole, coincident or nearly so with the auricular diastole; these movements give the first sound, the impulse of the apex against the ribs, and the pulse. The second sound attends the ventricular diastole; then follows an interval of repose. Laennec gives us a different rationale. The first sound, he affirms, is caused by the contraction of the ventricles; the second sound, by the contraction of the auricles. The weight of evidence and authority would seem, at present, to be with Dr. Hope.

The natural or normal sounds of the heart, may be irregular in rhythm, in extent, and in relation to the impulse: in rhythm, from any cause which disturbs the heart's action, as the passions or mental emotions, or unequal hypertrophy. This latter cause will also give undue extent to the cardiac sounds. The relation to the impulse is clear; if the parietes of the organ be thickened, there is more impulse and less sound, and vice versa.

The morbid or adventitious sounds of the heart, are named by Laennec "bruit de soufflet"—sound of a bellows; "bruit de scie"—sound of a saw; and "bruit de râpe"—sound of a rasp. It is generally agreed, that the phrases thus chosen, are happily and correctly significant, and that the first sound resembles strongly, the puffing of a pair of bellows, and the two latter, the rough grating of a file and of a wood-saw. They are attributed to impediments in the current of blood, which may be either temporary, as it would seem, or organic. The latter condition is inferred from the intensity of the noises heard, from their constancy or continuance, and from the other phenomena which may concur.

Laennec speaks of another sound, which he designates as the "cri de cuir"—the creaking of leather; which he and others are

disposed to ascribe to the roughness and friction of pericarditis, with effusion of lymph.

8. I only mention here to reprobate, a method of exploration proposed by Marshall Hall, and which, nothing but his deservedly high reputation induces me to mention at all. I allude to his proposition to "insert a small flat trocar between the ribs into the thorax, in order to ascertain, in doubtful cases, the presence of air, serum, or pus, in the sac of the pleura." I cannot hold it a light matter, thus to inflict a wound upon this membrane, inflammation of which is so easily excited, and productive of so much pain and danger; as we see when it is torn by the spiculæ of a fractured rib. I can only imagine one contingency in which I would consent to make this sort of examination: where paracentesis thoracis had been resolved on as indispensable, and requiring to be immediately performed, in order to relieve the patient from the presence of air or effused fluid, and where the insertion of the trocar was only to be regarded as a preliminary step; like the sounding for stone after the patient is laid on the table, which, if unsuccessful in detecting its presence, shall render nugatory, at least for the time, all the preparations already made; but if successful, gives confirmation and clearness to the opinions previously entertained, and sustains the surgeon with the plea of present and urgent necessity.

CHAPTER XXXVIII.

CROUP.—CYNANCHE TRACHEALIS.—LARYNGITIS.—TRACHITIS.—HIVES.

The subject of our present lecture, may be affirmed to be one of the most common diseases of children. Its aspect is alarming, and its ravages, when neglected or improperly treated, rapid and terrible; but it is consoling to reflect, that when opposed with promptitude and judgment, it may be confidently ranked

among those maladies, over which the powers of medicine exhibit most clearly their divine control.

Croup, although known to the ancients, even as early as the time of Hippocrates, as has been proved by Coxe and Copeland, until of late years comparatively, attracted little attention. Dr. Blair, (in Scotland, in 1718,) first described it under its present name, which I prefer to retain; not only because it is universally recognized and received, but because the very numerous and more scientific appellations which have been substituted by different writers, are all of them significant of some opinion entertained as to its peculiar nature and locality. You will find that I coincide with Home, in considering it a true inflammation of the larynx and trachea, though this is a point far from being universally agreed upon. Some have regarded it as possessing a twofold character—sometimes spasmodic, and sometimes inflammatory; and hence the disposition of certain writers to speak of it as an infantile variety of asthma. In France and in Germany, it has indeed been confounded, strangely enough, with diphtherite, and almost every species of angina and cynanche.

Croup usually affects children—seldom before they have been weaned, or after they attain the age of puberty. Chronic laryngitis is not uncommon, especially in more recent times, among adults; and the acute form of the disease, which I consider to be true croup, occurs, though rarely, in such subjects. Every physician must occasionally meet with an instance of this sort; and every American is familiar with the fact, that this painful affection terminated the lofty career of our beloved Washington. Marshall Hall gives two cases occurring in eminent physicians—Dr. Pitcairn and Sir John Hayes. Dr. Pitcairn had "an uneasy feeling in the larynx," and "wrote that his complaint was croup." It is not long since I saw a very strongly marked attack (in consultation,) in a lady of fifty years of age; and a patient of mine who is nearly sixty, has been subject to it all her life. I have seen her frequently laboring under it.

In our country, this disease is so well known, as scarcely to need a detailed description. It consists in a very distressing difficulty of breathing. The respiration is loud, hurried, anxious; performed with evident muscular effort, and a struggle

painful to witness. There is cough, attended with a peculiar stridulous croaking and ringing sound, of which words can convey no adequate idea, but which, when once heard, will never be forgotten. It is described as resembling the barking of a dog, the crowing of a cock, the vibration of a brazen tube.

Croup is essentially pyrectic. The symptoms of local disorder, the change in the voice, cough, etc., may either precede or follow, at a short interval, the febrile movement. The eye is brilliant and suffused, the skin hot and dry, and the cheek flushed. Some writers have divided the history of the attack into three stages, and although the lines of transition cannot be always precisely drawn, yet the distinction should be kept in mind, as useful in the treatment. The incipient, or as some call it, the catarrhal stage, is hardly to be discerned from the forming stage of catarrhal fever, except that, perhaps, there is somewhat more ringing or shrillness in the cough, and a less diffused râle throughout the chest. The age of the child should make us attentive to this matter. Croup is more to be dreaded while the process of dentition is going on, than at any other period of childhood.

The inflammatory stage offers, when exquisitely developed, a most impressive picture. The nostrils of the patient are distended by the struggle for breath, the eyes protrude, inspiration is attended with a harsh whistling or wheezing, the face, at first flushed, becomes irregularly livid, the child grasps its throat with its hand, and complains of pain seated there, the pulse becomes extremely frequent and chorded, there is incessant restlessness, and the little sufferer, by its expression of countenance, its moans and its entreaties for help, with every other sign that its age and degree of intelligence admit of, shows the highest intensity of distress. The cough is at first loud, dissonant, and accompanied with the peculiar sound formerly alluded to, but after a time, becomes lower and feebler; and in the third stage, which has been regarded as a condition of collapse, is little more than a whispered or wheezing effort.

The face now assumes a more livid hue, or is very pale and swollen, the skin is covered with a clammy and abundant sweat, and the extremities are cold. The shoulders are elevated, and the chest heaves with the struggle for breath. A mucous râle is

heard throughout the thorax, and the action of the heart, though convulsively frequent, grows weaker. There are two modes in which the fatal termination may take place; either the symptoms just recounted increase with rapid progression, and suffocation ensues, from the clogging up of the larynx with its own tenacious secretions; or the signs of spreading inflammation extend into the bronchi, and even affect the pulmonary tissue; while a certain amount of expectoration, which follows each effort in coughing, protracts the case (even though beyond the hope of ultimate relief) it may be for some days. During this condition of things, respiration is unequal and irregular, sometimes very slow, at others exceedingly hurried—performed with violent exertion of all the muscles which can be brought into play; the alæ nasi are distended—the eyes protruded; the whole scene calculated to inspire the parents and friends with the greatest horror, and the physician with the deepest sympathy and solicitude.

The Pathology of croup has been much discussed. I have never seen a case which was not decidedly inflammatory and attended with marked febrile symptoms. There are many practitioners, however, who regard the disease as presenting occasionally a purely nervous or spasmodic character. I do not doubt that the laryngeal irritation may and does excite, and perhaps often, a degree of spasmodic action of the muscles of the glottis, and others concerned in respiration, and that this secondary or sympathetic may outrun in vehemence the original mode of irritation in nervous and highly excitable individuals, so as to become a prominent and paramount condition; and thus I regard the alleged cases of nervous or spasmodic croup.

The inflammation of the larynx and trachea, which constitutes this disease, frequently gives rise to the production of an albuminous exudation of organizable lymph, rapidly condensed into a pseudo-membrane lining the tube. This is considered, by certain writers of France and England, as a test, or diagnostic symptom. Good makes it an essential characteristic, and Guersent and Bretonneau speak of the cases in which it does not occur as "false croup." The majority of writers agree, however, that this is an error. This membrane or layer of lymph does not always present itself in the worst cases. The

changes shown in post mortem examinations are two-fold. The mucous surface of the larynx and trachea is, in most cases, swollen, reddened and covered with an effusion of tenacious mucus, which extends generally throughout the bronchi and air-cells; this is sometimes purulent, sometimes tinged with blood. In others, the false membrane is found in various states. In some, tenacious and adherent; in some, loose and in mere shreds or flakes. I have seen it but seldom. Dr. Chapman says, he has failed to find it. He mentions a case, in which Dr. Dorsey found it so fixed in the larynx, as to occasion suffocation. Baillie has described this tubular membrane, in the following terms, under the title of polypus, and as the consequence of a peculiar diseased state of the vessels of the trachea. "The trachea and its branches are sometimes lined, with a layer of a yellowish or whitish matter, forming a sort of tube, which is applied to the inner surface loosely. It has not occurred to me," he says—and hence we must infer its infrequency—"to see any instance of it in the dead bodies which I have examined; but I have seen several instances of it in preparations. This layer of adventitious membrane exactly resembles the coagulable lymph which is formed in other parts of the body, and I have no doubt of its being that substance." He goes on to state, that he has seen one instance, in which this coagulum was solid instead of tubular.

Nor are these diseased appearances confined to the larynx and trachea—the minutest ramifications of the bronchi, and the smallest air-cell are found filled and clogged up with the same tenacious mucus, or choked with a similar membranous formation. In a case which I saw with my friend, Dr. Jervey, the ramifications of the bronchi, as well as the trachea and larynx, were lined extensively with this pseudo-membrane, of so dense and tenacious consistence, that it was easy to draw it out in long tubes resembling the finger of a glove. Dr. Bard, in his Essay on Croup, affirms that he has found the lungs so dense and solid, that they exhibited the appearance of the structure of the liver. Cheyne and Baillie have both made the same observation. To these morbid changes, Dr. Marshall Hall adds a third—œdema of the glottis. Bland distinguishes laryngitis into three kinds or degrees, which he has designated from the Greek: 1. Myxogene, when mucus is expectorated; 2. Püogene, where

pus is effused; and 3. Meningogene, when the membrane is formed. The idea is ingenious and plausible.

The Causes of croup are numerous, comprising all the circumstances which give rise to catarrh, sore throat, etc.—such as exposure to sudden changes of temperature, or currents of cold, damp air, wet clothing, wet feet, falling asleep in the night air or dew. Easterly winds are, with us, among the most frequent exciting causes, as being cool, raw and sharp. Familiar experience ascribes it to all such agents as occasion a suppression of the natural and healthy cutaneous transpiration.

A predisposition to it is often hereditary, and transmitted through many generations; it is built up, undoubtedly, under various conditions, arising from previous attacks, a repetition of which will most remarkably increase the degree of susceptibility to the invasion. This susceptibility became so great, in one child under my care, that she did not escape an access for any entire fortnight, during a period extending from her being weaned to her fifth year. I have already spoken of the coincidence not being well understood, between croup and dentition. A greater number of severe cases occur, certainly, while the process of teething is going on. But in my own experience, children of about two to four years, are the worst sufferers by it. It is rare before weaning, but Duges says that he met with it in a child only a few days old.

The gastric origin of croup is not mentioned, so far as I know, by any author, but for own part, I am disposed to consider the presence of undigested food, and other irritating crudities in the stomach, as among the causes of the disease; and the remark is a familiar one, in some families subject to its frequent presence. In one child to whom I have been frequently called, the attack was uniformly preceded by vomiting of acescent matters and undigested food, or by disordered or relaxed bowels, with greenish and highly offensive stools. In another, I had repeated occasion to notice, that the emetics administered failed to give relief, until the efforts in vomiting brought away some crudities, such as green fruit, or other improper ingesta, when the recovery was rapid and complete.

Croup has been regarded as endemic, epidemic and contagious. There are no reasons that weigh with me, for attributing to it

those qualities. It is more definitely, than almost any other malady, the result of particular conditions of atmosphere and of special exposures.

The Treatment of croup has become so generally understood, that notwithstanding the frightful rapidity of its access, and the evident tokens of imminent danger which attend from the first, it is in a great many families confidently believed to be under domestic control. And, indeed, the domestic management of the early or invading stage of croup, is usually successful. This stage, as I have already said, is marked by the symptoms of catarrhal affection. The child sneezes and coughs, perhaps in a shrill tone. If of sufficient age and intelligence, it takes warning and complains of the approach of its tormentor, pointing out the larynx as the seat of uneasiness. At this period, I have never failed in the attempt to arrest the disease and prevent its farther progress, by the free use of opium. I prefer the familiar formula of paregoric, (tinct: op: camphor:) of which I give a full dose, putting the child to bed after a warm pediluvium, and applying a warm mustard poultice to the throat. There is absolutely nothing in the whole practice of medicine, of which I can speak with as much confidence, as this simple plan of treatment. When this stage has passed by, however, and inflammation is fairly lighted up, the respiration is attended with a distressing struggle and a loud croak, and the peculiar cough, with its characteristic ringing sound, incessantly harrasses the larynx, we must resort to other measures. An emetic is now demanded. While many prefer the antimonial, for its specific qualities in reducing febrile and inflammatory excitement, others regard the ipecacuanha as especially expectorant, and others still resort to the sulphates of lime and of copper, which act so surely and promptly, in order that no time may be lost, in seeking relief from so much suffering.

Venæsection is the next remedy to be spoken of. It is much disputed whether the use of the lancet should precede or follow the resort to vomiting; but I should scarcely think it proper to lay down any precise rule on the subject. In a very robust, plethoric child, when some hours had been lost, and the attack was advanced into a decided inflammatory stage, with marked febrile excitement, it might be well to let blood without delay; but in general, the child will be so much relieved by an active

emetic, that the bleeding may be dispensed with. If you detract blood, you should be guided only by the effect—go as far as the pulse will allow, and produce some relaxation or fainting.

It is scarcely necessary to warn you against the excessive depletion into which some have been misled. Nor can I advise you to trust, at this stage, to the topical bloodletting so highly eulogized. Leeches annoy your little patient, and restrain the movements necessary, in his eager struggles for breath. A warm mustard poultice, may instead, be kept applied to the throat and the neck.

If the child is not relieved by the first emetic and the lancet, place him in the warm bath, and repeat the emetic. Vomiting, under these circumstances, is attended with more relaxation and expuition of the tenacious mucus from the air passages, and its sudorific effect is greater and more continued.

Having thus obtained a truce with the oppressive dyspnœa, we next attend to the condition of the bowels, on which it will be well to act promptly by some cathartic; this will at once tend to reduce irritative excitement, and serve a good purpose as a revulsive. Calomel is regarded by many practitioners, both in England and our own country, as endowed with some beneficial influence of a specific nature, which adapts it to our present uses, and a large experience has accumulated many facts in confirmation of this opinion.

Some, with Dr. Potter, give it in large dose alone; some combine it, adding an antimonial or other emetic, to produce a double effect; some make it more promptly purgative, by mingling it with rhubarb or castor oil. For myself, I will confess that I prefer, at this juncture, the saline cathartics, which I dissolve in one of the sudorific or expectorant infusions, as for example, in that of seneka or serpentaria, which are in this disease, of admirable and acknowledged utility.

The polygala seneka forms the basis of the hive syrup of professor Coxe, and of the "anticroupal mixture" of Jadelot. It is an expectorant, if there be one; a sudorific also; and tends, in large dose, to keep up an occasional vomiting. The serpentaria possesses nearly the same properties in a minor degree of irritative activity. When croup is complicated with any visceral affection, or arises from gastric disorder, the mercurial will

be found of great benefit, if indeed it be not essential to the complete relief of the patient. It may be usefully combined with Dover's powder, in doses properly adapted to the urgency of the case and the age of the subject. The employment of opium has been strongly objected to by some of the authorities. I have already spoken of its remarkable adaptation to the incipient or invading stage—and regard it as also well suited, in the farther progress of the attack, after free depletion and full vomiting. The formula I have just mentioned, in which it is united to an equal amount of ipecac:, is an excellent one, and will effect much in behalf of the little sufferer under the circumstances pointed out. It diminishes the frequency of the distressing cough, and by determining strongly to the surface, checks the progress of pulmonary congestion and inflammation, and thus relieves the urgent difficulty of breathing, and gives opportunity for rest and refreshing sleep.

Squill and digitalis have been highly recommended for their nauseant, expectorant and sedative qualities. I have some confidence in the former. The latter I have never employed here. Dr. Godman has in strong phrase eulogized the powers of tobacco, the Scotch snuff, which he advises to be laid in the form of a plaster upon the chest. It is uncertain whether it acts upon the skin or the nostrils, but in some it produces a relaxing and nauseating operation, which checks the progress of and removes a mild attack. The alkalies have obtained a very extensive and firm confidence in the domestic management of croup throughout our country. Common ley, made from wood ashes—a solution of an impure sub-carbonate of potass, is frequently exhibited, and often with success.

I am acquainted with several families, in whose children attacks of croup are warded off or removed by the exclusive administration of the volatile liniment,—oil and hartshorn being mingled, and given with some syrup or molasses. The influence of these alkalies I do not pretend to account for; the facts are perfectly well known. Some who believe in their specific effect, prefer to medicate the baths, using warm ley water for the immersion of the sick. Among these domestic remedies, indigo was once in great esteem. It was prescribed in solution

or in powder diffused in water—in sufficient quantity to operate actively, both by vomiting and purging; when the relief procured by it is said to be immediate and lasting.

Should the case seem disposed to protract itself, and the remission of the troublesome and dangerous symptoms remain imperfect, or alternate with paroxysms of renewed violence, a very careful attention becomes necessary. The inflammation is exceedingly apt to encroach upon the bronchi and pulmonary tissue—a result which is to be feared, when we have much mucous râle in the lungs, with a loss of resonance on percussion, a pale or livid complexion, and gasping or panting. A blister should be put on the chest, large enough to cover a considerable portion of the surface. The emetic may be repeated, if the strength be not impaired; and it is best given while the child is in the warm bath. I never trust to the mercurial exclusively, but have often derived from it unquestionable advantage, under the circumstances now presented. On account of the very striking insusceptibility to the use of medicines so frequently met with in croup, it will be necessary to exhibit it in full doses. I have given from five to ten grains to a child little more than a year old, repeating it pro re nata—that is, until it freely moved the bowels. Dark colored, offensive and ill-conditioned stools are thus brought away, either greenish or approaching to black, with decided amelioration of symptoms. I have repeatedly seen accumulations of undigested matters of some days standing, forming part of these stools.

In the meantime, the use of the infusion of seneka or serpentaria, with some alkali in solution, may be continued. If occasional vomiting be still desired to relieve the trachea from collections of mucus—or in the hope of detaching and forcing away the shreds of false membrane or organized lymph, when it is formed, squill or ipecacuanha may be added.

If collapse threaten—the pulse sinking, and other signs of muscular and general debility supervening, I would have recourse promptly to the stimulant diaphoretics. The vol: alkali is particularly well suited, and may either be prescribed with oil as before mentioned, or in syrup. Camphor is also useful, and so is opium. The two are united in the tinct: op: camph: which

deserves your confidence, and should be freely administered. Sinapisms should be applied to the extremities, and the powers of life supported by wine whey and wine.

I must not close the consideration of the treatment of croup, without entering briefly into the much disputed question of the propriety of bronchotomy, as it is called—laryngotomy or tracheotomy. I have seen this operation performed but once; in this instance, the circumstances were unfavorable, and the results far from gratifying; my opinions concerning it must therefore be chiefly founded on reasoning. No clear or satisfactory effort has yet been made to distinguish the cases in which it is applicable. Hence it happens that while one declares it to be inexcusable that any patient should be allowed to die without an opening being previously made into the trachea, another affirms it to be a frivolous and useless attempt, uncalled for in curable cases, and superfluous in such as are hopeless;—productive of gratuitous suffering to the patient; and protracted suspense to his friends.

The truth appears to me to be as follows.—Croup is at first confined to the upper part of the windpipe—the larynx and adjoining trachea. If the rapid effusion of tenacious mucus which attends the invasion of the disease, cannot be got rid of by the sufferer—or, if the swelling of the lining membrane of the part be so great, whether by œdema or inflammatory congestion and tumefaction, as to occlude the opening of the glottis—or if the false membrane so much talked of, be formed in mass sufficient to prevent the passage of air; if, under either of these contingencies, a sudden stop be threatened to the process of respiration, and the usual means of relief, promptly and freely applied, be unsuccessful, then we are bound to resort to the operation. A patient should not be suffered to die of suffocation in an early stage of croup; an opening should be made in the windpipe for the admission of air. But we should satisfy ourselves, by a careful examination, that the impediment to breathing is confined to the larynx; the thorax should be resonant on percussion, and the respiratory murmur or loose mucous râle should be distinguishable.

On the other hand, in the more advanced stages of croup, the disease is no longer a local inflammation of the larynx and

trachea. Post mortem examinations prove it to have extended itself through the minutest ramifications of the bronchi and air-cells, which are gorged with mucus or occluded with organized lymph, and even the pulmonary tissue has become solidified or "hepatized." This extension is inferred, in the living subject, from the peculiar complexion—ghastly pale or livid, and from the loss of resonance on percussion, and respiratory murmur.

We have to contend with bronchitis—and pneumonitis as well as laryngitis and trachitis. Suppose the occlusion of the upper and large tubes capable of being instantly and totally removed by the operation, what will you have gained? In this state of things, you can readily perceive the absolute inefficiency of the operation; and here it should never be performed. Bronchotomy is not, as you must be aware, in any sense, a remedial means; it has no tendency to remove the inflammatory actions going on in the trachea, or to check their progress. By its success, we merely obtain time for the vigorous and persevering employment of the proper measures, and if these should be neglected or carried into imperfect execution, the extension of the disease into the lung will be as likely to occur and to prove fatal, as if the operation had not been resolved on.

Finally, let me urge upon you, in the treatment of this painful and formidable malady, the most assiduous attention—the most unwearied perseverance. Make it an inviolable rule, never to leave your patient until relieved from the immediate danger of suffocation. Whatever of success I have to boast of, I attribute simply to my observance of this rule. There should be no intermission of your efforts; and when you have exhausted all your resources, renew the application of your remedies, and persist until success shall crown your sincere and earnest exertions. Thus will you entitle yourself to the rich reward of a parent's gratitude, whose warmth none but a parent can conceive. You will enjoy a sublime pleasure in snatching the victim from a horrible death—in restoring to a fond mother the offspring of her bosom—to a despairing father the joy of his present, and the hope, it may be, of his future existence. Let me anticipate, that these pleasures and rewards may often be yours—the only adequate compensation for the severe privations and wearisome toils of our most laborious profession.

CHAPTER XXXIX.

CHRONIC LARYNGITIS—LARYNGEAL PHTHISIS.

Chronic Laryngitis. As croup, the acute form of this disease seems chiefly to attack children, though, as I have stated, by no means exclusively, so its chronic condition is met with in adults only. It has attracted, of late years, much attention, and is referred to in the books, as one of the modifications of Phthisis—P. Laryngea. Some have considered it as a new disease, but Trousseau and Belloc, authors of a memoir on the subject, which received a prize from the Academy of Medicine at Paris, have traced it in the writings of Morgagni—"perhaps," they say, "in those of Galen and Aetius." In modern times, it is described by Double, Cayol, and Louis. The writers above mentioned, say they have "never met with it but in complication with pulmonary phthisis," and attribute it altogether "to a tuberculous diathesis." It is certainly true, that it is much most likely to attach itself to this state of constitution. It is farther true, that as in acute laryngitis, so in chronic—the inflammation has a remarkable tendency to spread itself by downward progress along the bronchi and into the lungs, and thus give rise to phthisis pulmonalis. In a majority of cases that I have seen, I am ready to acknowledge, the patients were of scrofulous habit, and probably labored under tuberculous development either obscure or discernible, but I have had three or four instances under my care, in which the laryngeal affection seemed entirely local, being treated as such, and completely removed; and, in others, this disease of the larynx and trachea preceded by weeks—nay, by months, all the emaciation, and other constitutional symptoms, which, by their occurrence, form a pulmonary consumption. In some of these, I was satisfied, that the whole evil was at first, and for a long time, exclusively local, and that it was through the persistent irritation, that the more extended malady was generated. It is said occasionally to cause death by suffocation, but this I have not seen. If unmanageable, it runs on to

Phthisis, under which head we shall discuss its second and last stages.

At present we shall only regard the local affection, which is, indeed, so distressing, and in prospect so full of danger, as to require our special attention. Its frequency has undoubtedly been of late years increasing very notably. A variety of causes are suggested to account for this, all of which will be found unsatisfactory on examination. Our Northern brethren have given some alarm by ascribing it to the influence of anthracite used as fuel, because since the introduction of that kind of coal, we meet with it much oftener than formerly. The fact is so, but the coincidence seems accidental merely. In France, where the same increase is observed, anthracite is unused; and I have had several patients laboring under it, who never saw a fire made with anthracite.

In our own country, it has been particularly often met with among clergymen, whose habits have, therefore, undergone a close scrutiny. Nothing new has been detected in their modes of life, and I cannot attribute their special liability, therefore, as some have done, either to their sedentary indolence, their hard study, or their laborious use of their vocal organs.

It is worthy of remark, however, that it has affected in greatest number the clergy of those sects which admit of the custom of reading written discourses, and can hardly be said to have attacked any individual who habitually spoke extempore. Nobody is ignorant of the difference in effort and liability to fatigue, connected with the use of the organs of speech in reading and in declamation; the same individual will declaim loudly for hours unfatigued and free from suffering, who cannot read for more than a few minutes without uneasiness and distress. Indeed, I regard the frequent and free use of the voice in loud speaking, as rather preventive than otherwise, of affections of the respiratory organs.

Chronic laryngitis is met with much oftener in men than in women. It arises chiefly, like the acute form, from exposure to some atmospheric change, to cold and moisture. Its complications, as given by writers, I have not met with, except in tubercular or scrofulous subjects. A cancerous, herpetic and syphilitic modification, are spoken of.

There can be no difficulty in distinguishing the disease. The patient refers all his sufferings to the larynx; there is aphonia, the voice being a husky whisper, and the attempt to speak annoying and fatiguing. The ear, or stethoscope applied to the windpipe, detects a peculiar, harsh, rough, rushing sound, mingled with more or less sibilation. The cough is hoarse or weak, and is apt to be dry and teasing. Sometimes there is expectoration of a tenacious mucus—sometimes of a purulent matter streaked with blood.

Dysphagia is, in some, the most distressing symptom, the deglutition of the smallest morsel giving great pain. Marshall Hall makes dysphagia, and the absence of it, the diagnostic separating laryngitis from tracheitis. In laryngitis, he also affirms, "there is the remarkable symptom of inability of snuffing up the nostrils, or of drawing the alæ nasi together by a quick inspiration." I have, however, lost a perfectly well-marked case, in which the dysphagia was extreme—the voice and cough a mere whisper, but the patient could "snuff up." There is panting, especially after any muscular exertion. As the case progresses, the dyspnœa increases to orthopnœa.

Autopsy. The local changes found after death are various. 1. Œdema of the glottis. 2. Inflammation of the mucous membrane, with redness and swelling. 3. Ulceration of this surface. 4. Ossification, caries and necrosis of the cartilages.

The Treatment of chronic laryngitis is directed by the same principles which guide us in the management of other inflammations. If the patient is strong and robust, and the case recent, venæsection may be premised, and topical bloodletting resorted to. Leeches should be applied to the front of the throat, or cups to the back of the neck. Emetics are not generally adapted, but if the case present, at intervals, paroxyms of dyspnœa particularly severe, they may serve the purpose of procuring temporary relief.

Mercurials have been highly eulogized, especially by the French authors above quoted, who explicitly declare that their "cases—a great number," prove most decidedly the "advantage of the mercurial treatment, carried even to salivation." I have been disappointed in my hope of similar results. Dr. M. Hall

gives an impressive case of cure by the mercurial, even after tracheotomy had become inevitable.

Narcotics are of more uniform utility, and indeed, have seemed to me essentially necessary. The Dovers' powder is the best form of prescription, if it be well borne; if it give rise to headache, or disorder the stomach, some of the salts of morphine must be substituted. The muriate may be taken without any ill effects, for great lengths of time. Endermic medication, by applying to blistered surfaces opium in some mode of preparation, or the extracts of stramonium and belladonna, is recommended.

Various topical remedies are proposed. The vapor of warm water is inhaled, simple and diversified with balsamic and aromatic impregnations; these have sometimes appeared to give a transient relief.

Fumigations with resin, cinnabar, chlorine, iodine, etc., were much employed, but are now abandoned. The inhalation of æther in which cicuta has been steeped, is spoken of as serviceable.

In cases of dysphagia I have found the solution of nitrate of silver of great benefit, used as a gargle or applied by a mop of lint on the end of a probe. I have been entirely unable to introduce it as Trousseau and Belloc have done, into the glottis with a sponge, and by means of Anel's syringe. Any attempt of the kind has threatened my patient with instant suffocation. Unless dysphagia has been present, or some pharyngitis observable on examination of the fauces, which should never be omitted to be done carefully, I have seen no advantage from the nit: argent: or the corros: sub:, or sulph: cupri:, all which are recommended as gargles. I believe they are available only when the glottis and epiglottis are involved in the laryngeal inflammation, as now and then happens.

The same authors refer to many instances, in which they affirm, that the life of the patient has been saved by tracheotomy—a canula, of sufficient size, having been introduced into the opening made, and kept there as long as necessary, while the proper measures for his relief were pursued.

CHAPTER XL.

BRONCHITIS.

Bronchitis, as the term imports, consists in an inflammatory affection of the mucous membrane which lines the bronchi, the air tubes of the lungs, and the pulmonary cells. Though sensible in all its extent, this membrane is particularly so at its external extremity, where it runs into and is connected with the somewhat modified, but similar membrane, lining the fauces and pharynx and æsophagus. When irritated at the glottis, or in the larynx and trachea, the excitement rapidly spreads over the whole of the tissue. The immediate consequence is a prompt increase of its peculiar secretion, which, in a state of health, is so moderate in quantity, as to be entirely exhaled or absorbed, there being then no expectoration. This augmented effusion shows little change in the condition of the membranous surface, but the next step in the series of effects produced by irritation, is indicative of a definitely morbid state of action, the fluid poured out being thinner, and resembling in its acrid quality the coryza thrown from the schneiderian membrane in catarrh. Afterwards, it assumes a denser consistence, becoming of globular form, and putting on a yellowish hue, mixed occasionally with a tinge of green, or a brown or red color.

The distinction between croup and bronchitis refers clearly to the locality of the original affection. There is also a difference to be noted in the nature of the diseased actions; the formation of a false membrane, which occurs in so decided a proportion of cases of croup, never happens, I believe, in bronchitis, unless this be the secondary effect of inflammation commencing within the larynx and extending itself downward.

It has been found less easy to draw the line between bronchitis and catarrhal fever, or as the phrase is, "catarrh." "If the irritation," says Broussais, "exhibits no other token of its existence than a disordered mucous secretion, it is called catarrh; but if it manifest itself by a violent disturbance of the circulation joined to an alteration in the mucous secretion, we call it

pulmonic inflammation." There is a singular vagueness and obscurity in this proposed diagnosis; for inflammation almost uniformly commences, in these cases, in irritation, which modifies the secretions, the functional soon passing into the inflammatory or structural condition of disease. According to Broussais, then, we should consider bronchitis as merely a second stage of catarrh. They seem to me, to be better distinguished by a reference to the general or constitutional disorder in the one case, catarrh being truly an idiopathic fever, (as I have already treated it,)—and, in the other, the essential and unvarying indications of local inflammation attacking a special tissue; these local symptoms of pulmonary mucous inflammation constituting bronchitis, properly so called.

Bronchitis divides itself very naturally into the two forms of acute and chronic, which, however, run readily into each other. The latter, when protracted to the exhaustion of the patient, or to the production of pulmonary disorganization, is familiarly recognized as one of the varieties of phthisis, and known under the title of Catarrhal Consumption.

Acute bronchitis is often spoken of as closely allied to catarrhal fever. It may, indeed, be said to be, in a certain sense, coincident with it, the inflammatory affection of the bronchial mucous membrane being often the earliest and most prominent lesion attendant upon the general febrile disorder, and very frequently remaining fixed after this has subsided.

All the known Causes of catarrh may give rise to it, such as exposure to alternations of temperature and vicissitudes of weather—to currents of cool air when the body is heated—getting the feet wet—putting on damp clothes, or sleeping in damp beds, and every other of the numerous circumstances which occasion sudden suppression of the perspiration or suspension of the ordinary cutaneous actions. Hence, it often, though not always, commences with a chill; this is followed by some uneasiness in the throat, and a sense of roughness and tickling, which excites a cough with efforts to expectorate. The cough becoming more frequent and harsher, is attended with soreness of the chest, increasing to pretty severe pain, not often acute in any one point, but extensively diffused. There is a feeling of thoracic fulness and tension, which restrains the inspirations.

A wheezing and rattling sound is heard in breathing, occasioned by the amount of mucus in the air passages. If this secretion exceed the quantity which can be removed by coughing and expectoration, the air-cells and tubes are engorged by accumulation, the entrance of air is impeded, and suffocation threatened. The due performance of the important function of respiration being thus impeded, the blood no longer undergoes the necessary changes—the organs are imperfectly stimulated—the brain and nervous system languish—the muscles lose their force, and the powers of life are rapidly exhausted. This mechanical termination in which the patient dies suffocated, by the mucus filling the bronchi and pulmonary cells, is the condition known among English writers as peripneumonia notha.

In young and robust or plethoric subjects, bronchitis sometimes exhibits great severity in its symptoms, and follows a rapid course. The pyrectic excitement runs high, with full, hard pulse, hot, dry skin, anxious and hurried breathing, attended with a distressing tension or constriction of the chest, and much soreness in coughing. The patient cannot lie down; his lips are livid—his face flushed—his expectoration scanty, with struggling for air after a fit of coughing. If he be not promptly relieved from this condition, a total collapse of the system, and irremediable prostration of the vital powers, must ensue within a short time.

Post mortem inspection shows the mucous membrane of the bronchial tubes and pulmonary air-cells notably thickened in fatal cases of bronchitis; the surface of the membrane is turgid and high colored by the vascular injection of the tissue, so as to appear sometimes like a mere congeries of blood vessels. The ramifications of the air tubes, and the cells also, have been found so filled with a tenacious ropy mucus, or an effusion of purulent or even sero-purulent matter, that the lungs refuse to collapse when exposed. In more protracted cases, all the pulmonary tissues become affected with infiltration, hepatization, or some other mode of consolidation. If the protraction has attained a chronic tendency, we may meet with more or less ulceration of the mucous lining membrane.

The Prognosis accords generally with the state of the respiration. If there be dyspnœa and orthopnœa—if the breathing

be impeded by accumulations within the air tubes and cells, as shown by wheezing, rattling, struggling with sputa which the patient cannot expectorate, while his livid or pale countenance announces that the due pulmonary changes in the blood are no longer effected, suffocation impends and may be expected soon to occur. Or, if the loss of respiratory murmur and of resonance be remarked over any very large extent of the thoracic surface, the pulse being quick and frequent, with panting and dry cough, we must fear the impairment of function, by consolidation of the lung, to be at hand. On the contrary, when the patient spits largely and freely after coughing, and can lie in the horizontal posture, or shift from side to side, as he pleases, his inspiration, with whatever râle attended, being full and deep, and his muscular strength little impaired, we may anticipate his recovery. The disease is most fatal to infirm subjects, and to the extremes of age—infants and very old persons being alike liable to mucous engorgement of the pulmonary tubes and air cells. In delicate women, and in constitutions predisposed to phthisis, it may run on tenaciously into the chronic condition, known as catarrhal phthisis.

Of the Treatment. There is little doubt or difficulty in the management of the early stages of acute bronchitis. In the majority of cases, such as happen in the young and robust, prompt and fearless depletion is indispensably requisite. The pulse being full and hard, and the breathing short and painful, blood must be freely drawn from a large orifice, and in quantity proportioned to the violence of the attack. An emetic should then be administered without delay; and here I have found the combination of tart: antimon: with ipecac: preferable to either separately, and to every other article of the class. This should be the first, as it is the indispensable remedy, in the cases of infants and old and infirm people. We shall thus disgorge the air tubes of the suffocating mucus thrown out in such prodigious quantity, and so rapidly, as very often to require, at but short intervals, the repeated excitement of the efforts at vomiting. "The benefits," says Dr. Hastings, "which arise from emetics are two-fold; they unload the primæ viæ, thus removing causes of irritation; and they increase the expectoration, on which the favorable issue so much depends." In young children they are

especially serviceable in the former mode, as there is presented here, almost uniformly, the complication of a highly disordered state of the stomach and bowels.

The combination above mentioned, of the antimonial with ipecac: will very generally act as a cathartic also very beneficially. It may require to be aided, however, and we should prescribe moderate doses of sal: epsom, in an infusion of serpentaria or decoction of seneka. Thus we shall promote a full determination to the skin with free diaphoresis. The attack is sometimes ushered in with great oppression at the pit of the stomach, the tongue being much furred, with nausea and an unpleasant taste in the mouth. The tokens of gastric and hepatic derangement, if not relieved by the emesis above advised, will require a mercurial purgative. Calomel should be given in full doses, either alternately or mixed with some more ready laxative, and some diaphoretic—as in the old and favorite antimonial or nitrous powders, in which the pulvis antimonialis or pulv: jacobi, or nitrat: potassæ, with a certain portion of jalap or rhubarb, are added to the mercurial.

It is necessary that I should express myself decisively as to the propriety and advantage of thus exhibiting a purgative in the commencement of the pulmonary inflammations; for there is not an older nor a stronger prejudice, nor one which has obtained a more general currency, from the earliest times of our science, than that which denounces the use of cathartics in pectoral affections universally. For my own part, I am disposed, on the contrary, to rank the judicious employment of our remedies of this class as a means of reducing inflammatory action, wherever seated, second only to the lancet, and in a great number and variety of cases, as even preferable to that powerful instrument of depletion. Upon this view I have founded my practice for more than twenty years, and have seen much good and no evil in any shape result from it. You must observe, however, that I am speaking only of the first stages of pulmonary inflammation, and as it occurs in subjects of ordinary muscular strength and vigor of constitution. But when arterial excitement is reduced or has subsided; when a free diaphoresis is going on, and abundant expectoration attends the paroxysms of

coughing, our purgatives are not only unnecessary but pernicious. Generally speaking, all that is necessary in the advancing stages of bronchitis, is merely to keep the bowels regular and soluble. This should never be neglected.

I have already spoken of diaphoretics, which are much relied on in the treatment of bronchitis. At first, the sedative articles are to be preferred. Many depend almost exclusively upon the tartarized antimony, which they administer in aqueous solution, and in doses properly adapted to the state of the stomach. The tolerance of it in different individuals, and at different times in the same individual, varies very much. The Italian school press this matter very far, increasing the dose almost indefinitely. Others add to it opium in some form, to reconcile the stomach to its free use. It has never been with me a favorite prescription. I have seen it more than once give rise to such prostration and debility as quite to counterbalance the good effects anticipated from it, in the reduction of arterial action, and the establishment of a salutary sweating. Some have alleged that the peculiar or specific curative effect of the antimonial, is lost when it is carried to the extent of producing nausea. I do not clearly understand this notion, but allude to it here merely to show that others beside myself have become aware of the inefficacy of nauseants, or their want of adaptation in the case before us. The pulvis antimonialis, James' powder, seems to me more manageable than the tartrite—and I therefore prescribe it oftener as a diaphoretic. Its efficacy is much increased by adding the nitrate of potass, which is of itself often a very available sudorific, and possesses the remarkable property of co-operating well with both varieties of diaphoretics—the sedative and stimulant. It is very usefully given with serpentaria and seneka, either in powder, infusion or decoction—and with the Dovers' powder or the acetate or carbonate of ammonia. The Dovers' powder is indeed one of our happiest formulæ. It is peculiarly well adapted to the condition of our patient, when the arterial action has been moderated by the depletory measures above recited; the fulness and hardness of the pulse being lessened, and the heat of skin somewhat abated. Among the most trustworthy of our febrifuges, it is singularly well calculated to relieve the tracheal,

laryngeal and bronchial irritation, and thus subdue the cough which so incessantly harrasses our patient, and prevents his enjoying even a transient repose.

If the local thoracic affections with which this disposition to cough is connected—the soreness and pain of the chest, dyspnœa, etc., continue obstinate, or but little relieved by the constitutional treatment above enjoined, it is advisable to resort in the next place to topical depletion. In very young subjects, leeches may be applied; but when it is in my power to choose, I very much prefer the cups, which should in the first instance be laid as near the seat of pain or greatest degree of soreness as convenient; but should be shifted so as to take blood, in an unyielding attack, from the whole surface of the thorax.

Warm and soft poultices should be kept on the chest, to solicit a free discharge from the leech bites and scarifications, when cups and leeches have been used, and as fomentations when they have not. In the latter case, mustard should be added, in order to produce a revulsive effect. Patients are very often highly delighted with the relief thus afforded them. When these means have failed us, and the first vehemence of febrile excitement has passed over, we shall find it proper to resort to vesicatories. A large blister should be laid on the side, or in front, and if one give no definite benefit, several of them in succession, on different parts of the surface. They very rarely fail to subdue or palliate very notably, the symptoms of pulmonary inflammation, whether concentrated on one point, or diffused widely through the lung.

To relieve the cough, which is often very troublesome, a variety of demulcents have been employed. The basis of all these is mucilage, of which we have abundant diversity, in the solutions of gum arabic and the infusions of flax seed, barley, slippery elm, etc., etc. These are made agreeable to the patient by numerous additions; they are acidulated with vinegar and with lime juice, and sweetened with sugar, or honey, or some syrup, each of which is supposed to exert a peculiar efficacy. We may medicate them usefully, too, with squill, or ipecacuanha, or tart: antimon:, or opium, in very small doses, so as to bear indefinitely frequent repetition. They thus become serviceable adjuvants in our management of bronchitis, but must not be too

much trusted to, or too largely indulged in. The cough, it should be recollected, is a mere symptom, which is best got rid of by the removal of the condition it serves to indicate, and is not, therefore, likely to yield to the exclusive use of expectorants, so called. When the pulse is full and hard, and the skin hot and dry, the best relief for the cough is to be found in venæsection; cathartics relieve it, by reducing the general vascular excitement, and thus diminishing the pulmonary irritation of which it is a token; and emetics and diaphoretics conduce to the same end, by the relaxation and revulsive determination following their action on the stomach.

The administration of opium, in the treatment of acute bronchitis, has been made the subject of much dispute. The objectors to it allege, that when taken early, its action as a stimulant is improper and hurtful; and that at a later stage, it has a tendency to check the expectoration upon which so much stress is laid, both as a favorable symptom and a means of recovery. Its advocates contend, on the other hand, that there is nothing which so directly and powerfully controls the irritation of the trachea and bronchi, forming so important a constituent of the malady under our care, and consequently, that nothing tends so much to abate both the violence and the frequency of the cough; and they distinctly deny its injurious influence upon expuition, declaring that if it seems to lessen the expectoration, it is by diminishing the unduly abundant and morbid secretion.

I will freely aver, that I have never met with an example of the evil influences, above ascribed to opium. No one would be so absurd as to trust to its exclusive administration. Time and circumstances must be taken into view. It is usually best to premise the ordinary means of depletion, and to combine with it some of the relaxing or sedative diaphoretics. There is no occasion, however, for any long or indefinite postponement of its use. The Dover's powder may be prescribed safely and beneficially, on the first night of the attack, in a very large majority of ordinary cases; and the camphorated tincture, or some other of its numerous formulæ, mingled from the very beginning, in small quantities with our demulcents.

Full doses of opiates, as I have more than once repeated to you, should be reserved for the accustomed bed-time of the pa-

tient. Their anodyne and sudorific operation, (which though but a part of their remedial efficacy, is a very important part,) is much aided by the influence of habit. The day doses should be smaller, depending upon repetition for their good effect. Yet there is a class of cases, in which writers of great authority and experience, urge upon us the observance of special caution, in the administration of opium.

In the bronchitis of aged people, and of infants, and of some very infirm subjects, there is never any marked access of pyrectic excitement; the inflammatory symptoms never run high, and the danger to life consists apparently in the mere engorgement of the lungs, and the filling up of the air cells and tubes with abundant and morbidly tenacious mucus. The pulse is soft and weak, the strength impaired, and the countenance pale or livid. Depletion is scarcely required and badly borne. Emetics give, seemingly, most relief, the majority of practitioners preferring those which, like seneka, possess some stimulant and expectorant properties, or at any rate, like the sulphates of zinc and copper, do not exhibit any prominent power to nauseate or relax. A similar caution is observed, in regard to purgatives; the saline and sedative being shunned, and the oily, resinous, or stimulant selected, as turpentine, with or without castor oil, calomel, aloes, etc. Here, the employment of opium is considered a matter of no little delicacy, and its effect must be attentively watched. If too largely prescribed, it may by the stupor it induces interrupt the necessary efforts to expectorate the effused pulmonary secretion, and thus prove dangerous. Another form of injurious action is described, as shown in the excitement of restlessness, with some febrile irritation, perhaps some light delirium, the cough changing from loose and rattling, to a harsh, dry form, with a ringing sound, etc., a loud asthmatic wheezing. Here they advise a discontinuance of the opiate, and the substitution of the emetic and diaphoretic. I will not deny the possibility of these deleterious results, from the exhibition of our most valuable drug; but in general, I am disposed to think that there is little reason to dread them, and agree with Johnson and Eberle, that in pulmonary effusions, opium rather checks the secretion, than the expectoration in the mode alleged. I employ it freely, in all its various modes of preparation, pre-

ferring the Dover's powder and paregoric; and every day I see pain relieved by it, cough mitigated, and the harrassed patient losing all remembrance of his sufferings, in a deep soft slumber, attended almost uniformly by a most salutary diaphoresis.

When the strength of the patient is much impaired, and he seems exhausted, either by the violence or the protraction of the attack, the impending prostration must be averted by the judicious use of stimulants. Among these, ammonia is supposed to be peculiarly well adapted, on account of its obvious expectorant properties. The carbonate may be given in an infusion of serpentaria or seneka; the dose being proportioned, in amount and frequency, to the urgency of the case. We may add to such a mixture, a proper quantity of the nitrous æther, or of camphor, which tend to fulfil the same indications. Vesicatories should be applied to the chest, and sinapisms to the extremities, and wine and brandy offered, as the occasion requires; persevering the more tenaciously in the effort to re-excite the sick man and recruit his exhausted energies, because in so large a proportion of these instances of peripneumonia notha, there is no reason to apprehend any fatal disorganization, or modification of healthy structure of the parts affected.

During the convalescence from acute bronchitis, the habits of the patient must be carefully regulated. He must be clothed in flannel, and protected from all exposures. His diet should be light, consisting of farinaceous matters, with milk and eggs. His drink should be water, tea and coffee. Lemonade may be allowed as an occasional luxury. All excesses must be avoided, and special prudence enjoined forcibly upon him.

CHRONIC BRONCHITIS very naturally results from the tenacity and protraction of the acute form, but you will meet with it not unfrequently, as an original and primary affection. In such instances, it begins as an ordinary catarrhal attack—a "common cold," which adheres obstinately, and gradually increases in the severity of the local or thoracic symptoms. There is often soreness of the throat, with roughness and tickling in the larynx, provoking a frequent teasing cough, at first dry and harsh, or attended with expectoration of a tenacious mucus, brought up with difficulty. This becomes easier in a short time, and more

abundant, and assumes a yellowish hue, being mingled with purulent or puruloid matter. There is some stricture and oppression of the chest, with a feeling of diffused soreness, increased on coughing and in making a deep inspiration. The respiration is hurried, attended with panting and wheezing, and a loud mucous and crepitous râle. In long protracted cases, we hear, in exploring the thorax, a purring or cooing sound, at particular points, and sometimes a distinct sibilation or whistling. These noises are referred to thickening of the tissue which lines the tubes and cells, thus straitening the passage through which the air is respired. The voice is usually more or less hoarse, and may, indeed, when the upper part of the trachea or the larynx is much affected, be reduced to a mere whisper; the cough being also rendered feeble and sibilant. Hectic fever rarely fails to supervene, upon this chronic inflammation of the bronchial membrane—with hot and dry skin, most generally in the evening, flushed face, pulse frequent, from one hundred to one hundred and twenty or one hundred and thirty, slight headache, thirst, red tongue, etc. The expectorated matter increases in quantity, is brownish, bloody, fœtid; the respiration is hurried and embarrassed by all muscular exertion, even on turning from side to side in bed; there is much debility, with langour and emaciation. Night-sweats supervene, to the great annoyance of the patient; apththo cover his cheeks, gums, lips and tongue; his feet and legs swell; and a diarrhœa, at first easily checked, but promptly recurring and obstinately unmanageable, at last carries him off.

In Autopsies of chronic bronchitis, the mucous membrane lining the respiratory apparatus is found deeply injected, inflamed, thickened, and even occasionally ulcerated. The pulmonary substance is in a certain degree solidified; the air cells and tubes are filled with muco-purulent fluid, mingled with a frothy and bloody serum. Broussais asserts that in the campaign of the French armies on the European continent, the almost universal pathological characteristic of chronic bronchitis, was the induration of the parenchymatous structure of the lungs themselves.

From what has been said, you will readily infer the difficulty of drawing the line between chronic bronchitis and true phthisis in some of its modifications. Indeed, there are certain familiar

symptoms which are common to both. "Early in the disease," says Hastings, "the absence of pain during inspiration—the capability of resting on either side in bed—the wheezing noise in respiration—the leaden color of the lips—the pallidity of the countenance—the appearance of the sputa, consisting almost entirely of mucus streaked occasionally with blood, are symptoms sufficiently well-marked to distinguish chronic inflammation of the bronchi from tubercular phthisis." It is scarcely necessary to observe to you, that in this list he has not included any phenomena that deserve to be at all regarded as characteristic. The distinction required of us here, is not of much consequence, it is true, in the practical management of the cases; but it may be important in forming the prognosis, which of course will be demanded. This, it is evident, will be far more unfavorable in true phthisis than in bronchitis proper.

In the early stages of mere bronchitis, percussion of the thorax will show a general impairment of resonance on the side affected, proportioned to the degree of thickening of the lining membrane or infiltration of fluid from its surface within the cells; more notable still, when pulmonary congestion has occurred, or consolidation of the parenchymatous substance supervened. Auscultation will always detect some imperfection of the vesicular sound or the respiratory murmur, with mucous, crepitous, or sibilant râles, according to the various modes in which the access of air is impeded.

Treatment. In the discussions concerning the management of chronic bronchitis, though there has been little dispute as to the propriety of cautious depletion, yet the modes of depletion proper to be instituted, have been warmly debated. We can hardly go wrong in taking for granted, that the primary indication of cure is the reduction of morbid vascular excitement both local and general. Venæsection may occasionally be required as a means of fulfilling this indication, and deserves to be regarded as a very useful preliminary measure, though its influences will often be found less impressive and striking, than we had hoped for. Yet the lancet will be, in our hands, an instrument of no contemptible efficacy, when employed with prudence and judgment. Large quantities of blood must not be taken away at once; for the engorgement of the pulmonary organs, is

of such a nature, the congestion so passive, that the loss will be sensibly felt in the production of general debility, before any notable local changes are brought about by it. A well timed repetition of small or moderate bleedings, will be found most serviceable, as unloading at intervals the distended bronchial vessels, and gradually equalizing the disturbed and irregular circulation. When venæsection is of doubtful propriety, or the strength of the patient will not admit of it, we should substitute for it topical bloodletting. Cups should be freely applied to the chest, at first near the part of the lungs most affected, and afterwards revulsively to the whole thorax, with or without the scarifications, as we remark the tolerance of loss of blood to be exhibited. The flow of blood and the determination to the thoracic surface, may be well promoted by the assiduous application of warm poultices, which seldom fail to give great relief. They may be put on from time to time with advantage, during the whole protraction of the case; and when made more stimulant and revulsive by the addition of mustard, are truly efficient and valuable remedies, which we shall lose much by neglecting. They may be made of any convenient material, moist or dry, as the patient prefers.

It is unnecessary to repeat what was formerly said of the value of emetics. They are among our most indispensable and useful prescriptions, disgorging the air tubes and cells of the accumulated mucus which oppresses them, and determining powerfully to the cutaneous surface. They render the expectoration by coughing, freer and more satisfactory, and relieve the stomach and bowels of their morbid secretions. In many cases, their frequent and persevering repetition is imperatively called for, with these views. Ipecacuanha is generally preferred, and enters into many efficient combinations with other articles of the same class. With the sulphate of copper, it forms the dry vomit so highly eulogized by Dr. Maryatt. During its action, he prohibited the administration of warm water, or any other of the usual diluents, under the impression that its effect as an expectorant, was thus greatly increased.

Purgatives are little adapted to the management of chronic bronchitis, but the bowels must not be neglected. If not kept soluble by the laxative and light diet upon which our patient

must be made to live, and the occasional use of tartarized antimony, ipecac, etc., when administered pro re nata, we must interpose from time to time, a moderate dose of rhubarb or epsom salts, or such other articles as he may prefer. Nor should we long delay, in threatening cases, the resort to an alterative course of mercury. Small doses of calomel should be prescribed, at proper intervals, and the system slowly impregnated with the medicine, kept for some time under its influence, avoiding, however, the production of any definite degree of ptyalism. As a general remedy for inflammations of the mucous membranes, mercury is unrivalled; this is often shown in croup, the close analogy between which and bronchitis, would lead us to expect similar benefit from it in the latter, as in the former disease; and accordingly, I have repeatedly seen it subdue the inflammation and restore the patient to health, after the long continuance of the malady, the incessant soreness and pain of the throat and chest, and the purulent appearance of the sputa had threatened the most fatal results.

We must not neglect, at this juncture, the exhibition of our expectorants and diaphoretics. The seneka and serpentaria must be employed; the former, preferably in powder, and in very serviceable combination with the nitrate of potass; the latter, in infusion with sudorific doses of antimony, or ipecacuanha, or the alkalies, of which the acetate and sub: carbonate of potass, are the best. To allay the pulmonary irritation and palliate the cough, we must have early and constant recourse to opium. Authors urge upon us, even here, the cautions formerly discussed, and advise us to abstain from its use in the invading stages of such instances as present much arterial excitement, and in the cases of very aged persons, very young infants, and subjects specially debilitated. I am willing to admit always, the propriety of a nice and prudent attention to the influence of any efficient remedy, and have, therefore, recited to you these warnings; but I have seen none of the dreaded evil consequences thus alluded to, as following the exhibition of anodynes. We derive unquestionable advantage from them, in what may be termed the second stage of bronchitis, whether acute or chronic, when the lancet and our other antiphlogistic measures for the reduction of undue excitement, have been properly premised.

"In chronic catarrhal affections," says Eberle, "or in recent cases, unattended with any considerable phlogistic diathesis, opium is a remedy of great value. It is particularly useful when there is too abundant a secretion of bronchial mucus. In cases of this kind, small doses of opium check the inordinate secretion and allay irritation, not only by their direct narcotic influence upon the mucous membrane, but also by diminishing the secretion of the irritating matter in the bronchi." Dover's powder and the elixir paregoric, are invaluable formulæ—the combination with ipecac in the first, and with camphor and balsamics in the latter, producing most useful results. Where crude opium obstinately disagrees, giving rise to vertigo, nausea, and other familiar sufferings, it will be proper to make trial of its several extracts and the preparations formed from it—as morphine and its salts, McMunn's ext: opii:, etc.

I have not yet failed to find some one among these which proved available in any given case, without counterbalancing disadvantage. Should any such instance offer itself, where all these formulæ are intolerable or annoying, we may substitute some other narcotic, as lactucarium, hyosciamus, dulcamara, cicuta, etc. I have, however, very little confidence in any of them. Duncan recommends very highly, the lactucarium; the others have each their advocates, and may be experimented with.

For the farther alleviation of the cough, and to promote the expuition of the bronchial mucus, the inhalation of several species of medicated airs and vapours, has been proposed. Among these, the vapour of boiling tar was extravagantly extolled, and there were not wanting striking histories of instances of cure performed by this means alone. The hopes of relief thus generated, led great numbers of sick to the dock yards in England, but the results have been far less favorable than was anticipated. In some few cases of long standing, unquestionable benefit was received; but in the majority of instances, the tar vapour was either absolutely inert, or did positive harm, by increasing the irritation already existing in the air tubes. This objection seems to be removed by diluting the tar with a sufficient amount of warm water, and taking care that in boiling it does not burn. The aqueous vapour thus formed, is free from any injurious quality, and seems often to promote and render easy the tena-

cious expectoration. Some medicate it still farther with the fumes of vinegar.

Alcoholic inhalation has been found of advantage. Brandy, mingled with vinegar, has been used. Cicuta steeped in brandy or in æther, and æther alone, have been recommended. The factitious airs or gases, the nitrous oxyde, mixtures of hydrogen, carbon, iodine, chlorine, in various states and proportions, have been respired. I have found them all either useless or injurious. The inhalation of some of our astringent and tonic drugs, in the form of powder in a state of fine levigation or infinitely minute division, has been tried with varying results. Some patients cannot bear the intrusion of these powders into the lungs; while others find benefit in thus breathing cinchona and the acetate of lead.

A very common modification of chronic bronchitis, is met with in persons of thin, spare form, and originally weakly constitution. The febrile symptoms never in these run high; they are not, perhaps, confined to their beds, or even their chambers, for weeks after they are attacked. The skin, in such cases, is dry and constricted, the pulse small, but hard, frequent and abrupt, the tongue clean and fiery red; the cough is not violent, but harrassing, short and dry; at night, its returns are repeated so often as to disturb the rest very much, and are attended occasionally with oppression of the chest or constriction; the breathing is much hurried by slight exertion of any kind, and the patient easily fatigued. He gradually loses flesh, and at last become strikingly emaciated, although his appetite may be but little or not at all impaired, and his digestive powers give no sign of being weakened, or disturbed in any degree.

It is in this condition that we shall witness the most decided benefit from digitalis—a remedy so extravagantly eulogized by some, and so strangely misused by many. Its ill judged and almost promiscuous administration, has done much harm; but if you will select carefully, the cases to which it is adapted, you will have reason to be well pleased with its effects, in diminishing the frequency and hardness of the pulse, removing the tension of the chest, and abating the harrassing cough. Whether these results depend upon its operation as a diuretic, I will not positively decide; but I have not been satisfied that it occasions,

when prescribed in such cases, any increase of the urine discharged. Under similar circumstances, the lobelia inflata has been exhibited with advantage, in doses less than nauseating. The squill is serviceable here, too, and may be resorted to in turn.

The colchicum autumnale, or meadow saffron, has of late years risen regularly in reputation and extent of use. The tincture certainly displays very remarkable powers, in many cases of chronic bronchitis. It allays the cough, promotes a flow of urine, and keeps up a very manageable degree of determination to the bowels, without exciting irritation or impairing the strength; these latter properties adapt it to our purpose, even when considerable febrile excitement is present, which indeed it will often relieve promptly by augmenting the various secretions and excretions. The sanguinaria canadensis deserves also to be mentioned here.

It is my custom to prescribe the five remedies last spoken of, in various combinations, the specific efficacy of each becoming more obvious and certain by the addition of any one or more of the others; and the modifications of their influences thus obtained, will be often found capable of ready and nice adaptation to the varying condition of the patient.

Since the favorable notice of it taken by Dr. Armstrong, in his treatise of consumption—copaiba has been much employed in chronic bronchitis and, has obtained some confidence. It is by no means a new remedy here, having been long known in these regions as a cure for colds and chronic coughs—even among our domestic animals. Its analogous efficacy in gonorrhœa, an inflammation of another mucous surface with purulent, and mucous effusion, perhaps denotes some specific adaptation to such contingencies. Its application is limited both by its peculiar offensiveness to most stomachs, and its tendency to act too much on the bowels.

Other balsamics have been from time immemorial administered in the case before us. Myrrh and tolu are among the most familiar. Tar water is recommended as a constant drink. The fir balsam and the balsam of canada, are much lauded; pills are made of what our country people call pine-gum, a terebin-

thinate exudation from incisions in the bark of the pine tree; and there is not a little reliance still placed, in the domestic management of protracted pulmonary affections, upon lightwood chips steeped in rum or other ardent spirits, taken mixed with honey.

Much has been said by Hastings, Broussais and others, concerning the exhibition of cinchona in chronic bronchitis. Broussais advises it to be given in infusion, "lowered with a little mucilage," in the lingering inflammations of the membrane affected; being decidedly preferable, as he affirms, to all other tonics. Hastings, in speaking of the utility of cinchona, tells us that the benefits arising from its exhibition are sometimes very apparent—chiefly, he goes on to say, "in those instances that succeed to acute bronchitis when the debility thus brought on is considerable. The profuse perspirations and other discharges are not only restrained by it, but it appears occasionally to alter the secretion from the mucous membrane of the lungs." To promote these effects, he proposes to combine it with diluted sulphuric acid, which also tends to restrain the colliquative sweats.

A few words may be added to what has been said above, of the topical applications adapted to the treatment of chronic bronchitis. I have declared my preference for the cups; others resort to leeches. I make no objection to this choice in warm weather; but in winter I am unwilling to expose the thorax in the mode required. I have spoken of the benefit of the poultice and sinapism. In protracted attacks, numerous modes of counter irritation are resorted to. Of all these, the vesicatory is the most efficient and useful; and of the two modes of employing the blister, the keeping it open as a large superficial issue, by stimulating dressings or the successive application to different portions of the surface, allowing one to heal while another is acted on, the latter seems to me by far the best. Nay, I do not doubt that I have seen cures affected under this plan of repeated blistering, exclusively followed without any internal medicine whatever.

I must not, however, omit to mention the remedial efficacy of the croton oil and tartarized antimony, employed as counter irritants. They produce, when rubbed on the surface, each a

peculiar mode of inflammation; that of the latter being of pustular form, very closely resembling the pustule of variola. This state must be kept up for a considerable time, bringing under its influence, from period to period, successive portions of the skin of the chest. One advantage of these irritants is, that their full effect does not materially interfere with the ordinary habits of a patient.

Setons and deep issues, made with caustics of various kind—pure potass, nitric acid, etc., and even the actual cautery, have their advocates. Broussais tells us he has succeeded with the latter. Ammonia and capsicum have been used more recently. Some invalids consider the latter particularly manageable and quite efficient. It may be applied as a plaster, in powder or in strong tincture. Invalids may be well indulged in making experiments for themselves, of these several irritants, in protracted cases.

During the treatment of chronic bronchitis, it will be proper to guard the patient with the utmost care against the influence of atmospheric vicissitudes. For this purpose, in the severer cases he must be confined to his chamber, in which an uniform temperature—say about 60° of fahrenheit, must be kept up. He should wear flannel next his person, and take every means to keep his feet warm and dry. Convalescence having fairly commenced, exercise will constitute the most important part of his further management. Sailing and riding, as passive modes of exercise, must at first be exclusively permitted; but when he is able, he may walk moderately, and mount on horseback. A journey in the saddle, with change of air, are the true specifics where they can be applied. No combination of remedies, no remedial management will serve as substitutes for them; none can even be considered as second to them in efficacy.

If your patient continue too debilitated to bear exercise, so rude as he must suffer on horseback, you must advise a sea voyage—and he should seek the benefit of a warm and equable climate. The atmosphere of islands has been almost unanimously regarded as peculiarly fitted to the irritable pulmonary organs of sufferers from bronchitis. Among these the West Indies, especially Santa Cruz and Cuba, and Madeira next perhaps, have been preferred by the majority; and I have indeed

known many instances of relief and even of cure, sought and obtained by a visit to these general and highly favored shores, whose softened air seems to have exerted some balmy influence over cases long protracted and aparently hopeless.

CHAPTER XLI.

PNEUMONIA—PLEURO-PNEUMONITIS—PLEURITIS.

Under the present head—following the example of Cullen, I shall treat of all the inflammatory affections—whether of the parenchymatous substance of the lungs, or of the membrane which invests and contains these organs; whether of that portion of the pleura lining the thoracic parietes on the sides—the pleura costalis, formerly regarded as the exclusive seat of pleurisy strictly so called; of that which covers the lungs; or of that which extends itself over the upper surface of the diaphragm. To each of these limited localities of inflammation, specific symptoms have been alleged to belong; and even Good is found retaining the particular distinctions referring to them. Thus he speaks not only of empresma pneumonitis—empresma pleuritis, separating not unreasonably the parenchymatous from the membranous inflammations, but he sub-divides the latter into pleuritis vera, mediastina, and diaphragmatica. Now, though I will not deny that a careful and minute examination may enable us to distinguish the peculiarities of position and circumstance which appertain to each of these cases, yet this diagnosis will afford us no practical advantage whatever.

Inflammation of the pleura, if it exist but a very short time, will necessarily give rise to a similar affection of the pulmonary tissue immediately beneath it, and of the membranous surface directly opposite to it; and thus, these local conditions, however cognizable at first, are soon confounded by extension, and run into each other, a remark long since made by Baillie, and one which you will perpetually see verified in the

dissecting room. "Inflammation of the substance of the lungs," says Baillie, "seldom takes place without some similar affection of the pleura;" and this holds good even in the most chronic and least violent cases.

Pleurisy is one of our most common and well-known diseases. It is usually met with in the winter and spring months, and the number of attacks will bear a definite proportion with the severity and suddenness of the atmospheric changes in these inclement and unsettled seasons. It is seldom seen in mild winters. Its causes are obvious.—Exposure of the person to damp and cold air—all the contingencies which have been enumerated as giving rise to catarrhal affections—all such vicissitudes of weather as act upon the cutaneous surface, checking the ordinary functions of the skin and obstructing the natural transpiration. It is said sometimes to have been occasioned by external violence, as by blows on the chest, falls, etc., but nothing of this sort has happened under my own notice, except where the pleura is wounded by the sharp spicula of a fractured rib, or by a penetrating instrument of some kind. A fatal case is recorded, in which the pleura had been wounded by a needle employed to pass a ligature round the subclavian artery.

It is evident, that in cold or variable climates, as the causes above recounted are in constant action during a considerable portion of the year, pulmonary inflammation will be a very frequent disease. "The pleura," observes Dr. Baillie, "is more liable to inflammation than other membranes investing cavities which have no external opening. This is so much the case, that we can hardly examine the chest of any person who has arrived at the adult state, without perceiving more or less the traces of a present or former inflammation."

Pleuro-pneumonitis is known to exist where the patient is attacked with pain in the side or chest, under the ribs or scapula, fixed, circumscribed, sharp, and increased by inspiration, so as often to render the taking a full breath impossible. After this pain has lasted a short time, fever comes on, with a full, tense pulse; the face is flushed—the skin hot and dry, and there is cough or inclination to cough, resisted on account of the pain the effort occasions. It has been doubted, whether the pain and

fever invade simultaneously. I have seen the former precede the latter by various intervals—in one instance as long as an hour. So also of the cough, which seems an effect partly of the embarrassed respiration checked by the acute pang attending the expansion of the lung—partly by the congestion which must result from the imperfect transmission of blood through the undilated cellular tissue, and partly by the irritation extended not only (as I have before inferred must happen) to the parenchymatous substance of the organ in immediate connection with the affected membrane, but even through it to the bronchial mucous lining within. The results of this engorgement and inflammation of the respiratory organs are various and highly interesting. The most common is the pouring out of plastic or organizable lymph upon the surfaces affected, which connects by adhesions, more or less extensive, the pleura costalis and pulmonalis—the sides of the pleural sac. This effect may not at the time be noticed, but it entails on the subject a greater or less degree of impairment of freedom of respiration, and a liability to pain and uneasiness in the side or chest.

Suppuration sometimes happens in place of the effusion of lymph. I have not been so unfortunate as to meet with it in any case; but in many of your books, it is spoken of as by no means unfrequent. The signs of the presence of pus within the pleural sac, differ little from those which have been detailed to you as denoting hydro-thorax—the same loss of resonance on percussion, and of respiratory murmur, changing their relations with the changing position of the patient—the same dyspnœa, and orthopnœa. We distinguish empyema by the connection of these symptoms with recent pleurisy, and the absence of the usual appearances of the hydropic diathesis.

Serous effusion is another consequence of pleuritis, which, when unconnected with dropsical tendencies, it seems to be impossible to separate from empyema—perhaps its access is later; it is more connected with chronic than acute pleuritis; its increase is slow, and it is more free from the association with cough, pain, and other modes of pulmonary irritation, than empyema is, for the most part, apt to be.

Chronic pneumonia, to be hereafter particularly described under the head of phthisis, is a sequela of the acute malady of

which I am now treating, but too frequently met with. It matters not at what point the affection may begin—whether the central point of inflammation be in the substance of the lung or its investing membrane, the congestion and vascular irritation which result, unless promptly arrested, run on into a series of the most destructive alterations—solidification by deposition of organized particles, induration and ultimate formation of abscesses, with great danger, and probably fatal consequences.

"Pneumonic inflammation," Cullen tells us, § 346, "has a termination peculiar to itself—that is, by the effusion of a portion of the entire mass of blood into the cellular texture of the lungs, which soon interrupting the circulation of the blood through this viscus, produces suffocation." In this brief description, the illustrious Scotchman has anticipated the notice of the "pulmonary apoplexy" of Laennec, and of the other French pathologists. From my own experience, I should judge, that they have both overrated the frequency of its occurrence as a consequence of pleurisy. Indeed, Cullen affirms it to be "the manner in which this disease most commonly proves fatal," and declares, that "upon the dissection of almost every person dead of the disease, it has appeared that such an effusion had happened." Occasionally, though, as it would seem, comparatively very seldom, the violence of this mode of inflammation determines the occurrence of gangrene of the lung. I have seen but one instance of this kind. It is known by the extreme fœtor of the breath, and of the sanious and offensive expectoration. It is attended by great and rapid sinking of the pulse and general prostration, though some, Dr. Gerhard, of Philadelphia, among them, assert, that it is not necessarily a fatal contingency, and report recoveries after it had supervened.

I have thus gone into a recital of the local changes resulting from pleuritic inflammation, because they form an essential part of its history, and because it is chiefly by means of these local lesions, and their indirect effects upon the constitution, that it proves fatal in cases that terminate unfavorably. Acute pleurisy is very rarely directly fatal. The febrile excitement is often very great, and perhaps, in a few examples proportionally, may run so high, as by its irritation of the general system, to pro-

duce the usual evils attendant on fever, or to exhaust the vital powers, and bring on a species of typhoid condition.

Post-mortem examination exhibits the changes above alluded to, as being capable of detection during the life of the patient, by proper exploration of the chest, and deliberate enquiry into the history and symptoms of the case. The frequency of adhesions of the opposite surfaces of the pleura has been spoken of. The sero-purulent effusion, empyema, represented by Law, and other writers, as so common a consequence of chronic pleurisy, is by no means an ordinary result of the disease with us. "When pus is formed in the chest," says Baillie, "the pleura is found entirely free from ulceration, but covered with a layer of coagulable lymph." Far more frequently we meet with solidification or hepatization of the lung thus described by Laennec.—"The lungs are somewhat livid, exhibiting in their interior a red color more or less deep. An incision shows it to have lost the cellular structure, and to have acquired a granulated appearance." This gives it a resemblance, not very close, perhaps, to the liver, whence the use of the term. This granulation Laennec looks upon as the proper and distinguishing anatomical characteristic of inflammation of the pulmonary tissue.

The Diagnosis of pleurisy can hardly present any difficulty. It has been confounded, however, with intercostal rheumatism, and with hepatitis. A careful exploration of the chest will detect always more or less loss of resonance and defect of respiratory murmur, independent of the position of the body. These do not attend either of the affections above mentioned.

The general Prognosis is favorable in our climate. I have said that acute pleurisy is scarcely ever fatal, except by protraction, and the ultimate supervention of certain local changes. The degree and importance of these can be very well estimated by ascertaining their effects upon the function of respiration and upon the constitution of the patient in the production of hectic, atrophy, and the other tokens of phthisis. Cullen has strangely set down a shifting of the pneumonic pain from one side of the thorax to the other, among the prognostics of evil. An extension of this pain, so as to affect both sides at once, is obviously unfavorable; but the metastasis or shifting that he speaks of, I

have always found, when it has occurred, to precede recovery and produce more or less relief. We dread to meet with any exhaustion of strength or failure of the pulse, while the breathing continues embarrassed and painful. All typhoid symptoms, low muttering delirium, starting and picking in the air, coma, with dry tongue, and dry, hacking cough, portend a fatal issue. Expectoration of considerable quantities of mucus or mucopurulent matter are attended with relief; a slight tinge of red blood coloring it, betokens no evil, and seems sometimes indeed productive of benefit; but a brownish, rusty, and fœtid expectoration, is a gloomy presage. A sudden gush of blood followed by loud râle, a feeling of suffocation, and a sinking pulse, show the termination in pulmonary apoplexy.

Serous effusion—hydro-thorax, and sero-purulent effusion—empyema, are to be detected by their characteristic signs as above described. It has been suggested, as farther assisting us to distinguish between these two modes of effusion, that the suppurative termination of pleurisy is attended by a notable remission of pain, with rigors or shivering fits, a sense of weight in the thorax, and often an observable fluctuation. The supervention of abscess, chronic pneumonia, apostematous consumption, with previous solidification of the tissue, is known by the loss of respiratory murmur and resonance, with fixed uneasiness in some part of the chest.

In the Treatment of pleurisy, it is to be remembered, that our purpose is single, and we must effect it promptly, or suffer the alternative of local lesion and structural disorder. The resolution of the existing inflammation—the subdual of irritation—the removal of the attendant congestion: these must all be accomplished without delay. Each of these indications happily is best fulfilled by a single means; and by almost the unanimous consent of the profession, venæsection is placed first on the list of our remedies, both in point of time and of importance. If called early to a patient of ordinary strength and vigor, open a large vein and suffer the blood to flow freely and rapidly until the quick interrupted breathing becomes fuller and deeper and the pain subsides. The rule is clear and plain. The amount to be taken away is limited by no considerations but the effect of such depletion upon the disease or the patient. To prevent

syncope, seems to be an object with some practitioners, who recommend the subject to be kept in a horizontal position and with his head low, in order that a greater quantity may be abstracted before fainting is induced. For my own part, I observe none of these precautions. I am not aware of any special reason for seeking to take away blood aside from its influence on the condition of the patient, nor of any disadvantage to result from syncope; on the contrary, I should rather suppose this transient cessation or languor of vascular action, is favorable to the diminution of the inflammatory excitement. But you will rarely meet with much disposition to faint in any case of pulmonary inflammation. Marshall Hall has made the "tolerance of blood-letting" a test of inflammation generally; it may more safely be regarded as such in thoracic affections. An apparent exception may now and then present itself in a constitution of highly nervous susceptibility, or as an effect of personal idiosyncrasy; but this is transient, and interferes with you only on the first attempt to bleed, after which you may repeat the operation as soon and as often as you please. It is not from loss of blood, but from mental emotion, that such persons faint, and therefore I would not hesitate, in the case of a delicate, nervous woman, to open the vein during her syncope, permitting the blood to flow when the circulation is restored.

There was formerly much discussion as to the preference of one arm or the other for V. S. in pleurisy; and even Cullen, § 362, is found affirming, "that the operation will be performed with most advantage in the arm of the side affected." "Perhaps," says the learned and somewhat pedantic Good, "perhaps there is no disease in which profuse bleeding from a large orifice may be so fully depended on, or has been so frequently acceded to by practitioners of all ages and all nations—the only question on the subject being, whether the blood should be taken from the side affected, or from the opposite. The earlier Greeks recommended the former—the Galenists and Arabians the latter; and the dispute, at one time, ran so high, that the medical colleges themselves not being able to determine the point, the authority of the Emperor Charles IX. was whimsically appealed to, who, with much confusion to the controversy, died himself of a pleurisy before he had delivered his judgment.

He, too, had been bled, and his death was immediately ascribed to the blood having been drawn from the wrong side."

A more recent controversy has arisen as to the degree of value, the actual efficiency, of the remedy. Louis, in applying the "numerical method" of observation to therapeutics, came to the tabular result, that very little influence was exerted by the lancet in subduing the symptoms of pulmonary inflammation, or, at any rate, in shortening the duration of the disease, although so far as it had any effect, it was favorable. This startling conclusion is combated by Bouillaud, who accounts for Louis' want of success with this most important therapeutical agent, by the timid and insufficient mode in which he employed it. On the other hand, he declares vehemently, that the abstraction of blood, promptly, energetically, in such amount and with such frequency as circumstances may require, will not only shorten, but arrest the disease, and put an end, in many cases, at once to the sufferings and risk of the patient. I do not hesitate to repeat these assertions of M. Bouillaud. I have many times arrested pulmonary inflammation, in its incipient stages, by the use of the lancet alone; and have, more than once, in more advanced cases, given entire relief from pain, and removed all danger, with the same instrument.—And it is by these and similar remarks, published by Louis, much as I respect his scientific knowledge and his persevering research, that my confidence in the therapeutical inferences to be drawn from his numerical or statistical method of enquiry has been shaken, if not altogether overthrown. You will find this question discussed ably and forcibly by Professor Martyn Paine, in his "Commentaries."

Not only, then, should we bleed freely, as above directed, when called at the commencement of a pleuritic attack, but we must repeat the depletion as often as the pain and dyspnœa return or become pressingly urgent, and the pulse does not positively forbid it. This may be twice, thrice, or even oftener, in the first twenty-four hours of the disease; the principle is perfectly well-settled, and the case does not admit of delay or vacillation.

I must carefully admonish you, however, that I am speaking only of the earlier stages of the malady. When some hours

have elapsed, and the pulmonary vessels have, by distention lost a portion of their tone and elasticity, and by the interruption of the respiratory function, and the severity of his suffering the patient has lost some of his strength and vigor, it would be unreasonable to expect the same prompt and salutary effects from the use of the lancet. Here it is not possible to correct, at once, by it, as a revulsive, the established determination to the lungs, or subtract, immediately, by it, as a means of depletion, from the accumulation of blood in the thoracic vessels, without drawing off so large a proportion of the vital fluid as shall affect the general system with prostration, and perhaps the organs of circulation with a failure of the powers of action. Under these circumstances, we open the vein and take away a moderate quantity of blood, attentively watching the effect. If the loss be well-borne, and the pain and dyspnœa still continue severe, we repeat the operation at an interval of an hour or two. In the meanwhile, we resort to topical depletion by cups or leeches, the former of which I much prefer—and, in this way, we shall benefit our patient very greatly with little risk. The cups should be applied over and near the seat of pain, and the application may be renewed, from time to time, as long as any acute addition of suffering recurs on inspiration. As soon as the arm is bound up and the cups removed, large warm poultices should be laid over the chest, which indeed should be kept constantly enveloped in them. Next to blood-letting, they constitute the most ready means for diminishing pain and procuring comfort; by the unremitting employment of them, an obvious advantage is almost always gained; they are doubly useful both as revulsives and diaphoretics.

The next step to be taken, is the administration of a full dose of Dovers' powder as an anodyne and sudorific. Should the patient sleep, I would leave him to his repose; when he is again disturbed, I would follow up the endeavor to determine to the skin, by the exhibition of some antimonial preparation. Of these, the common tartar emetic is the best. It may be combined, at first, with a cathartic, calomel or the epsom salt, and after the bowels have been freely opened, with tinct: opii, or alternated with Dovers' powder. I cannot, indeed, speak too highly of the latter formula. I am convinced, that there is

something peculiarly happy in the union of the ingredients of which it is composed, which renders it not only one of our most certain and most valuable diaphoretics, but also one of our safest. Such was the opinion, and such the practice of Post, one of our most justly esteemed physicians. Such also is the judgment of Paris, who says, "it may be given with perfect safety and advantage in inflammatory affections accompanied with increased vascular action. It would seem, that while the opium increases the force of the circulation, the ipecacuanha relaxes the exhalent vessels, and causes a copious diaphoresis." Whatever may be its modus operandi, its influence is, indeed, most salutary, especially when exhibited at bed-time and in the night. It determines to the surface, gives relief to pain, allays the troublesome cough which harrasses the patient, and procures for him quiet and refreshing sleep.

Among other diaphoretics, I have already given a preference, in the first stage of the attack, to antimonials; but I am not fond of using them in the contra-stimulant mode in ultra doses, whether we procure what is called a tolerance of these doses, or excite, as some aim to do, protracted nausea and occasional vomiting. Good, for example, advises the use of emetics in pneumonia, and speaks highly of the beneficial results of keeping up full vomiting for an hour or two at a time. I should not be willing to subject a patient to a process so annoying and exhausting; though I do not imagine it to be so dangerous as Cullen has pronounced it, unless in cases of great debility, or notable weakness of constitution.

If the stomach, as will sometimes happen, refuse to bear any preparation of antimony, we must resort to other formulæ. A combination of jalap with the nitrat: potassæ is much used, and seems well adapted to the case. A solution of sal: epsom in the infusion of seneka or serpentaria, is a very common and excellent domestic prescription. You have not, I hope, forgotten the remark made upon a former occasion, of the propriety and necessity of exhibiting cathartics in diseases of the thorax, so much deprecated by the prejudices of the olden time. And indeed we find writers, as well since as before the time of Cullen, warning us solemnly against purgatives in pulmonary complaints as having a tendency to check the expectoration, which in their

views constituted the natural and exclusive solution of such inflammations. Nay, we are cautioned, and by writers of some authority too, against free bleeding in pneumonia vera, though they are willing to permit it in pleurisy, in which latter, they suppose expuition or expectoration to be of less consequence. You will find their speculative notions groundless, and their distinctions unworthy your notice. These evacuations, as the sagacious and experienced Cullen has satisfactorily shown, have not in themselves, as thus assumed, any disposition to check the salutary process of expectoration—but on the contrary, rather promote it when properly timed and judiciously advised. By reducing the vascular excitement and readjusting the disturbed circulation, by equalizing the various local determinations, they relieve the pulmonary vessels of an oppressive load, and thus enable them to resume their natural actions and appropriate secretions. The asclepias decumbens of our country affords a very useful domestic prescription, and indeed has been supposed to possess so partial an adaptation to the case before us, as to have obtained the name of "pleurisy root." In strong infusion or decoction, of which two ounces may be taken three or four times a day, it proves an efficient sudorific. Eberle speaks of it as "exerting a peculiar and almost specific action on the organs of respiration, powerfully promoting suppressed expectoration and thereby relieving the breathing of pleuritic patients." It seems like the seneka, to be best suited to that stage of the case, in which the arterial excitement being in great measure subdued, there still remains pain in the side or tension across the chest, with inability to draw a free or full inspiration, and a dry teasing cough. Of the more stimulant diaphoretics, which become necessary when any obvious degree of exhaustion or debility ensues, while the local irritation continues, the carbonate of ammonia is the best. The dose employed should be proportioned to the circumstances; from three to five grains will generally suffice. If necessary, the camphorated mixture will add to its efficiency in every way, or they may be alternated. The nitrous æther is of similar utility—but requires to be employed in free doses—from one to two drams.

The application of local revulsives and counter-irritants, must by no means be neglected. I have already strongly advised the

assiduous application of large warm poultices in the first instance. To these, after a time, mustard may be added; but when the constitutional irritation and febrile excitement have been sufficiently brought down, vesicatories deserve a decided preference. A large blister should be placed as nearly as possible over the seat of thoracic pain, and as soon as this begins to heal, another and then another applied in succession, in the neighborhood of the point affected. I prefer this method of employing them to the plan of keeping open the first blister by means of stimulating dressings, so much in vogue.

To relieve the troublesome and annoying cough, which so uniformly attends upon pulmonary inflammation, increasing it and aggravating the sufferings of the sick man, it is customary to administer a great variety of expectorants and cough mixtures. Some mucilaginous solution is generally made use of as the basis of these—such as the infusion of slippery elm, of flax seed and of gum arabic; such also as the solutions of liquorice and of lac ammoniac. To these may be added, with advantage, antimon: tart: in small doses, squill, ipecac: and colchicum. I have seen little effect from them all, however, unless opium in some form be mingled in the combination. Spermaceti, which was until recently much trusted to as a demulcent, has of late fallen into disuse; very unjustly I think, as it is one of the best of the class. Powdered with a little nitrate of potass and sugar, and with the addition of a little Dovers' powder, I have seen it prove as serviceable as any of them.

Should the attack be protracted, much care and attention will be necessary to prevent the supervention of some of the local lesions formerly described as the sequelæ or terminations of pleurisy. In the transition from the acute to the chronic form of the disease, mercurials have been strongly recommended. I have seldom found them necessary; but if judged proper, calomel may be exhibited in small doses, combined with opium in some form—or this latter may be administered nightly in full doses, while during the day, we advise a formula consisting of nitrat: potass: and digitalis and calomel. Here I rely much on the good effect of blisters, which may be laid not only all around the thorax but to the arm and forearm with obvious benefit.

The antimonials are also applicable here. I prefer to add to a

solution of tart: antimon: such quantities of tinct: opii: or paregoric, as may prevent any nausea or vomiting, and assist in determining efficiently to the surface. Under such circumstances too, the colchicum, lobelia and digitalis are highly useful. They may be given alternately, or in combination, a mode of administering them that seems to increase very often the efficacy of each; and in such dose as shall not disturb or oppress the stomach.

I often use with advantage a compound formula, containing the tincture of sanguinaria canadensis, with the squill in some of its preparations; generally preferring the ordinary syrup of the shops.

Should serous or purulent effusion occur, constituting empyema, or hydrothorax, it will be necessary to resort to the trocar, and evacuate the fluid contained within the sac of the pleura, and mechanically impeding respiration.

I have thus gone through, at some length, the history and treatment of acute pulmonary inflammation, in its simple form. It now remains for me to say a few words of a modification of it, which you will probably often meet with. In our low country, influenced probably by our warm climate and our miasmatic atmosphere, pleurisy frequently occurs, complicated with the familiar symptoms of gastric and hepatic disorder, which have obtained for it, with no impropriety, the name of "Bilious Pleurisy," and which imperatively demand a corresponding modification of the management to be pursued. It is more especially met with in our colored population, the mulatto rather than the black, and in the cold days of late autumn, and early winter, and in spring. It is usually ushered in with a distinct chill, preceding or accompanying the pain in the side, cough and dyspnœa, that mark the access of respiratory disorder. There soon follows headache, with gastric oppression, nausea, pain in the back and limbs, red eyes, turgid countenance, quick full pulse, and great thirst. The tongue is furred and yellow; there is a bitter taste in the mouth, with vomiting of bilious matter; pain in the epigastrium; delirium. Williamson, the historian of North-Carolina, tells us that "bilious intermitting fevers are very prevalent during the autumn, in the level country near the sea coast. These intermitting fevers disappear as the winter sets in, and are succeeded by fevers of a different type, that are more

fatal. The fevers of this colder season are commonly attended by symptoms of partial inflammation, whence they are denominated pleurisies of the eye or of the head. At other times, they affect the side. In these several forms, they are equally dangerous."

Cooke describes a winter epidemic of this character, which prevailed in Greenville, on Tar River, in February, March and April. "Some physicians," he says, "called it 'bilious peripneumony.' The attack was made by chill or ague; before this was entirely worn off, a pain in the head, breast, side, or back, seized the patient. These increased in violence as the fever came on."

Of the Treatment. The use of the lancet is by no means so clearly or so uniformly demanded here, as in simple pleurisy, but I have found it, in a great majority of cases, highly serviceable to take away some blood, if the case were seen early. The pulse will generally be found to yield to a moderate bleeding, and a repetition of it will rarely be demanded; but I would not shrink from it, if the arterial action still ran high, and the dyspnœa and pain in the chest, or other local disorder, continued severe. I am in the habit, in the next place, of administering an emetic, preferring to unite the antimonial with ipecacuanha, rather than depend on either separately. We thus relieve the stomach of its foul and oppressive secretions, determine powerfully to the surface, and excite the pulmonary exhalents to a free expectoration. The emetic should be followed by, or perhaps combined with an active cathartic, which is absolutely indispensable. "Purgatives," says Cooke, "were found to be as necessary here, as in the summer and autumnal fevers, and the alvine evacuations were of the same color, consistence and appearance." The mercurials deserve a preference. I employ calomel with rhubarb, or alternately with a solution of epsom salts—watching its effect and keeping a safe interval between the doses, so as to avoid the occurrence of ptyalism, to which inconvenience in these winter diseases, it is seldom, if ever, necessary to subject the patient. We may in the meanwhile, interpose the administration of the diaphoretics and expectorants, advised in the simple form of the malady, with this caution—that opiates are to be used in smaller amount, if there be much determination to the head; and if found to increase it, should be abstained from.

Vesicatories must by no means be neglected; they may be applied early, and persisted in as long as any thoracic pain remains. Laid upon the epigastrium, they aid us in quieting the irritation of the stomach; if there be much pain in the eye or head, the back of the neck, the skin behind the ears, the ankles and wrists may be blistered. In protracted cases, cinchona may be used with benefit, both in infusion with serpentaria, and in the solution of sulphate of quinine, which I often prescribe, adding very minute doses of the acetate or muriate of morphine.

Convalescence requires special care and attention. The diet should be light and nourishing. The patient should be well guarded against all the influences of cold, moisture, and vicissitudes of weather. He should wear flannel next his skin, and for some time after his recovery put on additional clothing, on the occurrence of every change of temperature. To a neglect of these brief and simple precautions, must we attribute a large proportion of the cases of pulmonary consumption, which we are called to prescribe for. This remark applies more particularly to our slaves and colored population, generally, whose thoughtless recklessness subjects them in a peculiar degree, to all the physical evils that result from inconsiderate exposure.

CHAPTER XLII.

PHTHISIS PULMONALIS.—APOSTEMATOUS PHTHISIS.

We enter now upon the consideration of a subject which has for ages vexed the minds of physicians of every country, and upon which volumes have been written, whose contents consist in a great measure of perplexed inquiries, unsuccessful experiments, and disappointed hopes. A full and complete discussion of this important topic, would consume an undue proportion of the time allotted to us in this place; it must suffice to bring before you, in as comprehensive a manner as is consistent with perspicuity, the views of such authorities as are most worthy of our confi-

dence, and to investigate concisely, the several questions concerning the nature, history and treatment of this most formidable malady. You will not wonder at the serious earnestness of these inquiries, nor at the number and weight of the names which are to be found in the list of writers on consumption, when you are informed of the extent of its frequency, and its proportional mortality. According to an estimate made by Dr. Young, who has not been accused of exaggeration, one fourth of the inhabitants of Europe are carried off prematurely, by the pulmonary diseases included under this title. Dr. Woolcombe calculates the annual victims to its ravages in Great Britain at fifty-five thousand.

All agree in attributing to it a singularly unmanageable obstinacy; most pronounce it, in its genuine or exquisite form, beyond the control of medicine. Bayle declares it to be impossible for any one to recover from it; Laennec, while he coincides in the opinion, as founded on just and correct views, yet believes, that in a few rare cases, to use his own expression, it is curable, and has been cured. Parr affirms, that in an extensive experience of thirty-five years, he had "seen but six instances of recovery from phthisis, and these were spontaneous," in his own words, "perfected by nature." Good avers, that he "has seen phthisis terminate favorably once or twice," whether from the treatment pursued, or a remedial exertion of nature, he does not undertake to determine.

Phthisis pulmonalis has long held the first place among the opprobria medicorum, and every effort of the profession to remove this stigma, has been hitherto in vain. Every year, however, some new remedy is proposed, which is for a while expected to perform wonders in our favor, but each in turn is abandoned or neglected, and we fall again into the gloomy despondency which must always attend upon repeated failure.

Yet the prospect has been somewhat brightened within the last quarter of a century. Not to speak of the essays of living writers, of whose value time will bring the true test, I refer to the labors of Bayle, Duncan, Laennec, and our own countryman, Rush, whose eager enthusiasm and sanguine benevolence, were always devising schemes for the improvement of our art, and the advantage of mankind—whose ardent zeal and hopeful

anticipations, no difficulty could check, no disappointment darken. It requires little of the spirit of prophecy to predict, that if ever we acquire a knowledge of means, by which phthisis shall be transferred to the catalogue of curable maladies, it will be through the exertions of some future practitioner, no less zealous and enthusiastic than Rush, and endowed, like him, with an almost unlimited confidence in the resources of nature against physical evil.

With him, indeed, I believe that we have as yet possessed ourselves of but a small proportion of these resources, and I am so far an optimist, as to expect that the period will come when all diseases shall be numbered among the curable. At the same time I cannot but smile at the vain imaginations of those, who dream of the arrival of an era when the only outlet of life shall be the decay of old age. Men die now, in vast numbers, every day, of diseases actually in their own nature curable, as may readily be seen by reference to any bill of mortality, and as has been noticed and discussed by Rush, himself, in an interesting little essay.

It is of the first consequence to distinguish accurately, how we are to limit and apply the term Phthisis. Under this dreaded name, have been included diseases of the most heterogeneous nature and tendency. Simple catarrh, bronchitis, chronic hemoptysis, chronic pneumonia, the climacteric disease so ably described by Sir Henry Halford, syphilitic affections of the chest, and tubercular or scrofulous disorganizations, are all alike denominated consumption, decided on under the same prognosis, and treated by the same remedies.

Rush, deluded by his peculiar notions of the unity of disease, talks loosely of phthisis, as distinct and separable from any local affections or lesions of the lungs, such as cough, abscess, tubercles, etc., which he numbers, to use his own language, "among the effects of consumption." There has, however, been no want of divisions and subdivisions on this subject; on the contrary, they have been multiplied by nosologists, to an almost indefinite extent. Portal, for example, gives fourteen species of phthisis, Sauvages, no less than twenty.

From this mass of error and confusion, we have of late been extricated by the labors of a few distinguished pathologists, to

whom must be offered the gratitude of our profession and of mankind. One of these, the venerable Dr. Duncan, of Edinburgh, in the seventieth year of his age, published a treatise on pulmonary consumption, containing many valuable observations. In it he suggests the distinction of phthisis into three species—the catarrhal, apostematous, and tubercular. These present, when fully developed, a great number of symptoms in common, cough, dyspnœa, purulent expectoration, hectic fever, atrophy, emaciation, etc. Yet there are many points of essential dissimilarity, which, as he says, may be known and discerned without difficulty, during the life of the patient, and serve, therefore, as better bases of distinction than such as are discoverable only on examination after death.

The first named of these, catarrhal phthisis, is, as you were formerly told, nothing more than chronic bronchitis, and has been numbered among the forms of consumption, for the obvious reasons, that after a certain duration of the disease, purulent or muco-purulent matter is expectorated, and hectic fever is developed, with atrophy, etc. The importance attached to the first of these conditions, caused an earnest search to be made for tests by which pus could be clearly distinguished—that by its presence it might be known when catarrh had become consumption. Among the great number of these, which you will find proposed in the books, Sir Everard Home's and Wilson Philip's are best suited to practical purposes in a sick chamber. The latter tells us, that he judges from the cream-like appearance of the matter, and its sinking in water, when so agitated as "to separate it from the tough mucous with which it is mixed." To these, Home adds, that it is not homogeneous, but "composed of globules, contained in a transparent liquid, and that it does not coagulate by heat, and is only condensed by alcohol." While the expectoration of pus was regarded as conclusive evidence of the existence of an ulcer or abscess in the lungs, these experiments were deeply interesting; but at the present day, when purulent secretion is known to take place, from the unbroken surfaces of membranes, and even within the vessels themselves, they are little attended to.

It remains then, for us to speak in due order, of the second

and third varieties of consumption recognized by Duncan, the apostematous and the tubercular.

Apostematous Phthisis derives its designation from a Greek word, (apostema,) signifying abscess, and is intended to apply exclusively to those cases in which the disease depends upon, and is obviously connected with the formation of one or more abscesses, or (to use a phrase of Celsus, which has become, in later times, technically appropriated to the lungs,) "vomicæ," in the pulmonary substance. Of the tubercular, the name of which carries with it its own explanation, we shall treat hereafter. Suppuration of the lungs, the formation of true abscess within these organs, was mentioned among the occasional sequelæ, or terminations of pneumonitis and pleuro-pneumonia; and though less frequent, no doubt, than the other varieties of consumption, so called, is now and then met with, chiefly as the consequence of neglected, ill managed, or imperfectly relieved attacks of acute pulmonary inflammation. It is said to have occurred, as the effect of external violence, from a blow, a fall, etc.; it may be brought on by a penetrating wound of the thoracic cavity. Its comparative frequency, is matter of positive contradiction among pathologists. "It is very common," says Baillie, "to find abscesses in the lungs. These sometimes consist of small cavities, containing pus; and at other times, the cavities of the lungs are very large, so that the greater part of the substance of the lungs has been destroyed. These cavities sometimes communicate only with branches of the trachea, which are destroyed in the progress of the ulceration." Duncan also affirms, that "an inflammation of the thoracic viscera terminating in a state of suppuration, is, perhaps, as frequent as a similar termination from inflammation of any other part." Contrast with these, the opinion of Cullen, who declares, that "a phthisis from a suppuration, in consequence of pneumonic inflammation, is that which most rarely occurs in the climate of Great Britain"—and the testimony of Laennec, than whom no single authority carries more weight, on any point of pathological anatomy: "The formation of an abscess," he tells us, "or a collection of pus in the substance of the lungs, as a consequence of inflammation, is an

extremely rare case, at least a thousand times rarer than a case of empyema." I do not intend to represent apostematous phthisis, as a form of disease ordinarily to be encountered; but as far as my observation goes, Laennec's expression contains a great exaggeration. It has not been my fortune, in more than twenty year's practice, to meet with more than a very few instances of empyema. I have witnessed the origin, progress and termination of many cases of pulmonary abscess, some of them of the most unequivocal and well ascertained character.

Rush, who confuses together all the forms of phthisis, declares "the two diseases, pneumonia and phthisis, differ from each other, only by the shorter or longer operation of the causes which induced them, and by the greater or less violence and duration of the symptoms. The pneumony appears to be an acute consumption, and the consumption a chronic pneumony." Limit the application of his remark to the instance now before us, and its correctness will not be denied; but even Hippocrates recognized a distinction here, and considered the disease, which consisted simply in the formation of abscesses in the lungs, as something different from true phthisis.

You are already aware in what manner, and how much it differs from chronic bronchitis—Duncan's catarrhal consumption, and the characteristic peculiarities which separate it from tubercular, or true phthisis, emphatically so termed, are, if possible, still clearer and better defined. Apostematous consumption, or, if you will, chronic pneumonia, is, in its origin, a merely local affection, gradually involving by its continuance the general system, which ultimately sinks under the lesion of one of the most important organs, and the constitutional irritation, exhaustion and injury consequent thereupon. On the other hand, tubercular phthisis is, as we shall show you, but a partial development, a secondary manifestation in the lung of an all pervading diathesis, or mode of predisposition, which, indeed, in a very large majority of instances, is well known previously, having been in early life developed, and manifested by other tokens, and in other organs and tissues.

Chronic pneumonia, with the actual formation of pulmonary abscess, may be occasioned by the application of some transient cause, and the escape of pus from the cavity, when expectora-

ted, may be at once followed by the restoration of perfect health. The formation of tubercles, on the contrary, never being the result of any temporary contingency, we are not allowed to look for sudden or quick recovery, but rather as they are almost uniformly deposited in groups, large numbers, or considerable masses, the melting down or elimination of any one, affords us very feeble hopes for our patient; perhaps, indeed, always giving reason to expect a successive growth and development for indefinite periods.

Apostematous phthisis, the consequence generally of acute pneumonitis, is most usually caused by the circumstances formerly enumerated, as giving rise to pulmonary inflammation; exposures to cold, moisture, or vicissitudes of temperature, among which, I must not omit to specify the habitual imprudences committed by the young and gay, during the winter, the season of social pleasure, in encountering the keen air of midnight, when warm from the dance, or from confinement in the close limits of a heated parlour or a crowded drawing room. The delicate slipper and thin silk stocking, permit the lower extremities almost instantly to become of an icy coldnesss, while the throat and bosom are but half protected; the bronchial membrane is irritated by the sharp, chill breath inspired, while congestion of the blood repelled from the limbs, is solicited to the thoracic viscera; and the victim of merciless fashion or of misguided taste, becomes a ready prey to the destroyer. "An abscess in the lungs," says Rush, "is generally the consequence of a neglected or half cured pneumony." I would rather consider it, as in truth it is, itself a half cured or less than half cured pneumony.

It is, however, and not very rarely, I think, to be met with as occurring primarily, in the chronic form, and unpreceded by acute pulmonary inflammation. Loud or long continued speaking or singing, and playing habitually upon any wind instrument, will gradually bring it on. A variety of mechanical irritations will develope it; millers, cotton ginners, coal diggers and heavers, needle grinders, knife, scissors and scythe grinders, are all liable to it, on account of the inhalation and gradual accumulation of particles of dust from grindstones, steel, grain, motes and coal, within the cells of the lungs. Authors enumerate on this list of causes, the sudden suppression of eruptions, as of the

itch, etc. Good declares, that it has more than once happened in his own observation, that the lungs have been attacked during the cure of cutaneous affections, even when no hasty mode of treatment had been pursued. Chronic pneumonia is fairly to be reckoned among the sequelæ of measles and small pox; indeed, in all the deaths I have seen, of this last pestilence, the pulmonic symptoms became ultimately of paramount import. I do not, however, regard this as a metastasis, but as an extension and progressive development of disease.

The stoppage of any habitual or periodical discharge, has been supposed to give rise to it, as of the menstrual secretion and the hemorrhoidal flux. The same is asserted of the irritation of particular diseases, as asthma, worms, and syphilis, hepatic and gastric disorders. Indeed, Wilson Philip considers the latter as so directly active in the production of pulmonary disease, that he has designated, as deserving the title, a large class of such cases, under the name of dyspeptic phthisis. An elongated uvula, by keeping up an annoying irritation in the throat, with a tickling and violent cough, has been suspected of becoming a source of chronic pulmonary inflammation. To our illustrious countryman, Dr. Physick, is due the credit of directing the notice of the profession to this evil and to its remedy—the amputation of the uvula; although it has been unjustly claimed in France for a Mons. Cuynât.

"One of the most frequent causes," says Duncan, "from which an abscess in the chest derives its origin, is an hæmorrhage taking place from the lungs." Influenced by a similar notion, Cullen has arranged phthisis, in his System of Nosology, not as a proper genus of disease, but as a mere sequela of hemoptysis. It is alleged, "that suppurative inflammation more frequently happens as a consequence of hæmorrhage from the lungs, than from any other part of the body, probably because of the constant state of action to which these organs are subjected in respiration."

Now it is not found that wounds in the lungs are peculiarly difficult to heal—nay, the contrary is asserted by some of the best authorities. Rush did not recollect a single instance in which consumption followed a wound in the lungs, either by a bayonet or a bullet, during the revolutionary war. He quotes a

British officer as stating that the Surgeon General had reported twenty-three cases cured, out of twenty-four of soldiers admitted into the hospital with wounds of the lungs. I have myself seen two instances in which phthisis followed gun-shot wounds of the chest. One died, after lingering nearly a year; the other recovered at last from a still more protracted illness. Hemorrhage from the lung is by no means, in a majority or even in any large proportion of instances, followed by abscess. The King of Prussia was subject to it during his famous seven years war, yet he lived in good health twenty years after. In the lecture on hemoptysis, I have spoken of many similar examples. My own opinion on the subject is, briefly, that even when abscess does follow pulmonary hemorrhage, they do not stand in the relation of cause and effect to each other; both being more probably coincident effects of some common cause. When pneumonitis supervenes suddenly, and with violence, the engorged vessels distended by the disproportionate quantity of blood determined to them during the early periods of irritation and congestion, will be apt, especially in plethoric subjects and in a malformed thorax, to yield and pour out their contents. Under these circumstances, the hemorrhage is certainly not to be regarded as the source of the attendant or consequent inflammation; nay, it may even prove salutary, as a mode of local depletion, in a constitution vigorous or not otherwise defective.

As to the suggestion that the respiratory motions prohibit the healing of a ruptured blood vessel, I reply, that hemorrhages are not generally the result of any laceration or solution of continuity; that abscess is always preceded by the solidification of the pulmonary tissue; and that the lungs, being capable of containing ten times as much air as is received by an ordinary effort of inspiration, each portion of the pulmonary tissue, among the cells of which it is diffused, must undergo very little motion, and the hepatized or consolidated portion least of all.

I formerly described this condition from Laennec. Baillie tells us, that "the lungs round the boundaries of an abscess from common inflammation, are rendered more solid in their texture, in consequence of coagulable lymph being poured out during the progress of the inflammation. When blood vessels are traced into an abscess, I have found them very much contracted

just before they reach it; their orifices have been closed up entirely; so that it will require a probe to be thrust with a good deal of force, to open again their extremities. In these contracted vessels, the blood is coagulated, as it is in similar circumstances in other parts of the body."

One of the first symptoms of apostematous consumption, when it is not the mere protraction of acute pneumonitis, is usually a sense of uneasiness, soon amounting to a fixed heavy pain, in some part of the chest. Acute lancinating pangs are occasionally felt in the spot, in most cases; and not unfrequently a pulsation or throbbing. A full inspiration cannot be taken without difficulty, and the dyspnœa is increased in the horizontal posture. Some patients cannot lie on the side affected; others cannot turn upon the sound side, without coughing and uneasiness in breathing; others lie only on the back. I have noted these facts simply as such, and confess myself unprepared to account for the selection of different positions in the different cases. The exact seat of disease is known, not only by the complaints of the patient, but definitely by accurate exploration; there is want of resonance on percussion, and loss of respiratory murmur in the earlier stages. After the abscess is ruptured, auscultation shows want of murmur, and pectoriloquy; and percussion exhibits restored and even undue resonance. There is cough, the paroxysms of which are severe though not frequent, and accompanied with no expectoration, or with the spitting of but little mucus, until the vomica has burst. This event is usually brought about by some violent fit of coughing, and attended or preceded by acute pain in the chest, and some slight discharge of bloody mucus. The quantity of pus discharged will vary from ounces to pounds—not unfrequently threatening, and sometimes actually occasioning suffocation. I have seen a quart(℔ij) of pus brought up from the lungs in the course of an hour, with much difficulty and danger. I have also seen two patients die exhausted, in the vain struggle thus to discharge the contents of a newly ruptured abscess.

This free and large expectoration commonly gives a good degree of relief to the pain, dyspnœa, cough and other symptoms, for a time at least; and in some few, effects their entire removal, the patient recovering without further impediment. In

the great majority, however, there continues cough with expectoration of similar purulent matter, which gradually degenerates, becoming of a thinner, more serous consistence, assuming a reddish tint, and an offensive odor. The sputa are now and then tinged for a while with a little blood; but this soon disappears. It is about this period that hectic fever supervenes; the voice becomes hoarse and weak; the patient loses strength; is evidently emaciated, and is liable to sweat much at night. For the most part, his digestive powers continue unimpaired until near the close of life; his appetite is good and his bowels regular; towards the last, an irritating diarrhœa attacks him and prostrates him rapidly.

The tongue corresponds with the digestive system in condition. Until diarrhœa appears, it is natural; it is then preternaturally smooth and red, as if covered like the lip, with a delicate epithelium. It often chaps, and is covered, as are the cheek, the lip and all the lining membrane of the mouth, with white aphthous ulcers. The pulse is usually small, corded, tense and frequent, from one hundred and twenty to one hundred and fifty.

The duration of this form of phthisis varies according to the degree and extent of the pulmonary inflammation, and to the powers of resistance of the patient's constitution. It sometimes terminates fatally in four to six weeks; this the vulgar call expressively "a galloping consumption." More commonly, however, it is protracted for months; it may be for years; the system gradually yielding to the permanent injury inflicted on an organ whose functions are so necessary to health, or sinking under the irritation of extending inflammation and the formation of successive vomicæ. It should be added, that after a time it almost always happens that the bronchial membrane becomes diseased also, and the sufferer has to contend with the complication of chronic bronchitis.

Rush relates the case of a lady who was seized in 1785, but who lived two years. This case was remarkable for the fact, that for some months immediately preceding death, neither cough nor fever were present, the pulse being natural to the last, a circumstance which, indeed, he records in four cases of phthisis. Post-mortem examination of this subject showed the right lung almost totally destroyed, and its space occupied by a

large abscess. It is difficult to account for the absence of cough under such circumstances, yet Rush gives us another example of it, and I shall have occasion to speak of a case of tubercular phthisis, the true nature of which, from the total absence of cough and dyspnœa, was never suspected until the death of the patient gave us an opportunity of ascertaining the state of the lungs, which were mere masses of disease.

Prognosis. In point of curability, the apostematous form of consumption may be said to hold a middle station between the catarrhal and tubercular. Yet it is not easy to give a reason for the acknowledged fact, that the prognosis is so generally unfavorable. We have already considered the chief alleged difficulties in the way of recovery—the unceasing movement of the lungs in respiration, and the peculiar laxity of their tissue. I would ascribe more influence to the nearness of the point inflamed, to the centre of circulation, and the vehement force with which blood must therefore be driven into the diseased vessels.

The individual prognosis will depend much upon the previous state of health of the subject affected. If young and robust—if attacked after sudden exposure, or the application of any transient cause—if well-formed about the chest, he may probably recover. On the other hand, if his thorax be contracted or misshapen—if he have shown previously a particular liability to pulmonary disease, cough or catarrh—if he have been subject to hæmorrhagies, epistaxis especially—if he be of weakly habit, or defective in muscular vigor, he will scarcely be able to sustain the attack, though he may linger long.

It is usually considered, that a strong predisposition to any of the forms of pulmonary disease, is found in persons whose thorax is narrow, or flat, or in any manner ill-shaped, or contracted in original capacity, or who have brought on a similar artificial contraction by habits of stooping, slouching the shoulders, sitting in a bent position, etc. I have mentioned above, the true influence, I think, of such conditions. It is doubtful whether they render the subject more liable to the attack of pulmonary inflammation, but they obviously diminish his chance of recovery from it, when it has occurred. No unfavorable prediction, you ought to be aware, is to be founded upon the expectoration of pus or purulent matter only. Nay, this is, perhaps, a means

of relief, and, it may be, the first step of convalescence. Some patients die before the bursting of the abscess, in which case we derive warning of their fate from the extent of the local disease as ascertained on exploration—from the degree of impairment of the respiratory function, the dyspnœa and pain suffered, and from the effects on the general system, as displayed in fever, diarrhœa, and colliquative sweats. Cullen estimates the danger of the patient sagaciously, when he tells us, that "from a certain degree of emaciation, debility, profuse sweating and diarrhœa, no person recovers."

I take this occasion to remind you of the risk of error in depending exclusively upon the results of physical exploration of the thorax. Some constitutions are fatally irritated and exhausted by an extent of local lesion from which others may readily recover.

The Diagnosis of apostematous phthisis does not appear to me to be difficult. In the first stage, the extent and intensity of the impairment of resonance and respiratory murmur will mark it specially—in the second, the sudden escape of notable quantities of purulent matter, and pectoriloquy, may be common to it, with the tubercular variety; but in the latter, there is little relief or apparent improvement immediately following, whereas, if the case be simply one of suppurative pneumonia, the effect is striking, and the patient seems almost at once to become convalescent upon the bursting of the apostema, if he possess strength enough—that is, to expectorate completely the effused fluid. Besides this, the suppuration around a tubercle rarely accumulates to any large amount.

Autopsy. The appearances on examination, post-mortem, have been already incidentally described. The consolidation or hepatization of the pulmonary tissue—the deposition of organizable lymph; its vascularity, shown in its red and granulated aspect—the cyst or lymphid lining of the abscess—the obliteration of the vessels—the thickening of the mucous bronchial membrane in the neighborhood—the melting down or absorption of the substance of the lung, have all been spoken of. Sometimes, as Baillie affirms, the cavity of the abscess will be found communicating with the sac of the pleura, thus complicating apostema with empyema. In cases of recovery, the pul-

monary excavation seems to be filled up with organizable lymph, which assumes a fibro-cartilaginous structure and firmness.

I have mentioned, that both Laennec and Andral declare the occurrence of circumscribed abscess in the lung to be rare. Infiltration of pus within the consolidated or hepatized mass, and its diffusion through the pulmonary tissue, they represent as more common, and suggest, that the vomicæ described by pathologists, Baillie and others, were chiefly tubercular. Be this as it may, the formation and deposition of pus, as the result of mere inflammation, constitutes the essential characteristic of the case before us, as contra-distinguished from the deposition of tubercle or tubercular matter—the latter indeed being, as we shall hereafter see, met with, like pus, in both conditions, diffused and circumscribed within cysts.

The Treatment of apostematous consumption is fairly and naturally divisible into two stages; the first, comprising the whole duration of the attack previous to the effusion of pus in the lungs, and the rupture of the abscess containing it; the second, consisting of the management necessary after the bursting of the vomica and the discharge of its contents have occurred.

The indication, in the first instance, is to prevent, if possible, the formation and maturation of abscess—in other words, to resolve the present inflammation; and this will be best accomplished by the prompt and assiduous employment of the means calculated to reduce local excitement and general vascular action. But, in the use of these means, we must be guided and restrained by a due consideration of the condition of our patient. The pulse is, in chronic pneumonia, often small and contracted, but at the same time tense, corded and frequent, and will bear depletion well. When it can be borne—and in almost every case it will be proper to make the trial—venæsection is one of our most appropriate and efficient remedies. You will find interspersed throughout the writings on consumption, numerous cures by blood-letting, almost every one of which may be fairly inferred, from the records, to have been of this apostematous or simple pneumonic form. Dr. Dover, the inventor of the celebrated powder which bears his name, carried this practice to a

great extent, repeating the operation, as Good tells us, in certain cases, not less than fifty times in succession. Rush mentions a case in which it was urged still farther by a physician of Connecticut, who bled his patient, with ultimate success, eighty-five times in six months. He himself used the lancet, in one instance, fifteen times in six weeks, with similar benefit. He also affirms, that he had seen two cases in which "large hæmorrhages from the lungs were followed by perfect cures of the previously existing consumptions." I do not propose these frequent venæsections and abundant abstractions of blood as examples for your guidance; but I would be understood to say distinctly, that the evidences of debility must be clear, indeed, and urgent, to justify me to myself in withholding the lancet in the disease under discussion. Even where all hopes of a cure are denied us, blood-letting will often relieve, in a singular manner, the sufferings of our patients, who become so sensible of this, that I have known more than one instance in which the last words uttered expressed a desire to be bled. Moderate bleedings, repeated at intervals, have seemed to me best adapted here, and may be aided very much in their good effects by the application of cups to the chest, or leeches.

The cups, which may be employed safely and usefully in cases where general depletion is forbidden, should be placed as near the seat of the disease as possible, and are farther serviceable, as revulsives, when used without the scarifier—dry cupping. We carry out this effort at revulsion still more effectually by the successive application of repeated blisters. These I regard as among the most promising remedies in chronic pneumonia in all its stages; the whole thorax may be vesicated, portion by portion—the upper part of each arm, the back of the neck, the forearm and wrist.

I have seen chronic pneumonia, exhibiting every tendency to the formation of pulmonary abscess, arrested, in many instances, by these means alone, and hence have learned to place very great reliance on the constant action of repeated vesicatories, after proper venæsection has been premised. Issues and setons, so highly eulogized by many physicians, seem to me by no means so efficient or trustworthy—a remark which applies equally to the pustular irritation of tart: emetic—of Croton oil,

etc. I would resort to these inferior applications when the occurrence of obstinate strangury prohibited the use of the blister, or when the want of fortitude of the patient denied me its free employment. In the meanwhile, an occasional cathartic or mild laxative may be administered to keep the bowels in an open and soluble condition, though no advantage is to be gained by active purging. If the light diet proper to be exclusively taken, do not answer our purpose, a small dose of sal: Epsom may be exhibited, or a little castor oil, or a blue pill, at distant intervals.

Emetics have been very generally prescribed in apostematous phthisis—in different stages and by different practitioners with different views.—At first to procure the resolution of pulmonary inflammation; next, to rupture the cyst and discharge the contents of a mature vomica; and, lastly, as an expectorant, to promote the free expuition of the secreted matter after the abscess is open. Ipecacuanha, the tartarized antimony, and the sulphate of copper, are preferred. I spoke formerly of the contra-stimulant use of tartar emetic in large doses by Laennec and the Italians, as powerfully promoting absorption and resolution. The sulphate of copper is selected by those who wish for the concussion of vomiting with little nausea or depression—and ipecacuanha is regarded as peculiarly expectorant and diaphoretic. The "dry vomit" of Marryatt, compounded of the two latter, and so called because during its operation all fluid is forbidden, has been very strongly recommended. To derive the full advantage from emetics, we are advised to repeat them almost daily for some weeks. Chapman speaks well of the plan, and affirms, that he has seen it productive of cures. Rush, on the other hand, declares his belief, that "vomits have done more harm than good." Diaphoretics are almost universally administered, and are capable of doing good service. At first we use the sedative, as the antimonials, with or without the nitrate of potass:—next, the infusions of seneka and serpentaria—then carbonate of ammonia and camphor. The Dover's powder is the best of them all, however, and should be taken nightly in full, free doses; it is sudorific, expectorant, and pleasantly anodyne.

The use of mercurials in any of the varieties of pulmonary inflammation, whether acute or chronic, has been vehemently

deprecated by many practitioners. I have already announced an opinion favorable to their slow and cautious exhibition in chronic bronchitis, and the more recent authorities, both French and English, promise us much advantage from them in the kindred affection, known under the title of Laryngeal Phthisis. In the case under discussion, simple chronic pneumonia, their value is the same. It is observed by Wilson Philip, speaking of what he calls dyspeptic phthisis, which is almost universally apostematous, that "there is no case in which the benefits arising from the exhibition of mercury, in minute doses, are more conspicuous." I would advise, however, that they be prudently administered, so as to avoid the excitement of an irritating and annoying ptyalism. I usually prescribe half a grain of merc: dulc: night and morning, with such other medicines as circumstances require, commonly combining it with opium.

In the second stage of apostematous consumption, when purulent effusion has taken place, and expectoration of pus shown the rupture of an abscess, it is not easy to lay down specific rules for the management of the case. You must be careful not to infer the existence of a cavity merely from the fact, that the sputa consist of muco-purulent matter. There may be present nothing more than bronchial inflammation. It is true, that where a large amount of such matter is suddenly and at once thrown out, an accumulation must have been taking place. But the abscess may be small, or the opening from a large cavity to the air-tubes may be such as to admit of but a slow escape of its contents, a case actually described by Duncan, and the judgment, from quantity, may be very indecisive. It is asserted by Laennec, that even when an abscess exists, the purulent sputa are furnished in greater proportion from the mucous membrane of the bronchi, than from its cavity.

The partial escape of matter from a vomica renders it easy to ascertain the condition of the patient by careful exploration; it is not so clear where the mere infiltration of the pulmonary tissue has taken place. In the first instance, a return of resonance will be noted, and pectoriloquy will be heard. In the latter, if expectoration of the matter poured into the tissue go on faster than it is filled, a cavity will be formed with the above phenomena. If the fluid fill the cells or the consolidated tissue,

of course there will be neither resonance, respiratory murmur, nor pectoriloquy.

The indications now presented are, to obtain a free expectoration of the effused matter—to promote the filling up of the secreting cavities and the healing of the ulcerous opening, and to obviate the evil influence of the pulmonary lesions upon the general system. In a large proportion of the cases, the spontaneous expectoration is sufficiently free, and the cough, though frequent, unattended with pain. If the local inflammation continue or progress, however, there will be complained of a sense of tension or constriction across the chest, and the cough will be dryer and more harrassing; or if, on the other hand, the strength of the patient fail greatly, he will not cough with sufficient force to spit up the mucus and pus from the lungs, and will be threatened with suffocation from debility. This catastrophe I have witnessed in two cases, and have seen, in others, a horrible struggle—not to be looked upon without the most distressing sympathy. These opposite conditions require, it is evident, directly opposite management. In the first, we must still farther deplete, though cautiously. A small loss of blood, say 5 to 10 oz., will often prove of immediate benefit. Cups may be laid to the side also, and this topical abstraction will be doubly useful by its revulsive influence. Blisters should also be applied without delay and in quick succession. An emetic of ipecac: and sulph: cupri may also give great relief.

Stimulant emetics which combine an expectorant quality, are also advised in feeble and debilitated subjects, such as seneka, squills, etc., but the practice is of doubtful advantage, as the patient may sink under their operation. I prefer to administer the stimulant diaphoretics—the vol: alkali, camphor, nitrous æther, with wine whey, wine or hot spirits, while poultices containing mustard are laid about the chest and to the extremities, and a blister applied near the diseased point. Stimulant inhalations have been found efficacious, as of the steam of warm water medicated with æther, with alcohol—the vapor of burning tar or of resin, and the fumes of nitrous acid. Pearson advises to macerate ʒss. of the powdered leaves of the cicuta in sulphuric æther ʒi.; one or two teaspoonsful being poured into a tea-cup or

wine-glass, are held up to the mouth and breathed over until the whole is inhaled.

I have confessed already the difficulty of assigning a satisfactory reason for the acknowledged fact, that pulmonary abscess heals so slowly and reluctantly. That this does take place, however, we know as well from post-mortem inspection, as from the recovery of patients after the sudden discharge of such quantities of pus as must have been collected in an abscess of considerable size. "This healing process," says Duncan, "requires that state of action of the vessels of the part, which, in contra-distinction to the suppurative, has been termed the adhesive inflammation." Laennec denies the occurrence of any such adhesion of the sides of vomicæ, but describes the curative efforts of Nature in the case before us, "as terminating in the formation of a semi-cartilaginous membrane as a lining to the empty, ulcerous cavities, left on the rupture and evacuation of an abscess, or the filling up of the excavation by a deposit of fibro-cartilaginous matter."

I am very doubtful, whether we are in possession of any remedies by which we can aid or further in any degree this healing process. I think our best hopes are founded on the measures directly adapted to preserve or restore the proper tone and vigor of the general constitution. A slow and gentle mercurial course is, by several authors, strongly recommended. "In recent cases," says Rush, "it generally succeeds, which is more than can be said of any or all other remedies for this disease; in the hectic state it frequently cures, and even in its typhous and last stage, I have more than once prescribed it with success." My experience will not enable me to employ such language as this; for the mercurial has often failed, with me, to do any service, and, as I have already said, I endeavor to avoid the irritation of ptyalism. I prefer to all other formulæ of mercurial prescription, the happy combination recently prepared for us, and known as the deutiodide of mercury and potassum, through which we can derive all its remedial and alterative influences with little or no risk of salivation, while we add the peculiar and specific effects of the other ingredients of this valuable compound. From iodine itself I have derived much advantage. It is most safely used in

dilute aqueous solution, or in the natural combinations so often found in mineral waters.

The balsams have been, from the earliest times, regarded as well adapted to the class of cases now under consideration, and each of the agents included within the application of the term has found its special advocates. Copaiba—the exudations from many species of fir—tolu—camphor—tar, and myrrh, are most in vogue. Tar-water, long a favorite with the vulgar, was highly eulogized by the celebrated Bishop Berkely. The vapour of tar, first brought to the notice of the profession by Crichton, has been commended also by Paris. It must be made to boil slowly, when the patient may inhale it; but it must not be allowed to burn. Simmons and Fordyce speak highly of myrrh, and Griffith has combined it with iron into a mixture which has, for a great while, been much relied on. I derive as much benefit from tolu as from any other of this class of drugs.

It still remains to inquire, how we shall best obviate or remove the ill effects upon the general constitution, arising sympathetically or otherwise, from the pulmonary disorganization. Hectic fever scarcely ever fails to be developed, as the disease progresses, and soon becomes a prominent evil. From its analogy in habits of periodical recurrence, with intermittents, it has been attacked with the whole list of remedies useful in that class of fevers, and formerly enumerated to you, but with no flattering success. Cinchona does seem, however, to have some influence over it; and I have more than once succeeded in obtaining a truce of various duration, with the combination of piperine and sulph: quinine, so eminently efficient as preventive of ordinary tertian. Arsenic and iron have been alleged to be also of service. It has been supposed, that the inhalation of very finely levigated bark, or of alum or acetate of lead in impalpable powder, may act as astringents on the vessels of the suppurating cavity, checking their vitiated secretion and favoring the healing process. The same has been asserted of chlorine gas, and iodine volatilized by heat. All these I have tried without benefit, and in some instances with obvious injury, and have therefore abandoned them.

It was more reasonable to expect advantage from breathing the sedative airs or gases—hydrogen, nitrogen, carbonic acid, in combination with smaller proportions of oxygen than go to

make up our atmosphere. They were conceived to be less exciting to the irritable lung, and less likely to foster or arouse the annoying cough. A similar notion led to the "stabling with cows," so fashionable for a short time in Great Britain. I have no confidence in the favorable reports concerning these remedial measures, and indeed, they are now fallen into disuse.

The night paroxysm of hectic terminates with that distressing and debilitating sweat, so much dreaded by consumptive patients. It has been debated whether or not we should make any attempt to control this distressing symptom, which some practitioners are unwilling to interfere with, as one of the natural and regular stages of the febrile paroxysm. "I have sometimes succeeded very decidedly," says Dr. Young, "in checking these sweats by Dover's powder, but I do not know that the progress of the disease has been much retarded by this palliation." However this may be, I am certain that the patient is not only benefitted by the removal of great inconvenience, when we have been able to relieve him of this cutaneous discharge; but that his proportional loss of strength and emaciation have both been diminished. But one exception to this rule has ever occurred to me. The prussic acid, strangely enough, had the effect, in one case under my care, of regularly stopping the night-sweats; the patient, however, complained that the protracted heat of skin which was substituted, was far more intolerable; and begged earnestly that I would withhold the medicine, and allow the sweats to return. Sulphuric acid, in the form of the vitriolic elixir, is in common use for the purpose of which I am speaking, and will sometimes succeed very well. I have seen these cutaneous discharges arrested by the occurrence of a mercurial ptyalism, the accession of hectic seeming hardly less regular or less violent. Dover's powder, mentioned by Dr. Young, appears to me to act indirectly—but in the most favorable mode; in diminishing the force of, or altogether preventing the hectic paroxysm, it did away its ultimate result, the relaxation of the surface. If this explanation be correct, it removes at once the imputation of inconsistency in prescribing for the relief of night-sweats, one of our most certain sudorifics. Besides this, we can readily imagine the colliquative transpiration to be associated with or dependent upon a loss of elasticity or contractility in the exhalents of the skin, which it is the well-known property of

opium to excite and stimulate, as is shown by the glow which follows its use, and the itching and eruption which it not unfrequently produces.

It is in this relation that I prefer to speak of the exhibition of digitalis, which has so long enjoyed a high repute as a remedy in pulmonary disease. If beneficial at all, which you are aware is a question warmly contested, it must be as a sedative, a narcotic, an anti-irritant; and its agency must be directed upon the general constitution, to protect or relieve it from the sympathetic influences of local disorganization. It should be acknowledged that its eulogists have not agreed in defining the contingencies in which it is best adapted to be of service, and it continues to be employed in almost every case of phthisis—tentatively or experimentally.

Accurate and nice observers (Sanders and More) have affirmed that digitalis is not destitute of stimulant powers; but its effects in this way are so slight and transient, that we may consider it practically a sedative of the most definite character, and may safely attribute to its influence in repressing the action of the heart and arteries, all its usefulness in the present case. "It is well known," says Ferriar, "that bleeding is in some cases inadequate to the lessening of the velocity of the circulation, unless it be carried to a dangerous excess. The foxglove furnishes us with the means of regulating the pulse to our wish, and of supporting a given state of velocity as long as we judge it proper." In conformity with this view of the subject, we find Magennis affirming, after a large experience, "that he had met with several instances in which the digitalis, given freely and fully, effected not the smallest reduction of the pulse, and that in these the patients uniformly derived no advantage from its use." Drs. Darwin, Fowler and Drake—upon what grounds, I am unable to explain—refer its beneficial agency to an asserted power of diminishing secretion and augmenting pulmonary absorption. Others again of its advocates, and perhaps a majority, regard it in the light of a specific, whose influence is peculiar, inexplicable, and as it were antidotal. Some very extraordinary testimonials in its favor may be collected among the authorities. Dr. McLean tells us that it will sometimes succeed when all other remedies fail. Dr. Kinglake declares that he cured seven cases

out of fourteen with it. Drake gives an account of fifteen cases treated with it, of which nine recovered. Magennis lays claim to still more astonishing success. Out of seventy-five patients at the Naval Hospital of Plymouth, of which he was physician general, he reports forty-four cured, twenty-two relieved, and but ten deaths. Dr. Beddoes gives utterance to his exulting confidence in it, by the following enthusiastic expressions: "I daily see many patients in pulmonary consumption advancing towards recovery with so firm a pace, that I hope consumption will henceforward be cured as regularly by foxglove as ague by the Peruvian bark."

After making due allowance for the evident exaggeration of such incredible statements, and considering too that in these reports all forms and stages of chronic pulmonary disease are confounded, much will still remain which must not be lightly regarded.

Digitalis seems to me to promise most benefit in patients of irritable or excitable constitution; too weak to bear any further depletion, but suffering too much from pain, dyspnœa and fever to admit of the free use of tonics; the pulse being small, frequent and irregular; the cough troublesome, and often recurring, with imperfect expectoration, and perhaps occasional hemoptœ in small amount. In phthisis, it is best given, I think, in powder or tincture; some, however, prefer the infusion. Its long-continued administration has never failed, as far as my experience goes, to depress and injure the tone of the stomach and impede digestion. After bringing the pulse fairly under its influence, I advise to intermit its use for a few days, resuming it again when the frequency of the pulse returns. Or if, after a proper trial, it produces no effect upon the circulation, I would abandon it entirely and substitute some safer remedy.

The prussic acid deserves to be mentioned, also, as a narcotic and sedative. It does not affect the pulse as digitalis does, nor induce sleep and tranquillity like the opiates; but it nevertheless diminishes the violence of hectic irritation, and is particularly useful when the attendant cough has assumed the character of a habitual nervous or convulsive paroxysm. It will be found in such cases to repress both its frequency and its vehemence. Generally speaking, I prefer the formulæ in which it is much dilu-

ted—as the water of bitter almonds, infusion of peach leaves and kernels, etc.; but sometimes the concentrated acid must be cautiously employed.

Opium, however, is most incomparably superior to all sedatives, anodynes and antimonials. Its valuable influences are no where more sensibly or strikingly exhibited, than in directly controlling irritation by its power of diminishing irritability, and in soothing and allaying the disturbances of the general system, when we are unable to remove the local cause which has sympathetically excited them. I would not be understood, however, to limit its beneficial effects to mere palliation of suffering, though this is its most obvious and immediate operation. Sydenham recommends it in the strongest terms, and is followed by Rush, who advises it not only to be given at night, to procure sleep, but early in the morning and throughout the day. If not capable itself of effecting cures of confirmed phthisis, we may, at least, be always sure of doing something with opium to the advantage of our patient. Nay, I regard it, for my own part, as so essential to the proper treatment of the case, that I have never seen an instance of cure without it. It lessens the frequency and violence of the cough; bestows upon the exhausted sufferer quiet slumber and pleasant dreams; checks the colliquative sweats and diarrhœa; and when all hope has deserted us, "assuages the pangs of parting life, and smooths the pillow of dissolution." When the diarrhœa is obstinate, the acetate of lead, in proper doses, should be combined with opium. Kino and other astringents, may also be used, as recommended under that head.

As substitutes for opium, when from any circumstances, its administration is inconvenient, hyoscyamus and lactucarium have been proposed. I have no confidence in either of them, and have never failed, by proper experiment of appropriate doses, to find among the numerous formulæ in which opium is mingled, some one entirely unobjectionable. Of these, the denarcotized laudanum, the acetate and muriate of morphine, the new invented elixir of opium, and though last, not least, the tinct: opii: camph:, the elixir paregoric, deserve special mention, and are of inestimable value.

I have been long of opinion, that we make too little use of

tonics, in the latter stages of phthisis, and especially in its apostematous form. It is well observed by Abercrombie, that "the lungs are not exempt from healthy" (or common) "phlegmonous abscess, which like other such abscesses," elsewhere, "may heal kindly, or according to circumstances, protractedly, wearing out the patient with hectic fever." Here it is evident, that we may occasionally gain much, by the persevering use of such remedies as give tone to the system, and thus support it until the slow process of healing is finished in the lungs. And I take the opportunity of again urging the exhibition of cinchona, as very often adapted to prove eminently serviceable. I would, however, time it carefully. I would not employ it when the tension across the chest, dyspnœa, and other symptoms continued to denote the presence of active pulmonary inflammation, nor where the cough was violent and hard, and the expectoration scanty. But where the pulse is weak and soft, the patient much debilitated, the cough loose, and the expectoration thin, serous, sanious or fœtid, with abundant colliquative night sweats, it will probably be of as much advantage as any thing we can offer.

Morton made much use of it. Hastings and Broussais employ it freely, and recommend it highly, in the corresponding stage of chronic bronchitis, or catarrhal consumption. Duncan thinks it better adapted to the apostematous than to any other form of phthisis, and declares that he has reason to believe, "that from its influence the adhesive inflammation is induced, and an ulcer in the lungs has been thus healed, when that event would not otherwise have taken place." I prefer a watery infusion of cinchona; others, however, use the decoction, and perhaps a majority, the sulph: quinine. When the bark cannot be borne, some of the simple bitters, as quassia or colombo, may be substituted.

"I have lately seen three persons," says Rush, "recovered from the lowest stages of consumption, by the use of animal food and cordial drinks, aided by frequent doses of opium, taken during the day as well as night. A diet of oysters is said to have effected cures of consumption; so of grapes, sweet apples, and the juice of the sugar maple tree, when taken in large quantities. These all appear to act," he continues, "by filling the blood vessels, and thereby imparting tone to the whole system."

The facts thus stated, surely deserve to be remembered, and

to have a place and exert an influence in all our future reasonings upon the management of this very formidable and fatal disease. In conclusion, I need hardly again remind you, that our best hopes for our patient, must be founded on such measures as shall tend to restore his lost vigor, and preserve whatever is left to him of strength of constitution. He should take a long journey, on horseback if he is able; or a sea voyage to some distant quarter of the globe. Meanwhile, let him protect himself, by every care, from a return or renewal of pulmonary inflammation. Let him wear flannel constantly next his skin, and seek for his residence, a warm and equable climate.

CHAPTER XLIII.

PHTHISIS.—TUBERCULAR PHTHISIS.

Phthisis, consumption, decline, are terms from time immemorial applied to denote a condition of disease, in which a steadily progressive atrophy, shown by marked emaciation of the body, formed the prominent symptom; the picture being rendered more complete if a cough, hectic fever, and great debility concurred. Such, indeed, are the well known and striking features of the malady, now about to engage our attention—tubercular phthisis, from which all the other forms of consumption have derived their names and most of their terrors.

It may be regarded not only as the most insidious and dangerous among the pulmonary affections, but perhaps, as excelling in its destructive tendencies, all the other disorders, hydrophobia only excepted, to which the human constitution is liable. As its title imports, its characteristic peculiarities are ascribed to the presence and irritation of bodies, called tubercles, or of tuberculous matter deposited in the air tubes or substance of the lungs. The formation of these bodies, the deposition of this peculiar matter, are supposed by many, to depend upon an original defect in the organism, which if not identical with, is closely

allied to the strumous diathesis. Proofs of this association abound, and have been commented on by authorities of the greatest weight in our science. It is in subjects who have exhibited the most obvious marks of scrofulous disease, such as were formerly recited to you, that tubercles are most frequently found; whether in the mesentery, lungs, or elsewhere; and the tendency to their development in the pulmonary tissue, is so strong, that Louis affirms positively, as the result of a long series of observations, "that whenever we find tubercle in any of the other organs or tissues, we may surely infer its existence in the lungs." Phthisis is familiarly noted as a hereditary malady, in scrofulous families, as attacking the children of scrofulous parents, and supervening in the advancing lives of those who, when children, had suffered from scrofulous enlargement of the glands of the neck, white swelling, etc.; to which we should add the common remark, that the physical and physiognomical characteristics of the strumous diathesis, have been universally regarded as prophetic also, of future phthisis; the fine, clear skin; the delicate, blooming complexion; the full, large vein; and the projecting, ruddy lip.

Tubercular phthisis differs, then, from the other pulmonary diseases classed with it, under a common name, and spoken of as consumptions, inasmuch as they are originally local affections—lesions simply of the lungs and their appendages, involving by their consecutive irritation, general disturbance and disorder of the body; whereas, in the present case, the primary derangement is general or constitutional, the lung being only one among the organs and tissues involved in the progress of its successive developments. I must not be understood to say, that phthisis consists in the mere presence of pulmonary tubercle. The predisposition thus pointed out, requires to be excited and urged into action, before we have the symptoms of phthisis to contend with. A tubercle, we know, may exist in the lung without creating any disturbance or uneasiness. In this state, it is said to be indolent. It is only when the parts about it are irritated or inflamed, and become the seat of congestion, that its malignant qualities are notable. Its growth undergoes quick increase, probably by the determination to neighboring parts, and the engorgements of neighboring vessels; and by this hy-

pertrophy it reacts, becoming a new centre of irritation, and at last producing abscess in the surrounding tissues. This process being repeated and renewed, by the successive growth of one tubercle after another, for they are rarely found but in groups and masses, incurable inflammation and atrophy are the result. Observe, too, the distinction between the causes of the original production of tubercle and the agencies just alluded to, which arouse it into a state of increase and hypertrophy, and make it a centre of uncontrollable irritation. These latter comprehend all the sources of bronchial, laryngeal, pleuritic and pulmonic inflammation; nay, catarrh, bronchitis, hæmoptysis and pneumonia, acute and chronic, almost inevitably bring into play the consumptive predisposition, if it exists. But these diseases do not produce tubercles, or create tubercular deposition. It is true, that Andral, whose name should never be mentioned without respect, has advanced the opinion that pulmonary inflammation may, in any constitution, give rise to tubercle. In this belief, however, he stands alone, and as I conceive, unsupported by facts, when correctly examined.

I have already spoken of the association between tubercle and scrofula. The former can, no more than the latter, arise suddenly, but equally depends upon changes long acting and slowly contaminating the whole organism. I would not make it exclusively hereditary; for I think the changes in which it consists, may be traced during the successive steps of their progress, under circumstances calculated to foster them. A healthy child, placed in a close, ill ventilated manufactory, and there confined during the long years previous to, and just consequent upon puberty, will be very likely, when adolescent, to exhibit a consumptive disposition, as the very first open development of scrofulous deterioration of constitution, and if such a subject be attacked with pulmonary inflammation, a rapid formation of tubercles, will very probably occur—a result of mere pulmonary inflammation, which I hold to be absolutely impossible in a young rustic previously healthy, whose fluids are pure and his constitution sound.

Another source of tuberculous predisposition has been suggested, and some of the writers on phthisis have ventured to enumerate contagion among the causes of the disease. This opinion is pre-

valent on the continent of Europe, not only among the common people, but with the best informed medical men; and the wards of the hospitals, in many parts of Italy, at least, are arranged conformably. We may add the testimony of Morton, Darwin and Good, in Great Britain, the latter of whom declares unequivocally, that he has met with numerous cases that could not be ascribed to any other cause. I would use the more cautious language of Cullen, and say that "I dare not assert that it never is contagious." We know that it very frequently attacks the several members of the same family—the husband and wife, as well as the brother and sister, and that many nurses die of it, after a protracted period of assiduous attention and close confinement in the chamber of the consumptive. These facts are attempted to be explained, it is true, by references to other agencies, as exposure to the same local causes—air, diet, grief, etc., but not satisfactorily.

When treating of scrofula, it was observed that its several developments or determinations, are influenced by age. The pulmonary derangement of tubercular phthisis, is apt to show itself a few years after puberty, in early maturity, from the eighteenth to the twenty-fifth year of life. Exceptions to this rule may occur, but it is very generally correct. It is rare that tubercular phthisis first shows itself after the thirtieth year. Home and Alison agree in the remark, that "in the upper ranks of society, there are more females than males attacked, owing to the more impressive variations of dress, but in the lower classes, the male patients are more numerous, in consequence of their more frequent and severe exposures."

Every writer on this form of consumption, has commented on the peculiarly insidious manner of its invasion. The feelings of uneasiness and ill health, which the patient may suffer in the early stages, are indeed often so ill defined, that they can scarcely be made topics of conversation or complaint. Perhaps his friends may, in the first instance, notice some falling off in condition, some hollowness of eye or cheek, that gives warning of obscure and latent disease. You may trace the coming of the destroyer, to use the beautiful language of Mrs. Ward, "in the clear, transparent skin, in the bright eye, and ever brilliant cheek, in the delicate lip, the drooping, slender form, the damp

and shining hair, and the heavy breathings after slight exertion." Or there may be a short, hacking cough, recurring frequently, as if habitual, but without pain. In walking or ascending a stair, he pants and is easily fatigued. On making a deep inspiration, some constriction or uneasiness may be felt. These symptoms often abate, especially if the season and temperature are favorable, and they are forgotten. They return, however, on some exposure, and the cough increases in force and frequency, harrassing the patient at night or early in the morning, when there is scanty mucous expectoration, perhaps tinged with a little blood occasionally. Authors say, that hemoptoe is seldom considerable in tubercular phthisis, but I have seen some striking examples to the contrary. The dyspnœa and thoracic uneasiness grow more permanent; fixed, and sometimes acute pains are felt in different parts of the chest, with a sense of weight and tension. The expectoration becomes gradually more copious—muco-purulent, sometimes sanious and offensive; there is great weakness, with emaciation. Hectic, which supervenes earlier in some cases, and later in others, without any direct relation, as I have thought, with the local disorganizations, is now exquisitely developed, with double diurnal paroxysm, ushered in or commencing frequently in the morning with chill, and usually followed at night by the so much dreaded and debilitating night sweat.

"In the female sex, as the disease advances, and sometimes early in its progress, "the menstrual discharge ceases to flow; and this circumstance," as Cullen rightly observes, "is to be considered as commonly the effect, although the sex themselves, are ready to look on it as the sole cause of the disease." You will find this error especially prevalent among our colored population, and you will be incessantly teased by your consumptive female patients of this class, for emmenagogues to remove the evil. They are, indeed, very much in the habit of prescribing for themselves, by stealth, articles of that kind.

The pulse is usually, from the first, quick, tense and jerking, and attains, as the case goes on, a remarkable frequency—counting from one hundred to one hundred and sixty in a minute. The sclerotica of the eye becomes of a pearly white, owing, as is supposed, to the disappearance of the red vessels, and the ab-

sorption of animal oil from the cellular tissue; the same explanation being offered, of the lustrous whiteness of the teeth; the whole body is shrivelled and extenuated, the nails even becoming adunque or bent inwards, for want of the usual fleshy cushion at the ends of the fingers. Until this period, nay, sometimes to the very last, the appetite of the patient remains good, and his digestive organs preserve their tone; he is cheerful, lively, and full of hope, and flatters himself with a confident expectation of recovery. This remark, which has, with the usual neglect of proper distinctions, been extended to all the forms of consumption, is strictly true, only as regards tubercular phthisis, and by no means applies to the other varieties of the disease. Rush tells us, he "never met with but one man who would acknowledge that he was in a consumption." I have witnessed the long illness and the deaths of many subjects of catarrhal and apostematous phthisis, who were neither deceived themselves, nor at all disposed to deceive others, as to the actual hopelessness of their condition. On the other hand, in many such patients, I have had to contend with extreme dejection of spirits. Dyspeptic phthisis, and indeed, all cases associated with functional or organic derangement of chylopoietic viscera, seem to me regularly accompanied by deep gloom and depression—a state of mind almost invariably produced by gastric and hepatic disorder. And in the latter stages, even of tubercular consumption, when the irritating and disturbing influences of the disease are extended to the stomach and bowels, the spirits of the unhappy patient will often be found to sink into extreme anxiety and despair. I have seen many instances of this.

To complete the melancholy description of this last and cureless stage—the patient is harrassed with frequent, loose, and often painful stools; the colliquative sweats and diarrhœa, show at first, a disposition to alternate with each other, but soon go on together, making rapid inroads on his little remaining strength; his voice is hoarse and weak; his mouth and tongue, lips, cheeks, throat, inflame and ulcerate with aphthous sores, which render deglutition difficult; œdematous swellings distend the limbs; he is too feeble to expectorate the matter effused in the lungs and bronchi, and dies at last suddenly suffocated; or as Young

affirms, "the expectoration in some instances ceases, as if the capillaries had lost their secretory power, or as if the fluids of the system were exhausted;" and he languishes for a greater or less period, in an almost lethargic condition, sinking gradually into the long, long sleep of death.

The duration of the terrible malady, of which I have thus endeavored to give you a faithful picture, differs exceedingly in extreme cases; varying in accordance with the original or inherent powers of resistance in the constitution, the force of hereditary or idiosyncratic predisposition, the habits and mode of life, the prudence exerted in avoiding the exciting causes which tend to arouse pulmonary inflammation and promote the growth of tubercles; and lastly, in no small degree, the skill and judgment with which the remedial management is directed. For we shall hereafter see that however well founded may be the doubts so generally entertained of the powers of medicine to remove or cure phthisis, no one can deny our ability to check the progress of the disease, and put off, to an almost indefinite limit, in many cases, the fatal termination. A few months—a period which shall include a second winter—may be mentioned as the time occupied by a majority of instances. Yet it is probable that a greater number live beyond this date than perish within it. Examples are recorded of its protraction through five, ten, twenty, thirty, sixty, and even seventy years; that is to say, its symptoms ran through the whole lives of the subjects, with greater or less intensity, yet without shortening life.

It is in these protracted instances, generally speaking, that the anomalies—so much dwelt on by writers—occur, in which the pulmonary disorganizations exist and progress ultimately to a fatal result, without having aroused the sympathetic disturbances which have been described as belonging to their usual history. Nay, the local derangements of function are sometimes deceptive and obscure. In 1819, I attended with two other medical gentlemen, a patient whose case (already alluded to in a former lecture) deserves to be noticed. He had no cough, and complained of no dyspnœa. He had no pain except at the epigastrium, but kept his bed for nearly three months, at the end of which time he died, apparently exhausted by continual low fever. My friends called it typhus mitior; I thought it a chronic

gastritis. Examination after death, showed the lungs a mere mass of tubercles, in various states and stages of development.

For our present knowledge of the true Pathology and Pathological Anatomy of Phthisis, we are chiefly indebted to Bayle, Laennec, Andral, Louis, Clark, Baron, Morton and Gerhard. The nature of tubercular formations and depositions has been earnestly investigated by these writers—and perhaps still more closely by Carswell and Cruvelhier. Tubercular matter is generally found in a solid condition, and of consistence somewhat caseous; but Cruvelhier has detected it in a fluid or gelatinous state. Besides the encysted form, so well known as tubercle, it is seen in small granular masses, called miliary tubercle and tuberculoid granulation; it also insinuates itself into the tissues, the grey infiltration of writers. Carswell says it takes the shape of, or is moulded by the air cells and bronchial tubes; it is found every where in the body, in the parenchymatous structures, glands, etc., but chiefly upon the mucous surfaces. Chemical analysis finds it composed of albumen, gelatin, fibrine, chlorate of soda, phosphate and carbonate of lime, with a trace of oxyd of iron. It is variously colored—whitish, yellowish, grayish, and it is said darkly tinged sometimes by the pigmentum nigrum.

It has been much disputed whether encysted tubercle is or is not organic. It is certain that it possesses very little vascularity. From its singular independence of surrounding connections it has been supposed to be parasitic in its nature—a sort of hydatid, if I comprehend rightly. Harvey, Bremser, Blainville and Cruvelhier seem disposed, like Linnæus, to attribute many diseases to animal parasites. Even Laennec, though somewhat vaguely, speaks of tubercles as possessed of independent vitality. His words are, "tubercles are accidental productions; that is, real foreign bodies which spring up in the lungs, and may be developed in any other part of the body."

The cause of tubercular deposition I have already said is obscure; I believe it to be dependent upon, or closely connected with, a strumous vitiation of the fluids, and consequent degeneracy in the nutritive function, which occasions the fixation by the minute vessels engaged in the office, of imperfectly animalized or vitalized solid particles. This may happen any where—

but during adolescence is particularly apt to occur in the pulmonary tissue. For what reason I know not, but it is noted that the right lung is more frequently affected—and especially its apex.

It usually takes place slowly :—Morton affirms that it may be deposited rapidly—Andral thinks the process not only hastened but actually produced by inflammation. It is a question how the growth of tubercle goes on ; whether from within outwards, or by additions on the external surface of the mass. It is also difficult to understand clearly how it is softened and broken down ; whether by mere maceration in the fluid with which it is surrounded, pus, serum, etc., or as Laennec maintains, from a change commencing in its own centre. If Morton—all whose observations are entitled to very respectful attention—and whose "Illustrations of Pulmonary Consumption" merit a place in all your libraries—be right in believing each tubercle "to be intersected and all its granules separated by their appropriate tunics of cellular tissue"—this tissue may soften them by sero-purulent secretion. These difficulties, which present themselves in the way of both hypotheses, that which pronounces tubercular matter to be entirely inorganic, as well as that which assigns to it a parasitic origin, are easily resolved, if we suppose it as I have above suggested, to be partially or imperfectly organized, and gifted with a vitality degenerate and defective. Such a condition may admit of the growth and change which actually take place, while it renders it to a certain extent foreign, and independent of the parts in which it is deposited.

The Diagnosis of tubercular consumption is somewhat delicate. A careful exploration of the thorax, in the early stages, will detect little beyond an irregular distribution of the natural sounds, the respiratory murmur being, in some points, perceptibly defective, more usually at the apex on the right side, while, at others, it may be louder than usual—puerile or bronchial. A slight purring or a sibilant râle may occasionally be heard. As the case progresses, the chest will expand less, and the breathing be shorter and more frequent ; consolidation around the tubercles will increase the defect of respiratory murmur, and resonance will become impaired. At a stage farther advanced, some tubercle will have been softened, forming the

centre of an abscess of greater or less extent, and pectoriloquy may be noticed; and this will occur at another and another point, and so on.

After all, however, it is only by a due consideration of all the several circumstances of the attack, and the history of the subject—his predisposition—the absence of violent or acute symptoms in the earlier stages, and the disparity between the constitutional exhaustion and irritation on the one hand, and the apparently undefinable and unimpressive local disease and lesion on the other, that we are able to distinguish the tubercular from the other forms of phthisis. And the distinction is very important in reference to the Prognosis, if in no other point of view.

As to the grave question of the curability of tubercular consumption, I have already given you an unfavorable opinion, and the almost inevitable tendency to a fatal termination is now, I believe, universally admitted. The delusive hopes of those enthusiasts who fondly imagined themselves the discoverers of antidotes, and specifics, and modes of treatment curative of this disease, have vanished before the sad realities of practice, and their recorded successes may be fully accounted for by the too prevalent confusion of several forms of pulmonary affection under one name. But it would be worse than folly, to allow our exertions in behalf of suffering humanity to be paralyzed by our admission of the difficulty, or, even if this were fully established, the impossibility of curing phthisis. Much may be done to diminish these irremediable evils—much to prolong a life cheered and enlivened by the bright gleams of a never sinking hope of ultimate recovery. Bayle, while maintaining the incurability of phthisis, admits the possibility of its indefinite protraction. Rush prescribed for his pupil, Dr. Edwards, in 1769. He lived until 1802, and seldom passed a year during that interval without hemoptoe, or a week without cough. "While we concede," says Laennec, with more apparent than real inconsistency, "the justness of the general conclusion, that the most perfect cure that can take place in phthisis, is merely temporary, we are still entitled to hope for a cure, or, at least, for such a suspension as may be deemed almost equivalent to it, since the individuals may enjoy such a state of health as may

enable them to fulfil all the duties of civil life for many years, or until such time as a fresh development of tubercles, at present immature, produces a fresh and final seizure."

Besides this, there are certain conditions, out of which may grow exceptions to the rule above laid down. In different subjects, the tubercular diathesis affects the lungs in different degrees, some presenting masses of this morbid deposit, others but slight traces of it. Morton tells us, that in examining the body of a man who had died of fever, he noticed, on the apex of the left lung, a single small grey tubercle. Still more in point here, we have a case from Laennec, in which a similarly solitary tubercle, loosened by the suppuration around it, was coughed up entire. In such a case, it is evident, that the lungs being relieved of the foreign irritant, are somewhat in the state which constitutes mere apostematous phthisis, and may heal, provided the general health be not too much impaired. Still farther, we know that the tenacity of life—the elasticity of its functions, vary widely in different subjects. Some sink readily under slight disease—others resist obstinately. In these latter, we may find such organic vigor as shall not only sustain the irritation of one tubercle, but of several, perhaps, and when these are softened and dissolved and expectorated, shall still preserve their hold upon life.

All these circumstances being duly taken into consideration, I hold myself bound to urge upon you the duty of attending assiduously even to the most desperate-seeming cases of phthisis. It is possible, that you may have mistaken the more manageable forms of pulmonary disease for tubercular consumption; it is possible, that the case before you may be one of the rare instances in which even this latter destructive malady assumes a something less than fatal character, or in which the constitution is sufficiently vigorous to struggle both with its original vice and the local lesion; it is not only possible, but certain, that you have the ability to retard, if not to arrest its progress, and to prolong indefinitely a life valuable, it may be, not only to the possessor, but to society and to the world.

And where is the physician bold enough to assign a limit to the future powers of the Divine Art of Healing? If there be any such, I will not hesitate to pronounce him ignorant of the

steady advancement of the profession in the knowledge of diseases, and of the means of prevention and cure; he is ignorant, too, or wilfully blind to the improvements in every branch of our science, which, within the present century, have been made, and are now making, under the auspices of the illustrious pathologists of France, England, Germany, Italy, and though last, not least, of America.

Analytical chemistry has done so much of late years to define and concentrate the energy of drugs long familiar to us, and experimentalists have been so successful in introducing new and valuable remedies, and in discovering new and preferable modes of exhibiting the old, that it is not an unreasonable or unfounded expectation, that much more will yet be done in diminishing the extent of the influence of disease, and in controlling its malignant energies.

And what malady deserves more the attention of every practitioner than consumption!—whose annual catalogue of victims is every where so large, and whose ravages appear, almost every where, to be increasing. It selects, too, as if to wound more deeply and permanently, the fairest forms, the most engaging dispositions and the brightest intellects; its fatal shafts are directed, with the most mortal aim, at the young, the beautiful, the highly gifted. I will not be deterred by the cold and callous sneer of the philosophic doubter, nor by the risk of being pitied as an enthusiast, from pressing you forward in an endeavor so honorable even in failure—so ennobling and delightful in success. To strike from the list of opprobria medicorum—already reduced to less than half its original limits by the labors of our immortal predecessors—this, one of its foulest specifications, will afford you a triumph more gratifying than all the glories of war or of literature.

I shall proceed to speak of the Treatment of tubercular phthisis under the heads of the palliative and the radical—the first comprising those measures calculated to diminish the violence of the symptoms and retard the progress of the disease; the latter referring to the various remedies by which it is proposed to procure the absorption of tubercles, and prevent further deposition of tuberculous matter in the lungs.

And, first, of the Palliative. It may be made a question,

whether a tubercle is ever, of itself, and in the first instance, the means of exciting that inflammation of the pulmonary tissues which constitutes the essential history of phthisis. Be this as it may, it is certain, that it is only when these tissues are inflamed, that the malignant influences of such morbid deposites are developed, and hence arise our first indications—the reduction of vascular action, and the diminution of local excitement and irritation. These are best and most promptly accomplished by the lancet, which must be resorted to and used freely, if no contra-indication be present, such as is found in a feeble state of the circulation or a specially debilitated condition of the general health of the patient. If there be pain in the chest, or dyspnœa, it should, for the most part, be tried, with such cautions as circumstances may require, but it would be an extreme case, indeed, of so chronic a disease, which could be seriously injured by the experimental loss of a few ounces of blood.

Cups, too, may be applied to different parts of the thorax near the seat of pain, and will usually give notable relief with little or no risk. The patient, during the progress of a protracted consumption, will, from time to time, be assailed by attacks truly pleuritic, in which the acute suffering and difficulty of breathing require peremptorily to be relieved by this moderate abstraction of blood generally and topically, and by the application of warm poultices and fomentations with or without mustard. There are other modes of revulsion and counter-irritation, which are productive of similar advantage, of which the blister is the chief; dry cupping is also useful, if employed with perseverance. The pustular eruption brought on by tartar emetic, is well-suited to some very chronic cases. I have not seen the benefits writers describe, from the various issues and setons recommended, made by nitric acid, vegetable and mineral caustics, etc.

Great stress has been laid by some practitioners on the effects of nauseants in this form of phthisis—by none however so much as by Dr. Jenner, who says—"If ever I saw a case or cases in which tubercles have apparently been formed and afterwards absorbed, it has been when the individual either by accident or design was kept for a while under the constant influence of sickness, either from being tossed about on the ocean, or by the use

of medicines which nauseated." The good effect of nauseants so much exaggerated here, is nothing more than the reduction of inflammatory excitement which may and does sometimes result from their sedative influence on the circulation. There is some risk however in their protracted use, as likely to bring on great debility and impair the powers of digestion.

Frequent emetics have been generally and I think justly preferred. Ipecacuanha and the sulphate of copper are exhibited as in pulmonary abscess—either separate or combined, and with undoubted utility.

The tartarized antimony has also been largely administered, and if the reports may be trusted, with singular success. Laennec and the Italians, aiming at its contra-stimulant effect, prescribe in as free doses as the stomach will tolerate. Louis recommends it highly. Balfour and Lenthois advise a very different method, which I have seen serviceable. They make a very diffuse solution of it, which is taken in as great quantity as may be, without nauseating. It is thus a good sedative diaphoretic.

Other diaphoretics are also employed, as in bronchitis and chronic pneumonia, in modes and formulæ which it is not necessary to repeat here. Digitalis, too, is almost universally prescribed, on the principle of directly lessening the force and velocity of the circulation; and although it will not accomplish more than a small part of what its eulogists have promised us, it is among our most useful medicines. The advantage of diminishing the velocity of the circulation is twofold. 1st. Its mechanical influence on the momentum with which the blood is driven into the inflamed vessels and disorganized tissues, (the momentum being compounded of mass and velocity,)—and, 2nd. The lessening the irritation and exhaustion of the heart itself, which must be proportioned to its muscular exertions.

I have acknowledged the want of a clear understanding of the best adaptation of this medicine; it is more easy to point out the circumstances in which it will do little or no good. We shall hardly derive any advantage from it while the pulse is hard and strong, or the febrile excitement runs high; and it will surely do harm if given so largely, or so long persisted in, as to affect the appetite and digestion.

Mercury is decried very generally as unsuited to the management of tubercular phthisis, and, indeed, Cullen and others affirm that it hurries forward the disease. Its effect will depend on its mode of administration. Much injury will accrue from its hasty use, and from the excitement of an irritating ptyalism, when the case is advanced. But, in the early stages of pulmonary inflammation, whether complicated with the presence of tubercle, or not, it may be so prescribed as to do good service. I give calomel in small doses, at first with nitrate of potass: and digitalis, or tartarized antimony, or Dover's powder, as circumstances may indicate. Afterwards I use it in the valuable combination already spoken of—the deutiodide of mercury and potassium.

Concerning opiates, I have nothing to add to what has been said on former occasions. They are absolutely indispensable, constituting our principal means of relief from sufferings which we cannot remove, and of lessening evils which have no termination but in death. I do not hesitate to offer them as freely as may be requisite for these purposes, and in such modes of preparation as are best adapted to the comfort of the patient. They form the efficient ingredients in the numerous demulcent drinks taken to abate the tickling and incessant cough which harrasses the sufferer by day and by night, and which, were it not for opium, would deprive him altogether of his chief solace, "nature's sweet restorer, balmy sleep."

Prussic acid, which, like digitalis, was at first held up by its encomiasts as possessed of specific properties which adapted it to the radical cure of phthisis, has already fallen into comparative neglect, or is employed merely as a palliative. In this regard its value is not to be doubted, and we have the respectable names of Magendie, Granville, and Brera, in its favor. Dr. Oliver, of Salem, claims the merit of having originally applied it here, having prescribed both the distilled water and the saturated tincture of lauro-cerasus in phthisis as early as the year 1810. It seems to me to act on the nervous system chiefly as a sedative and narcotic, diminishing the irritation of the affected tissue probably by subduing its sensibility or super-sensitiveness. It is thus calculated to assuage both the violence and frequency of the habitual cough, dry and urgent, partaking of a convulsive

or spasmodic character. Generally those formulæ are to be preferred in which this powerful agent is diffusely mingled, such as I have already mentioned, and the water of bitter almonds; but sometimes it is necessary to have recourse, with proper caution, to the concentrated acid of the chemists. It is, perhaps, though not uniform, and not very definitely manageable in its influence, the purest example of a sedative in our hands. Dr. Thomson observes, "that he has never seen its sedative effect preceded by any increase of the action of the heart and arteries; nor does it appear to be capable of producing inflammation in parts to which it is applied."

Local sedatives also have been applied directly to the diseased lungs. When the stores of pneumatic chemistry were first laid open to physicians, the discovery excited unbounded hopes of finding here medicinal agents of importance, and especially in affections of the respiratory organs, to which they seemed immediately applicable.

Dr. Beddoes, with laudable zeal, instituted a course of experiments, which were, at first, alleged to have been strikingly successful. The gases have, however, fallen into almost entire disuse, though Murray has lately endeavored to renew our lost confidence in the nitrous gas, which he eulogizes highly as a specific and very promising remedy.

Of chlorine and iodine inhalations, I have nothing to add to what was formerly said. My trials with them have produced no good results whatever.

We would anticipate some soothing influence from the inspiration of air made to contain a less quantity of oxygen, which is generally regarded as a stimulant, such as atmospheric mixtures with nitrogen and hydrogen and with carbonous oxyde or carbonic acid. In a similar way, we may account for the advantage said to have been derived by some consumptives from residing in stables with cattle, so much in vogue in England in the time of Darwin and Beddoes. Dr. Priestly's daughter, and another English lady of distinction, are said to have been thus cured.

I have already spoken of the inhalation of finely powdered alum and acetate of lead, etc. Whatever may be the effect of these in the latter stages of phthisis, when the lungs are exca-

vated by abscesses, and the vessels are relaxed with copious expectoration, they must be injurious in the earlier periods of irritation and inflammation. It is scarcely necessary to remind you of the caution with which, in the meanwhile, all exposures to cold and moisture must be avoided. During the summer your patient may be allowed to enjoy the delights of a clear sky and a genial atmosphere; but when the seasons become changeable, he must either confine himself to his apartment, or adapt his clothing, with the utmost care, to the vicissitudes of the weather.

Much stress has recently been laid on the injury done by the admission of cold air into the lungs, and methods of evading the evil have been invented and pressed upon our notice. Some urge, that the patient be compelled to breathe through a metallic tube, which, soon becoming warm by the air expired, will, in time, give warmth to the inspired column. The same effect is said to be produced by a metallic net of fine wire gauze, like that of Davy's safety lamp, worn before the mouth and nostrils. Experience teaches invalids to imitate these modes by breathing through a handkerchief, or, which is still better, a loosely woven woollen comforter. Flannel or fleecy hosiery must be worn at all times next the skin.

The diet of the consumptive is a matter of considerable importance. It is a common error to lay down universal rules on this subject, and prejudices have run strongly in favor of this or that particular article as adapted for the exclusive use of all patients. Milk, Iceland and Irish moss, the several mucilaginous solutions, as of arrow root, gum Arabic, and the like, have all their encomiasts. I am not friendly to any exclusive diet. I have repeatedly tried the experiment of confining my patients to a milk diet, but they have usually become disgusted with it, and so lost strength with appetite. Asses' and goats' milk, which, in Europe, are preferred to that of the cow, are not readily to be obtained among us. Whey is less cloying, and should be chosen in the early stages. Indeed, while there remains much local or constitutional excitement, I would forbid all animal food and sustain life on gruels and thin mucilages. This stage having past, I would allow milk and eggs, light

vegetables, fruit, and bread in its common forms. It is not unusual to see the appetite and digestion unimpaired, even when the debility and emaciation are very great. Under such circumstances, a free and nourishing diet should be accorded of whatever may be agreeable. Salvadori and May, who look upon phthisis as originating in and depending upon debility, prescribe copious meals of soup, meat, eggs, oysters, porter, and wine, alternately with the use of emetics, bark, and laudanum.

In regard to exercise, the same discrimination is required which I have just advised as to diet; yet we find Sydenham directing promiscuously horse-back riding, and Salvadori making his patients run up hills and climb mountains. I well remember a case which exhibited all the evidences of a most gratifying convalescence, when the patient being induced to walk quickly up a steep hill, was seized with hæmorrhage, and sunk at once into a premature grave.

That by a judicious employment of exercise, we give vigor to the invalid, and impart to his constitution such tone and energy as often to enable him to bear without exhaustion a long protracted pulmonary affection, and sometimes, as we hope and believe, to wear out the consumptive diathesis, is not to be denied. Yet we must carefully adapt the mode and amount to the circumstances of the individual. The passive exercises—those of gestation, are the first which can be borne and are scarcely ever unsafe. Rocking in a cradle is known to have been serviceable—swinging, sailing—riding in a carriage, especially if he is able to drive himself. If his strength will permit, set him, however, on horse-back, in preference to all other modes of exercise. The obvious objections to it, are, that it fatigues a weak patient, and sometimes occasions pain in the chest, brings on difficulty of breathing or panting, and increases the inclination to cough. When it produces either of these consequences, it is positively prohibited, and we must choose some other mode of exercise. But when it is well-borne, I do not hesitate to affirm, with Sydenham, that "it will do more good than any other remedy, or than all other remedies put together."

To obtain the full benefit from these exercises, they must be persisted in with constancy, steadiness and regularity; and hence

we should advise a sea voyage, or a long journey on land—which will combine also the peculiar advantages of a change of climate.

By those who are fond of laying down uniform and exclusive rules for the government of invalids, the question has been warmly discussed,—whither shall we send our consumptive patients? and the best proof of the vagueness of the reasonings on the subject, may be found in the fact, that sufferers under pulmonary diseases are often advised to remove to districts of country particularly subject to such affections. This is said to be strikingly true of Bristol in England, and of Montpelier, Nice, Lisbon and Naples, on the European continent; which have, therefore, fallen of late into comparative disrepute.

My own opinions on this point are briefly these. That a change of climate is always desirable, according to the maxim of Celsus, that "the air in which a man grows sick is the very worst air for him;" that a preference is generally due to such regions as enjoy greatest equability of temperature; that a northern winter should be avoided by migrating to a southern latitude, and that a southern summer is almost equally dangerous, in its ultimate effect, though perhaps less promptly fatal.

Rush advises American patients to pass the winter and a part of the spring in South-Carolina and Georgia; in summer, to go northwardly into Canada, as far as Quebec; and to return in autumn to Pennsylvania and New Jersey. He inculcates strongly the necessity of keeping far from the sea coast, believing a mixture of land and sea air highly prejudicial. I think it is so in bronchitis, and the discrimination should be made; for it is rather beneficial in most cases of apostematous and tubercular phthisis. The atmosphere of islands and of many points on the coast, Madeira, the West Indies, St. Augustine and Savannah, is found to be generally salubrious to pulmonary patients.

Lamentable disappointments are annually experienced by invalids, who have sacrificed the comforts of home for unimpressive changes of climate in vague hope of recovery. An East Indian voyage or a circumnavigation of the globe, will afford the best chance of advantage; beyond this, facts scarcely warrant us in speaking confidently in favor of any change, except that which we may enjoy in a winter's visit to Cuba, Santa Cruz or Madeira.

Much was said a few years since, of benefit to be derived from living in a low malaria district, and the opinion was seriously entertained, that the malaria of miasmatic districts which gave rise to intermittent and remittent fevers, was antidotal or curative in phthisis. No error can be more unfounded. It is not proved that the proportion of consumptive patients, is at all less than the average in such districts; and every physician must have seen phthisis developed and hurried on by attacks of malaria fever. I have personally witnessed several melancholy instances of this kind.

We shall not be detained long by the discussion of our second head. The radical remedies by which it has been proposed and expected to procure the removal of the tubercles already formed, and prevent the farther progress of such morbid deposition, are few in number, and, it must be confessed, all of them of doubtful efficacy.

We have already had occasion to arrange, among the mere palliatives, several medicines which had received high commendation for their specific adaptation here, as the nauseants, extravagantly extolled by Jenner; foxglove so exultingly lauded by Beddoes; the gases, so confidently regarded by Darwin and Murray; and the prussic acid, on which so much recent encomium has been heaped by Magendie and Granville.

Whether we shall ever be able to procure the absorption of an immature tubercle, or of tuberculous matter deposited in any form, is very doubtful; Laennec decidedly thinks we shall not, but the effort must be assiduously made and indefatigably persisted in. In the present state of our knowledge of the subject, iodine doubtless offers us the best hopes of success. Of all the agents in our therapeutical armory, it exhibits the most obvious efficacy in promoting the dispersion of tumors—probably by exciting the action of the absorbents. Under its administration, bronchocele and mammary tumors very generally disappear, and the diminution of scrofulous swellings of various kinds has been unhesitatingly attributed to it by the best authorities. I will not indulge any enthusiastic anticipations of benefit from it in the present case; but I must not fail to urge it upon your attention, as the fairest subject of frequent, cautious and minute experiment. I employ in preference, the valuable compound

more than once mentioned to you—the deutiodide of mercury and potassium. I have never found any of my patients injured by it. I have heard only of one instance of ptyalism occurring under its use. I have not been able to extend the dose so far as Channing and some others speak of, from twenty to twenty-five drops; the greatest quantity that I have known any stomach bear withont derangement or uneasiness, has been from ten to twelve drops thrice a day. This should be continued for two or three weeks at least. If this formula be irreconcileably offensive, you may substitute Lugol's dilute aqueous solution. I have abandoned the alcoholic tincture, as so frequently irritating, that its use implies some unnecessary risk; and the hydriodates, as having proved in my hands entirely inefficient.

The scrofulous character of tubercular phthisis, has led to the trial of every remedy or mode of treatment which has from time to time been found useful in strumous affections. The result of these proceedings has been so little flattering, that most physicians have come to the same conclusion with Cullen, that "the analogy of scrofula gives us no assistance in this matter." Dr. Roberts, of St. Bartholomew's Hospital, with a praiseworthy zeal and perseverance, ran through the whole range of such metallic salts as have been commended in cases of scrofula—the muriate of barytes, the nitrate of silver, the preparations of copper, arsenic, zinc and lead—and has had the singular candor to acknowledge the failure of them all.

Dr. Trotter, however, affirms, in his Medicina Nautica, that salt and a salt diet have proved of eminent service; and that the most effectual remedy for this modification of phthisis, which he regards as essentially scrofulous, is the combination of cinchona with sulphur. From the latter, I have never derived any benefit; but after the maturation of tubercle, the diminution of pulmonary inflammation, and the establishment of free expectoration, I have found great advantage from cinchona, administered in cold infusion. Others tonics also, as iron and bismuth, are admissible, but I do not imagine them to exert any specific powers in the case; they are useful simply as tonics.

It is well known that the symptoms of phthisis pulmonalis are checked and controlled, and at any rate, the disease is made to progress more slowly, by the occurrence of pregnancy in our

female patients. The most delicate and feeble woman will pass through this period, without any apparent increase of the affection of the lungs, and generally, with alleviation of her sufferings. She lives long enough to give birth to the infant, which has not only derived from her its formation and development, but by a striking reciprocal influence, has prolonged her life—and soon after dies exhausted. Or it may be, when the case is less advanced, that successive pregnancies shall put off the fatal termination, until the consumptive diathesis has, so to speak, worn itself out, or the constitution has, in some manner accumulated sufficient vigor to resist successfully the destructive predisposition.

During lactation, however, this truce, as it has been well termed, does not seem to be continued, and the dreaded symptoms recur. Indeed, the emaciation and debility progress, for the most part, with greater rapidity, under the abstraction of so much from the mass of fluids, in the secretion of milk for the support of the infant. For this reason, we should advise women of scrofulous habit, or such as seem liable to pulmonary affections, to abstain from suckling their children. We thus diminish the chances of transmission of the scrofulous or tubercular diathesis, by causing the child to be nourished from a healthy breast; and besides this, we know that the woman is much more likely to become again pregnant, than if the infant were permitted to keep up the determination to the breast by nursing.

A similar suspension of the progress of phthisis, to be explained, no doubt, upon the same principle of revulsion, is observed to occur, if the patient is attacked by fistula in ano, a circumstance by no means uncommon. The fistula being cured by the knife or otherwise, the symptoms generally return, though not always. Good records an instance of recovery, by the formation of a fistulous abscess, which was itself cured by an operation. It is also stated, that those who have been afflicted with fistula in ano, are specially liable to fall subsequently into consumption. The truth of these remarks I do not doubt, having repeatedly verified them; but I am disposed to regard both the fistula and the phthisis, as being derived from the same morbid condition of constitution, and by no means as standing in the relation of cause and effect to each other.

I should also notice the alternation of consumption with mania, gout and rheumatism, as affirmed by Mead, Rush, and others, and the suggestion, that as it has been found to be influenced, and at least, in a temporary way restrained by other affections, it may be supplanted by some other less fatal malady, which "shall exert over it a control, like that of cow pox over small pox." The whole inquiry, however, is as yet hypothetical, and barren of all practical consideration.

The importance of the Prophylaxis—the preventive management of subjects predisposed to the invasion of so uncontrollable and mortal a form of disease, is evidently peculiar, and entitled to our most particular attention. Two plans are proposed. The first, which is almost universally received and acted on, consists in the strictest endeavor to evade exposure to what are regarded as exciting causes of pulmonary inflammation. Upon this principle, parents arrange the education of their children, and allot to them their future pursuits in life. If a boy seem weakly, or exhibit any defect of constitution, or his chest be narrow or ill formed, he is destined to the desk, the bar, or the pulpit, because he will not be able to bear the fatigue of physical labor in the open air. More and more indulgence and shelter are provided for him, if, as he grows up, he shows more muscular feebleness or more obvious consumptive predisposition. Such a course as this, merits the most unqualified censure, and ought to be utterly abandoned. And, both from reasoning and the observation of facts well authenticated, we are led to prefer the second method of prophylaxis, which contemplates the effectual confirmation or strengthening, if it be possible, of such defective constitution, by such modes of life as, disregarding all ordinary exposure to the causes of disease, shall confer strength to resist them, or elasticity to throw them off.

Phthisis, though perhaps not exclusively limited to civilized and refined conditions of society, is found to occur in a pretty regular ratio to the progress of sedentary and effeminate habits of living, every where. The Indian hunter, and the pioneer of our western forest, are comparatively free from it, and even the agriculturist, when his toils are extreme, as in clearing new countries. It prevails most in cities, in the library of the student, behind the desk of the merchant, and in the close, ill ventilated

apartment of the tradesman and the manufacturer. Exercise, constant and rough exercise in the free, open air, or what is still better, hard labor, is the true preventive of consumption. The original curse, which doomed man to till the earth and to procure his bread by the sweat of his brow, is a blessing of the highest order, when compared with the artificial evils of indolence and effeminacy.

The unfortunate youth, who, by his descent from consumptive parents, by original defect of constitution, or by some malformation of his thorax, is apparently destined to a life of debility or a premature death, has one chance for escape. Let him become a ploughman, a sailor, a mechanic—let him choose for himself some mode of active and hardy life, which shall tend to invigorate his frame. If it be replied, that he is unable to bear the toils of such occupations, I answer, that he can be made, by proper exertion and reasonable exposure, able to bear any thing. Speaking of exercise in the saddle, with this view, Dr. Fuller says, "He must, like a Tartar, learn to live on horseback, by which means he will acquire, in time, the constitution of a Tartar." "Weakly children," says Rush, "should be trained to the laborious, and the robust to sedentary occupations;" and his advice should be followed in this matter, as if uttered by the voice of an oracle.

I must not, however, be understood to recommend this harsh course of management, when phthisis has already begun its organic ravages—when pulmonary inflammation obviously exists—or the fever of irritation has assailed the system. I would confine my remarks to the modes of prevention calculated to eradicate or control the hereditary or constitutional predisposition, before any circumstances have excited it into action. When the symptoms of phthisis have actually presented themselves, the case is widely different in its aspect, and demands much delicacy in its treatment, as well as skill and nice judgment. Yet even now, in certain instances, the patient may be saved by the measures above recommended—and hence it becomes an important question, though not "the first," as it is esteemed by an excellent writer, "Whether he is able to ride on horseback?"

If he cannot bear exercise, he must avoid exposure. Regulate with assiduous care, all his habits, his diet, his dress. Do

not "suffer the winds of heaven to visit his face too roughly." Hopeless as we may be of his ultimate restoration to health, we may both protract his life, and alleviate his sufferings; and by our anxious, faithful and persevering attention to these duties, we shall at least be certain, whatever the success or failure of our professional efforts, to obtain the applause of our own consciences, and the esteem of all the good and intelligent.

CHAPTER XLIV.

ASTHMA.

This formidable and distressing disease, which in the course of your practice, you will but too often have occasion to encounter, may justly be ranked among the most obstinate and indomitable that affect the human frame. Whether it be from a peculiar inherent tenacity in the nature of the morbid action which constitutes its proximate cause, or from our not having yet obtained possession of the proper means adapted to control its movements, or arrest the influences which excite it, I cannot take upon me to determine; but I am, in candor, obliged to acknowledge, that it is seldom allotted to the physician, to enjoy the gratification of relieving permanently, an asthmatic patient. We are able, however, to effect something in his behalf. By pursuing judiciously, the measures about to be pointed out to you, we may always procure a very considerable alleviation of his sufferings; and by assiduous attention, we shall often succeed in evading, or at least, diminishing the ill consequences ready to accrue from the wearisome malady under which he labors.

The term Asthma, is applied correctly to designate a species of dyspnœa, which may be described as paroxysmal—spontaneously remitting, or subsiding altogether after a certain duration—and recurrent, disposed, that is, to return of its own accord, as well as upon the re-application of the same exciting causes which originally gave rise to it.

Laennec, in one of his paragraphs, seems partially inclined to deny it a distinct existence as a separate form of disease, and speaks of it as a mere symptom of certain organic lesions which he points out. A little farther on, however, he confesses unequivocally, that it may exist, unattended by, and independent of any such organic lesions, though he affirms this to be a very rare case. Admitting the fact to be as he asserts, the question would still be entirely undecided, whether these lesions are or are not connected essentially, either as causes or effects, with the disease under discussion. He treats of it as complicated, chiefly with "chronic catarrh;" and McIntosh implicitly follows him, confounding it with "chronic bronchitis." I am at a loss to imagine how any one can be misled, by views so obviously erroneous. Catarrh and bronchitis exist in thousands of instances, without the supervention of asthma. The dyspnœa which may be present in these, is perfectly distinguishable from the peculiar and characteristic dyspnœa of the asthmatic.

Asthma is often described as of two species or varieties, the dry or nervous, or spasmodic; and the humid or humoral. In the first, the difficulty of breathing is convulsive, attended with a hissing or creaking noise; the paroxysm, though severe, is usually short, and terminates with little or no expectoration. In the second, the respiration is labored and vehement, apparently impeded by the effusion of an inordinate quantity of mucus within the lungs; the mucous râle is loudly audible; the paroxysm is of tedious length, and terminates at last with free expectoration of a frothy or tenacious mucus.

The differences thus dwelt on, are sufficiently notable, and indicate corresponding variations in the actual condition of the parts affected; but there are points enough in common, and of such characteristic nature, as to justify us in considering the two modes of asthma under one head and denomination.

It is frequently asserted, that asthma exhibits itself as a symptom of other diseases of the lungs, and of affections of the heart and large blood vessels. This I do not believe; I have met with no such instances,—nor am I satisfied with the alleged proofs. Dyspnœa is a common symptom of all these; but dyspnœa is not asthma. Asthma may, perhaps, by the vascular obstructions and congestions which arise during its progress,

after long continuance and frequent recurrence, originate any or all of them. Or, it may be transiently connected with some among them, as produced by the same excitement in systems predisposed or habituated to it, as when an asthmatic is attacked, after getting wet, with pleurisy or pneumonia or bronchitis. This is only admitting the two states of disease to be compatible with each other, but by no means placing them in the relation of cause and effect.

The paroxysms of asthma have their access almost uniformly in the night, and are generally preceded or accompanied by evident tokens of gastric disturbance or indigestion, oppression at the scrobiculus cordis, heartburn, flatulence, vomiting, and a loose, griping stool. The patient is attacked soon after going to bed, or awaked from his first light sleep, with a sense of uneasiness and constriction of the chest, difficulty of respiration, and cough. He is obliged to sit up, and cannot bear the weight of the bed-clothes, nor the confinement of any fastenings about the upper part of his body; he seeks for fresh and cool air with the most intense eagerness and avidity. There is wheezing and panting; the shoulders are elevated, the nostrils expanded widely, the eyes staring and bloodshot, the lips bluish, and the whole countenance expressive of the deepest anxiety and distress. The cough is, in most, loud, sonorous, often repeated, and at first dry; in some bad cases, it is husky and feeble, gasping and whispering; after a little while, some frothy mucus is brought up, which in the humid variety, increases in quantity as the paroxysm declines, and often becomes abundant. The violent efforts made in coughing, sometimes occasion the rupture of one or more small blood vessels, the effusion from which, scarcely ever fails to bring a degree of relief. In very severe attacks, and when the patient is much debilitated, he may be entirely unable to cough or expectorate; his sufferings from dyspnœa being of course proportionally greater and more protracted.

The symptoms thus briefly enumerated, being those connected immediately with the morbid condition of the respiratory organs, are not liable to any very striking variation, but occur with notable similarity in all the several orders of cases. The impression made by the attack, however, upon the functions of the general system, sympathetically, is diversified, as we would

anticipate, by all the differences of constitution, habit, age and temperament. In the plethoric and robust, the pulse will be found hard and frequent, and of large volume; the visage will be flushed and turgid, the eyes prominent and reddened, the tension across the thorax severely painful and urgent. In the feeble and aged, on the other hand, and when the disease has become habitual, we meet with a set of very opposite circumstances. The features are shrunk and contracted; the face pale or livid; the skin relaxed, moist and cool; the ears, nose and extremities, cold; the pulse low, small and weak; the tokens of gastric and intestinal disorder are prominent; there are cholicky pains, sometimes with tenesmus and diarrhœa; eructations of wind and acrid fluid, and perhaps nausea, with retching and vomiting of foul pancreous matters, and occasionally gastric spasm or cramp of the stomach, violent and painful, with or without hiccup.

Blood drawn during a paroxysm of asthma, is always dark. The urine is, for the most part, discharged frequently and copiously, being of light hue or limpid. Bree mentions a case, in which it was always deep red or coffee colored, for a short time previous to a paroxysm. I have had for many years under my care, a female patient, in whom a troublesome incontinence of urine attends every attack.

The duration of the paroxysm is very uncertain. A remission of the more violent symptoms usually takes place with the return of morning, when our patient, languid and exhausted, falls into a slumber, from which he wakes unrefreshed, to pass a restless and uncomfortable day, teased with some remaining oppression of breathing, accompanied by slight but frequent cough. At night, he is again attacked in the manner above described, and this alternate remission and exacerbation continue for a few days, four perhaps, or five on the average, and then gradually subside and disappear. An instance is recorded, in which this state of things lasted through seven miserable weeks.

The general Prognosis, in regard to the result of a given paroxysm, is favorable. In treatises of the physiological function of respiration, it is stated, as you will recollect, that a small proportion only, of the air in the thorax, is forced out at each expiration, and hence, that a very limited part of the actual capacity

of the lungs, is employed in the successive movements of breathing. The reason is then, obvious, why this disease, so terribly distressing to the patient, and so alarming in its appearances to those who surround him, should so seldom offer a termination promptly fatal. Suffocation, indeed, would seem to follow nothing less than a total closure of the air tubes, and an absolute deprivation of oxygen, or its non-admission into the cells of the pulmonary tissue. A few instances, however, of immediate death in the paroxysm, are related. Elliotson says, in his Lectures, "I have seen people die from pure spasmodic asthma"—and goes on to give an example.

Yet we must not imagine, that attacks of such violence should be repeated, without the most serious injury. The asthmatic may live to old age, but his life is languid and joyless; his muscles are weak and flabby; his digestive organs lose their tone, and his whole frame, bent and emaciated, gives evidence of premature decay and oppressive debility. He falls a victim, frequently, to hydrothorax or universal dropsy; or his lungs become organically affected, and he dies of chronic bronchitis or phthisis pulmonalis. One of the consequences or attendants of asthma, is the production of emphysema of the lungs. Its frequency is exaggerated somewhat by Laennec, who errs also, I think, in ascribing to it as a cause, the phenomena of the paroxysm of asthma.

Autopsy. Dr. Baillie had, before Laennec, correctly described this state of the organs. "The bronchial cells are found, after death, largely dilated, and do not collapse on opening the cavity of the thorax, the cells being enlarged, not only by this distension, but also by the breaking down of two or three into one; and there is also extravasation of air under the pleura, forming vesicles attached to the edge of the lungs." It is unnecessary to dwell upon such appearances presented after death, in complicated cases, when there have been bronchitis, and other pulmonary disorders and cardiac affections combined. Of course, the lesions will vary with the history of these. But in simple, or what Elliotson calls "pure spasmodic asthma," there is no change of structure traceable. In the case already referred to, he says, "no signs of disease were found; but the lungs were all distended, had lost their contractile power, so as to be unable

to collapse, and were as light as a feather." Ferrus, quoted by Copeland, "after extensive experience states, that he has been unable to detect any lesions which can be attributable to uncomplicated asthma. Willis records a case of protracted asthma, in which no morbid appearances could be detected; and similar cases have occurred to Andral, Cruveilhier and Bouillaud."

The Pathology of asthma is in the highest degree obscure and uncertain. Cullen ascribes the disease to "accumulation in the lungs, or some fulness in their vessels." He observes, that it depends upon a particular constitution of the lungs; that the proximate cause is a preternatural, and in some measure, spasmodic constriction of the muscular fibres of the bronchi, which not only prevents the dilatation of the bronchi necessary to a free and full inspiration, but gives also, a rigidity that prevents free and full expiration. This preternatural constriction, he adds, like many other spasmodic and convulsive affections, is readily excited by a turgescence of the blood, and other causes of any unusual fulness and distension of the vessels of the lungs. Parr maintains, that "the proximate cause of the convulsive asthma, when complicated with the humoral, is a spasmodic constriction of the air vessels of the lungs, occasioned by an increased secretion of mucus, from a relaxation of the mucous glands." Bree, a late writer of no little reputation, whose portraiture of this cruel malady is made more accurate and valuable, from his personal sufferings under it, takes a similar view of the matter, attributing the train of symptoms "to inordinate effusion from the pulmonary exhalents." Indeed, it has been common for a long time past, to assign this supposed relaxation of the mucous exhalents of the lungs, as the sufficient cause of humoral asthma, which is the form chiefly taken, when the disease has become habitual by repetition.

Professor Cooke of Kentucky, ascribes asthma simply to venous congestion—a condition admitted partially, both by Cullen and McIntosh—to "an accumulation of blood in the cava and its branches;" which he thinks may produce and explain all the phenomena present. I have already alluded to the opinions of Laennec, who regards "the cases denominated humid or humoral asthma, as simply examples of chronic catarrh," and "spasmodic asthmas, as differing in nothing from cases of emphysema of

the lungs." He goes on to say, however, with more than usual caution, "I do not mean to deny that there may be asthmas, or to speak more exactly, dyspnœas purely nervous, or unattended by organic pulmonary lesion. Under this head of purely nervous, he would range the spasmodic asthma, when this is well characterized by an evening paroxysm and morning remission, after a slight expectoration." McIntosh, who follows him closely, after mentioning "chronic bronchitis, emphysema and congestion, as the true conditions of the lungs which most frequently produce asthma," says farther, "and I believe it is also occasioned by some kind of nervous irritation, the nature of which is yet unknown. There is almost always something more in this disease than the original organic lesion"—"and I imagine no one can deny, that asthma may be produced either in consequence of some diseased action in the brain, or in the nerves themselves which supply the lungs." Elliotson says, "the disease is literally pure spasm, and does not depend upon any organic cause." Watson, after arguing the question ably, and at length, comes to the same conclusion.

Both Reississen and Laennec have shown that the bronchi possess a muscular structure, through the agency of which these air vessels contract, when under the influence of spasm at least, if not in ordinary respiration. The former traced these fibres in tubes of a very small diameter; the latter in bronchial ramifications less than one line across. Watson has demonstrated them "exaggerated by hypertrophy" in the large bronchi. Williams has proved that these fibres are contractile to a very considerable degree, under chemical, electrical and mechanical stimuli; and Valentin declares that "the rings of the trachea can be made to contract visibly and distinctly, by irritating the par vagum. From all this Watson is led to infer that "asthma is one of the spasmodic disorders of the excito-motory system of nerves. The spasm may be either of centric or excentric origin; in the latter form the par vagum is doubtless the afferent nerve, and the impression it conveys to the medulla oblongata is reflected through the associated motor nerves to the bronchial muscles. The centric variety results from a similar impression originating in the nervous centres, which respond mysteriously to certain feelings of the mind."

These recent views of the pathology of asthma were in good degree anticipated by the sagacious Cullen. My own opinions of the subject are built upon a similar basis. I do not doubt that asthma is often connected with pulmonary congestion and inflammation; but I regard it as essentially dependent upon a spasmodic affection of the muscular fibres of the bronchial tubes—and this spasm indeed, as its true proximate cause. I do not see that it is necessary to imagine these fibres to have become rigid uniformly in the state of complete contraction. Their rigidity in the intermediate condition accounts for the sense of constriction so much complained of, even when the passage of air does not seem to be greatly impeded, the blood being of florid color in the cheeks and lips. And as Cullen has remarked, the patient complains quite as much, if not more, of difficulty in expiration as in inspiration. Some of the severest attacks of asthma present little indication of effusion within the lungs; the resonance upon percussion is loud, occasionally too great; the râle is sibilant and crepitant rather than mucous, and the solution of the paroxysm is effected with little or no expectoration.

The remote Causes of asthma are various. They may be naturally enough divided into—1. Such as affect locally the respiratory organs; and 2. Such as act upon them through the medium of the general system.

Of the first class, the most important perhaps is the proclivity derived from original peculiarities of structure, vicious conformation of the thorax and its contents, the lungs, heart and large vessels. This predisposition is of hereditary transmission, and in such cases the disease is very readily brought on, and specially unmanageable both as regards violence and duration. When an attack has once occurred, it generates promptly a remarkable tendency to its own repetition. Habit has hence almost irresistible force in giving it permanency or rendering it obstinately tenacious.

The second class of causes, those namely which act indirectly on the respiratory system, may generally be considered exciting or occasional. Among the most impressive are cold and moisture; exposures to sudden variations of temperature; inappropriate changes of dress; and briefly, all such circumstances as give rise to catarrhal affections, with which, in this respect, hu-

mid asthma seems closely allied. Repelled eruptions are by several writers enumerated among the efficient exciting causes of asthma. The air of crowded rooms and other ill-ventilated places will bring it on. Laennec ascribes it in one case to the exhalation—so offensive often in smell—of a newly extinguished lamp. Many other exhalations and odors are accused of the same ill effect. It is recorded of several persons that they are seized with dyspnœa—quasi asthmatic—upon breathing the effluvium of ipecacuanha. Of hay-asthma, as the English call it, I have spoken when treating of catarrhal fever.

Full meals, especially if of unaccustomed or indigestible food, are dangerous to the asthmatic. Late suppers are hurtful. So are violent exertions in speaking and singing, walking, running, leaping, and lifting weights. I have noticed, in two patients at least, a connection between electrical disturbances in the atmosphere, as in thunder storms, with the repetition of their attacks. But when the predisposition is very strong, either originally, as when the tendency has been hereditarily transmitted, or has become so by habitual recurrence, the paroxysms frequently come on spontaneously, as the phrase is, or without the intervention of any apparent exciting or occasional cause.

Asthma is not often met with in childhood or early youth. I have seen it well marked and habitual in one subject under ten years of age, whose mother was nearly all her life a martyr to it. Its access is usually about the middle term, or between thirty and forty, unless when hereditary; in which cases it appears I think at or soon after puberty. Cullen affirms it to be of more common occurrence in the male sex, but it has happened that fully two-thirds of the patients under my care and observation have been females.

Of the Treatment. Like all other chronic affections which have their periods of spontaneous remission and occasional recurrence, asthma is a fruitful theme of discussion with nurses and empirics; each of whom is possessed of some specific or peculiar nostrum, by means of which infalible relief is promised, if not absolute and lasting cure. Relief indeed, in some degree, greater or less according to the contingencies present, may in the majority of instances be hoped for, and some palliation of suffering expected from our resources if directed with skilful judg-

ment; but a permanent removal of the malady and of the predisposition to its occurrence, is seldom—perhaps it would not be too much to say, never—accomplished by art. It is affirmed to have disappeared in a few examples abruptly, permanently and spontaneously—or under influences too obscure to be detected or pointed out.

The treatment of asthma is obviously divided into, 1st. The measures required to be pursued for the relief of the patient during the paroxysm; and, 2nd. The remedial management best calculated to prevent its return, if possible—at any rate, to lengthen the intervals of freedom from dyspnœa. Our indications under the first head will demand to be modified to suit the circumstances of each particular case. In a first attack, the subject being of full habit and good constitution, and especially if there be evidence of bronchial inflammation or pulmonary engorgement, with febrile excitement and a pulse full and hard, and a visage flushed and turgid, venæsection is plainly called for, and the loss of a proper quantity of blood will take off the tension across the chest, and remove or palliate proportionally the oppression and difficulty of breathing. But we must not allow ourselves to be tempted to the too frequent repetition of this operation in any case, nor resort to it at all in instances of a character contrasted with such as I have just described, as in old habitual attacks in persons debilitated or far advanced in age. There is a degree of temporary alleviation which seldom fails to follow the use of the lancet, which will be apt to induce us to over-step the proper and prudent limit, and pay less attention than we ought, to its probable ultimate effects. I have no doubt of the correctness of the old notion expressed by Dr. Parr, "that repeated bleedings in repeated fits, tend to hasten the common termination in dropsy." Where the remedy is insisted on, or earnestly requested by our patient, we may avail ourselves of the knowledge of the fact, that in such habitual cases, small bleedings bring about all the good results that can be derived from large losses of blood—nay, we are told by Dr. Whytt, of an instance in which the paroxysm was put an end to by a mere puncture of the arm, the patient having been accustomed to expect ease from bleeding. There is rarely, if ever, at least in ordinary constitutions, any objection to the application of

cups to the chest, either with or without scarification, their influence being, as I suppose, rather revulsive than depletory. Similar relief may usually be procured from hot mustard poultices applied assiduously, upon the same principle of derivation or counter-irritation.

Emetics are very generally serviceable in asthma, and will be found applicable to a great diversity of the forms and conditions of the disease. I fully agree with Akenside, who is one of the warmest advocates for the use of the emetic, that it should be exhibited as early as may be. At this period of invasion, the dyspnœa is almost always associated with evident tokens of gastric disorder, such as nausea, flatulence, eructations of air and acid, straining to vomit, and the actual ejection from the stomach of foul and acrid matters. Nor is it merely beneficial by the removal of these irritating crudities; it appears to me to produce a directly relaxing effect upon the rigid and constricted bronchial fibres, and is farther the very best and most influential of our expectorants. Ipecacuanha is often preferred, but must not be offered until we have ascertained, by enquiry, that no idiosyncrasy exists to make it hurtful. The tartarized antimony—the sulphates of zinc and copper—the squill, and the seneka, separately, and in varied combinations, have their advocates. I see little reason for any exclusive selection from among them, but regard the two latter as, perhaps, the best adapted to our purpose, when a repetition of the emesis seems required. This may be advised, if, after waiting an hour or two, the difficulty of respiration does not diminish.

These medicines will often act, too, upon the alvine canal, a few loose stools being procured, and usually with decided advantage. To insure this beneficial action, it is my custom to order a large warm laxative enema. After the bowels have been thus emptied, a glyster of assafœtida may be administered. Indeed, under the general impression of the spasmodic nature of the morbid affection here, the whole class of anti-spasmodics, as they are called, has been perseveringly experimented with, but so far as I am to speak from my own knowledge, with no flattering success. Musk, valerian, æther, castor oil, etc. have had their advocates, but are now little, if at all employed. Assafœtida

alone retains any share of the confidence of the profession, and seems, in some degree, to deserve it.

In the class of narcotics, we find several valuable remedies for asthma. Of these, I do not hesitate to give the first place to opium, although its employment has been subject of severe animadversion. When properly managed and well-timed, it is always useful. The earlier symptoms of circulatory excitement being reduced, the gastric oppression removed, and expectoration promoted by the emetic, I know nothing so well-calculated to relieve the sufferings of the patient as a full dose of anodyne. I combine the opiate prescribed with ipecacuanha or camphor or nitrous æther, all of which formulæ determine pleasantly to the surface, occasioning a free, warm perspiration, during the continuance of which the cough becomes less harrassing; there is an easier expuition of the bronchial mucus, and a kindly relaxation of the pulmonary constriction; the difficulty of breathing subsides, and a quiet, refreshing slumber comes on. I am not certain, whether I should rank here, or under the head of emetics, the lobelia inflata, which has, of late years, received so much commendation in the treatment of asthma. It is highly prized, and has long since been favorably reported of in the Eastern States. Elliottson has prescribed it with advantage in England. I have often found it serviceable, but use it chiefly in the early stage, to procure easy vomiting and expectoration. It is, however, asserted to give complete relief, not unfrequently, before occasioning any sensible evacuation. The datura stramonium is considered by some asthmatics an invaluable remedy. It is commonly smoked like tobacco, the dry leaves, stems and root being cut up and burnt in an ordinary pipe. To many, it is an unfailing means of relief, and resorted to, as a matter of course, to avert a menacing, or arrest an invading paroxysm. It may not be irrelevant to remark, that in Williams' experiments upon the lungs of animals, those killed by stramonium exhibited a striking defect of contractility in the air-tubes, scarcely any contraction being producible in them by the application of galvanism. The smoking of tobacco is found available by some asthmatics—others place confidence in a similar use of the leaves of the black sumach. Coffee, in very

strong infusion, is in common domestic use, and I have known it, in many instances, signally beneficial.

The spider's web is mentioned by Dr. Robert Jackson, and by Dr. Webster, of Boston, as having, in their hands, been productive of striking advantage. The former having given to a patient who had long suffered the most distressing symptoms of the disease, a dose of twenty grains of this article, it procured him a long, sound and uninterrupted sleep, "a blessing to which he had been an entire stranger above six years."

The employment of the factitious airs or gases so strongly recommended by Thornton, Beddoes and Darwin, has been almost altogether abandoned—more, I am persuaded, from their not being in general procurable with facility or convenience, than from any want of efficacy or adaptation in the case before us. In habitual asthmas, I should confidently hope for much benefit from the inhalation of oxygen, or rather of those compounds in which it exists in large proportion, such, for example, as the nitrous oxyde or exhilarating gas. I do not know whether there is anything analogous in the relief experienced by so many, from breathing the fumes of paper which has been steeped in a strong solution of the nitrate of potass: and burnt in the chamber.

Dr. Wilson Philip, whose contributions to modern pathology and therapeutics are often highly valuable, has been led by his observations on the influence of galvanism upon the secretory and exhalent vessels, to the application of this impressive agent in many varieties of disease. Among others, he has experimented with it in asthma, and, as he affirms, successfully. He found it best adapted and most effectual in old habitual humoral attacks, in which, indeed, he declares, it will scarcely ever fail to produce immediate results, most prominently palliative or remedial.

His mode of operation is as follows:—Two thin plates of metal, of two or three inches diameter, dipped in water, are applied, one to the nape of the neck, the other to the lower part of the epigastric region. Wires from the different poles of the apparatus are brought into contact with these plates, and the amount and intensity of the power increased, of course, or diminished according to circumstances. Though the trough is most

efficacious, you will find the voltaic pile to answer every purpose, and on account of its facility of transportation, far more convenient to those of you who shall practice in the country. The sensibility of different individuals to the galvanic influence, you should be aware, varies very notably, although, as a general rule, it is in correspondence with their age. Some are not able to bear the impression of more than from 6 to 8 four inch plates, while others require, to affect them, from 25 to 30. The negative wire excites the strongest sensation, and has, indeed, been known to occasion the sphacelation of a blistered surface. I feel myself bound to recommend this remedial agent, galvanism, as worthy a fair and impartial and persevering experiment in your hands. I have seen it more than once, though imperfectly applied, give unequivocal and immediate relief to the habitual asthmatic. Watson tells us, he once saw it bring on an attack. This, to a homoiopathist, would be only an additional fact or argument in its favor. An eclectic would not regard it as a serious objection to its use.

I would suggest, too, the propriety of making an experiment with the newly contrived electro-magnetic apparatus. It is portable, convenient and impressive. Its influence, analogous to, though not identical with, that of galvanism, seems to promise some useful results.

In the management of a patient during the paroxysm, there are some minor points which you will do well to attend to. His apartment must be freely ventilated but kept at a regulated temperature, nor should his bed be placed in a draught or current of air at any season. This will be more particularly forbidden, if you find him, as is often the case, covered with a relaxing sweat and fatigued with the violent efforts of his unrelenting cough and dyspnœa. His feet should be kept immersed in hot water, and warm poultices made irritating with mustard or pepper put to the arms, wrists, thighs, legs, abdomen, and thorax; and every effort made to obtain relief from the so frequently coincident thoracic determination and congestion, and an equable distribution of the circulating fluids.

Under the second of the general heads into which we divided the treatment of asthma, that, namely, having for its object to oppose and diminish and eradicate, if possible, the tendency to

recurrence of this periodical dyspnœa, we must first mention as the most important of our measures, a careful and constant avoidance, as far as may be practicable, of all the ascertainable causes, predisposing and occasional, which bring on an attack. Exposure to sudden alternations of temperature must be guarded against, for catarrh and bronchitis are very apt to usher in a paroxysm, which they also tend to aggravate and prolong. An asthmatic should, of course, wear flannel next his skin, with woollen stockings, and boots; cold and moisture applied to the feet, seem to make a surer and more promptly deleterious impression than upon any other portion of the surface.

The very familiar connection between gastric disturbance and the respiratory disorder of which we are treating, has been more than once referred to. An undigested meal of food, improper in quality, inordinate in quantity, or taken at an unaccustomed hour, will, in many persons, excite a fit of their tormenting persecutor. They soon become aware of this, and learn, whether they practice these virtues or not, the value of prudence and temperance.

If, in the interval between his paroxysms, the patient seems to labor under any permanent derangement of the respiratory organs and functions, the nature of such affection must be attentively examined into, and when ascertained, the proper course of treatment for its removal immediately instituted and assiduously carried into operation. It is in examples of this nature, obscurely developed, perhaps, that we find recorded so many eulogiums upon one and another mode of alterative management. Among these, a system of moderate purging persevered in for some time, has been found most frequently beneficial—and it is in such, that the Cheltenham waters in England, and other cathartic springs both in Europe and our own country, have gained so much reputation. But the plan must not be promiscuously resorted to. I have seen it most serviceable in subjects in whom there was a persistent determination to the thoracic viscera, rather congestive than inflammatory; and in such cases as were obviously connected with or dependent upon indigestion or dyspepsia.

In these latter—the dyspeptic class—and in some of the anemic subjects of habitual humid asthma, much benefit may be

derived from the occasional use of tonics. Of these, iron in its several forms of preparation deserves the preference. The Chalybeate Springs are often highly beneficial, and a visit to them should be advised. Of the officinal formulæ, I prefer the acetate.

External revulsion by counter-irritants, is universally trusted to, but I have not seen the decided advantages which the books teach us to expect from their persevering application. The pustular inflammation from tartar emetic—that from Croton oil or from ipecacuanha, may be tried, and will benefit such patients as labor under the complication of chronic catarrh or bronchitis, but I think them little adapted to make any impression upon "pure nervous or spasmodic asthma." The same remark will apply to the establishment of perpetual blisters to the chest, and the insertion of issues or setons over the ribs or in the arms or the back of the neck; and to the attempt to re-produce repelled eruptions which the patient may have got rid of, and the re-opening of old ulcers that may have healed or dried up.

But, above all prophylactics in the case under consideration, change of air will be found, in the majority of instances, most efficient. Asthmatics differ much in the choice of situations, but they are generally, I think, more at ease in low, flat districts of country upon the sea-shore, and on the banks of rivers, than in higher and dry sandy or mountainous regions. The atmosphere of cities, too, will be remarked, for the most part, to deserve a selection in preference to that of country places—I scarcely know for what reason. With regard to this matter, however, each patient should be encouraged to observe and judge for himself, and to choose for his permanent residence that spot in which he breathes most comfortably.

CHAPTER XLV.

PERTUSSIS—HOOPING-COUGH.

Pertussis—Tussis Convulsivus—Bex Convulsiva—Chin-cough—Kinck-cough and Hooping-cough, are the names by which this singular affection is known, each of which appellations is significant of some circumstance in its history or character. The three first refer exclusively to the violent and spasmodic cough, which is its most prominent and essential symptom. The term Chin-cough has been variously derived; by Good it is written Kind-cough, and traced to the Saxon "kind"—a child, as being chiefly met with in early life; by others, it is regarded as an allusion to the paroxysmal severity of the cough. In Scotland the disease is called Kinck-hoast; and the word kink is used in all the Northern parts of Great Britain, and in some regions of our own country, to denote vulgarly a fit or paroxysm. Its most common title among us—Hooping-cough—is affixed to it on account of the sonorous or hooping inspiration which attends the strong effort in coughing.

Pertussis is almost universally ranked among the specific contagions. Cullen defines it "morbus contagiosus, tussis convulsiva, strangulans, cum inspiratione sonora, iterata, sœpe vomitus." The common consent as to its contagious character, is broken only by the doubts suggested on the subject by Laennec and Desruelles in France, and the decided opposition, in our country, of Caldwell. It is often traceable distinctly from subject to subject. In towns and cities of dense population, it occasionally becomes epidemic, as the phrase is. It is affirmed to appear occasionally, even in remote country places, without obvious source, as is equally true of measles, mumps, etc.

Like most of its congeners, it affects its subjects but once, and hence is looked upon as a disease of children specially. Yet it is supposed, that, besides this, the adult is less liable to its influence, though not entirely exempt from it. Dr. Heberden declares, in his Commentaries, that he saw a woman of

seventy, and a man of eighty years of age, afflicted with it. You will very rarely, however, meet with it in an adult.

In its incipient stage, hooping-cough can scarcely, if at all, be distinguished from catarrh or common cold. Hence, in making up our opinion as to the nature of any particular instance, we must take into consideration "the epidemic constitution of the air," or the prevalence of the contagion within the neighborhood. In the mildest class of cases, indeed, it cannot be positively determined by any diagnostic. More usually, however, after commencing with an ordinary cough, which continues for a few days, a week or a fortnight, harrassing principally by its frequency, we observe the paroxysms to come on less often—to be more violent, and to become protracted; the expirations are quick, involuntary, convulsive, and repeated in long succession; the face flushing, and the eyes protruding and being reddened and watery—the little patient seeming almost exhausted and suffocated, until it is at last able to effect an inspiration, which is rapid, deep, sonorous, and attended with a loud hooping noise. After a time, a large quantity of thick, tenacious mucus is expectorated, or vomiting ensues, with great though temporary relief. These fits of coughing return at various intervals, shorter or longer, according to the severity of the attack; the respiration, in the meanwhile, is seldom entirely free from disturbance, though, in light cases, the child will return immediately to his play. Examination of the thorax detects a loud mucous râle, with crepitation or cooing in most instances, and the breathing is generally hurried and irregular. A majority of subjects present the complication, if it be one, of bronchitis and true pneumonia, when, of course, we shall discover the physical signs of these conditions. This state of things is said to occur uniformly in attacks taking place in more advanced life. A child soon becomes aware of the approach of a paroxysm, and runs to some one for support, or catches hold of a chair or table. The cough, when more vehement than ordinary, may bring on epistaxis, or terminate, as I have seen, in a pulmonary hæmorrhage; one little patient of mine, æ 4½ years, brought up a considerable amount of blood, apparently from the lungs, at every fit of coughing. These

are more apt to be specially violent at night, the exacerbations of fever being then most perceptible, and the general suffering aggravated in a great variety of modes. After such severe paroxysms, the patient remains for some time languid and weary. "Adults," says Heberden, "concidunt—fall at once, conquered in a moment by the accession of the paroxysm, but recover immediately; and this sign or mark is proper to, or characteristic of, the affection in them."

Pertussis is essentially pyrectic. It is true, that in ordinary or mild attacks, the tokens of vascular excitement may not run so high as to attract attention; yet I fully agree with Watt, who declares, that "even in the lightest cases, as long as the kinks or paroxysms continue, there is always some part of the day when the presence of fever can be detected. It may hardly deserve notice, but still, to a careful observer, who has opportunities of seeing the patient day and night, it is abundantly obvious." "I have remarked it," he goes on to say, "even in those favorable cases where the appetite continued good throughout, and where the patients seemed to suffer little or nothing in their general health."

The febrile exacerbation, as I have hinted, usually takes place in the evening, and is protracted through a considerable portion of the night. In the severer cases, where pulmonic inflammation has distinctly supervened, this symptomatic fever assumes an almost continued type, with scarcely any notable remission for days together. The stomach and bowels seldom fail to become more or less disordered. Those seem to suffer least, however, in whom the paroxysm is apt to end in free evacuation of the stomach by vomiting. In hot climates, and in autumn, the diarrhœa which occasionally attends, is a very obstinate and troublesome symptom. Convulsions not unfrequently happen, especially where the subjects of hooping cough are engaged in the process of dentition.

The exciting Causes which tend to produce and aggravate the paroxysms of coughing, are, a full meal—violent muscular exertion—mental emotion—a fit of crying—exposure to a current of cold or damp air, or to any irritation of the fauces or trachea from dust and the like. The duration of pertussis is exceedingly uncertain, varying from a fortnight to three or four months. It

seems sometimes to take on a habitual persistence, and is liable to renewal after having subsided, being in this way susceptible of almost indefinite prolongation. Dr. Percival tells us that it occasionally assumes a periodical character, in which form it is singularly unmanageable and tenacious.

The general Prognosis in this disease is favorable; the proportion of mortality not being great under ordinary circumstances. It varies with the age of the subject. Between six months and three years of age, die four-fifths of those carried off by pertussis. The season of the year is of some importance in this climate. Here we lose—as reference to our bills of mortality show—a very large majority in the hot months; contrary to what might be anticipated. The same documents exhibit, as indeed we should expect, a preponderance of colored subjects. Children of scrofulous or asthmatic parents are said to suffer peculiarly under attacks of hooping cough. I have observed this to be strikingly true of such as have previously shown any marks of strumous disease, in whatever form.

The individual prognosis must be drawn from the severity and frequency of the paroxysms—from the condition of the respiratory organs, as exhibited during the intervals; and from the nature and intensity of the accidental complication with other disorders. Comparative freedom from fever, easy respiration, the occurrence of vomiting when the cough urges, and abundant mucous expectoration, are among the most favorable symptoms. It is a common belief that the danger diminishes as soon as hooping or sonorous inspiration attends the cough—but this is an error.

In bad cases, on the other hand, we have panting, dyspnœa, orthopnœa, stricture across the chest; in very young patients, suffocation may take place, from their inability to bring up the oppressive amount of mucus effused in the air passages. Hence in these the effort of vomiting is so useful and desireable. We meet occasionally with hemorrhage, as the consequence of the vehement paroxysm of coughing. I have mentioned a little patient in whom every fit during the night brought on a discharge of blood from the lungs—yet she ultimately, though with great difficulty, recovered. If the paroxysms are attended with strong determination to the head—as happens not unfrequently—the

face becomes flushed and turgid—nay, sometimes livid and purple, and blood gushes from the nose. Under such circumstances, we must dread the supervention of convulsions; or if these be warded off by repeated epistaxis, a dangerous debility ensues. The incidental complications of pertussis sometimes assume the prominent place, and become of paramount importance. Thus the gastric and intestinal irritation, which so commonly attend, run high in unfavorable seasons. I have seen diarrhœa twice fatal in subjects of hooping cough—in a hot and moist August, in a malaria locality; the patients (black males) having attained the ages of thirteen and sixteen years.

The Pathology of hooping cough is obscure. There exists in the mucous membrane of the whole respiratory apparatus, a very peculiar irritability, morbid in nature and intense often in degree, which gives rise to vehement paroxysms of convulsive cough, and is attended by or productive of an inordinate determination of blood to the organs affected; this, in its turn, results either in oppressive congestion, or a violent inflammation, with its disastrous consequences.

Desruelles regards the disease as in itself and originally a complex irritation of the brain and of the bronchial membrane, and proposes to term it a broncho-cephalite. He believes the respiratory affection, however, to be the primitive, and the cerebral to be the consecutive element.

Dr. Watt, of Glasgow, from whom we have a useful treatise upon this subject, describes the appearances, on examination of several bodies dead of pertussis, among whom we learn with painful sympathy that two were his own children, as distinctly showing an inflammatory affection of the pulmonary mucous membrane; and goes on to conjecture, that "hooping cough consists in some eruptive disease of the mucous membrane of the air cells and bronchi, so minute as to escape ordinary observation, yet so considerable as to excite inflammation." This "conjecture" has hitherto met with no confirmation; but if we admit it to be correct, and receive on Horner's authority, the eruptive affection of the gastric membrane as characteristic of cholera asphyxia, and regard, with Chomel and others, the rosaceous eruption in typhoid fevers as specific, we shall have established the exanthematous character of the whole list of febrile conta-

gious disorders, very nearly; the only exceptions now occurring to my recollection being parotitis and yellow fever.

It is also affirmed that hyperæmia, congestion, inflammation of the brain and its membranes, are among the ordinary changes found to have taken place in bodies dead of pertussis. Yet these views of the inflammatory nature of the disease, though perhaps supported by a large majority of the profession, have not been admitted without dispute. Among others, Dr. Granville maintains, in very positive terms, the opinion, that "hooping cough is never, in itself, an inflammatory disease. No traces of inflammation," he distinctly affirms, "have been found in the respiratory organs of those who have fallen victims to it—and that, even when the complaint has been violent and has lasted a great length of time." "The only tokens of inflammation," he says, "have been found in the brain, as the result of strong and repeated spasms of the organs of respiration, producing a great determination of blood to the head." You will readily infer from what I have said above, that I differ widely from Dr. Granville. The condition of the spinal chord has not been examined with proper care, in cases of pertussis. There is much reason for the conjecture of M. Hall, that all spasmodic or convulsive affections have their seat in this portion of the nervous system.

Of the Treatment. The profession in general, whatever may be their theoretical opinions on the subject, appear willing practically to admit the futility of any direct endeavor to put an end to, or get rid of the attack of this strange malady. Like certain others of the specific contagions, it seems beyond the power of our art absolutely to arrest its progress, and we content ourselves with the fulfilment of humbler indications. We aim to moderate the violence of its symptoms; to obviate its injurious tendencies; to prevent all lesion of organs assailed in its course; and while on the one hand, we diminish the vehemence of morbid action, on the other, we sustain the vital energies in resisting its ravages. I have already spoken of the modifications of our therapeutical management necessary in the various classes of disease, known as self-limiting and unlimited. Pertussis holds, as I stated to you, a sort of middle place between them. Arising, as it undoubtedly does, from a specific contagion, it seizes an

unprotected constitution with so forcible and tenacious a grasp, as not to be shaken off with any possible effort, until it has wrought in the system certain changes entirely unappreciable, but sufficiently impressive to destroy the liability of the subject to any future attack. Its duration, however, is not like that of measles and small pox, precise and definable; we know not its periods of increase, maturity, decline and subsidence. Hence it is reasonable that we should keep in view, though we cannot make it our principal purpose, the abbreviation of the attack, and I do not doubt that we can effect a good deal in favor of our patients, by judicious efforts of this kind. I believe, however, that our success will depend less upon our medicinal prescriptions, than upon the institution of a proper regimen and correct general conduct of the case, so as by the avoidance of all occasional excitement or superadded irritation, and by the prevention of any undue complications, to reduce the disease to its own minimum limit of spontaneous existence.

A very large proportion of the severe attacks of pertussis, commence very much as catarrhal fever—with pain or stricture of the chest, dyspnœa, and harrassing cough; attended with febrile movements of greater or less violence, full, hard pulse, headache, pain in the back and limbs, flushed face, red eyes, etc. Venæsection is occasionally necessary, under these circumstances, as a prompt means of obviating the tendency to inflammation and consequent lesion, of organs so rudely assailed. It is not often, however, an indispensable measure, and in very young subjects is sometimes so inconvenient, that we resort to the substitute of topical depletion, as by leeches or cups, the application of which may be repeated pro re nata.

Purgatives are next to be resorted to, and serve here a double purpose. No one can fail to observe the derangement of the primæ viæ, which, if not one of the earliest symptoms of the hooping cough, seldom or never fails to supervene in the course of the attack. The tongue is furred, and the breath fœtid; the bowels are constipated in some, and in others, there is an irregular looseness, with pain, and tenesmus, and discharges of ill conditioned character and appearance. Castor oil deserves the preference, as effecting readily, every purpose for which a cathartic is demanded, under the present circumstances. It operates with

sufficient activity, when exhibited in proper doses and at proper intervals, removing all morbid accumulations from the cavity of the intestines, without exciting local irritation or arousing fever. In some patients, however, it disturbs the stomach with nausea, and we may substitute for it the solution of epsom salt, rhubarb or senna. The addition of calomel to the purgatives prescribed, has been highly recommended by some respectable writers; but I have not found any particular benefit accrue from it in ordinary cases.

The use of emetics in pertussis, is a point in practice, almost universally agreed on. They are the promptest of our expectorants, and unload at once the respiratory organs, oppressed by the viscid mucous secretion with which they are engorged. At the same time, they determine to the surface, and give rise to a salutary diaphoresis. The squill and ipecacuanha are best entitled to our confidence, as fulfilling these purposes. The antimonials I object to, because they act irregularly, sometimes with violence; and the stomachs of young children do not well bear their repeated exhibition. Squill, besides the common action of emetics, appears to me to affect directly the pulmonary exhalents, and is thus specially useful in promoting expectoration. Ipecac: superadds an evident antispasmodic influence, and is a good sudorific. A similar combination of powers has been ascribed to the sulphate of zinc, which has been employed freely and largely, and which is, without question, highly serviceable. The efficacy of each of them is assisted, and their advantageous action promoted by the use of the warm bath, which will be found an admirable auxiliary, at every step of our treatment of hooping cough—determining to the surface, relaxing spasm, subduing pulmonary constriction, and promoting expectoration; and in all these modes, contributing largely to the relief of the little sufferer, from the most distressing of the symptoms which assail him.

The emetics above mentioned, are, by some practitioners, exhibited as nauseants simply; their administration in smaller doses than those required to bring on vomiting, being persisted in for some time. I only mention this plan of prescription, to reprobate it decidedly. The state of suffering and prostration thus induced, has not seemed to me to be followed by the salutary changes which are spoken of, as compensations to the patient.

On the contrary, it appears not only to depress, but to detract from the energies of the system; not only to subdue, as we are promised, the inflammatory tendencies, but to result in actual exhaustion of the vital powers.

As aiding us in the endeavor to diminish the force of thoracic determination, and preventing or removing the bronchial and pleuritic inflammation, which so often show themselves in the early stages of pertussis, we must not forget the assiduous application of warm fomentations to the chest, and poultices with or without mustard. These form our best modes of local relief, in the first instance, while fever is high, and the skin hot, and the pulse full. When the general excitement has been somewhat diminished, and these less impressive appliances have lost their effect from repetition, we may derive much benefit from epispastics. They should be laid on different parts of the surface of the thorax successively, and although they must occasion some inconvenience and discomfort to the little patient, this is more than counterbalanced by their revulsive efficiency.

Thus far, we have been speaking of the incipient conditions of pertussis, while yet its influences have been diffused over the universal system, and its invasion has presented no features which may avail to separate it definitely from catarrhal fever, on the one hand, or acute bronchitis, on the other. We now come to consider its characteristic history, after the peculiar nature of the spasmodic or convulsive affection of the respiratory apparatus, in which it specifically consists, has become prominent and fully developed. The patient may seem perfectly well, in the intervals between the attacks of cough—may eat heartily and sleep well; may recover strength, and repair lost fulness of habit; yet, from time to time, he is reminded of his tenacious tormentor, by the recurrence of irresistible irritation in the trachea and lungs, which brings on a most harrassing series of involuntary and forcible expirations, so quickly repeated as to impede the long desired inspiration, until at last, after many laborious efforts, a loud sonorous hoop attests his success; and this struggle may be renewed for many times, with such violence of exertion that the blood shall gush from the nostrils, and the purple visage, the blood-shot eye and swollen eyelid, and the

hemorrhagic expectoration, all bear witness to the severity of the attack.

Under such circumstances as these, anodynes and anti-spasmodics are obviously indicated, and universally resorted to. The whole class of narcotics have been, in their turn, employed here, extolled, abused, and neglected. Hyosciamus, cicuta, and stramonium, have had their day and their advocates, but are now little depended on. Opium alone, retains the confidence of the modern practitioner, and when judiciously prescribed, will be found of invaluable utility. It is specially useful in two of its combinations—with ipecacuanha, as in the admirable Dover's powder, and with stimulants and aromatics, the camphorated tincture, the ancient familiar paregoric elixir, a domestic remedy of almost unequalled power in calming irritation, relieving cough and dyspnœa, and procuring rest. I need hardly remind you, that the use of opiates should be preceded always, by proper anti-phlogistic and depletory treatment, in inflammatory attacks. A neglect of this precaution has occasioned much blame to be heaped on the remedy, which properly belonged to the physician, who advised it under improper circumstances.

Of the anti-spasmodics, properly so called, castor and musk, once extensively relied on, are fallen into almost entire disuse. Assafœtida is much employed among the common people, and highly recommended by some practitioners. A watery solution seems to be preferred. The oil of amber has enjoyed some reputation, but it is now abandoned, except as an ingredient in the preparation of the tinct: mosch: fact. This is, with me, a very favorite remedy; the artificial musk is obtained, you know, by the action of nitric acid upon the ol: succini. I seldom fail to find it of obvious service—and its efficacy extends widely to all varieties of spasmodic cough, whether occurring in children or adults. It has lost its value, in the hands of many practitioners, from being exhibited in too small amount. You will obtain no useful results from it, unless given in full dose, (ten to twenty drops,) repeated as often as may be required. I am not aware that any ill consequences are ascribable to it, in any quantity; as far as I have observed, the effect of an over dose to an infant is, to bring on easy vomiting, which, in the case before us, is rather a beneficial than injurious operation.

In this connection, I may speak of the Prussic acid, though it is hardly decided whether we are to class this impressive agent among anti-spasmodics or narcotics. The testimonies which have been adduced to establish the success of its application in pertussis, are numerous and of unequivocal character. Dr. Oliver, of Salem, (Mass.,) who claims to have been the first to use it here, recommends it as the most prompt and effectual of all the remedies for hooping-cough. Dr. Granville, an Englishman, who has written much and enthusiastically concerning this acid, goes so far as to declare, that "no case of hooping-cough need be suffered to proceed longer than eight or ten days, if timely and judicious recourse be had to it." These encomiums seem to me not a little extravagant. Yet they contain some truth, and I do not hesitate, with a majority of the most respectable practitioners on both sides of the Atlantic, to rank the Prussic acid among the most available of our palliatives in pertussis. You must never forget the requisite precautions in exhibiting it. In its concentrated form, it is the most immediate and remediless of our poisons. The dose must, of course, be proportioned to the formula you employ, and you should be assured of the accuracy of your preparation, which ought to be recent and well put up. A single minim of the strong acid of the shops, and its equivalent in the other formulæ, (among which, I am much in the habit of using the aq: amygd: amar:) is the dose for a child aged one year, and onwards in the same ratio.

We must not omit to notice certain other remedies, much employed in pertussis, the efficacy of which is not easily to be explained by their ordinary influences, or the qualities which have given them their place in our books on the materia medica. Among these, the alkalies are first to be mentioned, as constituting the basis of a very large proportion of the prescriptions in general use, either domestically, or in the hands of the regular practitioner. An alkaline solution is made the vehicle for the assafœtida of one, the musk of another, and the cochineal of the third. I desired you to observe, that throughout the whole duration of the malady, a greater or less degree of gastric and intestinal derangement is evidenced by the morbid alvine evacuations, the sour and fœtid breath, and by the swelling and hard-

ness of the belly. These disorders are not to be controlled without a persevering administration of some one or other of the alkalies, which are fortunately well adapted for combination with such other remedies as may be indicated. We may mingle with them neatly and advantageously our purgatives, expectorants, narcotics and anti-spasmodics. I am in the habit of preferring the carb: potass: to a weak solution of which, the tinct: mosch: fact: and the tinct: op: camph: are added in proper amount. Castor oil or rhubarb should be given pro re nata, if the bowels are confined, and the tinct: kino, if too loose. Under these latter circumstances, we may resort to the acetate of lead, which is not, indeed, limited to this contingency, if we may believe the favorable reports of writers who speak of it; Sauvages, Rush and Barton, all regard it as possessing some specific efficacy, in the treatment of pertussis; but I confess, that I have failed to obtain any striking advantage from it.

The tinct: cantharides, anciently employed among the English, is a favorite prescription with some physicians. It is not much used, as it is harsh and severe in its operation, its good effect seeming to depend on the strangury produced by it; this revulsive and painful irritation of the neck of the bladder being substituted for the morbid affection of the respiratory apparatus. Certain of the tonics have been supposed to exert a beneficial influence in hooping-cough. They are obviously adapted to the latter stages of the disease, when the sympathetic derangements of the general system which have accompanied it have subsided, and its protraction appears to be occasioned by the mobility of feebleness, or to grow out of the tenacity of habit. Cinchona is placed by Cullen at the head of the list, and seldom fails, indeed, to show a salutary power. The infusion, I think the best mode of exhibiting it, made aromatic and diaphoretic with the serpentaria, which improves its efficacy.

I do not deny the greater impressiveness of the sulph: quinine, but from its intense bitterness and incapability of disguise, it is extremely difficult to administer it in sufficient quantity to young children. This observation will apply likewise to all the other bitter tonics, such as colombo, quassia, gentian, etc., whose good effects are in a great measure lost or counterbalanced by the extreme reluctance and disgust with which they are taken.

The metallic tonics are free from these objections. Zinc, iron and arsenic are used. The latter is particularly convenient, as being tasteless and inodorous, and thus very easily administered to the most unmanageable patient. It is the subject of very strong eulogy from Dr. Ferriar, who, as you know, is high authority, and who declares his belief, that "the only remedy which promises to shorten the disorder effectually, after the proper preliminary steps have been taken, is the solution of arsenic." Some caution is necessary in administering an article of such known poisonous power, the dose being carefully proportioned to the age of the patient. I have not made many trials with arsenic, but am disposed, from the analogy of its striking influence over other affections of paroxysmal and recurrent character, to expect much good from it.

Some years since, pertussis, like all other respiratory disorders, was subjected to experiments with the various gases, newly discovered by chemists, with the reasonable hope that the direct application of impressive agents to the diseased surfaces, would be productive of valuable results. The reports then made, led physicians to anticipate decided advantage from the inhalation of nitrous acid gas, which was asserted to have been followed, in certain cases, with pointed benefit; and the experiment seems worthy of a trial. Sulphuric acid being poured upon the nitrate of potass, this gas escapes and diffuses itself through the air of the patient's apartment. If this ærial impregnation should be found irritating, and likely to affect the lungs unpleasantly, the little subject may readily be removed from the chamber.

I have already spoken in terms of scarcely sufficient force, of the pleasant and useful influences of the warm bath, in the invasion and early stages of pertussis. In this latter period of its protraction, the cold bath has been administered by some unshrinking practitioners, and as they affirm, with obvious and undoubted advantage. It may possibly be ventured on without injury, in the summer season, and in robust, hardy patients, but I should think it very seldom safe.

It will be your special duty to guide with assiduous care, the general management of the invalid, and direct the whole course of conduct of those in attendance upon him. A proper regimen will, I believe, do more for him, rather by palliating the violence of the attack, or shortening its duration—than can be effected

by the best selection of the most powerful medicines, if this be neglected.

The diet allowed, should be at first exceedingly light and unstimulating; as the case progresses and the inflammatory symptoms decline, the restriction may be made less precise, and more and more latitude permitted. Excesses in quantity, must be absolutely prohibited throughout, as there is no more certain excitant of violent coughing, than a full meal; yet a reasonable desire for food, should always be reasonably gratified.

The apartment of the child should be well ventilated, but his bed should not be placed in a draught or current of air, and all ordinary prudence should be exerted to prevent his taking cold, as the phrase is. It is by the supervention of catarrh that the morbid irritation of pertussis is most apt to be renewed, and may thus be, with intervals, almost indefinitely protracted. His clothing should be warm and comfortable, and though suited to the season, should be adapted to guard the surface of the body from the impression of atmospheric dampness and alternations of temperature.

There is a very strong popular prejudice, in favor of exposure to the open air, in cases of hooping cough. You will not yield to this, farther than it is consonant to reason and common sense. While catarrhal or pulmonic symptoms are in any degree prominent, you will confine your patient to the house, or even more closely—to his chamber or his bed; and although when these have entirely subsided, you will allow or enjoin suitable exercise out of doors, in genial weather, yet you will still order the careful avoidance of cold and moisture. Easterly and north-easterly winds are, almost every where, found injurious in affections of the respiratory organs; and during their prevalence the convalescent should be housed.

In tedious and obstinately protracted cases, it may be found necessary to advise change of air, and a temporary removal from an accustomed residence. A locality should, under these circumstances be sought, as strongly contrasted as possible—the low-lander sent to the mountains, and the native of our interior country brought down to the sea-shore. These impressive alternations are certainly more effectual than any less revolutionary measure, in breaking the chain of morbid action, now rivetted firmly by habitual recurrence.

CHAPTER XLVI.

OF THE DISEASES OF THE SENSORIAL SYSTEM.

The Sensorial Functions are performed by three sets of organs—the brain, the spinal marrow and the nerves. The separate and distinct offices attributed to each of these, are discussed in detail by physiologists. We are now to regard them pathologically, as a connected whole; exerting a ceaseless influence upon the universal frame, which exhibits throughout its remotest parts a close and direct sympathy with their morbid affections.

It is almost unnecessary to remind you of the intimate and indissoluble connection of these physical organs with the intellectual portion of our being. With reference to this connection, it has long been the custom to arrange under our present head the numerous and diversified alienations of the mind, the Vesaniæ of Cullen, the most shocking and afflictive of all "the ills that flesh is heir to." Nor can there be a doubt of the propriety of this arrangement; every individual among these (so called) mental diseases, being obviously dependent upon and implying some functional or structural disorder of the brain, either primary or secondary. Nay, there is scarcely a single one of the disorders of the sensorial system which is not, sooner or later, complicated with deprivation or derangement of intellect in greater or less degree.

Cullen, you will recollect, in establishing as a separate class, the diseases of the nervous system, his Neuroses, has made a vague and inconclusive attempt to follow up the affections of this system, throughout its wide and universal distribution in all parts of the body. Our nosological rule of classification referring to the various organs as connected in the immediate performance of special physiological functions, is of much avail here, by circumscribing the otherwise almost unlimited extent of the series of maladies now about to engage our attention. Thus, for example, we exclude three out of the four of Cullen's second order Adynamiæ: 1. Syncope; 2. Dyspepsia; 3. Hypochon-

driasis; 4. Chlorosis; which belong to the vascular, digestive and genital systems; and from his third order, Spasmi, which includes sixteen genera, we remove nine: 1. Palpitatio; 2. Asthma; 3. Dyspnœa; 4. Pertussis; 5. Pyrosis; 6. Colica; 7. Cholera; 8. Diarrhœa; 9. Diabetes. The first is a symptom of cardiac affection; the three next are properly merged in the history of the disorders of the respiratory system; the fifth, sixth, seventh and eighth belong to the gastric and intestinal derangements; and the last is a disturbance of one of the most important excretions. On the other hand, we would bring under this general head several of his Locales, such for example as the affections of the organs of sense, when idiopathic and not symptomatic of or consequent upon inflammation of the structures in which these organs are distributed, (a case by the way, exceedingly rare,) as gutta serena, or amaurosis; dysecœa, (deafness,) in some instances; depravations of smell, taste, etc.

The first in order of the diseases affecting the Sensorial system is PHRENITIS, or inflammation of the brain and its membranes. Phrenitis is divided (as is usual among inflammatory diseases) into the acute and chronic. This distinction is supposed to be analogous to that which has been offered between other parenchymatous affections and those of the investing membrane, as in the example of acute and chronic hepatitis. Acute phrenitis is affirmed chiefly to affect the membranes, and chronic phrenitis the substance, both cortical and medullary of the brain. The opinion is plausible and supported with some ingenuity, but is not clearly established.

Acute Phrenitis is a disease of rare occurrence, whether as idiopathic or symptomatic. This may seem a strange doctrine to those who, with Clutterbuck, are disposed to regard all the painful and annoying disturbances of the cerebral organs and functions, so commonly met with in fevers, as truly phrenitic. The brain is deranged in its actions, and becomes the seat of very painful affections, under the influence of a great diversity of causes. Thus, we have headaches, some of them of most intense severity, and yet without fever, from mental emotion; from study; from exposure to light; from particular kinds of motion, as in a swing and at sea; from gastric disorder, and

even from inanition; from known articles of food and drink; from heat and cold; from hysteria and other sexual disorders. Are these all to be regarded as cases of cerebral inflammation? Surely not. They are the products partly of irritation and partly of congestion in the vessels of the encephalon, conditions clearly cognizable and separable from inflammation. In a muscle we have painful sensation from fatigue, the precise nature of which we may not be able to define, but which nobody confounds with the conditions attendant on inflammation. This particular mode of discomfort, I think very commonly produced by long protracted or vehement use of the brain, in patient study or intense thought. In confounding them relatively to the brain and mucous membranes, Clutterbuck and Broussais have fallen into analogous and similar errors.

I have said that acute phrenitis is of rare occurrence, even sympathetically. In examining the heads of subjects dead of fever, we seldom fail to find hyperœmia, congestion of the brain; but we do not often discover the unequivocal effects of inflammatory action. Yet, that such morbid action is sometimes excited during the tumults of fever, and such effects occasionally produced, cannot be denied. Determination to the brain indeed seems very readily to result, as has been remarked by Wilson Philip, from the very nature of the vascular circulation in the head, under any influence which shall much increase the force or velocity of the action of the heart; whence we have headache, flushed face, suffused eye, etc.; but this determination is sometimes irritative, most generally congestive, seldom inflammatory.

Causes. A predisposition to phrenitis is sometimes hereditarily derived. It may be remarked more commonly in the sanguineous temperament; in men of intellectual activity and studious habits; in those addicted to excesses in eating and drinking, and accustomed to yield to gusts of passion.

The ordinary exciting causes are found in accidental exposure and mechanical violence, as when a blow has been received upon the head, or a fall not sufficiently severe to fracture the skull. Exposure to the direct rays of a summer sun, in hot climates, may bring it on. I have seen it more than once supervene when a patient was recovering from the immediate

effects of coup de soleil or insolation, such as apoplectic stupor, coma, etc. Here congestion was followed by acute inflammation. Violent fits of any passion, but especially anger, have given rise to it. Intoxication, with inordinate draughts of ardent spirits, has produced it promptly. Popular prejudice has long ascribed it to the direct influence of the moon, at or near the full.

Symptoms. Acute phrenitis commences with a sense of fulness and pain in the head, at first general, but afterwards referred to some particular part, to which the hands are often raised; the eyes are red and suffused and vehemently intolerant of light; the face is flushed and turgid; there is pain down the spine, and especially in the back of the neck; a feeling of restlessness and pain in the limbs also attends, with an aching of the loins; the stomach is often oppressed, sometimes to the extent of repeated retching and vomiting; the pulse is usually full, hard and bounding, but not very frequent. The spirits of the patient are much dejected, and his countenance is expressive of great anxiety; there is thirst with jactitation; the skin is hot, dry and harsh. There is more or less derangement of the mind, from the first, in a great many instances, and incoherence or furious mania is developed in the progress of all cases, in greater or less degree. The pain in the head increases to the most intense severity, the scalp itself being sometimes excessively sensible to the slightest touch; the patient complains often of internal burning and throbbing; there is unbroken perviligium; the eyes are inflamed, and suffer great pain on the admission of the least ray of light; the countenance is fierce and wild; the hearing often becomes exceedingly acute, and the softest and gentlest sound is complained of as distressingly loud; in a few instances, deafness more or less complete attends. I was called up one night to a female patient, who stated, that having been awaked by some uneasiness in her ear, she had inserted, to examine it, an ordinary pin, but that this had slipped from her fingers, and now gave her intolerable pain deep within the recesses of the organ. On examination, I could find nothing in the ear; but while I remained with her, acute phrenitis developed itself with the most unequivocal clearness. Among the other symptoms, was wild incoherence and mental derange-

ment, of which the fancy concerning the pin, was only one of the early tokens. She recovered, but with great difficulty.

As the attack progresses, the tongue becomes furred with a thick coat, and the breath offensive; the respiration is little affected until the very last stages. Effusion of serum or pus having taken place, we have a new set of symptoms. The patient sinks into a soporose condition; the ear is less sensible to noise, and the eye to light; strabismus often ensues; there is sighing, grinding of the teeth, tremulous debility of the muscular system; respiration and deglutition become more and more difficult, and absolute coma or convulsions are the immediate precursors of death.

Prognosis. The general Prognosis is unfavorable. If the symptoms of sensorial disturbance increase or continue, while the pulse sinks and general debility supervenes, the danger is imminent, and the prospects of the patient gloomy. Dyspnœa and difficult deglutition, hiccup, stupor, and coma, are unpleasant signs. On the other hand, a gradual return of reason, the occurrence of tranquil and refreshing sleep, subsidence of the suffusion of the eye, and relief of the pains in the head and back, conspire to gratify us with prospects of recovery. Much may, however, be hoped, provided the patient is seen early, and the nature of the case at once detected, so as to fall under the prompt and courageous application of the proper management. I have had but three cases terminate fatally under my notice. In one, there was extensive sero-purulent effusion within the ventricles and upon the surface of the brain; the second, was a child of about twelve years old. These I saw in consultation, the nature of the last not having been suspected for two or three days after the invasion. The third was an adult negro, who recovered very imperfectly, became maniacal, the acute running into the chronic condition, and ultimately died. This miserable termination, far worse than death, is to be anticipated when the case is but vaguely distinguished, or too cautiously prescribed for. Any delay in the application of a proper course, for a brief period after the commencement of the attack, will probably be fatal either to the life or mental intelligence of the subject.

Autopsy. The appearances, on examination after death, vary

considerably according to the circumstances of the attack, and in reference also to the period of death. Morgagni says, that in phrenitis he has most frequently observed the inflammation to affect the membranes and the substance of the brain at the same time. There is always turgescence of the vessels distributed and ramifying upon the membranes; coagulable lymph is sometimes found adhering to their surfaces; effusion of serum, in greater or less quantity, is often found within the ventricles or upon the surface of the brain; purulent matter is formed sometimes within the substance of the brain, and sometimes within the ventricles. I saw it filling these cavities in the case of a man who died of exquisite phrenitis from a blow on the head without fracture of the skull. Ramollissement—softening of portions of the cerebral substance to a greater or less extent, is said to be a consequence of inflammation by no means infrequent. A degree of induration is also described as occurring occasionally. Portions of the brain are said, by Baillie, to become gangrenous, occasionally, when the inflammation is the consequence of external violence, but very rarely, if it be produced by other causes.

Treatment. The first of our remedies, both in point of time and importance, as you will readily anticipate, is venæsection. Universal experience has established it as the principal dependence of the practitioner, and proved the degree of its efficacy to be in direct proportion to the promptness and boldness and freedom with which it is employed. The patient being placed in an erect posture, a large orifice must be made in a vein or veins of sufficient volume to afford a free and rapid abstraction of blood. It has been objected to this method, that it is calculated to bring on quick fainting, which Parr and some others strangely regard as an impediment to the full remedial effect of the operation. For my own part, I cannot but look upon syncope as an exceedingly beneficial condition, when I reflect on the languor which must invade the dilated and inflamed vessels, and the consequent check to the morbid determination and circulation within the diseased portion of the brain. And when the patient revives, there is no difficulty in re-opening the vein and allowing the blood to flow again as long as we please. The jugular vein has been selected by many physicians as the

preferable vessel from which to obtain a flow of blood, and there would seem to be good reason for the preference. Yet, we shall generally procure a sufficient discharge from the veins of the arm, which are in every way convenient and easily manageable. If they should be small in diameter, or from the corpulence of the patient, bleed slowly, I would not hesitate to open a vein in the neck. Some have recommended very strongly a resort to arteriotomy, upon various grounds, and pointed out the temporal arteries to be operated on, as giving opportunity for a more direct abstraction of fluid from the vessels leading to the inflamed part. There is some uncertainty, however, in the effect of this division of the artery named. Many declare that they have found it difficult to procure a sufficient flow from it, the blood merely trickling forth or issuing by drops. Such, I fear, will generally be the fact in cases of recent cerebral disease. I have however witnessed, in two instances, a state of things exactly opposite and contrasted, the arteries being dilated and distended far beyond the ordinary volume, by the general determination to the head which had previously existed. In one of these, I was obliged to tie the vessel both above and below the orifice, when it became necessary to abandon farther blood-letting.

Next to the lancet, and little, if at all inferior to it, in ultimate and permanent efficiency in reducing morbid excitement and counteracting inordinate determination to the encephalon, we must rank the active cathartics. By obtaining frequent and copious evacuations from the bowels, we often procure a remarkable degree of revulsion from the head. Nay, syncope may thus be brought on to the great advantage, generally, of the patient. The neutral salts deserve to be first exhibited, and will often serve our purpose admirably; but where they are not sufficiently effective, we must resort to the more drastic articles, as antimon: tart:, jalap, gambog:, etc. Whatever formulæ are exhibited, should be freely and promptly used and repeated pretty frequently. A spontaneous diarrhœa supervening in the course of an attack of phrenitis, of which instances are now and then recorded, is said to be a very favorable circumstance, and to exert upon the condition of the unfortunate patient a most happy influence. A judicious practitioner will, therefore,

be careful not to put a stop to, or interfere with it, unless it threaten to reduce disproportionately the strength of the patient, and even then he will not check it rashly or suddenly, for fear of worse evils than loss of strength.

Antimonial diaphoretics are next recommended as highly advantageous. The tartarized antimony is employed, and may be relied on to produce a certain degree of useful effect in the diminution of morbid excitement and the production of a centrifugal determination to the skin. For these purposes, its exhibition has been sometimes carried to a great extent, and the condition of the sensorial system and functions is such as to occasion a most extraordinary tolerance of it. A member of the class in 1837–38, while laboring under acute phrenitis, took ʒi. in 13 hours without any effect whatever, except a very slight retching, which took place in the course of the 14th hour. The pulvis antimonialis has, however, been much lauded, and especially by Professor Elliottson, who declares it to be admirably adapted to the management of the cerebral affections generally. He carried his exhibition of it to an enormous amount, giving a drachm, or even more, at a dose, repeated thrice a day. If it were not for the record of similar facts from the Italian contra-stimulant school, we might be led to think his preparation inert. I have found the antimonials most serviceable in moderate doses, repeated at fair intervals, and given in combination with other diaphoretics and with cathartics. Thus, I rely not a little upon a formula containing the pulv: antimon: or antimon: tart: with jalap, nit: potass: and merc: dulc: in such proportions as to prove actively cathartic, sudorific, and perhaps nauseating.

These, thus briefly detailed, are the principal remedies to be depended on in the manageament of acute phrenitis; but our treatment will be vain and futile, unless instituted with the utmost promptitude and vigor, and pursued to the utmost extent of which the strength of the patient's constitution will admit. The organ to which injury is threatened is of the highest importance, and will not brook the minutest lesion, without consequences profoundly to be deprecated. On the one hand, the intellectual operations demand its perfect integrity for their exact and uniform performance; and on the other, none of the vital functions

can be carried on without impediment, if this centre of life, motion and harmonious sympathies suffer any notable deterioration of structure. Palliation of troublesome symptoms, so often one of the benevolent purposes of the cultivator of the divine art of healing, has here no place. We must aim, by the most energetic interference, at the immediate arrest and total resolution of the inflammatory affection, which being allowed to fix itself, for but a short period, or to proceed to any of its ordinary results, not only strikes a blow at the existence of our patient, but far worse than this, may, by depriving him of his reason, reduce him to a level with the beasts that perish, and dispossess him of a privilege not inferior in value to his boasted immortality. For I am persuaded, and the doctrine is now very generally received, and is, indeed, capable of abundant proof, that the greater number, if not all, of the cases of confirmed lunacy, are instances of undetected, neglected, or badly managed inflammation of the brain, chronic supervening upon acute phrenitis—which from this imperfect treatment, have become permanent and incurable, condemning their unhappy subjects to the dreary cell and the solitary dungeon—to chains and darkness—to the varying delusions of restless fancy, or the gloomy visions of unutterable despair.

But to return. The effect of the leading measures above recited, should be aided by all other means which may conduce to the same end. Cups should be extensively applied to the scalp, which should be shaved completely, as soon as the nature of the case is known. Leeches should be put, in large numbers, to the temples, and the mastoid or occipital regions, and as much blood taken, in this way, as the strength permits. The use of cold should be early resorted to. I prefer to all other modes of employing it, the pouring of very cold water, from a height, in a full stream, upon the head and shoulders of the patient placed in a sitting posture; and this should be repeated as often as the face becomes flushed, or the skin of the head and body is hot and dry. The general cold bath is not often used, but I scarcely know why. Some have advised the immersion of the trunk and limbs in the warm bath, while cold is thus applied to the head, in order to produce a sort of double derivation, "a practice, of which," as a modern writer has well-remarked, "the theory is ambiguous, and a sufficient experience has scarcely

been obtained to warrant the recommendation." Others lay pounded ice to the scalp, enclosed in a loose bag, and others still follow the ancient mode of putting on a wet clay cap. Some wash the head with alcohol or æther, which, by their rapid evaporation, certainly abstract heat quickly and decidedly. In the meanwhile, the freest dilution may be permitted with various cold drinks—iced water, lemonade, etc. Additions may be made to these, of the nitrate or super-tartrate of potass, as laxative, diuretic and diaphoretic.

There has been much discussion concerning the propriety of the application of epispastics and other counter-irritants; and their efficacy, as early revulsives, has been highly extolled by some writers, who place them, with this view, upon the extremities chiefly or exclusively. It is clear, that the same rules must guide us in the present, as in all other instances, and that if, in any manner, we irritate the surface painfully before we have reduced the morbid vascular excitement, local and general, by V. S. and cathartics, we shall add to, rather than diminish, the sufferings and dangers of the patient. But if we delay the resort to these measures until the proper period has arrived, we shall find them of great utility. Mustard poultices may be kept upon the soles of the feet or the insteps, changing their position, from time to time, when they seem to give pain. Blisters may be applied to the same points, or to the thighs and arms, or to the scrobiculus cordis. It is common to vesicate the scalp in the latter stages of these cerebral affections: but although I do not doubt the beneficial effect of it in the congestive condition of the brain, forming a part of the history of the low types of fever, yet I have not seen it of any service, nor do I believe it to be adapted in exquisite instances of phrenitis or cerebral inflammation. We shall derive, I am persuaded, infinitely more advantage by persevering to the very last in the application of cold in the various modes above specified. It is, farther, of very great consequence, to direct judiciously the details of the attendance upon, and friendly management of the patient during the attack. His apartment should be airy and cool and perfectly ventilated. It should be kept as much darkened as is consistent with the services of those about him; nothing distresses or irritates the sick man more than light. For similar reasons, every

thing around should be kept as quiet and still as possible; noise rouses the patient, vexes him, increases his intolerable headache, and diminishes the chance of procuring restorative sleep. His posture in bed should be with his head and shoulders elevated as high, by pillows, as convenient, in order, by this position approaching to the erect, to oppose some impediment to the force of the cerebral circulation. The fluids of the living body, although themselves, doubtless, endowed with vitality, are not independent of the laws of hydraulics, or exempt from the influence of gravitation.

There is much difficulty sometimes in controlling the maniacal fury of the phrenitic. If it be possible—and every effort and gentle art of mild persuasion should be assiduously tried before we abandon the effort—if it be possible, he must be coaxed and soothed, and governed by the voice of kindness and affection. But when he will not submit—when, by loud vociferation and violent muscular exertion, he adds to the morbid excitement and irritation which menace his life or threaten him with permanent degradation of intellect, we must restrain this suicidal conduct by whatever means become necessary. It may even be requisite to bandage his arms, and bind his body to the bed. I mention these unpleasant measures, however, chiefly that I may express the ardent and earnest hope, that no one among you will regard a resort to them necessary or admissible, until every other mode of reducing the patient to obedience, shall have been tried most carefully and perseveringly, and tried in vain.

During Convalescence, besides the ordinary regimen demanded by the remarkable debility under which the patient continues for some time to labor, and which is so readily accounted for by reference to the intensity of his disease and the prostration consequent upon the depletory system instituted as remedial, we must direct our attention closely to the weakened condition of the mind, left as the result of the disorder of the brain. The intellect will be found unfit for the performance of its accustomed operations, as, indeed, sometimes happens after severe attacks of fever. Everything must be done to amuse your convalescent, and entice him to give his attention to trifles exclusively, allowing him to engage in no process of reasoning;

suffering him to be provoked into no discussion, however slight it may seem. He will be found captious, whimsical and peevish. His caprices must, for the present, be submitted to, and his will, whenever expressed, be law to his friends and associates, unless he desire something absolutely prejudicial to him. This state of things will not, however, if he be judiciously managed, continue long. As his constitution recovers its strength, his intellect will also regain its impaired energies. As his physical powers improve, his temper and judgment will be restored, until at last you will enjoy the gratification—a noble reward for your beneficent exertions—of seeing in him a renewed exemplification of the true perfection and dignity of our species—mens sana in corporê sanô.

CHAPTER XLVII.

CHRONIC PHRENITIS—INSANITY.

Chronic Phrenitis. It happens, occasionally, that with all the care and skill of the most scientific and conscientious practitioner, the recovery of the patient from the attack of acute phrenitis is imperfect. A certain degree of organic lesion has been incurred, which, while it does not, perhaps, impede or prevent the performance of the vital and organic functions, impairs sadly the animal or relative functions, and disturbs the operations of the intellect; or, without actual lesion of structure, the disturbance of function has been so great, and continued so long, that the organ does not readily, if at all, resume its usual trains of action. And thus, we are led to a brief discussion of the weighty subject of Insanity, a topic of which I have always been somewhat reluctant to treat in this place, on account of its extreme difficulty, in part, but chiefly because my own views are not sufficiently matured and settled to justify me to myself in communicating them to you with any great degree of confidence. Hence, I propose to offer you little more than an out-

line, which you are to fill up for yourselves hereafter by your own diligent study.

Although, as you perceive, I regard chronic phrenitis as principally, if not exclusively exhibiting itself in the various forms of insanity, yet you are by no means to understand me as intending to assert or imply, that every case of mental derangement depends upon or proves the existence of organic lesion of the brain from inflammation of some part of its substance. This, although perhaps probable, and, as a hypothesis, consistent with the great mass of observed facts, is by no means so clearly made out, that it may be proposed to you as an established principle or doctrine. We know not how long inflammation of a part may subsist without permanent and notable deterioration of structure; and the delicacy of the minute arrangement of the cerebral tissue is such, that permanent change may take place without our being aware of it, or able to mark in what it consists. Nor, on the other hand, is it certain, that every case of chronic inflammation of the contents of the cranium, the brain, its membranes, its vessels, shall be attended of necessity, by mental derangement or insanity. This also is highly probable; but we are not yet prepared to affirm the essential or invariable connection of intellectual disorder with every imaginable deterioration of every portion of these tissues.

Every writer upon this subject has endeavored to define Insanity. I need not inform you, that all have failed. If I am correct in regarding the several varieties of mental derangement as symptoms merely of cerebral disorder, functional and organic, primary and sympathetic, it is easy to see why they have failed, mistaking, as they did, a series of signs or phenomena, for a definite form of disease. The mental operations of a healthy intellect are infinitely multiform; their aberrations or irregularities in disease must be also indefinitely diversified. Even regarding these aberrations as symptoms, we shall find it a task of extreme difficulty, to propose any mode of classifying them, which shall not be liable to fatal objections. Let us reflect, for a moment, on the nice lines of distinction which separate the several conditions of the mind, and divide from each other the varied mental operations, morbid and regular—reverie, absence of mind, dreaming, somnambulism, exalted passion, enthusiasm,

intoxication, delirium, mania, melancholy, hallucination, monomania, fatuity, incoherence, idiocy and senile imbecility;—who shall offer us a clear diagnosis of each of these, and yet how little actual danger there is of confounding them. How shall we draw even the single distinction, so well recognized, of delirium, from mania or lunacy? How point out the shades which separate intoxication from delirium tremens, its attendant frequently, and this latter from febrile delirium?—the delirium of typhus from that of synochus? Delirium has never been defined; indeed, no attempt worthy notice has ever yet been made to distinguish it, on the one hand, from hallucination, and on the other, from true lunacy. Typhomania is always, apparently, wretched and gloomy, and attended with discontent and petulent muttering; that of inflammatory fever is often highly cheerful and pleasant. One of our most eminent public speakers, when in this condition, is always wildly exhilarated, shouting, singing, uttering witticisms, laughing and making rhymes, and has often exclaimed to me, "you know not how delighful it is to be excited by fever."

A peculiar erethism or irritation of the brain, connected with and symptomatic of disorders of the functions of other organs, may produce a transient derangement of the mind, as in hysteria, fevers, etc., or may be idiopathically excited by the impression of some efficient cause, as the passions, alcohol, opium, stramonium, etc., etc. How complete, while it lasts, is often the insanity of intoxication, whether from alcohol or nitrous oxide; how perfect the insanity of hysteria and of fever; how total the amentia of epilepsy and apoplexy; how free from visions and hallucinations the "dreamless sleep" of those terrible disorders! All men agree, with very few exceptions indeed, to refer all these to the brain as their seat, either primarily or secondarily. Not only do many of the irritations and congestions of that organ arise sympathetically, as we every day see, from affections of the viscera, and indeed of all parts of the body, disturbing the operations of the intellect, but chronic phrenitis itself may be of two forms, the idiopathic and symptomatic. Hence the opinion of Pinel and others, (Broussais among them,) that insanity is, at least in part, owing to visceral disorder. If farther it be objected to the doctrine of causation of insanity, which I am

now advocating, that sudden cures have been made under moral means hereafter to be spoken of, I reply that such cases (the authenticity of which I will not dispute, but the frequency of whose occurrence has been much overrated,) do not disprove the reality of the physical functional derangement and structural lesion, to which I attribute insanities. Let it be remembered that the brain is a double organ, and that one hemisphere may retain its organic fitness for its functions, though its sympathetic harmony of action may be unstrung, and that a resumption of those functions may occasionally happen. Indeed it is to this duplex arrangement that I attribute most of the recoveries which have happened in any manner. It is also possible (though upon this hypothesis I will not lay any stress) that an organ which has been somewhat altered by inflammation, may be restored to its natural condition, or very nearly so, and yet the habit of morbid action which has been formed during protracted disease, may continue for a time ; until at some fortunate moment the application of some well adapted mode of excitement, shall rouse it, at once, into its usual train of operation.

It is proper that I should endeavor to enumerate the several modes of mental derangement which point out the existence of a chronic phrenitis, constituting Insanity proper, and designate the reason why I regard these as thus separable from the other forms. We begin this delicate task by a negative mode of inquiry, and set aside as not pertaining to our present investigation:

1st. Those disorders of the mind which depend, sympathetically, upon some transient affection of the system, or some one of its parts, appearing when it invades, and disappearing when it subsides. Here, we have intoxication, the delirium of fever, the imbecility of hysteria, and here too I would class what is called puerperal mania.

2d. Those which have followed such diseases as have inflicted lesions of the brain of cognizable character, but distinguishable from inflammation, and usually exhibiting congestion of the vessels, or extra-vascular pressure, in some way or other, upon the organ or some part of it. Here we shall arrange all the amentiæ of apoplectics, and paralytics, and epileptics, and those which follow blows on the head and depressions of the skull. Amnesia, or a loss of the memory of words or things, inability to con-

nect language with meaning, is a common effect of apoplectic seizure. A variety of exhibitions of fatuity and imbecility attend hemiplegia, and often follow in the train of quickly recurrent or long protracted epilepsies.

3d. Those which are attendant upon states of cognizable and temporary excitement—irritation—erethism of the brain, or (as we phrase it,) "determinations to" that organ of specific morbid character. Here, I would place somnambulism, mania â potû, and the brief but extraordinary aberrations which follow the violent explosions of passion.

4th. Those mental deficiences which attend upon general decay of the body, and the loss of vital power in the system. Such we must obviously regard the varying degrees of senile imbecility, from the first impairment of memory down to the drivelling dotage of that extreme term of life, when the shrunken and palsied limb, the dim eye and the dull ear show the welcome approach of the dark messenger, now no longer a king of terrors, but the harbinger of relief and joy. Here, also, I would class the cases of occasional fatuity, amounting even to idiocy, which follow violent attacks of acute disease of whatever character, allowing sometimes of ultimate and perfect recovery, but too often remaining in melancholy permanence.

Causes. We shall be farther assisted in our endeavors to distinguish and classify the modes of mental derangement which depend upon chronic phrenitis, by an enquiry into the causes which are efficient in producing them. I shall divide these into the moral and physical. Of the latter, we have numerous examples—1st. A very strong predisposition to insanity is derived from a deranged ancestry. This hereditary taint is matter of every day remark, and forms a gloomy example of the transmission of disease. It is apter to attack children born after, than before the development of the disease in a parent. It is most likely to show itself about the same age in the children, at which it appeared in the parents. It is most likely to put on the same character and history. 2d. Particular temperaments give (or I should perhaps better express it by saying constitute,) predisposition to insanity. The combination of the nervous with the sanguineous, if both are exquisitely developed, obviously tends to the production of furious mania; of the nervous with the

bilious, to melancholy. 3d. Exciting causes of physical character comprise—*a*. All such as may bring on acute phrenitis, of which, I have said, the chronic form is an occasional consequence. They may, however, in the first instance, produce a chronic inflammation, if they are applied successively in grades of less intensity. Thus, intemperance habitually indulged in, even though it may never be carried to the extent of absolute intoxication, does, in some instances produce, instead of a delirium, a true insanity, and indeed, has come to be regarded every where, as one of its most prominent causes. *b*. Many of the forms of gastric and intestinal disease give rise, by sympathetic radiation of morbid action, and the lighting up of a symptomatic phrenitis, to a very obstinate form of insanity. This is much dwelt on by Pinel and Broussais, in France, and Ferriar, in England. *c*. Sexual irregularities produce chronic phrenitis and insanity. Perhaps these cases occur most frequently among women, who seem to be more under the dominion of the genital system, than males. Dysmenorrhœa, amenorhœa, and suppressions of menstruation, and masturbation, are all enumerated by writers, under this head. In the Report of the Worcester Asylum, for 1839, the greatest proportion of the cases is ascribed to intemperance; the second largest number, to masturbation. *d*. Metastasis of other diseases to the brain. Numerous examples of this kind are recorded. Sauvages has made a separate variety of metastatic madness. It is said to follow the disappearance of cutaneous eruptions, of habitual discharges, hemorrhoidal, or from ulcers, etc., and the sudden cessation of old gout and rheumatism.

The strongest among the predisposing causes, which act by moral influence is, unequivocally—1st. Education. I need not dwell upon a subject so trite, farther than to remind you, that the word has an extensive meaning in this place, and comprises not only the course of instruction by which the mind is informed, but the whole series of measures by which it is directed and controlled in children, and taught to direct and control itself when childhood is past. Mrs. Hamilton is right in affirming, that example is the principal part of education. Slight excesses, or occasional mere peculiarities or eccentricities, originalities, as we call them, in the parent, are apt to be exaggerated or en-

hanced into insanity, in the child, unless counteracted by accident or design. I need not insist upon the predisposition morally built up, by indulgence of passion, appetite, whim or caprice, in early life. It is matter of universal notoriety. 2d. The frequent or vehement excitement of passion, especially if that passion or emotion of mind be specially excited, and long and vehemently indulged, to which the subject is prone, whether hereditarily, or from original formation of character, or through the influence of education and habit. It is thus that fanatical zeal breaks down the intellect of its victims, by arousing terror, and inflicting upon the conscientious or timid, the horrors of immediate despair or impending doom. It is thus that anger and malice are exasperated into murderous malignity, by political and religious considerations too strongly colored, too closely and gloomily brooded over. It is here, perhaps, that we should find the source of the long catalogue of the cases of monomania, and most of those of deep melancholy which are to be found in our mad-houses. In the cells of the Poor-house here, was to be seen for many years, a poor wretch, who having been a deserter from the army, was destined to be shot. He was made to kneel, with his eyes bandaged, upon his coffin, and the fatal word was about to be given, when he was reprieved and pardoned, but too late. He spent the remainder of his life in the condition of a maniac, with but three connected trains of thought that could be noticed. One of them was founded on his habits as a pugilist, a second on those of a soldier, and a third referred to his fondness for tobacco. 3d. We may class separately, or arrange under the last head, according to the circumstances of particular cases, the influence of remarkable and sudden, or unexpected change of condition. This is a fruitful cause of madness. The loss of friends whom our souls held dear, and upon whom we depended for all the joys that give life its value; the transition from wealth to poverty, and strange to say, from poverty to wealth, especially among the commercial world, by whom the value of money is habitually overrated, in a most incomprehensible degree; the loss of honor or reputation; and political reverses. These all unsettle and derange the mind; whether through the influence of violent and prolonged emotion, exciting the cerebral actions into a morbid state, or by directly breaking up the harmony of

the intellectual operations, might be made a nice metaphysical question. There is no reason in the nature of the case, why the functional should not, nay, it probably often does, precede the organic disorder. It is, however, and perhaps must be, a transient affection, unless the latter supervenes. Perhaps all the cases of intermittent insanity, are properly of this transient and purely functional character. It would be out of place here, to discuss it; it suffices to know, that whatever may be the incipient steps of this moral ruin, its ultimate progress is developed by, and essentially connected with cerebral changes that can be detected and described.

The Necroscopy of insanity, which we next investigate, also goes to prove the connection of the intellectual or functional derangement, with physical and organic change in the condition of the brain, often the obvious result of chronic inflammation. Such changes are described by all pathological anatomists, from Morgagni down, who have examined the brains of insane subjects; and the later and more minute the inspection, and the more scientific the detail, the more noteworthy have been the observations made, as to these changes. You will be disappointed, however, generally, by finding a want of attention in these records, to the connection which we might suppose to exist between the marks of disease, on dissection, and the nature and history of the morbid phenomena. Thus the want of point, in the two principal inferences given us by Foville, on whose reports great stress is laid, both by the French and English pathologists, is very striking. He states them thus—1st. Morbid changes in the cortical substance, are directly connected with intellectual derangement. 2d. Morbid changes in the white substance, are directly connected with disorders in the motive powers. May we, then, venture to place motive volition in the white, and the other modes of volition, with all the rest of the intellectual powers, in the grey or cortical portions of the brain? If not, what other conclusion can be drawn?

There are two other general inferences described by Foville, from his examinations, which are quite as well worthy your notice as the above. "The morbid changes," says he, "which we have surveyed, present many of the anatomical characters of inflammation;" "we are forced to allow that there exists in the

brains of lunatics, a state of true inflammation." In opposition to Bayle, who refers insanity to disease of the membranes, he states, that "as the different traces of inflammation are more constant in the brain than in the membranes, we must regard the former as essential, the latter as the incidental condition."

So numerous and varied have been the morbid phenomena noted, and as I have stated, so little definite remark has been made, as to their connection with the previous histories, that it is scarcely of any advantage to offer you a mere enumeration of them. The cranial bones are frequently affected; they are irregularly thickened sometimes, and sometimes attenuated; sometimes the diplöe disappears, and they resemble ivory; sometimes they are spongy; "the form of the cranial cavity is irregular and unequal," says Georget. The membranes are thickened, injected, adherent, both on their opposite sufaces, and to the cerebral substance which they invest. This substance is injected, thickened, "occasionally," says Foville, "in acute cases intensely red." The surface or superficial stratum of the cortical substance, is increased in firmness and density. Gall and Desmoulins have observed in some, what they call "atrophy of the convolutions, more frequent in their frontal regions; sometimes an actual absorption, leaving chasms filled by serosity." Haslam noticed in several cases, a peculiar looseness of the scalp. In a majority of his cases, the consistence of the brain was not perceptibly altered; in some, it was firmer, and in others, softer than natural. Esquirol notices, that the crania were "irregular in respect to the different diameters, and to the cavities of the two sides." Ossification of the arteries of the brain, has been seen. Georget has remarked "the color and consistence of the grey and white substances almost confounded." Changes are far less frequently observed in the cerebellum, than in the cerebrum. The inference does not seem unfair, that the cerebellum is not the seat of the amative propensity. Masturbation is one of the most ordinary incidents of insanity; in the female sex, at least, the fact is so. A majority of the female insane under my notice, have exhibited, either permanently or occasionally, erotic furor. Esquirol has described, as a rare phenomenon, the presence in the brain, of a multitude of small cavities, from the size of a millet seed, to that of a nut, containing fluid. He supposes these to

be the sequelæ of extravasations. It is remarkable, that the medulla oblongata and medulla spinalis, rarely display any morbid changes of structure.

From what has been said above, as to the causes of insanity, and the appearances of alteration in the condition of the organ, with whose operations the intellectual functions are so closely connected, and upon whose integrity they are thus proved to be absolutely dependent for their regularity, we are abundantly entitled to infer the very general, if not constant and essential coincidence of chronic phrenitis with Insanity, properly so called.

Having acknowledged the impossibility of offering any comprehensive and accurate definition of this morbid condition of the intellect, I now proceed to describe its prominent manifestations, and to endeavor to classify in some sort of general arrangement, its several varieties. One of the greatest difficulties with which we have to contend, in the discussion of our subject, is the disposition to generalize too hastily, met with in the writings of almost all who treat of it. I have already referred to the infinite diversity of intellectual operations; let us suppose a calculation made upon the variety of changes of relation which these will admit of, and we will then arrive at some idea how immensely multiform and complex the morbid appearances may become. If we observe the play of the numerous muscles which perform the diversified motions necessary to the various actions upon which life depends, and through which, (if I may so speak,) it delights to expend itself, we shall find, that however complicated the movements of these several muscles, they proceed fibre after fibre, and fasciculus after fasciculus, in a series of perfect, exact and unchanging regularity of succession, as in the nice execution of a proficient in music—Paganini, for example; the perfect consentaneousness of operation, and the exact proportion in degree, being both absolutely essential to the production of the proper and expected result. Suppose some muscle, or some fasciculus, or even some single fibre of a muscle, to have become rigid or relaxed, or incapable of its function, either permanently or for a single instant, provided that instant be the point of its required action, discord must result, and the note or notes, the production of which required the correct movement of that fibre, must be lost or misplaced. It is the power of pre-

cise association, whatever it may consist in, and wherever it may reside, that renders all the physical actions, natural, proper and healthy. Now, the analogy seems to me to be complete. Insanity does not necessarily consist in the loss of any definite power of the mind, the impairment of any one of the intellectual operations; it consists in, and depends upon the incapacity to effect that association of action, through which these operations are conducted to a definite result. I do not deny, you must remark, that the loss or impairment of power may occur; I only contend that this is not essential, and that the loss of association, the disassociation or breach of relation and succession between the operations of the intellect, is the only uniform, universal, invariable and essential symptom of insanity. "The sweet bells," to use the expressive figure of the poet, may each ring forth its own silver sound, but they "jingle out of tune."

Hence, I cannot agree with Locke, who defines madness the reasoning rightly upon false premises—nor with Esquirol, in considering moral alienation as its proper characteristic—nor with Cullen, who regards it as essentially hallucination, or false judgment or perception of external objects.

In looking over the recorded facts, the authentic histories of insanity, we shall meet every where, in the best authorities, with statements entirely incompatible with either of these views or definitions. Pinel tells us, that he "found many, many maniacs give evidence at no period, of any lesion of the understanding." Some maniacs exhibit a high degree of conscientiousness, and are miserable under the depressing consciousness of inability to perform their social and moral duties. This fact, I think not uncommon among religious lunatics. Every one has seen maniacs who were perfectly free from hallucination.

I will venture, then, to subdivide insanity under five heads, according to the prominent symptoms which go to constitute the history of each, without pretending for a moment to affirm, that these lines thus drawn, will be in all instances, or even in the greater number, obviously capable of separating, in an exclusive manner, one class from another. It must be apparent to you, that the various traits, so far as they are compatible, may run together and be intermingled, so that many cases may be classed under more than one head, without any striking impropriety.

My purpose is only to distinguish the prominent characteristics of each, as follows: 1. Incoherence; 2. Mania; 3. Melancholy; 4. Hallucination; 5. Monomania.

1st. Incoherence. It may seem singular, that after declaring incoherence, or more properly *disassociation*, to be an universal attendant upon all cases of insanity, I should designate one class specially, by a title drawn from this symptom. It is true, however, that certain instances, and these in very considerable number, are distinguished by this particular trait; and that in such, all the powers of association, or nearly all, seem lost; all the affinities of connection, which bind together ideas, sentiments, feelings, thoughts, habits, words, and actions, are impaired or rendered vascillating and uncertain in their influence. It will be perceived readily, then, that I employ the term incoherence, as designating a form of insanity, and applicable to a class of lunatics, characterized in an eminent and emphatic degree, by this impairment of the "power of association." I spoke of a soldier, in whom it was exceedingly prominent. He was restless and impatient, and was almost always engaged in uttering words and phrases, with unexampled volubility and perseverance. No sense or meaning could be extracted from what he thus said, on any occasion. Give him the word of military command, however, and he would assume the attitude of a recruit, and go through the motions of the manual exercise. Throw yourself into the position of a boxer, and he would take a posture of defence. Offer him tobacco, and his countenance would express a gleam of satisfaction, while he seized it and thrust it into his mouth. Cases of this character are curious to study. While we wonder at the ceaseless activity of the mind, we are struck with the absence of all the principles and powers of regulation. Even the natural instincts and propensities seem subverted, and some patients seem forgetful or ignorant that thirst is to be quenched by drinking, or hunger allayed by food.

2d. Mania. By this term, I would be understood to mean, what has been often spoken of as "moral insanity," in which the restraints of education and habit, of law and order, are lost, and man becomes a savage or wild animal. This is also termed by some, "furious or acute madness." These are the unhappy cases, from which the fear of lunacy and the institutions of so-

ciety regarding it, have been drawn. Here the propensity to injure others—the propensity to do mischief and destroy, is prominently developed. Anger is readily excited, and scarcely admits of being soothed. Malice and violence possess the mind, and in the tumult of passion a wretched life passes away. Former friends are regarded with especial dislike, and efforts of incredible force and perseverance are made, to wreak revenge upon them. It is astonishing with what cunning and ingenuity these efforts are directed; how the patient will feign, flatter, and play the most deceitful part, in order to effect his most desperate purpose of assault and murder. With admirable promptness and presence of mind, too, he seizes such opportunities as accident may present to him. In many of these subjects, there does not appear to be any defect of understanding, in the ordinary sense of the word; these were probably among those whom the ancients regarded as under demoniac possession. Every woman whom I have seen laboring under this variety, gave evidence of erotomania, and almost every one was addicted to masturbation. The most delicate, refined and modest, previously, seem most likely to become obscene. Religious subjects of mania, are almost always profane and blasphemous.

3d. Melancholy. It is difficult to point out any erroneous views, or incorrect trains of thought or reasoning, in some of this class of patients. A gloomy apathy, a total indifference to all things around them, a state of prolonged reverie; this appears to be, in some instances, the whole history of the disease. I have seen an individual sit in the same posture, from day to day, from month to month, and from year to year, during summer and winter, with his arms folded and his eyes bent on the floor, maintaining a sullen and profound silence. He could, by persevering efforts to make him speak, be roused into vehement anger, but this would subside promptly, if his persecutor desisted. At first, it was difficult to make him lie down, or rise, or eat, or dress himself; but by patient and quiet attendance, he was brought into a sort of regular habit, eat and drank at given times, mechanically, but did not notice what was brought him, or the neglect of bringing it; rose in the morning and permitted himself to be clothed, without saying a word, or undergoing the least change of countenance.

4th. Hallucination. This is the form of insanity which borders most closely on delirium. Some have doubted whether the false impressions, under which the patient labors, originate in morbid sensation, and commence in the organs of sense, or arise from the diseased state of the brain. You will readily infer my adhesion to the latter of these opinions, although I acknowledge the force of some of the cases on record. A wretched creature under my notice, was harrassed night and day, with the annoyance of innumerable serpents, which perpetually inflicted upon him the agonies of Laocöon, without affording him the relief of death. These are they whom the furies torment with the stings of a lacerated conscience, and the recollections of undetected crimes. Alas! that it were only the guilty who should suffer thus. But cases of this sort are infinitely numerous and varied. It is strange, too, with what ridicule, contempt and resentment, they regard the hallucinations of others. In this class we may arrange, I think, many of the instances of religious mania; and here, find the key to most of the extraordinary delusions, which, from time to time, have led men to the solitude of the monastery and the desert, and mingled so much deep and sincere devotion with such desperate imposture.

Many of these, it is true, belong to our fifth and last order, Monomania, with the history of which almost every man of reading is at the present day familiar. Monomania consists in insanity upon one subject, or one set of subjects only. It is usually a quiet and harmless form of derangement, but sometimes assumes a dangerous direction. Phrenology exults to bring forward as illustrations of her principles, examples from this class. Monomania is often complicated with hallucinations, which are then also, exclusively directed to one point. This condition often arises from the protracted influence of some one of the gloomier passions, especially grief. See the picture so exquisitely drawn by Shakspeare's Constance.

> "Grief fills the room up of my absent child;
> Lies in his bed; walks up and down with me,
> Puts on his pretty looks, repeats his words—
> Remembers me of all his gracious part—
> Stuffs out his vacant garment with his form."

The senses would not seem to be perverted here, but the impres-

sions they receive, however correct, are less vivid than those originating in the diseased brain, and often mingle with them inseparably. In those who are haunted by spectres, for example, the imagination resists every effort to disabuse it. A physician placed himself exactly in the position pointed out as occupied by a skeleton. "Now, it is looking over your shoulder!" cried the patient. An insane woman was persuaded that her husband was dead. When he was brought and set before her, she knew his person, but insisted that it was the devil who had assumed his form. A girl had lost her lover, and saw his image standing perpetually at the foot of her bed; a strong resemblance being made and dressed in his clothes was made to stand in the same place. "Il y en a deux!" she exclaimed, and expired.

The relations which exist betwen insanity and other diseased conditions of the body, are interesting to be observed and known. For my own part, I have never seen a case of insanity in which the general health was not notably disordered. How can it be otherwise? If, indeed, as I have taught you, the brain, the central organ of sympathy and excitability, be thus deranged in its functions and structure—how is it possible that the physiological actions of the several systems of parts should be carried on with precision and regularity? We shall notice here—

1st. Coincident disease of the sensorial system. Besides the impairment of the intellectual functions, there is proof of general nervous disturbance. In almost all cases we have morbid vigilance, headache, jactitation, and a feeling of great discomfort. The senses are morbidly acute, and receive none but unpleasant impressions. Many insane are perpetually annoyed with dirt and filth; others with bad smells. In almost all there is morbid irritability as well of the body as of the mind. Convulsions, paralysis, apoplexy, not unfrequently supervene in cases of insanity.

2d. The digestive system is always apt to be more or less deranged, as is shown by foul tongue, fœtid breath, anorexia or morbid appetite, and obstinate costiveness. The patient often spits, carelessly and in every direction, a viscid saliva.

3d. The respiratory system is less liable to disturbance, but is sometimes affected with dyspnœa, quasi asthmatic.

4th. The vascular system is often thrown into violent disturbance. Fever sometimes runs high. The pulse is generally quick

and frequent and hard. Exceptions are said to occur in melancholia. The face is often flushed and the veins of the head and neck swollen; the eyes red and suffused, and starting from their sockets.

Prognosis. It is with great regret I find myself constrained to differ with almost all recent writers on insanity, as to the prospect of cure for the insane, and to declare my belief that the general prognosis is highly unfavorable. Esquirol states that the greatest number of cures is made in France; that the proportion restored is one in three, in that country; less in England, and still less in Germany and Italy. Burrows, as might be expected, gives a more favorable account of the success of treatment in England. The results of the numerous tables offered by writers who have procured statistical information and embodied it in this form, are indeed highly gratifying, if we admit them without deduction; but we are too much interested in ascertaining the truth, to pass this question slightly. I am inclined to attribute the error, for such I conscientiously believe it to be, principally to the want of a correct diagnosis. If cases are included under the head of insanity, which depend on some transient condition of the body or its organs; such as hysteric folly and derangement, transient febrile delirium, and the protracted delirium or fatuity from attacks of fever, or other acute disease which has passed away, leaving behind it a gradually diminishing train of effects; or attacks of delirium tremens; or of somnambulism; or puerperal mania, it is not to be wondered at that the proportion of recoveries shall come to be rated high. For these are very curable forms of disease; but, as I have already contended, they do not come under the head of insanity from chronic phrenitis, the topic of present consideration.

Insanity is, of course, much more curable when recent, than when it has existed any length of time; but not so the cases just enumerated, which often spontaneously subside with time. The cause and history determine also the prognosis in great measure. Metastatic insanity, of whatever kind or degree, may often be relieved, by reproducing the original disease. With this exception, those which arise from physical causes are most difficult of restoration. Hereditary lunacy is hopeless or nearly so. That which arises suddenly is more manageable, speaking generally,

than that which is gradually built up. I cannot help also adhering to the received opinion, that insanity always leaves behind a strong disposition to recurrence. I am aware that Pinel, Prichard and others declare that this liability is overrated; but you will, I think, have sad opportunity to come to a different conclusion.

Treatment. On this part of my subject, I do not propose to enter into minute detail, but merely to furnish you with a general outline of the received principles and practice. It is allowed on all hands that nothing can be done unless a proper government be instituted over the unhappy lunatic; his habits must be regulated, his passions subdued or controlled, and his whole conduct subjected to a regular and strict, though mild and consolatory discipline. For the attainment of these views, asylums, public or private, are now acknowledged by every one to be absolutely necessary. In such establishments alone, can we hope to attain and preserve a salutary influence over the insane. There are, indeed, few whom it is either safe or proper to keep at home. For the most part, and with rare exceptions, they either hate or scorn, fear or terrify their ancient friends; they often refuse to know them or admit their identity.

A judicious and proper control must, however, be regarded as remedial also, and not merely expedient. I surely need not say a word in reprobation of all severe modes of management. Experience has proved them to be unnecessary and injurious; but where the safety of the patient—whose propensities are savage or suicidal—and those about him, or where decency demands, as toward those who will not bear the restraint of proper clothing, or who yield to the impulses of nympho-mania and satyriasis, we must apply efficient means of confinement and restraint. In some institutions, the muff for the hands, and a chair for the feet and body, and in others, the method of straight-jacketing, is preferred. I select the former, but either will answer our intention, and may be so arranged as, without any just imputation of harshness or cruelty, to effect our purpose. I have been able, however, in almost every case, to bring my patient into complete subjection, by the use of the cold dash, vigorously applied and persisted in, until they submit unconditionally and yield me an implicit obedience. The most violent,

it is said, can be brought down by the sickening and depressing influence of the circular swing, but this I never apply, fearing a morbid determination to the head from it.

In the employment of remedies, the state of the general system must always be considered; this is either entonic or atonic, a distinction, for the most part, readily drawn, and one which I make the directing rule of the treatment of insanity. Venæsection is highly extolled by one set of writers, while others declare it to be useless or worse. I do not consider it adapted to the ordinary history of chronic phrenitis, but where a suddenly aggravated determination takes place to the head, as shown by flushed face, red eyes, head-ache, etc., and the patient becomes wild, talkative, or fierce, I should not hesitate to bleed freely. It is only under the same circumstances, that leeches or cold applications are of any definite utility; at other times, they only annoy and irritate the patient. A very efficient means of reducing the patient to tranquillity, and relieving the cerebral determination, is found in the antimon: tart. It is one of my most important formulæ in the domestic management of these sad cases characterized as "maniacal." I instruct the attendants, as soon as they perceive any aggravation of their violence or obstinacy, to add this nauseant to the fluids taken, and thus bring on a certain degree of sickness and depression.

In recent cases, I have derived some benefit from mercurials urged to ptyalism, but cannot lay much stress on this course. Opium I use freely; I can scarcely point out where it is best adapted, but I have never yet seen it do any harm, and employ it extensively. If the subject of your treatment is morbidly wakeful, and gives himself, and those about him, any disturbance by nocturnal riot and noise, you may administer it without hesitation. It will probably do much good by soothing and tranquilizing him, and cannot surely be in any mode productive of so much irritation and general evil as must result from want of sleep, and its immediate train of consequent excitement.

Purgatives are of universal application from the most ancient times, and it is impossible to doubt their efficacy in numerous cases. But the distinction above referred to, must be carefully made, and their exhibition strictly confined to the entonic conditions of constitution. In the opposite class, nothing more ra-

pidly or irrecoverably prostrates the lunatic, than the ill-timed or undue operation of a cathartic. Indeed, they sink readily under accidental diarrhœa, from whatever cause.

I can hardly advocate the use of diffusible stimulants in any instance of insanity; but I would always be willing to accord to the feeble and atonic, a generous and nourishing diet and warm clothing. It is an error to suppose that madmen are indifferent to changes of weather or insensible to cold. Some are so, indeed, who labor under a perpetual excitement of the vascular circulation; but, in general, though they may not complain, as being melancholy, abstracted and absorbed in their peculiar contemplations, they are very susceptible of suffering and injury from this cause.

CHAPTER XLVIII.

MANIA A POTU.

I HAVE had but too frequent occasion, in the prosecution of our enquiries into the causes and history of diseases, to refer to the deleterious influences of the various forms in which ardent spirits are employed. Long, and gloomy, and disgusting, has been the catalogue of maladies introduced and aggravated by this species of poison. With the immediate consequences of indulgence in the use of alcoholic liquors, we are all so familiar, that the lesson of horror early imprinted on the mind of the young Spartan by the exhibition of a drunken Helot, is entirely lost upon us. The tottering, uncertain walk—the broken, confused speech—the red eye, and the distorted countenance of the drunkard, shock us no longer; and even the total, though temporary deprivation of reason—the connecting link,

"Which makes man kindred with the Deity,"

serves rather as a matter of jest and ridicule, than of pity and dismay. We sport with this destroyer as the Indian plays with

his venomous serpents—but, unlike him, we possess no talisman to protect us in our thoughtless rashness. Man dies by famine, by pestilence, and by the edge of the sword. His joys—his hopes, fall before the withering blast of many and diversified agents of evil; but to intemperance must be conceded the first place in the list of these malignant influences, whether we regard the number and value of its victims, or the extent and amount of ruin which follow in its train.

The evil habits comprehended under this familiar term, constitute peculiarly the blot upon our national character. It is affirmed, that as great a quantity of ardent spirits is consumed among us as by the inhabitants of all the rest of the world. The miseries occasioned by their use, are, in the same ratio, common in our land. That disease, in particular, which is now to be the subject of discussion, is comparatively little known elsewhere, and the few trans-atlantic writers who notice it, are found to make, in their treatises, an unwonted reference to American authorities as specially familiar with it. It has been known by various names, each of them expressive and significant. Drunkards themselves call it "the horrors," and well does it deserve the appellation. In every other disease of which mental alienation forms a part, the reveries are sometimes agreeable, the illusions occasionally pleasant; but, in this, the excited imagination presents a cup of unmingled bitterness. The hallucinations of the sot are full of gloom—of dismay—of despair; and hence some are disposed to regard it as the "demono-mania" of the ancients. Armstrong entitles it the "brain fever of drunkards;" Broussais calls it "oino-mania;" Craigie, with learned affectation, gives it the double name of "meningitis phantasmotophora," and "methystic brain fever;" Pearson designates it "delirium tremens," a phrase which points out the two most striking incidents of its history—the disturbance of mind and the nervo-muscular derangement always attendant on it. It is most commonly spoken of, in this country, as mania â potu, which appellation I prefer to retain, partly on account of this familiarity, and partly because of the useful and pithy reference made to the cause. I must not omit, however, to acknowledge, that the intellectual disorder is by no means properly designated as maniacal; it resembles rather the pathological description of

delirium. Yet Craigie contends, that it belongs, correctly, to neither of these heads, but comes under the definition of hallucination—that is, error in sensation and perception. It is a matter of great nicety to draw the precise line between these several affections of the sensorial system speculatively, but in practice they are less liable to be confounded. Prichard asserts, that lunatics very often "bear an infinitely greater resemblance to persons in perfect health, than to patients laboring under delirium," and the same is true of hallucination, so called. The very obvious disturbance of the general health here, which so frequently and so closely resembles fever, seems to ally the mental disorder to delirium, rather than to the other modes of insanity.

The Cause which produces it is obvious and distinctly known. It arises from the habitual employment of the several forms of distilled spirit, and alcoholic mixtures in inordinate amount. The point of such excess as shall give rise to it, will of course vary somewhat in different constitutions, and may undergo some modifications by changes of circumstance in the same constitution. The habitual use of opium is said also to occasion it. Of this, you will see few or no examples. I have met with nothing of the kind, and am disposed to doubt the fact. That opium is capable of exciting much and serious disease, I do not question; but, on the whole, I regard alcohol as the sole and exclusive cause of mania â potu.

The direct effect of the use of this stimulant is too well known to need description. Some have suggested a difficulty in deciding whether the patient, in certain contingencies, still labors under mere intoxication, or has sunk into delirium tremens. Coates and others maintain, that the latter is "the result not of the application, but of the sudden intermission of the employment of such stimulants." If this were true, we should be in possession of an easy diagnostic, for, as intoxication is a transient condition, we should, by allowing time for it to subside, set apart the case under the contrasted head of permanent disease, a distinction which the practice of Courts of Justice has rendered important.

But this opinion is entirely erroneous. I will not deny what is affirmed on respectable authority, that attacks of this sort may

happen where drunkards have been abruptly debarred access to ardent spirits, as in prisons, hospitals, etc.; but such examples must be rare. The keepers of our jails and penitentiaries make very little of the danger of such occurrences, of which they have every opportunity to notice both the number and severity. On the other hand, I have very frequently seen mania â potu supervene abruptly, surprising the sot in the midst of a "frolic," as it is called, and while surrounded by his reeling and exhilarated companions.

I am aware, that to this enforced abstinence, some writers have ascribed that form of the disease spoken of by Dupuytren, and known to most surgeons—delirium traumaticum, which attacks the subjects of severe accidents, fractures, etc., if of intemperate habits. The assumed explanation is by no means so clear as the fact is certain. That the habitual sot is in a state of definite predisposition, will not be denied; the true question, then, is, whether the irritation from the injury received, or the abstraction of his accustomed drink, is the exciting cause of the attack. A case very much to the purpose of illustration here, happened in my own practice, and was brought to the College Hospital in 1835–36. A mulatto fellow fractured his thigh while intoxicated. For five days he seemed to be doing very well, but, on the sixth, his wife being permitted to visit him, contrived to bring him privately some ardent spirits—gin; of this he drank very freely, and became quite drunk, upon which condition mania â potu supervening, he soon sunk exhausted by the sleepless irritation.

Let me add here, a strong fact on the authority of Dr. Carter, an English physician, who declares that delirium tremens is very common among the landlords of inns in Great Britain, "and that these are, as a class, among the steadiest drinkers in the world."

With regard to the question of causation, it is often asked, Wherein consists excess?—what is it to be intemperate? The answer is easy. We over-step the limits of temperance, and commit excess, either as to the degree or nature of indulgence, when we diminish our capacity for the ordinary duties of life—when we shorten life—when we disorder and disturb any of our physical functions—when, most of all, we derange our intellec-

tual faculties. The drunkard notoriously does all this; he will probably neither defend himself, nor find a defender among reasonable men. But there are many who do all this, and much more, and yet are not drunkards; these are obviously intemperate, as well in a pathological as in a moral sense. It is undoubtedly possible, and instances of the kind may be readily pointed out, in which an individual has, during a long life, made use of ardent spirits in small quantity occasionally, and without any ill-consequences. The use of them, indeed, is in this way always begun—nemo repente fit turpissimus—but after a time, and gradually, an artificial necessity is thus built up in the system of a very large proportion of these moderate drinkers, which calls for a regular and regularly increasing quantity to be taken at the accustomed periods, in order that the stomach and the brain may be enabled to perform their offices. Without it, the whole system flags and falls below the average state of tone or excitement. If, by any chance, deprived of his draught, the habitual consumer of any notable amount of distilled liquor will be found more or less disturbed and disordered. He soon becomes languid and feeble, or restless and agitated, possessing the full control neither of his mind nor his body, unable to forget the pressing want, or substitute any other means of excitement or enjoyment. He who has arrived at this stage, is no longer a temperate man; although, as yet, no trembling of the hands nor faltering of the tongue may give warning of his danger—although, as yet, no eye within the domestic or social circle may be opened to see his true condition—although, as yet, no anxious looks keep watch at his own door for his dreaded coming—no broken hearted wife tremble at the sound of his distant foot-step, nor his children shrink from the glare of his savage and unsteady eye. All this impends, and will be developed, in his onward career, as surely as the alternation of day and night, or the unchecked progress of the seasons.

The stomach, under these circumstances, has lost its ordinary sensibilities. The common appetite for healthy and nourishing food—the thirst for cool, bland fluids, are gone. The organ cannot be roused to action by the influence of the specific stimuli to which it is adapted physiologically to respond. Its excitability is not only blunted or exhausted, but has undergone

an absolute alteration in its tendencies, and refuses to be impressed, except by one class of agents. The presence of these agents is always desired; their absence is productive of an intolerable craving, which all unite in describing as the most oppressive of possible sensations. Beyond this point, the farther development of disease is determined by the original constitution of each patient. In some, the sensorial system suffers directly; while, in others, the digestive organs are subjected to a long series of derangements, before the brain and nerves are in any manner prominently assailed.

In the first class of cases, the earliest symptoms attracting attention may be those which indicate mental disorder. The patient seems dull, melancholy, abstracted, affects solitude perhaps—perhaps shows a fear of being left alone, and more especially avoids being left alone in the dark. He often mutters to himself, gives replies when not spoken to, and seems surprised and annoyed when this is noticed. He takes no food; his hands tremble, as also his tongue when protruded. The skin is hot and dry—the eye suffused, and glaring, and unsteady. At night he is wakeful and restless; when he falls into a doze, it is heavy and soporose, but evidently perturbed with bad dreams and distressing fancies—or he sleeps with his eyes open, murmuring and moaning, and waking with a groan or loud cry, and in alarm. From one of these brief slumbers he starts abruptly into wild insanity. His countenance is flushed and distorted—his respiration hurried—his pulse tense and rapid. He labors under an undefined, but excessive terror; all who approach him are regarded as enemies who seek to injure him, and he resists furiously every effort to soothe or control him.

In the second order of attacks above alluded to, the repeated excesses in the use of ardent spirits produce their prominent effects upon the organs to which they are more immediately applied. The stomach loses its functional capacity and its tone. There is anorexia, with retching and vomiting in the morning. The mucous membrane of the mouth and cheeks and throat, and the surface of the tongue and lips, are of a fiery red, or ulcerated, with aphthæ. The breath is fœtid. Digestion is depraved. The bowels, for a while costive and inactive, are apt to be relaxed into diarrhœa, or irritated into dysentery. The

skin and eyes are tinged with the sallow hue of jaundice. The lower extremities become œdematous, and while the limbs emaciate, the belly grows tumid. The man is indolent, drowsy, stupid, imbecile. His hand—his tongue—his whole frame trembles. He is unfit and unwilling to think, and reflection, when he cannot avoid or suppress it, fills him with gloom. He is overwhelmed at the sight and feeling of the calamities which he has brought upon himself. He sheds tears readily and profusely, and vows future abstinence. But the seducer offers again the temptation; he accepts again the cup of Circe, and is again transformed into the likeness of a brute. He is at last roused from some beastly fit of intoxication by a violent convulsion, which is succeeded by another and another. They go off, leaving him with a body debilitated to the lowest muscular weakness, and a mind disordered and unstrung. He mutters low and feebly his incoherent ramblings. When loudly spoken to, his attention can, for a moment, be fixed, but only for a moment. His pulse is small and quick and rapid—his respiration uneasy and irregular—his skin cold, perhaps, and from time to time covered with a clammy sweat. The stomach will scarcely retain anything; his tongue is foul, coated thick with a fœtid, yellowish fur, swollen and indented against the teeth, and trembling violently when protruded.

The delirium of this disease is peculiar and characteristic. It is always gloomy; the reverie or hallucination is always full of fear and distress. The patient sees apparitions whose aspect is fierce and hostile. He is condemned to die—executed, and in imagination goes through all "the pangs of mortal sufferance;" or he is engaged in deadly combat with numerous foes. In the terror of his flight, he will leap a precipice to escape—in the desperate struggle of supposed self-defence, he will inflict on those around him the severest injury. I was sometime since called to a sot who had cut his own throat with a razor; he was vehement in his complaints against the ruffian who had assailed and murdered him. In many cases, there is incessant and irrepressible activity of the muscular system. The patient is constantly in motion, starting, springing up, tossing, turning from side to side. The pulse can scarcely be felt for the ceaseless subsultus. The pervigilium is unbroken; the stream of

thought, and of words—sometimes entirely unconnected by any meaning—flows on without any intermission.

I have mentioned convulsion as a frequent symptom. Some writers—among them Coates—have met with it, as they tell us, but rarely. In my practice, this complication occurs in a very considerable proportion of the cases. Indeed, all the patients whom I have seen die, five in number, died convulsed.

The nature of this singular malady is not, as yet, well understood. It is the property of the poison to which it owes its existence, to affect with derangement, both functional and structural, every organ and tissue of the body; and hence, as few die of it in its early stages, the confusion acknowledged by those who hoped to detect its seat and character, by investigations into "the Anatomy of Drunkenness." "The liver," says McNish, "never escapes, in confirmed topers; it is sometimes enlarged to double its usual size, and totally disorganized. There is jaundia and dropsy. The stomach is affected with chronic inflammation; is thickened to half an inch, or even an inch, and its tunics matted together. The brain, losing its delicate and elastic texture, either becomes unnaturally hard, or of a morbid softness. The membranes are thickened and rough, and lose their transparency; there is effusion on their surfaces or in the ventricles."

Leveillè regards the disease as consisting in "an exaltation of the vital properties of the brain, by the influence of alcoholic particles absorbed and received into the circulation." This I believe to be a correct explanation of mere ebriety or drunkenness. No one, I suppose, will deny the absorption of alcohol, and its diffusion throughout the whole body of the sot. There is a peculiar saccharine odor eliminated from the surface of all habitual drunkards, exceedingly distinctive; and such seem to have been without exception, the subjects of spontaneous combustion, as it is called, which I suppose to be the accidental burning of a body, soaked and imbued with alcohol. Craigie, following out this view, ascribes the congestions found in the viscera of the drunkard, and the results attendant on them, to the qualities of the spirit-charged blood which circulates in his vessels. Alcohol, he maintains, retards the motion of such blood, by rendering it viscid; this is a chemico-vital effect, easily noticed both in

and out of the body. From this spissitude come lentor and obstructions in the capillary vessels, abdominal, thoracic, cerebral and cuticular; this last showing itself in the visage, features and eyes of the sot. The arachnoid, he tells us, is "always found opaque, thickened and elevated by serous effusion into the subjacent filamentous tissue." From all this, I think we may conclude that mania â potu is a form of phrenitis or meningitis essentially modified—1st. By the cause producing it; and 2nd. By the complications universally attendant upon it. It may be in the invading stage merely irritative or functional; but it is always ready to run into phrenitis both acute and chronic, and to give rise to all the symptoms and results which accrue from these well known affections.

Your Prognosis in mania â potu is usually favorable; most so, of course, in first attacks, when your patient is young, and has but recently fallen into the pernicious habits of excess. Few diseases are more readily curable under proper treatment. There are, however, instances of frightful violence, which terminate rapidly with coma or convulsions; and others, in which, whether from the condition of the subject at the time of the attack, or from its being imperfectly understood and improperly managed, he will sink irrecoverably into a low typhous state of febrile irritation, or will enjoy a merely transient return of apparent health, to fall into the more melancholy state of imbecility or lunacy. Among the most unfavorable indications are the restlessness, muscular agitation, and subsultus, formerly described; dyspnœa and difficulty of swallowing, dryness of the tongue and mouth; protracted pervigilium, frequently repeated convulsions; coma. On the other hand, repose, silence, sleep, are favorable tokens. A slumber long continued and profound, is almost always followed by a rational and calm awakening.

The Diagnosis chiefly regards phrenitis proper and typhous fever. The first is distinguished by the positive signs of active inflammation, full pulse, hot dry skin, etc.; the latter by the slowness of invasion of the delirium; the patient being less inclined to motion, but instinctively assuming the recumbent posture, which, in delirium tremens, is always distasteful, and only borne on account of exhaustion. A correct knowledge of the patient's habits will, however, generally be our safest guide.

The Treatment of mania â potu has been, and still is the theme of much debate. Too little notice seems to have been taken by the majority of writers, of the numerous and important varieties of appearance and character impressed on the disease, by the circumstances and condition of the subject attacked. On one point, however, there is a pretty general agreement among practitioners; a consent of opinion, which deserves the more regard from you, as the result altogether of observation and experience, without being in any way based upon a reference to the opposing speculations offered in any quarter. I allude to the rule almost universally received, that notwithstanding the apparent vascular and cerebral excitement so generally prominent, and often so seemingly intense, the customary measures of depletion are to be resorted to with much caution, if not absolutely refrained from.

Venæsection, which an inexperienced physician might at once infer to be indicated in a majority, at least of ordinary cases, is very seldom necessary or admissible. Even where it seems most imperatively called for, the lancet must be employed very moderately and carefully; a sudden and serious prostration often follows its use. You will occasionally, in the young and recently intemperate, find the pulse firm and hard, and the case approaching in symptoms to acute phrenitis, bearing the loss of blood well; and in violent or protracted convulsions, with a tense pulse, you may by this means obtain a truce. In such cases, cold affusions are also serviceable, either from the commencement, or after premising proper bloodletting, general and topical, from the temples and scalp.

The use of purgatives is more frequently admissible, yet with proper restrictions. Where the circulation goes on with average force, and the tongue is foul, and the bowels costive, some cathartic should be prescribed at once. Generally speaking, the mercurial deserves a decided preference. In the subjects of mania â potu, much visceral disorder and derangement have been gradually built up by their habits. The stomach is in a state of sub-acute inflammation; the liver is engorged, obstructed, indurated; its secretions are deficient or depraved. Calomel, in free doses, is best adapted here. It is well retained on the irritable stomach, which it soothes; while it exerts upon the

hepatic vessels a specific and salutary influence, exciting them when torpid; and relieving them when oppressed, by soliciting a free secretory discharge. If it do not move the bowels alone, in the quantity of from ten to twenty grains, a little rhubarb may be combined with it.

The emetic practice, proposed originally by Dr. Klapp, of Philadelphia, has had many warm advocates. There may happen instances in which an inactive and oppressed stomach may require thus to be unloaded of its foul and crude contents, and of the thick tenacious mucus secreted by its diseased surface. Besides this local benefit, the emetic may also exert upon the abdominal organs, generally, a serviceable influence, partly mechanical and partly specific, exciting the circulation in their vessels, thus disgorging them, relieving them from congestions, and promoting their secretory operations. For the most part, however, emetics are harrassing and injurious in mania â potu, as experience has proved, and as we would, indeed, infer from the inflammatory irritation so commonly present in the stomach. This is readily increased by the efforts of retching, and an uncontrollable nausea and vomiting thus brought on, which exhaust the strength of the patient irremediably. On the other hand, when the attack has affected directly, and in the first instance, the sensorial stylem alone or prominently, the stomach is often so torpid and insensible, so insusceptible of the action of medicines, that the largest doses of antimonials, and other most active emetics, are found necessary to bring on vomiting; nay, in some cases, the ordinary officinal preparations will not act in any dose. If, in such instances, we persevere in the mode advised to carry out this plan, we run the risk of giving occasion for the poisonous operation of our drugs, before we can obtain their emetic action on the stomach; and the journals contain, indeed, several examples of this fatal result of their administration.

In cases complicated, or attended by convulsions, we are often embarrassed by the coincidence of indications seemingly incompatible. They put on much of the appearance of epilepsy, and are liable to be repeated in a long succession, unless something impressive be done to interrupt them. The patient should be laid recumbent, in an easy posture, well supported, his head

somewhat raised, and all ligatures about the neck and body promptly loosened. A wedge of soft wood, or a compress of some thickness must be held between his teeth, to prevent the laceration of his tongue. Cold water should be poured upon his head, from some elevation, in a stream, and his hair cut close or shaved away.

The lancet may be of service, if the habit of intemperance be but newly formed, the subject young and vigorous, the pulse full and hard, the face flushed and turgid. In the opposite conditions, you will need no warning to avoid its employment, notwithstanding the strong popular prejudice in favor of bloodletting, as a general remedy for every form of convulsion.

The emetic is urgently advised under these circumstances, by some physicians. I consider it, however, as of very doubtful adaptation. I would, perhaps, administer it, if the stomach was evidently loaded and oppressed, with unsuccessful efforts to disgorge itself, during the fit. Sinapisms should be put to the extremities and the epigastrium, and an irritating enema given without delay, to be repeated, at no long intervals, until the bowels are freely moved.

I come now to speak of the remedy which deserves your special confidence, in the treatment of this distressing malady—by some regarded, as of itself sufficient for all our desired purposes, and by almost unanimous consent, admitted to be of paramount importance and utility. A wretched delirium; anxiety and horror unspeakable; with trembling and agitation of every muscle; singular prostration and debility, combined with the power of making transient efforts of unaccountable and morbid energy; a pulse quick and very frequent, and usually small and weak; a cold and clammy skin; these are the symptoms you will most generally meet with, when called to a patient whose habits of intemperance have at last overpowered his long abused constitution. A set of symptoms, approaching in degree, and identical in nature, with those which now oppress him, have probably often assailed him, in the miserable mornings succeeding nights of riot and debauchery. He has been accustomed to find relief from them, in a resort to the poison which has produced them, and has long exulted in this familiar and proverbial success. But the potent restorative has at last lost its boasted powers, and

now fails to restore or recruit, even for a moment, the energies of which it has gradually drained the system. In this complicated condition of indirect debility—excitability exhausted by excess, functional disorder and structural derangement, we must have recourse to some substituted stimulus, different in kind, but in force equal to that which has from habit lost its effect; or nature will sink hopelessly, undermined and worn out. You will anticipate me in the mention of opium, of which I will not affirm, as some have done, that it is exclusively indicated, and alone adequate to the management of these deplorable cases; nor can I boast, as Pearson and Coates do, of uniform and uninterrupted success with it. But I will not hesitate to declare my belief, that it is singly worth all our other remedies put together, and that without it, the mass of suffering and proportional mortality in this disease, would be indefinitely multiplied.

I would not depend upon the frequent repetition of small doses, as has been proposed. Our object is to obtain tranquillity, mental and physical, to quiet irritation, to procure sleep. Whatever amounts are necessary to effect these purposes, I would exhibit without fear, without hesitation, without delay. I have no dread of any ill consequences from any reasonable quantity. The loss of susceptibility—sensorial power—normal excitability, which we have no means of restoring, except the indirect one of inducing a state of sleep, during which it seems to be recruited and reaccumulated, requires a relative increase of dose of our narcotic. "The patient," says Coates, "must sleep or die." "Sleep," says Chapman, "is the sine qua non in the cure of this species of mania, and when this is effected, all difficulty is at an end." A great many physicians use the solid drug, and prescribe from five to twenty grains, repeating at intervals, as may be required. I prefer to employ the tincture, common "laudanum," prescribing one, two, or three hundred drops every hour, until the patient becomes quiet or sleeps. I have not been sensible of any injurious consequences from following this course, and have given fourteen hundred drops in a few hours, with the best effect.

I have said I prefer the liquid—the tincture. It is more prompt in its action, and besides, I have thought it possible that solid opium, in masses, especially in pills made up some time pre-

viously, and thus hardened by drying, may lie in the stomach dissolving slowly, and the latter portions coming into operation when ill timed or superfluous. I am not fond of any of the suggested forms of combination, but had rather, in the first instance, depend on opium alone. Nor do I place full confidence in any of the salts of morphine, or other extracts from the juice of the poppy, but put my trust in the crude opium, which contains them all, narcotine, morphine, codeine, and the meconic acid.

According to my own experience, we may, in the greater number of cases, commence the treatment at once, with the exhibition of the opiate; I have endeavored to indicate those in which it would be advisable to premise the lancet, the cathartic, or the emetic. When the cathartic is required, calomel may be combined, in proper doses, with opium, so that no time shall be lost. Digitalis has been proposed, as a substitute for opium, when any circumstance contra-indicates its use, and is highly recommended by some practitioners. Large and full doses are necessary. Pearson gave sixty drops of the saturated tincture, every three hours. Prof. Hooker, of Yale College, gives much larger quantities, and assures me that he has met with very gratifying success. I have more than once been pleased with its effect, in doses of ʒii of the sat: tinct: every six hours.

The patient having slept, will awake at least in an improved condition, and probably in his right mind, but weak and languid. It is scarcely requisite to urge upon you the importance of keeping him as tranquil as possible, and as free from the disturbance of noise, light, company and conversation. The camphorated julep will refresh him and stimulate his stomach agreeably. After a proper interval, if he does not sleep spontaneously, his anodyne must be repeated. If he is conscious of appetite, and expresses a desire for nourishment, agreeable and even stimulating food should be offered him. In recent cases, you will often be surprised at the very rapid restoration of the digestive powers.

While pursuing the course above pointed out, it may be absolutely necessary, for his own sake, and for the safety of his friends and attendants, to coerce, restrain, and confine the unhappy subject of mania â potu. It is consoling to reflect, that restraint and confinement, so far from producing the irritating effects ascribed to them by some writers unfamiliar with this disease, are

very generally, on the other hand, directly beneficial, and show a useful tendency to the subduction of the disease, by calming the agitation both of mind and body. I do not hesitate to resort to the most efficient measures of control, whenever they become necessary. An entire separation of the patient from his friends and relations may be called for, when he persists, as sometimes happens, to regard them as hostile or dangerous to him, whether he recognizes them or not.

Convalescence is, in some of the cases, slow and lingering, and will require from you not a little attention. There is deep, nay, almost suicidal depression of spirits;—the mind is weak and irritable; the temper capricious. The appetite is uncertain, and the digestion of food taken is rendered difficult and imperfect by the presence of gastric and hepatic disorder and obstruction, forming so common a complication in all the varied maladies which afflict the intemperate. These will call for the alterative influences of mercury, which must be administered slowly, in such forms, and so combined as to act in the least irritating manner; while you continue the judicious employment of stimulants, tonics and anodynes. Among the stimulants, camphor, the vol: alkali, and capsicum, deserve the preference. Of tonics, it is difficult to decide the choice before trial. Iron may be used; the infus: cinchon; sulph: quinine; the vitriolic elixir. If unwilling to persevere in the use of opiates, you may offer lactucarium, hyosicamus, or the preparations of hop; but they are all uncertain as anodynes.

As your patient improves, he should be permitted or encouraged to resume slowly his ordinary avocations, and to mingle in cheerful society. Exercise proportioned to his strength should be taken in the open air; but fatigue and mental excitement carefully shunned.

Of the importance of a Prophylactic or preventive system of management, which shall evade a repetition of the attacks of which we have been speaking, it is surely unnecessary to say a single word. To effect the cure of the drunkard would be worth the labor of a life; and he will be a second Jenner, who is so happy as to discover the means of protection or restoration from such misery and debasement.

In entering upon the consideration of this part of my subject,

while I am desirous not to underrate the value and force of the moral means which have been applied, I must express strongly my belief of their general inadequacy, and of the very great importance of addressing our remedies rather to the physical man. We must either find some mode of satisfying the factitious and morbid desires which so importunately urge him, or we must do away the state of the organs upon which these cravings are engrafted. No one can have failed to perceive how infinitely impotent, in opposition to this appetency, are the strongest resolutions of which the intemperate is, in his better moments, capable; how vain the promises of reformation then offered to those around him, and reiterated with prayers and tears. The moral and intellectual faculties are totally benumbed; even the love of life is extinguished in him, and but one thought, one desire pervades the whole man. This new and artificial instinct is no less strong, it would seem, than those originally interwoven by nature in our organization; nay, it would not be difficult to show that it exerts over its victims a sway as powerful as that of hunger, of thirst, or of the venereal impulse.

This topic has engaged the anxious attention of many respectable and scientific physicians, as well as of numerous empirics, hitherto I fear we must acknowledge, without any flattering degree of success. The prophylactic measures which they have suggested, have it generally for their object, to connect inseparably with the idea of the desired stimulant, some association of extreme disgust and nausea. Plausible in the abstract, these plans have been largely experimented with, by philanthropists all over our country, and although the majority have confessed a mortifying disappointment, yet we have some very gratifying instances of complete success recorded on good authority. An emetic, for example, is mingled in the ordinary liquor used by the sot, and such a dose exhibited, as shall produce much and prolonged sickness of stomach or violent vomiting. This operation being repeated several times, a loathing is expected to attend the sight or smell of the ardent spirit in which the drug has been mixed. Thus a recent habit is generated, to counteract one not so new—a natural propensity, prompting the avoidance of whatever has annoyed and disgusted us, set in opposition to the artificial propensity which has been morbidly

acquired or built up. In many points of view, this plan of management seems well adapted to do good.

If any infatuate be brought to feel deeply his debasement, so as to desire strongly some effectual means of relief, a great point is surely gained. When such an one can be farther persuaded to make any effort for his own extrication, a ray of hope has once more dawned upon him. That he should voluntarily subject himself to the persevering administration of the nauseants above alluded to, seems to prove that he is thus conscious of his condition, and resolute to shun his fate, if possible, and some aid may be given him by the means proposed.

Another method of treatment, first promulgated in Germany, by Cramer, has been strongly eulogized by Dr. Brinkell, an American practitioner. These gentlemen suppose, that the peculiar morbid state of the stomach, upon which depends specifically, the insatiable craving of the intemperate, is susceptible of change and removal, by the action of remedies specifically curative. The agent which they believe to exert the most forcible and beneficial influence, on this principle, is the sulphuric acid. Dr. Brinkell adds ʒi to ʒii of this acid to a pint of ardent spirit, which the patient is then allowed to drink, in his usual quantities; and though with proper candor, he acknowledges some failures, yet he declares that his perseverence has, in several instances, been rewarded by most gratifying success. The experiment is one very easily made; and upon the authority cited, I recommend it to you, for a fair and impartial trial.

In behalf of the unhappy drunkard still unreclaimed, one farther effort remains to be made. He must have stimulants, he will tell you. Well! if it must be so, let us yield to his suicidal wishes. But I would not so far comply with his insane and perverted inclinations, as to grant him one drop of ardent spirit in any form. Upon them, with the benevolent Rush, I would lay the absolute prohibition—"Touch not! taste not! handle not!" Opium, one of the most valuable gifts of a benign Providence—opium, which avails to soothe the most acute bodily sufferings inflicted upon our race, and with which we can even "minister to the mind diseased"—opium may be chosen as a sufficient mode of substituted excitement. So far as my observation has extended, it will never fail to satisfy the

most unmanageable sot, if given in proper quantity; and I would accord it freely: better, far better an opium eater, than a drunkard!

And yet, even yet, I would not have you totally abandon him. I would endeavor to wean him from the use of opium, by the occasional substitution of other narcotics, as lactucarium, the hop, hyosyciamus, etc., and by a gradual diminution of dose. These attempts failing, and the habit proving tenacious, I would not hesitate to withhold it altogether, and at once. If I am told of the danger of thus suddenly abstracting the whole amount of accustomed stimuli, I reply, that this risk has been beyond measure exaggerated. The records of our prisons and penitentiaries, establish beyond a reasonable doubt, the fact, that in the vast majority of cases, this deprivation has been not only safe, but salutary. If attacks of delirium tremens occur under such circumstances, they are affirmed to be as mild as they are unfrequent. I have already stated deliberately, and I am prepared to maintain, that convulsions, mania and death, are much more likely to supervene during an uninterrupted course of ebriety, than upon its abrupt intermission. Nothing can, then, be lost by the restraints proposed, while on the other hand, if fairly carried into effect, they offer us the only conceivable chance of a cure for our miserable patient.

CHAPTER XLIX.

APOPLEXY.

Among the various morbid affections of the sensorial system, Apoplexy claims a very prominent place. It is by no means an unfrequent disease, and its statistics show a very large proportional mortality. Its suddenness, and the necessity of prompt and efficient aid, to those assailed by it, call upon us for a minute investigation into its nature and causes, and the treatment best adapted to cure and prevent it. The obscurity, too, which con-

tinues to envelope some portions of its history, must serve to stimulate our curiosity, and excite us to more ardent and persevering enquiry.

Apoplexy may be briefly defined to consist in a loss of the powers of sense and voluntary motion. The organic movements continue; the circulation not usually much disturbed, respiration somewhat embarrassed and impeded. It is most often met with in persons of middle age, or advanced in life, of full plethoric habits; among those addicted to excess of all kinds whether moral or physical, those who yield themselves to intense study, those subject to vehement impulses, overpowering emotions, or violent gusts of passion, those abandoned to intemperance and debauchery. A predisposition is found, in both personal and hereditary constitution, which may give rise to it in the young and temperate. The external configuration of body is recognized here, and the "apoplectic form," described by writers, "a large head, florid complexion, a thick and short neck, broad shoulders, ample chest, globular abdomen, low stature, strong limbs, and general corpulence." When we speak of plethora, as among the predisposing conditions, let it be remembered, that we allude to the morbid state formerly considered in detail, and that this is the result of extremes at both ends of the scale of living, being engendered, as well by insufficient nutrition from want or defect of food, as from too high feeding, with defective assimilation. We shall not, then, feel any surprise at the fact discovered and announced by Sir Gilbert Blane, that in Great Britain, as many die from apoplexy among the starving poor, as among the luxurious rich.

The exciting causes which tend to develope and which are of themselves, when intense, quite adequate to produce an attack, are numerous and diversified. In the predisposed, such a list would include almost every departure from regularity of ordinary habits or strict correctness of regimen. Thus a full meal, especially just before going to bed, or indulgence in stimulating food or drinks in any quantity; muscular exertion of more than usual force or protracted to unaccustomed fatigue; exposure to a hot sun; a tight cravat or other ligature about the neck; a bad position, as in lying with the head low, or stooping downwards to pick up anything from the ground, to tie a shoe or the like;

a fit of anger or other violent passion; the suppression of an accustomed evacuation, as the removal or drying up of an issue or seton, the healing of an old ulcer, the stoppage of epistaxis or hemorrhoids; the metastasis of inflammations, as gout and erysipelas. Active aneurism, hypertrophy, enlargement of the left ventricle of the heart, is alleged to be not unfrequently connected with apoplexy, either as cause or coincidence. It is obvious that such a condition of the organs must exert an evil influence upon the cerebral circulation. Indeed, all diseases of the heart, whether of active or passive character, must produce some such disturbance; either driving the blood with too great momentum towards the brain through the arteries, or impeding its return through the veins, in both contingencies tending to determine an attack of apoplexy.

Apoplexy has been strangely asserted to be occasionally epidemic in its prevalence. The frequency of occurrence, at particular periods, however, and in certain localities, from which this notion was derived, is easily accounted for without reference to any imagined atmospheric influence of specific character. It is in the relaxing heats of spring and early summer, that we meet with these terrible affections of the head chiefly. Here we have not only the exciting or stimulant affect of elevated temperature upon the solids of the body, but doubtless an actual augmentation also of the volume of the fluids from expansion by heat, and thence a proportional distention of the vessels, which of course will be more likely to yield at any weak point. It is at these seasons that headaches are most complained of, and that hemorrhages are apt to break forth, from whatever surface.

In all hot climates it is dangerous, for the above reasons, to be exposed unsheltered to the direct rays of the sun at and about meridian. Coup de soleil or insolation is one of the most frequent and violent forms of apoplexy. On one glowing day of the remarkably hot summer of 1824, I myself saw no fewer than five cases of this sort. The majority of such cases, which were very numerous in June and July, were among the intemperate of the lower classes of society, but this was by no means true of them exclusively; as the most orderly females and even children were attacked. In the bill of mortality for that year (1824,) we find the deaths set down from apoplexy at twenty-

five, to which, if we add, as should be done, those noted as "coup de soleil, sun struck," insolation, nine, we have the total, thirty-four; a strikingly large amount: In 1822, there were but eleven such deaths.

The predisposition from age has been much dwelt on, but there has been some difference of opinion as to the precise time of life when it is most fully developed. From the era of Hippocrates to the present day, the period of most frequent access has been commonly assumed to be between the fortieth and the sixtieth year. Cullen, however, regards the cases happening after sixty as more numerous than those of previous date. Rochoux, who paid much attention to the subject, gives a table of sixty-three cases; in which we find seventeen between forty and sixty, and thirty-five between sixty and eighty. This agrees with Cullen's view of the matter, and it shows more than half the whole number of cases occurring in the more advanced stages of life. In our climate, attacks of apoplexy are, I think, in the majority of instances, earlier than the earliest of the dates above referred to. In my own practice, the greater number of cases have been between twenty-five and forty years of age. Of the thirty-four deaths in 1824, we have seven between twenty and thirty; ten between thirty and forty; and after forty we have seventeen; just the moiety of the entire number. This seems in accordance with the ancient Hippocratic doctrine; but it must be recollected that apoplexy is of necessity more fatal, in proportion, in old than young subjects. No age is exempt from it. I have myself seen a well marked instance in a child of less than three years, and several others between the tenth and twentieth year, especially from insolation. In some tables you will be surprised to find the greater number of deaths among females; here at least the proportion is reversed, as we would expect, both from the greater exposure, and from the less regular habits of the other sex.

Symptoms and history. The attack of apoplexy may be and often is sudden and without warning. The patient falls to the earth senseless and motionless, as if, according to the belief of the ancients, under the influence of some malignant star, or thunderstruck. The face is usually flushed, and of a dark red or livid hue, with a singularly dull and heavy expression. The

eyes are prominent and fixed, the pupils being at first for a short time contracted, but soon dilating permanently and widely, insensible or nearly so to light. The skin is commonly hot and dry, but I have more than once seen it bedewed with abundant perspiration; the pulse in ordinary cases is full, hard and rather slower than natural; the breathing slow and deep, becoming stertorous, a circumstance upon which some stress is laid as a diagnostic; occasionally the cheeks are distended and the respiration is performed with a puffing noise. From this state the patient cannot be roused; yet it is rare that he will not give some slight and equivocal evidence of sensibilily to the irritation of pricking, pinching or burning. You will be touched to observe also that, at the voice of a friend uttered in pitying sympathy, the lid of the dilated eye will slightly twinkle, or the starting tear will find its way slowly over the cheek of the moribund. There is almost always a difference in the condition of the two sides of the body, one being more completely paralysed than the other; or perhaps one side will be affected with twitchings, or convulsed.

After an uncertain lapse of time—it may be from four to ten or twelve hours—the muscular relaxation or loss of power is more notable,—the limbs and neck are flaccid—the mouth is open—the tongue lolls out, and the saliva flows over the chin; or the countenance is fallen and distorted—the lips slightly contracted, so that respiration is performed with a sort of blowing, and the saliva ejected in a frothy state. The extremities now become cold—the pulse loses its fulness and force, and is more frequent; if not absolutely deprived of the power of motion, the patient is excessively restless, tossing, moaning, sighing, and perhaps yawning languidly; the face is deadly pale—the cornea dull and opaque—a cold, clammy sweat breaks out—the urine and fœces are discharged involuntarily, and death closes the distressing scene.

Sometimes the access of the disease is more gradual, and preceded by a train of not unfamiliar warnings. There is vertigo, with nausea and oppression of the stomach, amounting perhaps to vomiting, followed by transient relief; the vertigo returning, soon ushers in an unequivocal stupor. The patient, at other times, complains of unsteadiness of vision, and extremely un-

easy sensations, becomes alarmed and agitated, utters indistinct sounds and sheds tears, before absolute coma supervenes—or paralysis of some nerves may precede indefinitely the development of apoplexy; the hand grasps feebly objects attempted to be laid hold of—the feet trip or fail—articulation is difficult. In plethoric subjects, a fixed head-ache, a flushed and hot face, a sparkling before the eyes in the dark, a ringing in the ears, numbness of the tongue or of the arm or leg, a confused state of the memory, a peculiar degree of torpor or sleepiness, form a series of premonitory symptoms, calling for prompt relief, and affording opportunity of warding off the threatened attack.

It is not rare, that the disease steals upon its victim with imperceptible approach—its profound coma forming the transition state between sleep and its "twin brother, death." This mode of access is particularly observed in corpulent persons who eat full suppers, and sleep heavily and deeply.

In a majority of apoplexies, the fatal termination takes place in a few hours—from twelve, perhaps, to twenty-four—but the patient may die within a shorter period, say three or four hours, or may linger for several days in a condition of helplessness and insensibility, varying considerably. In a young lady about twenty-one years of age, I saw it protracted for a week, during which time she more than once eat and drank, and spoke pretty distinctly. Or, whether by reason of a less degree of intensity in the paroxysm, or of a greater capacity of resistance in the constitution, or, it may be, of the energy and efficiency of our remedial management, the patient may recover completely. It is, however, more usual to witness but a partial restoration; he awakes slowly and gradually from his stupor with hemiplegia—palsy of one side of the body, a state of disease which shall hereafter receive from us the careful consideration it deserves.

Of the Diagnosis. From sleep however profound, noise, light, and external irritants, will awake the sleeper; but the apoplectic is not to be aroused by shouting in his ear, or by striking or beating him. From syncope, we separate it, by the full, slow pulse, and the stertorous breathing. From epilepsy, we discern it, by the absence of muscular convulsion of active character—from the hysteric paroxysm, which counterfeits it sometimes very closely, by the degree of duration of the insen-

sibility to light and irritants, and by the labored circulation and stertor in breathing.

In such cases of asphyxia, so called, as resemble apoplexy, we must refer to the previous history of the case. It will generally appear, whether the patient has inhaled the fumes of burning charcoal, or has descended into a well or vault, or has been exposed to extreme cold. The torpor from this latter cause, may give very nearly the symptoms of apoplexy, as in a case well-described by Dr. Kellie, in which sense and motion were gone, while respiration and circulation continued. I shall have occasion to refer to a similar instance shortly.

In the oppressive sleep which ensues upon intoxication, and which is produced by opium as well as by ardent spirits, the diagnosis is exceedingly difficult—nay, many maintain, that the case comes fairly and properly under the head of apoplexy, when considered in reference to the actual condition of the patient. As a general rule, however, the pupil in the eye of one narcotized by opium in large quantity, will be found contracted—contracted closely and permanently—that is, until death; while that of the true apoplectic is as generally relaxed and dilated. I will not venture to affirm, that there are no exceptions to the condition thus stated, in regard to either case, but I am sure the fact will almost uniformly be found to be as I have asserted.

The smell of alcohol about the mouth or clothes or in the breath of the subject, will usually serve to show us the actual condition of the drunkard; yet this test is in itself somewhat doubtful, and besides, it may be altered, modified and disguised, in a variety of modes. Here the stomach-pump is an invaluable auxiliary, and should be applied, at once, to decide the question. It can, in no case, do any injury, and if there be in the stomach either alcohol or opium, our first step, doubtless, should be to remove them. Even when there is a strong spirituous odor exhaled in the breath, we shall not be safe in neglecting the patient as merely intoxicated. He may have taken but a little alcohol, enough to act as exciting cause of the apoplexy, or just enough to taint his breath. I well recollect a poor fellow who was suffered to remain in this state for twelve hours, in the belief that he was "only drunk," and with the expectation that "he would sleep himself sober;" he awoke no

more. Gregory observes, that a fit of apoplexy perfectly resembles a state of extreme intoxication, from which, he says, "it cannot be distinguished, but by the actual cautery, which will rouse, in some degree, the inebriate, but not the apoplectic patient." Of the extreme uncertainty of this test, which indeed might have been affirmed beforehand, accident once afforded me striking proof. On the evening of one of the coldest days of the cold winter of 1828–29, I was called to see a negro fellow who had been found on a wharf in a state of insensibility. He was habitually intemperate, but there was no proof that he had been drunk on that day, nor was his breath affected by the odor of any spirit. His body was exceedingly cold, and he presented, in other respects, the usual symptoms of apoplexy. I had him placed near a large fire, which, during my absence, was increased so as to burn the soles of both feet, one of them very severely. He that night recovered so far as to move and speak, but felt no pain in his feet until next day. He has always persisted in saying that he drank no spirits, but being much fatigued and very cold, he swallowed a large draught of water, which produced violent cramp in the stomach, and the subsequent insensibility.

A transient cerebral affection, which like intoxication simulates apoplexy pretty closely, is well-described by Dr. Hall. I have never met with it, and shall, therefore, give you his description of it in his own words, as presenting a good view of the points both of similarity and difference.—"A gentleman fell from his horse insensible; he was carried home and put to bed. The pulse was natural—the tongue loaded and swollen—the breath fœtid—the bowels constipated; but the countenance was not distorted nor flushed, and the limbs all moved on being pinched. A cathartic and a purgative enema were exhibited, and the patient soon recovered without any paralysis."

Insolation has been regarded by the great majority of practitioners as a condition uniformly apoplectic. This is undoubtedly an error. Russell, of Madras, in 1836, laid before the college of physicians some cases tending to show that fatal exposure to the heat of the sun affects rather the pulmonary than the cerebral circulation. A year or two since, Dr. Dowler, of New-Orleans, published in a New-York journal some striking

observations on this subject. He demonstrated, in several instances of insolation, the existence of "pulmonary apoplexy," as it has been strangely called—engorgement and effusion of blood extensively within the pulmonary tissue. Hence, he denies altogether the correctness of the views formerly entertained, and proposes that the phrase "solar asphyxia" be employed to denote this condition. I think he has been led somewhat into an extreme. I do not doubt his facts—nor, in a properly restricted way, the correctness of his inferences. Exposures to solar heat may be fatal in both modes; and the pulmonary asphyxia may be distinguished from true apoplexy or cerebral congestion by exploration of the thorax.

The general Prognosis in apoplexy is decidedly bad; the proportion of recoveries is small, and of these the majority remain paralytic. Under the most favorable circumstances, there is left a strong tendency to recurrence of the attack, which requires a great degree of care and watchfulness on the part both of the patient and his physician. Your best hope of ultimate and permanent restoration is in the young and temperate, and such as have been affected by some transient cause or very peculiar exposure—cases of insolation for example—and those which in children arise from the irritation of dentition or the excitement of some violent fit of passion. But in the aged and infirm, the prospect is gloomy; and to the glutton and the drunkard, a brief paroxysm of apoplexy is usually a happy substitute for more tedious and annoying modes of disease and death.

Autopsy. In few instances shall we find so large a mass of observations collected and recorded, as in the case before us, and the appearances after death from apoplexy, have been minutely described by pathologists of the highest authority, from Bonetus and Morgagni down to Abercrombie and Andral. The brain is almost uniformly found to present some morbid condition, as would indeed be anticipated from the history of symptoms. It is true, that both Abercrombie and Clutterbuck declare that there is a form of apoplexy called by Dr. A. simple apoplexy, and by other writers, nervous apoplexy, in which no change can be detected in the cerebral mass. All agree, however, that these cases are rare. For my own part, I doubt whether they are correctly arranged here. The diagnosis, in certain cases, is

confessedly very difficult, and these are among them; sudden deaths from disease of the heart are often misplaced here, and besides, in so delicate an organ as the brain, I would rather trust myself to the general analogical rule, than venture to affirm the absolute non-existence of lesions, which, however slight, may serve to give rise to fatal results.

The morbid appearances familiarly noted are of three kinds—1. A turgescence and preternatural fulness and distention of the vascular structure of the brain—both arterial and venous. Now it is possible that the elasticity of these vessels may so far relieve them from this condition after the death of the patient, as to afford grounds for the opinion of Clutterbuck and Abercombie, just now commented on. 2. The lesion most commonly met with is a true hemorrhage; an effusion of blood from some portion of the membranes or within some part of the cerebral mass, either from transudation, rupture of some vessel, or actual laceration of the soft, fibrous tissue of the organ. Andral gives a case, where it was found between the pia mater and arachnoid; it has been met with between the dura mater and the cranial bone; arteries have been seen ruptured; the lateral sinus has been torn; the substance, both of the cerebrum and cerebellum fissured or lacerated, most frequently the corpus striatum: and 3. An effusion of serum within the ventricles, or from some point of the surface of the meninges. These phenomena, which if ever undetected, are so seldom wanting, that it is not unfair, I think, to assume their uniform presence, have given foundation to the belief, that pressure applied to the contents of the cranium, is the essential and constituent cause of the apoplectic paroxysm; there is little or no pathological difference, whether such pressure be occasioned by engorgement of the cerebral vessels, or by extravasated blood, or by effused serum. This opinion, however, supported as it seems to be, very strongly, by the similarity of the symptoms of the disease under discussion, to those induced by mechanical injury of the skull, with depression of the bone, and the very general and prompt relief given by the removal of such depressed fragments, has not been received universally, or unquestioned. It is denied by many, that the brain can be subjected to undue pressure, in any manner, protected as it is, within a bony case of uniform ca-

pacity—always equally full of incompressible substance. Upon this, I remark—1st. That blood, and pus, and serum, are actually poured out in large quantities within the cranium, whether there is room for them or not, and whether the brain is compressed or not: and, 2d. Even allowing that no addition can be made to the absolute contents of the skull, on account of its unyielding form and unvarying capacity, it is easy to conceive that one portion of the brain shall be subject to undue determination, vascular congestion—intra-vascular pressure therefore, or to extravasation of blood on its surface, or within its lacerated tissue, or extra-vascular pressure by serum or pus effused, while other portions shall suffer under a deficiency of circulating fluid. In reply to Clutterbuck's suggestion, that this latter condition, defect, or irregularity of circulation, may be the cause of the symptoms of apoplexy, it must suffice to say, that numerous observations have established a definite relation between the part of the brain subjected to direct lesion and pressure of unaccustomed fluid, and the parts of the body whose functions are deranged—a point much and not unfruitfully labored by phrenologists.

Some pathologists, admitting the coincidence of pressure on the brain, either intra-vascular or extra-vascular, represent it as merely an unessential concomitant, rather to be regarded as consequence than as cause of apoplexy, and altogether incapable of giving rise to or explaining the symptoms of the disease.

In the investigation of this question, M. Serres instituted a course of experiments upon oxen, horses, dogs, rabbits and birds, whose heads he opened with a trephine, making pressure upon the surface of the brain, and within the ventricles, by the blood effused in his operations, and also by the insertion of pieces of cork into excavations of the cerebral substance. He affirms, that apoplexy was produced in no instance; in none was there somnolency; in some there was hemiplegia. He dwells upon the cases in which, as in hydrocephalus, large quantities of serous fluid have been found in the head without apoplexy, and others similar, in which, after death, sanguineous coagula and effusions have been found lodged in different parts of the brain and in the ventricles. But it is surely unnecessary to examine, in detail, a course of argument so illogical as this. His facts,

giving them their full weight, only prove that pressure does not always produce paralysis and apoplexy. Now every tyro in surgery knows that the coma, which is the general consequence of fracture of the skull with depression, is sometimes wanting, and that the bones may be actually beaten in upon the brain without this effect.

Serres divides apoplexy into two varieties—the one simple; the other complicated with paralysis partial or general. The simple form he supposes to depend on an irritation of the membranes, the pia mater or arachnoid, which may result in serous, sero-sanguineous or purulent effusion. This he calls meningeal apoplexy. In the second, which he terms cerebral apoplexy, the encephalon itself is the principal seat of the irritation; the substance of the brain undergoes some alteration, or suffers some lesion; excavations are found in it filled with blood, while the surrounding structure is indurated, and assumes a yellowish or reddish hue.

Abercrombie's reasonings on this subject contain a singular mistake. He contends, that apoplexy does not depend upon pressure or determination, "but merely upon interrupted circulation;" and goes on to observe, that "there exists such a derangement of circulation in the head, that more blood enters by the arteries than can be transmitted by the veins." But, if more blood enters the head by the arteries, than leaves it by the veins, such determination, of course, implies congestion and consequent pressure. It is not easy, however, to explain clearly what is meant by the pathological phrase, determination to a part. We can create a mechanical "determination" to any portion of the external surface by the application of a cupping glass, and the exhaustion of its cavity, thus removing the weight of the atmosphere, which is left to press upon every other exposed point. But there is no analogy here to aid us in the enquiry into the nature of morbid determinations to internal organs, and, least of all, to the brain, protected as it is against all change in the degrees and modes of atmospheric pressure.

If we consider the heart as the sole moving power which propels the fluids in the vessels, as we cannot surely suppose it endowed with any elective disposition or propensity, we cannot thus account for the unequal distribution of the blood. We

must suppose the phenomenon to depend, then, upon some local condition of the vessels, which either expand spontaneously, thus inviting a flow into their augmented calibre, or they must yield passively, having become, in some mode, weakened or atonic, so as to be dilated by the current passing through them. Both these conditions may happen; the former I think the most frequent of occurrence. Those who attribute the arterial congestion to venous or capillary obstruction, ought to show that the veins are empty or imperfectly filled; but this is not alleged.

I must not omit to notice the old distinction of apoplexies into serous or sanguineous, which ran through all the discussions and influenced all the practice in the case. For these phrases Good attempted to substitute the terms entonic and atonic, referring merely to the state of the pulse and countenance. They are both becoming obsolete, being unconnected with our improved pathology, and of no importance practically.

To conclude, although I differ from Serres in believing pressure on some part of the brain, either vascular or extra-vascular, to be an essential constituent of apoplexy in all its forms, I am willing to recognize the correctness of the division offered by him into simple and complicated, or, as he has denominated them, the meningeal and cerebral. In apoplexies from insolation generally, I have found no appearances of paralysis—no distortion of the countenance; among subjects thus affected, many are aroused into a phrenitic condition. They are much more under the control of proper remedies, and much more apt to recover perfectly. In these cases, then, I am inclined to admit the strong probability, that the vessels of the membranes were affected, and not the substance of the brain.

Of the Treatment. The suddenness of the invasion of this terrible malady—the rapidity with which it progresses to a fatal issue—the delicacy of structure of the organ affected, and the importance of its perfect integrity, combine to demand from us the promptest and most impressive interference for the relief of the patient. We have seen that, in a very large majority of instances, there is either actual or impending hæmorrhage, and unless some distinct contra-indication present itself in a given case, the most efficient preventive or means of arrest is to be found in venæsection. The resort to it, is matter of almost

universal consent, though in ancient times it was strongly opposed by Hippocrates and Forestus; and some of our modern practitioners, among whom are the respectable names of Fothergill, Heberden, and even Clutterbuck, have expressed concerning it an unreasonable hesitation and timidity. As a general remedy, there is no doubt of its propriety. Place your patient in a cool, airy situation, and in a convenient posture, elevating his head and shoulders, but allowing him to recline; remove all ligatures about his neck and body, and open the largest vein that presents itself. By some physicians, the jugular is preferred, but there is very seldom any difficulty in procuring a sufficiently full stream of blood from one or both arms. I scarcely need remind you, that there is no limit to the quantity which you are to take away, but the production of some sensible effect upon the pulse or general system. "It ought to be known," says Cheyne, "that from six to eight pounds of blood have been taken from a person by no means robust, before the attack, which terminated favorably, began to yield." You will, it is true, occasionally meet with instances in which the face is pale, the features shrunken, the pulse weak, compressible and fluttering, and the whole frame at once prostrated before the force of the attack. Here, whatever else you might do, you certainly would not detract blood; it has been said, that such a case would be a desperate one, and that the lancet could do no harm. It is certain it could be of no service. We have thus spoken of the extremes; there are examples of a medium character, in which you will have need of all your judgment and discrimination to direct you aright. The necessity of free depletion here, however, is for the most part so clear and urgent, that in all doubtful cases, I would open a vein, and keeping my finger on the pulse, watch carefully its effect upon the circulation. If this seemed to sink or fail without a compensating amelioration of the symptoms, I would abandon this mode of depletion as unsuited. "I confess," says Dr. Cooke, commenting upon the peremptory recommendations of unyielding perseverance in regard to this matter, which have been urged by some of our brethren, "I confess, that notwithstanding their positive opinions and directions, I would not venture to persist in the detraction of blood, if, after free and repeated bleedings, there

was no apparent advantage, and a fortiori, if symptoms of debility should supervene."

Arteriotomy is extolled by certain writers, who promise us an obvious advantage from opening the temporal artery. There is, however, great irregularity in the flow of blood from this vessel when divided. If the determination to the head be of recent date or sudden, the discharge is small and slow; if of long standing, the artery will have become dilated, and the jet will be difficult to restrain, requiring bandages and ligatures of inconvenient application. I have twice met with this state of things.

Topical bloodletting is almost universally indicated. Cups should be applied to the temples, the sides of the head, and back of the neck. Leeches may be of use also in protracted cases. The scalp should be shaved entirely, and after cupping and leeches, subjected to the influence of cold. Affusion of cold water, in a stream from the height of a few feet, is the most efficient mode of applying cold, and is indeed often productive of immediate benefit. I can scarcely account for the prompt and decided impression which I have often seen made by this remedy, in cases which, to use the phrase of Abercrombie, "I conceived to be perfect apoplexy," especially in that form of it produced by insolation. Its effect upon the pulse is striking—reducing it to a mere thread, with remarkable alleviation of the coma; nay, I have more than once witnessed rapid and complete recovery when nothing else was done for the sufferer.

In proceeding to speak of the use of emetics, we enter upon debateable ground. The advocates for their administration dwell upon their acknowledged efficacy in removing the gastric oppression consequent upon a full meal—the presence of undigested crudities in the stomach—and the evil influence of stimulating liquors; all of which have been already mentioned among the exciting causes of an attack. They remind us too of the determination to the cutaneous surface, and the diminution of morbid vascular action which follows free vomiting. On the other hand, there can be no doubt of the risk incurred during the effort to vomit, especially if attended by much straining, from the force with which blood is driven to the head, and the impediment offered to its easy return. If any of the cerebral vessels have been ruptured or lacerated, an increased flow from

its open mouth will take place under such circumstances; and as we cannot discriminate true hemorrhage of the brain from simple apoplexy, with intra-vascular pressure, I would warn you to be very cautious in prescribing emetics. It has not happened to me to witness any benefit from them. Dr. Cooke advises "the exhibition of an emetic of speedy operation, if after free and repeated evacuations of blood, both general and local, and the administration of clysters and other revellents, no signs of amendment are perceptible." The indications for vomiting are most clear when the patient has been attacked after a large or improper meal, and when there are signs of nausea with retching. Yet Dr. Cooke gives us two cases of this very description, in which he prescribed emetics without any apparent advantage. Here, however, I acknowledge I should be desirous to get rid as quick as possible of the contents of the stomach.

The utility of purgatives in apoplexy is undoubted; but there is much difficulty in procuring their operation in time to be of service. The patient is unable to swallow, or swallows but little and slowly. Hence we should select the quickest cathartics, and those which act in least quantity. As their revulsive effect is sought for, we may choose those which irritate somewhat—castor oil with turpentine, croton oil, elaterium if at hand, gamboge, scammony, colocynth;—either of these may be given, and if the patient cannot swallow, may be introduced into the stomach by the stomach pump. They should be assisted by enemata of energetic quality, Glauber's salts in solution with soap, or the turpentine emulsion. It is always a favorable circumstance to procure free evacuation of the intestinal canal, and to find the patient sensible of the irritation aroused by medicines which affect that extensive surface. In this expectation we are however often disappointed. The sensorial system, which supplies with life and excitability every portion of every tissue of which the body is formed, is under present circumstances, invaded, oppressed and unfitted for the performance of its important and necessary functions; and the nervous influence which is demanded incessantly to renew or sustain the sensibility of the living fibre, is cut off at its very source. Hence arises not only a more or less complete insusceptibility to the specific action of all purgatives; but owing to this deficiency of vital power, the internal

mucous tunic of the stomach and bowels becomes incapable occasionally of supporting the local excitement caused by their presence.

Among the observations of M. Serres, we have an account of the morbid appearances, after death, of four apoplectics, who had been treated with the antimonial emetic, but in whom it had failed to bring on vomiting. In these he found the stomach and upper intestine in a state of most intense inflammation, the villous membrane coming off in flakes with black spots scattered here and there over the colon. In eight subjects who had been unable to swallow, and who had been treated with purgative clysters, there was no perceptible lesion of the stomach or small intestines; but all the large intestines from the valve of the colon to the extremity of the rectum, were contracted, the internal membrane being of a deep black color, with flaky lamina floating in them.

He contrasts with the above cases those of seven apoplectics who were brought to the Hotel Dieu moribund, and who died from the thirtieth to the fiftieth hour after the invasion of the attack, without any remedies having been administered to them. In these there was not the least trace of inflammation either in the stomach or intestine; and hence he concludes, reasonably enough, that the inflammatory appearances found sometimes in the primæ viæ of apoplectics, and much dwelt on by the advocates of the gastric pathology of this disease, are merely incidental; foreign to the development of the apoplexies themselves, and mere effects of the treatment and the attendant circumstances. These remarks, however, are not made here with a view to impugn the practice of administering cathartics, but simply as throwing light upon the nature of the case, and the difficulties which surround us in its management.

In the meanwhile, strong and repeated frictions should be applied to the whole body, sinapisms laid to the extremities, and vesicatories successively to the back of the neck, the epigastrium, and all along the spine. These counter-irritants are doubly remedial, as revulsives and stimulants. They determine from the brain to the external surface, and tend to rouse the patient from his comatose condition, by exciting his dormant susceptibilities, and spurring forward the circulatory organs,

which from their comparative independence upon the sensorium commune, by direct nervous connection, are the last to fail and yield. If these irritants are ineffective, we must endeavor to impress the cutaneous integument with agents of prompter force. Cloths soaked in hot water or hot turpentine may be wrapped about the limbs, or the ammoniated embrocation of Granville laid to the abdomen, or on the spinal column.

In proportion to the great mortality of apoplexies, of whatever form, in whatever class of subjects, and under whatever mode of treatment, is the value and importance of a judicious prophylactic management of such as are known to be liable to its attack, either from the warning of the premonitory symptoms, formerly detailed, or from having been once assailed by it.

I have already mentioned, that convalescence from it is rarely perfect. Whether simple or complicated, whether followed by paralysis, or not so attended, apoplexy leaves behind it a strong tendency to repetition or recurrence. I will not repeat what was said in the early part of our course, on the subject of plethora, the principal source of many of our most serious maladies, and of this terrible disease among the number, any farther than to remind you of what was then argued, as to the true means of correcting this morbid condition of the constitution. Much may be learned by physicians, from observation of the different modes of training in use among sportsmen and pugilists, by which so much is added to the muscular vigor and general energies of the human and inferior animals, while the apparent mass of fluids, and the entire bulk of the body, undergo corresponding diminution. Exercise and strict temperance in all the habits and conduct, with a diet regulated, both as to quantity and quality, are the means by which these objects are attained, and would answer our purposes as well, if we were possessed of the means and power to institute and enforce them.

Where the proper prophylactic regimen is enjoined in vain, or imperfectly followed, we must watch our patient with assiduous care. Any increase of the ordinary signs of what is considered and spoken of as determination to the head, must be relieved by the occasional exhibition of a laxative, or the loss of a few ounces of blood. Let me again warn you, however, against the too frequent use of the lancet, as likely to add to the

evils which we are anxious to remove. Low diet may be also employed for transient reduction of the force of the cerebral circulation, and for its tranquilizing influences, but must not be too long persisted in. It is an old aphorism, that "diseases of inanition are worse than those of repletion," and I have already had occasion to refer to Sir Gilbert Blane's assertion deduced from tables kept with minute attention, "That there is a larger proportion of apoplexies and palsies among the lower classes, than in the higher ranks"—a result which he attributes to "the spare and exhausted habits of the former." Inanition, it is obvious, must detract as much from the tone or contractile power of the living vessels, as it does from the actual force or momentum of their fluid contents.

Many practitioners place great confidence in the revulsive influence and derivative effects of issues and setons. These are inserted in preference, in the back of the neck and the upper part of each arm, and are specially attended to, so as to keep up from them the most abundant discharge, in the season of spring and the early months of summer.

CHAPTER L.

PARALYSIS.

Paralysis or palsy, is a term very generally used, and employed with so many different meanings, not only by the common people, but even by profesional men, that it has become doubly necessary to define accurately the signification intended. For example, it is not at all uncommon to speak of any organ as paralyzed, when it has ceased to perform its peculiar function, either wholly or in part; and this vague language, however incorrect, has become so completely matter of ordinary usage, that we can scarcely avoid it. The vulgar application of it, is less objectionable. Perhaps it would be best to confine the use of the word, so as to appropriate it to the loss or notable impair-

ment of the power of voluntary motion, in muscles controlled by the will. I propose thus to limit it at present, and shall proceed to treat briefly of the several varieties usually recognized.

Paralysis is divided into general and partial. It is general, when the muscles of all the limbs are affected; locomotion being thus prohibited, and the prehension of food. Partial paralysis is subdivided according to circumstances. A single muscle may be palsied; a few muscles; a single limb, as in the paralysis from lead, already treated of; both the lower limbs, when it is called paraplegia; the upper and lower limb of the same side, when it is called hemiplegia.

Very commonly, loss or impairment of the touch and the sense of feeling, attends the loss of the power of motion, in a part; but the coincidence is not uniform. A few striking examples, may be given you, out of a great number upon record, to prove this. Dr. Cullen mentions a gentleman, who had loss of motion without loss of sense of one arm, and loss of sense without loss of motion of the other. Dr. Ley gives a case of a lady in a similar condition, who could hold her child to her breast with the arm of one side, in which the muscular power was still sufficient, though the feeling was so completely lost, that it was necessary she should keep her eyes fixed on it, or she would not know whether it was pressed to her or not; the other arm felt, but was powerless. In two hemiplegic patients of my own, the sense of touch, in the palsied arm, was very defective, though feeling was not lost, as was unfortunately proved by the suffering of intense pain in each. You are no doubt aware that the nerves of sensation and the nerves of motion are distinctly separate, from their origin in the spinal chord to their extremities. The power of motion is connected with, or derived from the anterior; sensation, with or from the posterior columns of the chord.

Our definition of paralysis forbids the confusion made by some, who would regard apoplexy as nothing more than an universal palsy. But apoplexy implies the cessation of action, not only of the voluntary muscles, but of those engaged also in the functions of organic life.

Of general paralysis, there are several cases on record, to which I may add two, from my own observation. One of these was a very stout, robust boy, of about three years of age. Here,

there was sudden and complete loss of muscular power of all the limbs, without obvious cause, and unattended with any apparent derangement of the general health, or any impediment to the performance of the vital functions. There was no stupor, no distortion of countenance, no affection of the face, mouth, eyes or tongue. This child was treated unsuccessfully, by emetics, cathartics and tonics, of various character, but finally recovered entirely, under the employment of electricity, frequent shocks being given him, for more than a fortnight. The second was a woman, who became paralytic after a violent attack of puerperal convulsions. She also, after a long illness, having bid defiance to every other mode of treatment, was perfectly cured by the persevering application of electricity.

Among the cases of general paralysis in the books, is a highly interesting and singular one, in which palsy was gradually progressive, involving, as it advanced, the organs of sense; yet long after he was "thus shut out from all means of communication with others, his speech and intellect continued unimpaired."

The Causes of such paralysis as this, are very obscure; perhaps it would be more proper to say, unknown. In a case given by Dr. Abercrombie, the case began as paraplegia, but after some time, became general paralysis, which lasted twenty years; the health, aside from the loss of motion from the head down, continued good. Examination was made with the utmost care, by Drs. Abercrombie and Pitcairn, but no lesion discovered, either in the brain or spinal chord. To these parts it is certainly reasonable to refer all the forms of palsy, the most local and limited of the partial paralyses excepted; which we are disposed to attribute to some local affection of the nerves of the part. But as yet, our knowledge on these points is not clear.

No successful inquiry seems, as yet, to have been made, into the condition of the nerves supplying the parts affected in local palsies, where the injury or loss of function has been confined to one or more branches of any nerve, but has not extended to all the parts which it supplies. When more general, we refer the morbid state to some injury, as before said of the brain, or of the spinal chord. The nature of the changes met with, may be very much varied. Compression, ramollissement, thicken-

ing, absorption, infiltration, deposition of many forms—examples of all these are on record; but there are many cases which, on the minutest examination, betray no cognizable change. In such instances, and in a majority of the more local paralyses, we are accustomed to lay some stress upon the observed connection with remote disease; as in colica pictonum, where the palsy of the wrist and hand seems obviously to depend upon the poisonous influence of the salts of lead upon the digestive system. It is usually taken for granted, unhesitatingly, that the excitability or susceptibility of the nervous tissue, is lost or impaired notably. But we shall by and bye have to speak of one therapeutical fact, at least, which throws a shade of doubt over this opinion, and which seems to imply the possession of an increased nervous susceptibility or irritability.

The condition of the paralyzed part, is also matter of interesting investigation. As a general rule, it may be affirmed that a palsied limb is of lower temperature than formerly, and that it soon becomes affected with atrophy; the pulsation, even of the larger arteries within it, sensibly diminishes in force, and from want of free circulation in the smaller vessels, it is apt to be swollen and œdematous. There are exceptions, doubtless, to the truth of these remarks, but they do not often occur.

Of general palsy I have little to say, in addition to what is set down above. It is so rarely met with, as to deserve to be considered rather as a pathological curiosity, than as a point of practical importance. Its causes, as you were told, are very obscure. Its treatment is, of course, uncertain, and must depend on the particular circumstances of each individual case. Looking to cerebral disorder as its probable source, we may resort to cautious depletion, both general and local. To the latter we may add local counter irritation, by setons, issues and vesicatories. If there be no vascular excitement, or the system seem feeble and reduced, tonics should be resorted to, and a fair and persevering trial made of the efficacy of electricity and galvanism. The former, I have already spoken of, as the only serviceable remedies made use of in the two best marked cases that have occurred to me, and as having been in both, entirely successful.

Among the several forms of partial paralysis, I shall treat,

first, of Hemiplegia, or palsy of one-half the body, longitudinally divided. Like apoplexy, hemiplegia has its seat in the brain, and is, in a vast number of cases, connected with that terrible affection, either as antecedent or consequent; a hemiplegic dying at last of apoplexy, or an apoplectic being roused from stupor and coma, recovering with loss of voluntary motion of the limbs of one side. There has been some dispute as to the nature of the cerebral affection which produces paralysis. Concussion may, for a time, impair or destroy the powers of motion. Lesions of various kinds may produce similar effects, but, for my own part, I regard the connection as being definitely made out between pressure upon, or compression of, one side of the brain by an effused clot of blood, and the symptoms which constitute hemiplegia, affecting the opposite side of the body. I lay down the proposition broadly and distinctly; the apparent exceptions are not clearly designated, and if they were, are quite as rare as are adduced in relation to any other general rule whatever. The reference thus made exclusively to cerebral pressure, as the cause of the whole train of effects noted, is here, as in apoplexy, objected to, on the ground that pressure often occurs without occasioning palsy, as in alleged instances of injury of the head, and in the collections of fluid found within the cranium, as in hydrocephalus. As to the first class of cases, I would observe, that no cause seems, in its agency, to be infallibly efficient, or independent of concurrent contingencies; and that such instances are too few in number, to weaken the rule to which they are exceptions. With regard to serous or hydrocephalic accumulations, they form parts of the history of well defined morbid states, of which it is one of the best marked contingencies, that the substance of the brain is readily absorbed, thus escaping compression, and that an attendant impairment of the voluntary motions of the whole body, is so uniform that it would be difficult to decide on the presence of any local paralysis. "For many years," says John Hunter, "I have been particularly attentive to those who have been attacked with a paralytic stroke, forming a hemiplegia. I have watched them while alive, that I might have an opportunity to open them when dead, and in all, I found an injury done to the brain, in consequence of the extravasation of blood."

The seats of this extravasation are varied—1. It has been found between the dura mater and the cranium. 2. Between the pia mater and arachnoid. 3. It has been met with as the result of rupture of the lateral sinus. 4. As the result of rupture of the communicating artery of Willis. 5. As the consequence of laceration of the centre of the cerebellum. 6. As the consequence of laceration of the corpus striatum, perhaps the most frequent locality of the clot. 7. It has been seen effused by simple diapedesis from the vessels of the membranes, without rupture or laceration. The local lesion, whatever be the nature of the injury, is found upon the side of the head opposite to the hemiplegic half of the body; a rule which, if ever, is very rarely broken by any exception.

M. Serres has given us a very full account of the precursory and concomitant phenomena connected with hemiplegia consequent upon apoplexy, to note which, he has watched whole days and nights, at the bed-sides of apoplectics. His first observation is, that in attacks of cerebral or complicated apoplexy, the patient falls down upon that side which is to become paralytic. He remarks a contrasted state of the performance of the functions of circulation and respiration, as being presented during the fit; the action of the heart being quickened, as the respiratory process is retarded. In an uncertain period, a few hours perhaps, the laceration of the brain, by rupture of some vessel and extravasation of blood, takes place; the pulse, until now slow, laboring but firm and full, becomes quicker, small and concentrated. The symptom, which most immediately precedes the other hemiplegic phenomena, is, he says, a flattening and inactivity of one side of the thorax, which cavity is, of course, unequally dilated in breathing. The sensibility is obtuse on both sides of the body, but sometimes more evidently so, on the side which is about to become paralyzed.

I have seen a distinct interval between the apoplectic paroxysm and the occurrence of hemiplegia. In the case to which I allude, the patient fell upon the floor, and lay for a while motionless and insensible. He recovered from this state so far, that when I reached him I found him conversing intelligently with his attending physician. While examining him, and after he had spoken several times to me, and moved freely each of his limbs,

I observed, as he lay before me on the sofa, a slight shudder agitate the whole body, and the limbs of the right side sink or subside heavily. On enquiry, they were found quite motionless, but he still spoke and understood clearly, expressing himself forcibly in reference to the horror he felt at the discovery of his situation. In about half an hour, articulation became impossible, but was gradually, and with extreme slowness recovered. At least an hour must here have elapsed, between the access of the fit and the supervention of hemiplegia. This patient survived for years, helpless and miserable.

You must not fall into the erroneous belief of a necessary connection between apoplexy and hemiplegia. I have witnessed two cases of fatal apoplexy, in which death came on without paralysis, after apparently complete relief of the first appalling symptoms. In one of these, a young lady, the interval lasted for a week, during which the patient spoke, eat and drank, but gradually sunk into death, as if exhausted. In the other, a very old woman, ninety-one years of age, at least, all the apoplectic symptoms disappeared, the motive powers were fully restored, but with great complaint of languor and debility, and she died in about twenty-four hours from the attack.

As hemiplegia and apoplexy arise very frequently from the same cause—compression of a portion of the brain by extravasated blood, it is clear that either may precede the other, and paralysis may occur without the terrible consequence of apoplexy, as the latter may take place independently of the former.

The first steps of the invasion of hemiplegia, are occasionally very insidious, and may be observed by others, before they are noticed by the patient himself. The foot is perhaps likely to trip against slight obstacles, to be insufficiently raised in going up stairs; the hand does not close as firmly as usual, and small objects are let fall; the eye is not perfectly shut in sleep, or the act of winking being imperfect, it is inflamed by the intrusion of motes. An embarrassment in the pronunciation of certain words, or in articulation generally, may be the first in the train of symptoms. In the celebrated Dr. Samuel Johnson, this indistinct utterance gave him the earliest alarm. In the farther encroachments of the disease, one set of muscles after another is attacked; there is loss of the usual expression of countenance, with

some distortion of the visage; one cheek hangs flaccid, and deglutition and mastication are impaired, from the imperfect motion of the tongue, lips, cheek and pharynx. There is often a numbness and tingling in the limbs, a sensation which some patients complain of as exceedingly distressing. Hemiplegia, however, is not always thus gradual and progressive in its invasion; but not unfrequently, even when unpreceded by apoplexy, assails suddenly and with prompt development of its peculiar traits. Here we are apt to have the same premonition, as in its kindred affection; and warning of the approaching evil is given, by pain in the head, with or without nausea, and vertigo, numbness of the fingers, ringing in the ears and flashing of light before the eyes—circumstances which betoken, clearly enough, a morbid determination to the brain, with turgescence of its vessels and derangement of its circulation.

Hemiplegia, when fully developed, has been already defined to consist in privation of voluntary motion on one side of the body. The face loses its symmetry, from the flaccid condition of one cheek; the mouth is distorted; the tongue, when protruded, is thrust to the affected side, and is apt to tremble; articulation, mastication and deglutition, are difficult, slow and imperfect. The diseased limbs lose their muscular fulness and roundness; the fingers gradually put on a waxen appearance, are stiffened and drawn inward; the nails are colorless or livid.

It is usual with authors, to describe paralysis as implying a complete and entire abolition of sense and motion; but this is an error. "I never saw a case of palsy," says Dr. Cooke, "in which sensation was entirely lost." Nor have I ever seen an instance, in which the power of motion, however impaired, was altogether wanting. We observe, sometimes, irregular or spasmodic contraction of the paralyzed muscles, and sometimes irregular, depraved sensations; heat is complained of, or cold, or dampness, or formication. I do not pretend to account for the fact, but I have repeatedly remarked, that sensation is soonest lost and restored most slowly in the lower limb; and the power of motion most readily and completely abolished in the arm, to which it is much the most rarely restored. This greater aptness to paralysis, is shown in the palsy from lead and other poisons, which almost exclusively affect the upper limb. Time,

which so often brings back, in a certain degree, the motive power of the leg, so that the hemiplegic is almost always able to limp about, (whence the frequent reports of cure or partial restoration, by strychnine, etc.,) seldom, comparatively, effects any restoration of the arm and hand, which remain useless. Such is the permanent condition of a large number of my own patients. The arm, too, is almost exclusively the seat of the morbid sensations, which, in so many paralytics, rise to agonizing pain.

In the condition thus pourtrayed, the patient lingers through an existence of protracted misery, a burden to himself, and an incessant source of grief, anxiety and distress to his friends. But dreadful as is this description, it is by no means the dark side of the picture. The loss of the corporeal powers, is an evil not to be estimated; but physical deprivations are comparatively little in the account. In a great majority of cases, the mind becomes affected, no less than the body. The memory chiefly, is impaired, but all the faculties are weakened. "The paralytic patient," says Dr. Parr, "cries and laughs without adequate cause; is timid, irascible, violent. The distortion and vacancy of countenance give an air of fatuity to his look and manner; the tongue hanging from his mouth, the saliva dropping from his chin, contribute to render him an object truly pitiable. It is the most dreadful lot of humanity."

The duration of hemiplegia is altogether uncertain, but may be said to bear a sort of relation to the age of the subject. That is to say, if the attack occur in early life, the powers of accommodation which form so obvious a part of the animal constitution, are more likely to be favorably exerted, than if the patient be aged. Thus, Andral gives a case of a man æ. 72, who became hemiplegic at eight years of age. Of my own patients, one who was attacked in 1819 with apoplexy, from which he arose paralytic, still drags about a stout body upon a limping leg, but with no motion of his arm or hand.

The general Prognosis in hemiplegia is certainly unfavorable. Instances of cure are found on record, and do now and then occur, but they must be confessed to be very rare; and even of these, but few can be fairly attributed to the powers of medicine. The laceration or extravasation to which we ascribe the

symptoms, is scarcely within reach of our remedial means. The effused blood, which, by its mechanical pressure, is believed to give rise to the train of subsequent symptoms, however varied and complicated, must either be absorbed, or the organ injured must, in some manner, accommodate itself to the unnatural and morbid condition in which it is placed. The former process, absorption of the clot namely, is affirmed to be effected in some instances, and Messrs. Riobè and Bricheteau describe the mode in which it is carried on. A peculiar membrane, they say, is formed around it, on whose inner surface is secreted a serous fluid, which dissolves the coagulum; thus melted down, it is resorbed, and in proportion as it is removed, the palsy which it has occasioned, gradually and progressively disappears. You need not be told, that we have no means of hastening or promoting this process, beyond the very indirect method of restoring the system as far as it is in our power, to its proper condition of energy and vigor; thus affording the best opportunity for the ready and perfect performance of all the functions. If the patient be young, then, and have previously enjoyed good health, we may venture to hope for this favorable result. Amendment, when it does take place, is said to commence with formication or creeping sensation in the paralytic limbs. There is occasionally violent pain, which some suppose to arise from the distention of contracted vessels. There is a glowing heat of the surface; irregular contractions of the muscles become more and more frequent, and gradually fall more readily under the control of the will. The general health, which has of course suffered, perhaps chiefly from want of exercise, also improves; the memory regains its capacities; cheerfulness and hope at last return; the muscles atrophied and shrunk for want of use, fill out again, and are once more symmetrical.

Of the Treatment. In recent cases of hemiplegia, when the patient is not beyond middle age, the constitution of ordinary firmness, or the subject robust, it will be proper to resort at once to the use of the lancet. The view which we have taken of the nature of the morbid affection which gives rise to the symptoms present, so closely analogous with the circumstances of the apoplectic paroxysm, would of itself lead us to the unhesitating and hopeful employment of the remedy. Yet we should entertain

no very confident expectation of immediate and striking benefit from it. Nay, it will in many cases seem rather to diminish the general force of the circulation and reduce the strength of the patient, than to remove the congestion in the brain, or the turgescence of the cerebral vessels. Speaking generally, however, of such subjects as I have above indicated, it will not be safe to omit venæsection; for although it may possess no influence towards effecting the removal or absorption of the blood already effused, if laceration and effusion have taken place, its tendency, even here, is favorable, as lessening the likelihood of any additional hemorrhage. It is easy to carry the detraction of blood too far, even in the most robust subjects, and you should be cautious not to fall into this extreme. When you are doubtful of the propriety of farther depletion by the lancet, resort to topical bloodletting by cups and leeches; the former of which may be applied upon the back of the neck, or upon the shaved scalp, the latter to the temples and angles of the jaw.

The persevering employment of purgatives constitutes an important part of the treatment of hemiplegia. At first, the drastics deserve a preference, as the bowels seem to partake in the general torpor of the system, and the intestinal irritation to which they give rise is useful, by its revulsive effect, beyond the mere depletion. Jalap, scammony, aloes, gamboge, elaterium, croton tiglium, furnish us with sufficient variety of this active class of cathartics; and by the proper regulation of the doses administered, we may keep up a permanent drain from the alvine canal, as freely and as long as the condition of the patient may require, or his strength of constitution enable him to sustain. It is my habit, however, to intermit from time to time, the exhibition of purgative drugs, and to substitute for them irritating and laxative enemata; by which proceeding we leave the stomach and alimentary tube an opportunity of resuming their natural and healthy functions, while we keep up the revulsive determination to the lower bowels, long known to be a powerful means of relief in all affections of the head. Solutions of the neutral salts, and emulsions containing spts: terebinth:, may be used in this way.

Emetics have been highly recommended under these unhappy circumstances. They are alleged to be doubly serviceable; by

arousing the general system from its torpor and depression, and also by directly promoting absorption. I cannot say that I have ever seen them productive of any very decided benefit. On the other hand, I do not shrink from their occasional administration, when the tongue is loaded and the stomach uneasy, and have seen no reason to fear the ill effects which some have ascribed to them.

In the deplorable cases of protracted hemiplegia, which so often embarrass the practitioner, and wear out the sympathy and patience even of the friends of the paralytic, an extensive and indeed a fair field is offered for rational empiricism, and an almost infinite series of experiments has been made, in the hope that something may be found which shall enable us to rouse the torpid or renew the exhausted energies of the sensorial system. With this purpose, the whole catalogue of tonics and stimulants, internal and external, have been in succession resorted to; it must be acknowledged with no very gratifying results. Some advantage has been occasionally derived from the use of certain pungent vegetables as food, which have therefore long been in repute; such as onions and garlic, the horse raddish, cresses, mustard, which, with others of the same class, may have done some good, as well by their diuretic as their stimulant power. Cantharides have been prescribed and eulogized, and I should hope something from them, if carried far enough to produce a revulsive irritation of the urinary organs. Camphor and ammonia also have their advocates, but they have disappointed me entirely by their uselessness.

I am disposed to arrange under this head of stimulants the strychnos nux vomica, which has within a few years been introduced into the treatment of hemiplegia, and has had assigned to it by some very respectable authorities, the highest place on the list of remedies for this very intractable disease. One among the most powerful of vegetable poisons, it seems to exert, when properly managed, a peculiar influence upon the muscles of voluntary motion; and what is singular and extraordinary, this influence is for the most part directed exclusively upon those affected with the paralysis. When given in sufficient dose and repeated with proper perseverance, it excites contractions, usually transient, convulsive and spasmodic, startling to the patient as

being entirely independent of the will. Fouquier, to whom we are indebted for its introduction into regular practice, has seen it produce general tetanic contractions, without any consequent mischief. These contractions, as I have said, if not altogether confined to the paralytic muscles, are certainly much more violent and frequent in them; and hence has arisen the opinion, intimated to you above, that the nerves of the parts palsied are by no means, as was formerly supposed, in a state of torpor or impaired excitability. Indeed, the inference seems well founded and reasonable, from the greater susceptibility of the muscles to which they are distributed, to be thrown into contraction, whether convulsive or tetanic, by the agency of the nux vomica, that they are rather in a state of increased, undue, or morbid irritability. The dose of the nux vomica, as given by Fouquier, was four grains of the powder, or two grains of the alcoholic extract, repeated from two to four, or even six times a day, as the patient could bear it; for the susceptibility of different individuals, to its peculiar effects, varies very much in degree. It is at present used very little in this crude state, a deserved preference being almost universally given to the active principle obtained from it by chemical analysis, and entitled strychnine. It is an alkali of chrystaline form, excessively bitter taste and inodorous. The dose is from 1-20 to 1-2 grain, and its repetition requires caution. It is very irregular in its operation, and will often disappoint you. In inordinate amount, it produces intoxication, stupor and violent convulsions, to relieve which Orfila advises the vitriolic æther and ol: terebinth. I have not been fortunate in the experimental employment of strychnine in hemiplegia, but numerous cures are reported by Fouquier, Prof. Geddings, and others. It deserves a fair and persevering trial from you in every obstinate and protracted case.

I have lately seen singular contractions in paralytic muscles excited by veratrine. It was used externally, the ointment being rubbed upon the part. The patient, himself a physician, unhesitatingly ascribes to it the recovery of his powers of articulation, mastication and deglutition, which had been impaired in an uncommon degree. I am so far satisfied of its efficacy, that I have determined to repeat its application in my future cases, and to make use of the tincture also internally.

None of the vegetable tonics, properly so called, have retained any of their ancient reputation in the case before us; but much stress is still laid on some of the metallic preparations. A preference is accorded to the sulphate of zinc, which is perseveringly administered, in minute doses, for a great length of time. The white oxyde or sub-nitrate of bismuth, and the preparations of iron, are also employed. Mercury has not been neglected; but I have seen no good effect from it, unless where gastric or hepatic derangement has supervened. In such conditions, we may obtain from it very evident benefit; it is best prescribed in small doses and at long intervals, persevering with it until we procure its usual alterative influences.

Nothing is more unanimously agreed on than the propriety and necessity of the persevering employment of irritants and stimulants externally applied. Friction with the hand, with a flesh-brush, or, as some think peculiarly effectual, with rough tow, is affirmed of itself to have restored life and motion to a palsied limb. The baths are much confided in. Some choose the cold bath, the shock of which may be very serviceable, provided there remain locally, and in the general system, sufficient vigor and capacity for re-action, to occasion a glow on the surface after its use. When the degree of debility, local or general, has exceeded this point, the warm bath is to be preferred. Natural hot baths, I know not clearly why, have been found more efficacious in paralytic cases, than water artificially heated. The hot waters of Bath and Buxton in England, and of the Virginia and Buncombe Springs, have acquired some reputation for their alleged influences over paralysis. The cutaneous inflammation from mustard, applied in dry powder, or in poultices, or in watery or spirituous infusion, is said to have been productive of excellent effect if persisted in. So also, the peculiar inflammation from spts: of turpentine and moxibustion, are affirmed to have been followed by recovery. Scourging the affected limb with nettles, is an ancient remedy. The eruption from tartar emetic and from croton tiglium, the insertion of setons and the opening of issues, and the repeated application of vesicatories on successive portions of the hemiplegic side, are all reported to have wrought cures.

From galvanism and electricity, I am disposed, however, to

anticipate, with more confidence, a restorative operation in the present condition of the patient, than from any or all other means above enumerated, as excitants of the deficient nervous energy. The well known results of the physiological investigations of Wilson Philip, demonstrate an analogy, a similarity, perhaps, in nature, between the electric fluid and that peculiar principle whose agency is exhibited through the nerves. In one of his experiments, the eighth pair of nerves being divided and folded back, digestion ceased to be carried on in the stomach until this viscus was aroused to action, or fitted for it, by passing to it a stream of electrical or galvanic influence, thus proved to be, at least, an available substitute, if not a kindred agent. While I thus assume, with the chemists, the identity of galvanism with ordinary electricity, I by no means intend to affirm, that their modes of action upon the animal body are precisely the same—nay, I am rather disposed to regard them as distinct and different, although I am unable to explain the nature of this difference, or to point out distinctly the cases to which either may be best adapted. Some paralytics shrink from the electric shock, and feel very uncomfortable upon the insulating stool, who nevertheless bear well, and with evident advantage, the whole force of a powerful voltaic battery or trough. Experiment alone will teach you the least objectionable and most satisfactory method of applying in practice these useful remedies.

Paraplegia—the paralysis of the lower limbs, or of the lower half of the body transversely divided, next demands from me a few remarks. As an idiopathic affection it is extremely rare, but is every now and then met with in consequence of some mechanical injury to the spine. To some lesion or other of the spinal cord, it is, indeed, almost unanimously referred. Drs. Baillie and Earle, however, with some other respectable pathologists, regard it as attributable also to causes which operate at least primarily upon the brain. In a case occurring in Georgia, and reported to me minutely by my friend, Dr. Waddel, no injury or morbid change was discovered in either of these organs, and the disease was regarded as the ultimate effect of very severe and long continued gastric and intestinal de-

rangement. In one of the few instances that have presented themselves to my observation, it appears to be the consequence of protracted neuralgia seated in the lower limbs, no prominent spinal affection having been at any time connected with the loss of muscular power. The instance of Couthon, one of the obscene birds of prey which hovered round the carcases of the victims of the reign of terror during the French revolution, is of some interest, as briefly referred to in the history of the times. He is said to have been paralyzed in the lower extremities by exposure to damp and cold locally applied, having fled to a marsh at night to escape the anger of a jealous rival in a love affair. Farther than the loss of power over the lower extremities, neither his intellectual or physical capacities seem to have been impaired. His case furnishes an example, too, of the lesser degree of paralyzation of the flexors than the extensors, giving rise to contraction of the limbs obstinate and permanent, and embarrassing the executioner when the wretch became, in his turn, the subject of the guillotine; a doom far too mild for his savage crimes. A similar contraction of the flexors of the arm is often noticed in hemiplegia. It is more rarely met with in the lower extremity.

A patient was brought to the Infirmary of the College in 1834, (Feb.,) the history of whose symptoms was peculiar and interesting. He was a negro boy about ten years of age, a very intelligent, good looking little fellow, plump and healthy in appearance. He had lost the use of both his lower limbs, but one of them was more nearly motionless than the other. His left arm was muscular and strong; his right arm was useless from palsy, but his right hand was capable of action when supported, though he could not lift it. His removal from the Infirmary unfortunately deprives us of a knowledge of the progress and results of the case.

I have little to say concerning the Treatment of paraplegia. So many circumstances concur in establishing the relation between some morbid condition of the spinal cord and this form of palsy, that it would seem proper in every case to direct our attention, and apply our remedies, to the lower portion of the vertebral column. Cups should be put on the loins at intervals; blisters laid over the sacrum and to the upper part of the thighs;

setons should be inserted in the same neighborhood, and issues kept open. It would be difficult to lay too much stress upon the spine along its whole course, regarded as a mere centre of revulsive influence. In this respect, it is at least equally, if not more deserving of selection, for the application of counter-irritants, in abdominal and other diseases, whether well understood or obscure, than the epigastric centre so much and so justly dwelt on.

A persevering course of purgatives has been insisted on; mercurials administered for their alterative influence; the cold, hot and vapor baths have been strongly recommended. Frictions of both limbs, and the long continued use of a great variety of irritants, of which mustard, turpentine and ammonia, may be mentioned. Strychnine has seemed well adapted here, from the apparent analogy with hemiplegia; but the result of the experiments made with it has not been flattering. An instance of success with it is related to me by my friend, Dr. Jervey.

A very recent report of the utility of the secale cornutum in paraplegia, has appeared in one of our journals. Its modus operandi is supposed to be, by stimulating the lower portion of the spinal column, to which, indeed, the writer attributes its action on the uterus and bladder. The dose prescribed was, in one case, an infusion of ℈i. daily (every morning;) in another from 15 to 60 grains. Four cases of cure, thus made, are stated to us.

A singularly interesting case of paraplegia, is detailed in the London periodicals, (1840,) as occurring in St. Bartholomew's Hospital, under the care of Mr. E. Stanley. The disease commenced three years before the patient's admission into the hospital, with impaired motion of the lower extremities, progressively increasing, and ultimately becoming complete in both limbs. There was no defect of sensation in any part. Autopsy showed no disease except in the spinal cord. Here, contrary to all anticipation, the anterior columns were found healthy. From these, you are aware, the nerves of motion are derived. On the other hand, an extensive change of structure was manifested "in the posterior columns, from the pons to the lower end of the cord." A similar case was related at the Westminster Medical Society by Dr. Budd. Mr. Shaw confessed that he

could not explain away the difficulties of these cases, which really appear contradictory to the present received opinions of the structure and functions of the spinal cord and its nerves.

Under the present head of partial paralysis, I will bring to your notice an insidious form of Local Palsy, which has scarcely been mentioned by any of the numerous writers on the subject. It is usually met with in children, in whom I have seen not less than four cases of it. Twice have I known it occur in adults. The muscles of one side of the face are exclusively affected; it is not attended with pain or uneasiness of any kind, and hence the patient is seldom, if ever, the first to be aware of its existence. It shows itself by a singular and unpleasant distortion of countenance, the effect of a loss of associated action between the muscles of the opposite sides of the face, the paralyzed side remaining at rest and flaccid, while the other is contracted naturally, the symmetry of the visage being thus destroyed. This is, of course, more notable in laughing and crying, and it is on some such occasion that the discovery is made. On examination, one side of the face is found deficient in sensibility as well as nearly motionless. The eye cannot be shut completely; the corner of the mouth is either fixed or drawn somewhat downward, and the cheek is soft, rounded and a little swollen. The tongue, in some, is pressed to the affected side when put out. The child is low-spirited, and readily sheds tears when distressed by the notice taken of the distortion of his countenance. Yet, the general health is good, the appetite as usual, and the pulse natural.

In the two adults above alluded to, as suffering under this Facial Paralysis, there were, however, some symptoms of constitutional disorder. Both were dyspeptics. One had complained much of vertigo before the countenance became distorted. In neither was there palsy of any other muscles than those of the face. Both were distressed during convalescence with a quivering sensation in the affected cheek, and one with tinnitus in the ear of the diseased side.

This form of local palsy has been by some regarded as a mere affection of the nervous trunks and branches distributed over the cheek and face. I think it safer and more reasonable to ascribe the symptoms rather to cerebral determination and turgescence

of the vessels of that part of the brain whence these nerves arise.

The Treatment which I have pursued, is founded on this view of the matter, and has been uniformly successful. It consists in the Hamiltonian use of cathartics; a gentle but constant operation upon the bowels being kept up for two or three weeks, regulating, at the same time, though not very much reducing, the diet of the patient. The amendment in every case, though slow, has been steadily progressive.

During the dentition of children, and associated with the varied disorders of the digestive and sensorial system which attend that condition, we meet occasionally with local paralysis of a most indefinite form, attacking one or more muscles of the limbs. An instance of this sort is now (1840) under my observation. A child of about one year old has lost the use of the deltoid and pectoral muscles of the right arm, which it cannot raise. It grasps with the hand firmly enough. Otherwise, it seems well. As it recovers the muscular power of the upper limb, the lower extremity of the same side seems affected with a general impairment of power.

Paralysis Agitans is best defined, I think, as that condition of the muscles of voluntary motion, which consists in a continued shaking, the result of imperfect and interrupted contraction. It is shown especially when certain muscles are called on to bear the weight of any part, or to perform their accustomed actions in any way. It is sometimes habitual, as is seen in the shaking of the hands of many persons during their whole lives; it is common during convalescence from severe illnesses; it is almost characteristic of extreme old age, whose tremulous voice, nodding head, and tottering knees, are to be thus accounted for. I have seen a very striking case of it in a stout and robust young woman æ. 20, who could not, for some weeks, raise her head from a pillow without being distressed and agitated by its continual shaking. Here, it seemed dependent on menstrual and alvine irregularities, and disappeared under the use of steady purgation by rhubarb combined with the carbonate of iron.

Our hope of a cure, in such cases, must obviously be founded

upon our knowledge of the cause. If this be transient, evident and removable, as in the above example, and in subjects debilitated by recent disease, we shall probably be able to afford relief by appropriate remedies. Such is not the fact, however, in a majority of instances. They result from some peculiarity of constitution, and are incurable; or depend upon the inevitable wearing out of the powers of the system in the decline of life.

And this seems to me the proper place to call your attention to a pathological principle, which, if ever alluded to by medical writers, is by no means sufficiently dwelt on—I mean the close connection or absolute intermingling of the two conditions of the organs of voluntary motion, at first sight seemingly contrasted and opposite, Convulsion and Paralysis. The first, either in the shape of spasm, a permanent contraction, or of convulsion familiarly so called, where contraction of transient form alternates with frequent relaxation, is often, indeed, combined with the latter. Sometimes we account for the permanent contraction of certain muscles, by supposing a more perfect paralysis of their opposing muscles, as in hemiplegia when the arm is forcibly bent and the fingers closely drawn into the palm of the hand. Here the flexors have retained more of their contractile power than the extensors, and act unopposed. Again, some muscles of a paralyzed limb retain a larger portion of their irritability, and are excited by agents or influences which fail to affect the rest. One of the subjects of paraplegia to whom I above referred, tells me, that he has been more than once surprised with the irrepressible force shown occasionally by the extensors and sometimes by the flexors of his legs, which act involuntarily and without any obvious excitement. This takes place sometimes when he is lying passive—sometimes when he is sitting still, and sometimes when he is walking, supported as usual by his arms. Under these latter circumstances, the muscular movements resemble those characteristic of our next subject, viz.:

Chorea, which I will term Paralysis Vaccillans. This strange malady, which fortunately is not often met with, has many names, and has been arranged under both heads of convulsion and palsy. From certain fanciful associations, it is known as

St. Vitus' Dance, the Dance of St. Guy, and has been associated improperly with the tarantella of Italy and the hysterical affections of fanatic enthusiasm, which however have occasionally given rise to it.

Chorea does not by any means, consist in a simple loss of power in the muscles affected, but essentially depends upon the impairment of the control or volition over the voluntary motions. Paralysis agitans, is almost always a local affair, confined to a few muscles; chorea is always, as far as I have seen, general, nay, universal; the whole voluntary motive system being disordered, though the affection of one portion, may be more prominent than that of others. The obvious diagnostic of true chorea, is this, that in all cases at first, and in a majority throughout, the cause of involuntary or irregular contraction of the muscles, acts upon them only at the moment when the will is directed upon them, and when they dispose themselves to respond to volition, leaving them at other times tranquil. In the most violent cases that I have ever seen, I have always been able to succeed, in greater or less degree, by soothing language and gentle repression, in restoring comparative tranquillity to the patient, agitated by a most painful consciousness of his condition, and ever anxious and still hopeful to regain the lost control over his movements. These movements are singularly awkward; nay, the books shamefully describe them as "ludicrous." Though sometimes violent, they are never painful, though they may hurt the patient, by collision against adjacent objects. Copeland says, it is "more frequently partial than general;" but I have never seen a partial case. The movements cease, during sleep; but the rest of the patient is apt to be easily disturbed. In all cases that I have met with, there has been obviously a coincident impairment of the general health. The appetite is defective, the breath fœtid, the bowels irregular; as the attack goes on, the patient is more and more restless, desponding, anxious, and agitated, sheds tears often, and profusely; walks insecurely, or cannot move about at all; in the worse examples requires to be restrained from injuries inflicted on the head, hands and feet, by violent concussions; deglutition is difficult and uncertain, mastication impossible, and the articulation indistinct. The eyes

are red, and wild looking; the temper pettish and irritable; the mind unsettled and imbecile.

Chorea is, happily, so seldom fatal, that no light has been shed on its pathology by autopsies. I am, however, convinced that the whole sensorial system, and chiefly the brain, labors under some morbid condition, the nature of which is by no means purely inflammatory, as some have supposed. This sensorial disorder may be, in some cases, primary, but in general, seems to be secondary and sympathetic, resulting from gastric or intestinal derangement, in the greater number. The disease occurs almost exclusively in childhood; exceptions, it is true, are recorded, but you will hardly meet with it in an adult. Girls are oftener attacked than boys, as being, from original constitution, and education also, more mobile and susceptible. It leaves behind a strong tendency to recurrence. I am farther convinced that it scarcely ever fails to produce a most unfortunate influence upon the youthful intellect, with whose development it sadly interferes. Convalescence from it, is seldom, if ever, free from notable imbecility, amounting occasionally to absolute fatuity, from which the patient recovers very slowly.

The greater number of authorities have fixed upon the brain, indeed, as the seat of the disease, but they differ as to the portion of the cerebral mass which is morbidly affected. Copeland found, in addition, inflammatory appearance of the spinal cord, but with proper caution, refuses to refer chorea to that condition, as its cause. Serres detected morbid changes in the corpora quadrigemina, in four cases, and with less reserve, considers these bodies as the seat of chorea. Others still, from physiological analogies, refer it to the cerebellum.

The Causes of chorea are uncertain. I saw it in one case supervene, during recovery from scarlatina, and in another, it came on while the child was convalescent from a severe attack of catarrhal fever. It seems to have resulted, occasionally, from verminous irritation. I recollect an instance, in which it appeared to depend upon the presence of a needle in the body, which had been swallowed, and many months after, found its way out of the buttock, the child laboring throughout all this time, under chorea.

The General Prognosis is favorable. I have seen no death, and but once a return of the disease; and such is the testimony of a majority of writers. Brown saw three fatal cases. Copeland, three or four. Prichard four.

The Treatment must depend upon the apparent or supposed cause of the attack. Hamilton, attributing it uniformly to derangement of the primæ viæ, as the primary and prominent condition, recommends in the strongest terms, the persevering employment of mild purgatives. And, indeed, whatever may be said of the theory, his practice has been eminently successful. Cathartics are always indicated, in the first instance, by the foul tongue and fœtid breath, and if they do no other service, they tend to relieve the obvious determination to the head, which annoys the patient.

There are often reasons to suspect the presence and irritation of worms, when some anthelmintic remedies, judiciously selected, should be added to our purgative formulæ. After a certain period, it becomes necessary to combine some tonic also, and of these, I decidedly prefer the carb: ferri. Sulph: zinc: is highly eulogized, and may be exhibited in very large doses. Elliotson says, that beginning with a grain, you may increase to six, seven, or eight grains, which children will bear, (after meals,) three or four times a day, without nausea. He goes on to tell us, that he has given to adults, as much as twenty to twenty-five grains, three times a day. Arsenic and quinine, have also been used with advantage. The latter has been prescribed in very large doses, and is urged upon our attention with strong expressions of confidence; but for my own part, I select and depend upon the mineral, rather than the vegetable tonics.

The cimicifuga racemosa or black snake root, is much used in the middle and northern states, having been brought into vogue, I think, by Dr. Physick. The cold bath has been resorted to. I have found it beneficial in one instance; but the shock is more than can be well borne by most patients. Cold should, however, be assiduously applied to the head, from time to time. The lancet does not seem to me, to be at all adapted to the disease, as I have met with it. So also I pronounce as to the irritative revellents recommended by some authors, blisters, setons, issues, moxas, and the like.

Narcotics and sedatives are occasionally beneficial. I have derived advantage from very minute doses of opium, with alkali, as in the diaphoretic mixture. A weak aromatic infusion of camphor, may also be of service. With belladonna, stramonium, digitalis and prussic acid, I have no experience. They have each of them been eulogized. I must make the same avowal as to musk, electricity and galvanism.

In the course of my practice, I have met with but a few cases, not more than thirteen in all. These have, without exception, yielded to the treatment that I have above indicated, as deserving your preference. The children have been kept secluded, under the care of a quiet nurse, upon whom the injunction was strongly laid, to endeavor constantly, by every gentle influence, to repress all emotion or agitation, bodily or mental. The head has been kept cold by moist napkins, the hair having been cut closely. The bowels have been constantly acted on, but never violently or painfully; at first, by rhubarb and calomel, afterwards leaving out the mercurial, and combining the carb: ferri. This course has been patiently persevered in. If the bowels became soluble or too loose, the cathartic was abandoned, and the diaphoretic mixture substituted, a few drops of Fowleri min: solut: being added to it. If necessary, means of restraint were used, to prevent injury to the hands, feet, and head of the patient. The food consisted of light farinaceous articles, in fluid form, with milk and eggs. Every imaginable indulgence was bestowed on the patient, if not absolutely injurious, and every wish complied with; care being taken to avoid excitement, and as far as possible to prevent depression and dejection.

Hitherto these assiduities have been crowned with uninterrupted success; a gratification which I trust, you, in your future labors, are destined fully to share with me.

CHAPTER LI.

EPILEPSY.

Convulsion has been ranked by Cullen, Good, and other nosologists, as a separate class in the system of each, and made to include several orders or varieties. I cannot find sufficient reason for following them in this arrangement. Convulsion appears to me, in all cases, a mere symptom, varying widely in its combinations, modes of access, extension, etc., relatively to the circumstances of predisposition, and also to the specific irritations which give rise to it. It may be defined to consist in a series of involuntary, rapid, and forcible contractions of the muscles of voluntary motion, alternating with transient relaxations of the same; or of alternate contraction of muscles opposed in their action, as of the flexors and extensors. Most commonly, the flexors predominate, both in vehemence and steadiness of contraction, especially in the hands, which are almost universally clenched, the thumb being drawn into the palm. Yet the arms and legs are not unfrequently thrust out or extended, with such abruptness and vehemence, as to overthrow and injure the bystanders and assistants.

These rapidly alternating muscular contractions and relaxations, serve clearly to distinguish Convulsion from Spasm, properly so called, which consists in a protracted contraction of muscular fibres, without alternate or contrasted relaxation, or a relaxation occurring gradually, if at all. Some of the authorities arrange both convulsion and spasm, under one general head of spasm; the convulsive being distinguished as chronic, and the rigid or permanent, as tonic spasm.

Of all the morbid affections which present themselves, as part of the inheritance of our frail and afflicted race, Convulsions are, in appearance, the most horrible and revolting. The violent agitation of the frame, the writhings and twistings of the body, seemingly so expressive of unutterable distress, and the frightful distortions of "the human face divine," form a scene which

it is impossible to contemplate without the most profound and heartfelt sorrow.

No one can fail to remark the excessive force exerted by the muscles, when contracting under the various irritations which give rise to convulsion; a degree of power extraordinary indeed, and vastly beyond all that they are capable of, when stimulated by the most determined and vehement volition. Feeble women, debilitated invalids, and young infants, draw up and extend their limbs with a violence scarcely to be resisted or controlled, by the vigorous efforts of robust men. I am not disposed to agree with Good or Cullen, in affirming stupor or coma to be essentially connected with this particular condition of the nervous system, as an uniform rule. Nay, I doubt whether there is necessarily any disturbance of the intellectual functions. In the earlier stages of chorea sancti viti, (paralysis vacillans,) a strange compound of paralysis and convulsion, there is often no disorder of the mind whatever; and I have seen a very athletic man, while laboring under an attack of what was known formerly as "the Kentucky jerks," a form of convulsion brought on in great numbers by religious excitement, directing with great intelligence how he should be held, so that he might suffer no injury, and apologizing humbly for the blows he inflicted upon those who were attempting to aid him. I have repeatedly seen hysteria attended with the most vehement convulsions, while there was present no mental affection, or, to speak with correct precision, not the slightest "tendency to stupor or lethargy," as Cullen has it, no evidence of "diminished sensibility," to use the phrase of Good.

In the disease now to be treated of, however, both these circumstances are present, as forming elements of characteristic occurrence. In EPILEPSY, the patient falls suddenly, loses all consciousness and sensibility, and is agitated by convulsions, which after a time, subside, leaving him languid and soporose. The disease becomes habitual or periodical, regularly or irregularly; recurring with a violence greater or less, and after an interval shorter or longer, in proportion to the intensity of the causes which have originated the attack, and to the mobility and irritability of the system of the patient.

Early known, and recognized by the oldest writers on medicine, Epilepsy has had a long list of names, and as it would appear, has selected for its subjects some of the greatest among the sons of men—Julius Cæsar, for example, Mahomet, and Napoleon. It was looked on by the ancients, as a peculiar infliction from the gods; hence the phrase denoting it as "morbus sacer." Aristotle, from its violence, terms it morbus herculeus. About the commencement of the Christian era, it was looked on as the effect of demoniacal possession; as a singular contrast to which opinion, we may notice, that in our times, its occurrence is hailed with shouts of joy, in many assemblies of religious enthusiasts, as evidence of incipient or impending conversion. May it not have been produced at Rome, by political, instead of religious excitement, and thus come to be called by Pliny and Seneca, morbus comitialis? Its common English title, for an obvious reason, is the "falling sickness."

The proximate Cause of epilepsy, the intimate and essential condition upon which it depends, is as yet unknown, and its pathology, notwithstanding the numerous attempts made to elucidate it, is still exceedingly obscure. We refer, with some confidence, to the brain, as its immediate seat, because we know it, in certain instances, to have been produced by lesions of the cerebral substance, and alterations within the cavity of the cranium, and to have arisen from the action of causes adapted to affect this organ, and determine locally and primarily upon it. The nature of the morbid change is, however, unknown; because, in many instances, it seems to be a purely functional derangement, its often repeated seizures during a long life, having left no observable traces in any portion of the cerebellum, cerebrum, medulla oblongata or spinalis, or the membranes investing these parts.

The remote causes of epilepsy are exceedingly various, and by reason of their adaptation to the several systems, physiologically considered, of which the body is composed, they suggest a natural division of epilepsies, into the idiopathic and sympathic. Epilepsy is Idiopathic, when it arises from circumstances which directly affect the brain, or are specially and originally determined to, and act upon that organ. It is Sympathic or

symptomatic, when it arises incidentally from, or becomes engrafted upon irritations which affect, in the first instance, other organs, or tissues, or systems of parts. A great variety of examples of this form, will present themselves to us, as we proceed in the consideration of the causes of epilepsy.

Among the several lesions of the brain, which have been found in the subjects of epilepsy, are recorded fractures of the skull, with depression of some part of the cranium; the presence of bony tumors, or other protuberances within the head; Dr. Parr mentions in this connection, obstruction of the veins from polypous concretions, and Dr. Pritchard gives us a case, in which "the left lateral sinus was found filled up by a substance very different in its nature from a recent coagulum, and apparently consisting of a deposition of lymph, which had become organized. "It seemed," he says, "so completely to occupy the calibre of the sinus, as to have impeded entirely, the transit of blood through it." Similar fibrinous concretions, adhering to the inner surface of the sinuses, have also been noticed, by Greding, Wagner and Copeland. It would be tedious to enumerate the great diversity of appearances, said to have been noticed in the cerebrum, cerebellum, etc., of epileptics; and it is unnecessary, as none of them are repeated sufficiently often, to indicate even a general connection of the disease, with any change of condition of the sensorial organs. Under this head of Idiopathic epilepsies, I would include those which arise from the abuse of alcoholic liquors, as these poisons act most directly upon the brain and nervous system; those also, which have followed insolation, or blows on the head, or falls; those which have originated in the passions and emotions of the mind, terror being especially fruitful of such consequences; those which have commenced in the diffused excitement of public assemblies, whether religious or political. Much stress has been laid by some writers, upon the principle of imitation, an instinctive propensity so strong in its influence upon our species, from early infancy to ripe manhood. To this principle has been attributed, not only the spread of the disease from one individual to another, as occurred among the children in the Orphan House, at Haerlem, under the care of Boerhaave, and in the frequent examples just

alluded to, but as is affirmed by Cullen, "it may even fix the disease, in good earnest, upon a knave who, for whatever purposes, simulates it."

In Sympathic epilepsy, as I have said above, the original and primary irritation to which we ascribe the whole train of consequent symptoms, is not located in the brain, but, commencing elsewhere, it affects this organ by means of some of the peculiar, universal, close and indissoluble sympathies, by which it is united to, and reciprocally acts and is acted upon by, every, the most remote portion of the system. It is convenient to subdivide these various sources of irritation, and I shall refer to them under the heads of the digestive, the genital, the metastatic, and such as develop themselves by a peculiar phenomenon known as the aura epileptica.

And, 1st. Of the Digestive. Nothing is better known, or more generally acknowledged, than that almost every mode of derangement of the organs engaged in the function of digestion, may give rise to epilepsy. In young children we meet with it every day, during the process of dentition, and observe its total disappearance when that process has been completed. Worms in the alimentary canal produce it frequently, not only in these young subjects, but occasionally in adults also, a fact affirmed to be especially true of tænia.

Hepatic disorder is said to have produced it. Johnson quotes the observation of Hippocrates, and confirms its truth, that "even a morbid secretion of bile itself, will determine epilepsy." Morgagni gives us the case of a priest, whose epileptic attacks were preceded by pain in the right hypochondrium, and removed by bilious dejections, there having been previously no token of disease in the head.

2d. Of Genital Epilepsy. It is in the female sex that we most obviously remark the connection of this malady with the morbid states of the organs of reproduction. Sudden obstruction or suppression of the catamenia, will often give rise to it; and indeed, it seems susceptible of being excited, like hysteria, with which it is in these cases nearly allied and liable to be confounded, by any mode or variety of uterine irritation. It is more frequently developed in young girls at the age of puberty, who, being of sanguine temperament and plethoric habit, men-

struate scantily, or with difficulty, or tardily. But the influence of this set of causes, is by no means confined to females exclusively. "The organs of reproduction, speaking generally," says Jourdan, "are the seat upon which the epileptic cause exerts its force, and from which the first phenomena of its access spread themselves, as by a sort of irradiation." Numerous records are to be found among the authorities, of its origin in ordinary venereal gratification. Copeland gives us a case, in which excessive indulgence produced it, for the first time, in a man of forty years of age; nay, the venereal orgasm has been known to occasion even a fatal paroxysm. A solitary vice, almost too brutal and degrading to be alluded to, is affirmed to develope epilepsy, as one of the most frequent of the terrible evils which are its just penalties.

3d. Of Metastatic Epilepsy. Under this head, we arrange such attacks as follow the disappearance of cutaneous eruptions, or the sudden recession of the exanthemata. In children, epileptic convulsions very generally attend the "striking in," as it is called, of measles and other eruptive affections. They are often, we know not why, among the earlier symptoms of small pox and the exanthemata generally, disappearing as the disease developes itself, if it progresses with regularity.

Obstinate epilepsies are affirmed, though it has not happened to me to witness any example of this kind, to succeed the sudden subsidence of gouty or rheumatic inflammations, the drying up of old ulcers, and the suppression of habitual hemorrhoidal discharges. It is said, too, that they sometimes supervene, on the rapid diminution of dropsical effusions, and after the removal of large tumors from any part of the body.

4th. The last variety of sympathic epilepsy which I have distinctly recognized, is that coincident, or perhaps I should say connected with, what is called, the "Epileptic Aura." This is a peculiar and indescribable sensation, beginning at some particular spot, and moving, passing or extending thence upwards towards the head, the patient being seized with a fit, immediately, as it seems to reach the brain. There is no part of the body from which it has not issued or originated. Some allege that it follows the course of the nerves in its ascent. Cullen denies this, and affirms that it generally passes along the integuments. My patients describe it as taking the shortest route from the point

affected, to the brain; but have not been able to answer definitely, the inquiry, whether its transit is along the surface, or deeper. Most persons compare the sensation to the motion of a "cold creeping vapour," whence the phrase "aura." Copeland speaks of it as follows: "The sensation of a cold or warm aura, proceeding from some part and ascending to the head, but very rarely descending from the head to another part, is one of the most common precursors of the fit. In some cases, the aura has been felt to terminate at the epigastrium. Fernelius mentions its occurrence at the vertex; and Schelhammer, a case in which it commenced at this part, and proceeded to the arm."

In certain instances, local affections, lesions of the part, or change of structure have been discovered, on minute examination of the spot whence the aura usually ascends. In the case of the priest, formerly alluded to, Morgagni tells us, "that the accessions were generally preceded by a feeling compared to the ascent of vapour from the hypochondriac region to the head." Dr. James gives us a singular history of "a case of frequent fits, which, after resisting various means of relief, was effectually cured by amputating the great toe; the operation having been proposed, on the supposition that the sesamoid bone was dislocated, whence the fits arose." He relates another similar case, which he says, "seemingly depended also, upon some injury done to the sesamoid bone of the great toe. When the patient was first hurt, he was seized with a fit; and this was repeated whenever he moved that toe." This last mentioned subject died, it appears, of these attacks.

The majority of writers regard this aura epileptica, as "nothing more than a manifestation of" what they call, "reflex sympathy; the irritation of some internal part, affecting some portion of the encephalic organs, the affection being reflected in the course of some nerve belonging to the cerebro-spinal system." Some infer, that this reflected irritation always exists in the part whence the aura arises; and I confess that the notion is not without plausible grounds. Not to repeat the mention of instances, in which some organic or structural change has been detected in that point, there are cases on record, in which a ligature applied above it, or between it and the brain, has generally

arrested the upward progress of the aura, and prevented the access of the paroxysm.

A fit of epilepsy may be conveniently divided into three stages, the premonitory, the convulsive and the soporose. These are not uniformly present in every paroxysm, but they very generally concur, and in such subjects as are long affected with habitual epilepsy, either of them is rarely wanting. Even in the worst cases, however, there occur, not unfrequently, accessions which go no farther than the first stage, termed by some writers, "sub-epileptic seizures." Instances are given, to which I can add two from my own practice, in which there happened, but once or twice in many years, the falling and convulsion, which are characteristic of the malady. Each of my patients was affected with a modification of the aura, or a morbid sensation, which I could not but refer to that condition.

Among the phenomena of this first stage are, intense pain in the head; vertigo; vomiting; great mental excitation, with or without confusion of ideas; great mental depression, often with weeping; a disposition to syncope; petulence and fits of causeless anger; unsteady gait; a disposition to run forward; cramps in some muscles, and paralysis of others; roaring in the ears, or flashing of light before the eyes; morbid perceptions of odors, tastes and colors; one of my patients was always sensible of "a green taste," as she phrased it, by which I understand a consentaneous impression made upon the optic nerve, presenting the color, green, and an undefined impression on the gustatory nerve, which she confusedly connected with it. The whole paroxysm has been known to consist of a suspension of the faculties of the mind, during which, for a brief period, the patient put on a fixed look, sat rigidly, or perhaps fell to the ground, occasionally muttering over and over, the last word or syllable of the interrupted conversation. These imperfect or sub-epileptic seizures, will comprise, I am disposed to think, the cases of Catalepsy, so called. Of these I have seen two. One of them was always aware of the aura, which, in her, originated in the inside of the thigh, near the groin, and was attended with vertigo, some nausea, and great general distress, mental and bodily. She became aware that this uneasiness was always diminished, and

the full development of an attack prevented, by pressure made on this part; and this pressure, she affirmed, not only gave such negative relief, but was productive of a high degree of positive pleasure. She would request from her attendants, therefore, the most violent pressure, and although, for days after, the limb would be bruised and swollen from the force applied, she always declared her anxiety at the time, that it should be continued and increased. In this case, the attack sometimes advanced into the second and third stages. It never occurred to me, however, to see her convulsed. Her limbs, and trunk, and neck were rigid. The arms, legs and fingers, if bent into any position, retained it steadily; and though she occasionally spoke, in milder paroxysms, she always stated that she was sensible of the total inability of her will to move or contract any muscle. Prichard regards cases of the kind I am describing, as "partial epilepsies;" Heberden speaks of them as "antecedents or substitutes for true epilepsy," (quasi vicem ejus implet.) Some French writers call them "petit mal," "vertiges epileptiques," etc.

A fully formed epileptic paroxysm, however, often invades without any warning. Suddenly, or as the case may be, after the occurrence of some of the symptoms above recounted, the patient utters a scream, or silently falls to the ground, generally backward. The body and limbs are for a moment rigid, perhaps strongly curved backward; the eyes opened wildly and vacantly, and the countenance fixed; the complexion pale or livid for the most part, though sometimes flushed. Convulsions now come on with horrid distortion of the visage, and rapid rolling of the eyes, or strabismus; the head is rotated or tossed in every direction; the hands clenched; the limbs drawn up and thrown out; the tongue protruded and caught between the teeth, the lower jaw being sometimes moved quickly up and down, and at other times the mouth forcibly closed. The patient moans piteously, or utters abrupt screams; the breathing is quick and loud, and a bloody foam gathers upon the lips. The pulse is felt with difficulty; I have usually found it very frequent. Urine, flatus and fœces are often discharged; and, in males, there are very often erections, with ejaculation of semen or prostatic mucus. Gregory says, even in infants "erigitur quoque penis; in adolescentibus semen ejicitur, et sœpius, urina ad magnam distan-

tiam prorumpit." He refers here, specially, to what he calls the tetanoid form. The violence of the convulsions is such, as to have broken the teeth; Van Swieten saw the jaws dislocated; Burserius and Cheyne, each, give a case of dislocation of the arm. The strabismus is said to have remained incurably permanent. The duration of this horrible state is various, from one minute to ten or fifteen being, perhaps, the average. Copeland, however, says he has seen it last more than four hours, and quotes Esquirol as having witnessed a duration of five hours. These I suppose to be instances of rapid repetition of the fits, which may, indeed, be indefinitely prolonged in succession to seven, and, as in one case, to ten hours.

The third, or, as I have denoted it, the soporose stage, comes on with an abatement of the convulsions; the patient sighs, moans, tosses restlessly, perhaps regains partially his consciousness, but generally sinks into a deep, yet apparently uneasy slumber, often with stertor and subsultus tendinum. The sleep gradually becomes more profound and natural—the breathing easier, fuller and less noisy—the pulse slower and softer. On awaking, he complains of headache and vertigo; his eyes are suffused, with enlargement of the pupil and some difficulty in directing their motions; the tongue is lacerated and sore; the muscles of the limbs and trunk, fatigued and stiff.

Epileptic paroxysms are seldom fatal; they occasionally terminate, as we are told, in apoplexy or paralysis; but I have seen nothing of the kind. The habitual repetition and permanent establishment of the disease, however, in general produces the most serious and melancholy results; imbecility and insanity being recorded as among the most common. Yet many escape these evils, and retain, as did Napoleon, Mahomet and Cæsar, their mental powers unimpaired. Cheyne gives an example of a friend of his, "whose comprehensive, well stored and active mind, remained unclouded for seventy-three years."

Epilepsy may commence soon after birth, in early childhood, at puberty, in adult years, in advanced life. Copeland gives an instance of its invasion after forty. "I have noted," says Heberden, "several who had begun to be epileptic at almost every year between twenty and fifty; a few have fallen into it at sixty, and I saw one whose first attack was in the seventy-fifth year of his

life, and from that time, he was often visited with it for at least five or six years, and probably as long as he lived." Heberden, Sœmmering, Cheyne and Elliotson, regard males as more subject to epilepsy than females. Esquirol and Foville, with whom I am disposed to agree, hold the opposite opinion.

Nothing can be more uncertain than the recurrence of these paroxysms. In some instances, the periodicity, which forms so remarkable and obstinate a characteristic of this formidable malady, seems at once established, and the attacks return monthly, weekly, nay, daily. Some assert, that they most regularly come on at the moment of falling asleep. I have observed, on the other hand, that a very common point of attack is the moment of rising; whether this be from change of posture, or connected with the transition from the sleeping to the waking state, I cannot decide. Some patients are so fortunate as to pass months or even years between the fits; in these the invasion seems casual, and has arisen, probably, without definite predisposition, from the influence of transient causes; or, perhaps, great caution has been instituted, or early and persevering resort to proper measures of prevention or cure.

The general Prognosis of epilepsy is, on the whole, unfavorable; and it is seldom allotted to the physician, to enjoy the satisfaction of controlling definitely, or entirely putting an end to this terrible disorder.

In the particular Prognosis, we are to be guided by a careful consideration of all the contingencies. Congenital and hereditary epilepsies are almost hopeless, as depending on original defect of organic structure, tending to imbecility, idiocy, insanity and palsy. Epilepsy is much more within the reach of medical means when sympathic than idiopathic; when the invasion can be traced to some well defined and transient influences; when the paroxysms are mild and of short duration; when the intervals are long, and when they are irregular. Intemperance is, doubtless, one of the most ordinary causes of epilepsy, but if the subject take warning in time, and reform his evil practices before the attacks have become habitually periodical, he may recover altogether. So those, who, in early life being subject to violent anger, or addicted to any forms of excess, which have brought on the disease, if they can be taught the wholesome lessons of

self restraint and self government, should by no means be allowed to despair of absolute cure. The most curable form of epilepsy, is that which we can clearly connect with abdominal irritation, intestinal irregularities, the presence of worms, etc.; next in order, that which we have termed metastatic, and thirdly, the genital. So great obscurity hangs over the aura, that no general rule can be fairly laid down in relation to it. Epilepsy, of whatever nature, sometimes disappears spontaneously, or under the influences of unknown agencies, depending perhaps, upon changes in the constitution, from age, or alterations of habit and modes of living. Other violent diseases have been said to remove it; fever for example, though this must be rare, as Esquirol affirms that he did not notice it.

Of the Diagnosis. Writers comment strongly on the difficulty of distinguishing epilepsy from several other forms of convulsion, of which, hysteria is perhaps the chief; and propose tests for their separation, which seem to me unsatisfactory. I would regard as epileptic, all periodical convulsions, attended with a stage of stupor or coma. Cheyne and Copeland offer as diagnostics, the invasion with a scream; the loss of sensibility; the spastic rigidity of the muscles, in the first stage; the foaming at the mouth; distortion of features and lividity; the laceration of the tongue; the priapism and unconscious discharges; and the consequent sopor or mental alienation. But we must not forget that both these writers refer to cases, in which most if not all these phenomena were wanting. In the various grades of violence, presented by the more or less full development of the attack in the several classes of cases, I confess I am not prepared to say where we shall draw the line. In religious extacy, for example, some fall suddenly, and lie as if comatose for many hours; others are violently excited previously to the supervention of convulsions; some retain a portion greater or less of rationality and consciousness, while others lose at once apparently all sensibility.

During the prevalence of the "Kentucky jerks," the minister and congregation of ———, were highly scandalized at the tumult and confusion thus introduced into the Presbyterian Church, which, as is well known, never recognized such exercises as devotional or connected with true conversion. Among those who

denounced them most loudly, were the minister and one of the elders. The former was actually seized by them, one day, while preaching, and the elder was attacked in the aisle on his way to his pew. This latter gentleman was so ashamed of his paroxysms, that it was his custom, when admonished by the precursory symptoms, to go out into the woods that he might suffer there without any witnesses of his infirmity.

Autopsy. Post-mortem examinations of the bodies of epileptics have exhibited a great variety of morbid appearances, which it might be useful, but would not be easy, to separate into such as acted probably as causes of the disease, and such as were better regarded as mere coincidents, or perhaps consequences or effects of the deranged actions in which it consists. Some of these have been already mentioned;—we may add here, simple turgescence of the cerebral vessels; effusions of serum within the ventricles and upon the surface of the brain; softening of the brain—Morgagni mentions two such instances, portions of the substance of this viscus being discolored and of a gelatinous consistency; ossifications of irregular shape within the laminæ of the dura mater—I found several irregular shaped pieces of bone between the laminæ of the dura mater in a female criminal executed here. She had not, so far as I could learn, been an epileptic. In several cases examined by Esquirol, some part of the spinal cord was found to deviate from its natural appearance either in its medullary substance or its membranes. We should never overlook this portion of the sensorial system in our investigations into the seats and causes of disease. I am inclined to think, that it is frequently the point of primary change in the convulsive affections. In one such instance, Morgagni says he found "the vessels of the pia mater of the medulla spinalis so exceedingly turgid with blood, especially on its posterior surface, as to resemble an injected part; even the minute vessels of the spinal nerves participated in this turgescence." In tetanus I have met with this engorgement and apparent inflammation.

Alterations in the condition of the sphenoid bone and the pineal and pituitary glands have been so often detected, that the Wenzels conclude that these form the true seat of epilepsy. Esquirol, however, in the Diction: des Sciences Medicales, decides, on the other hand, that "the labors of pathological ana-

tomy have not hitherto thrown any light on the immediate seat of epilepsy," and affirms, from Wepfer and Lorry, that "the same alterations have been developed in individuals who were not epileptic."

In the enquiry farther into the Pathology of this formidable malady, its constituent or proximate cause, it is but too obvious, that we have been unable "to lay hold of the first link in the morbid catenation." Yet Parry, and, after him, Pritchard, declare it to consist merely "in a preternatural influx of blood into the vessels of the encephalon, or an unusual fulness of some part of the vascular system of that organ." Allowing this statement to be correct as to the fact, and it probably is true, that at the time of access of a paroxysm, there does exist a greater or less degree of turgescence of the cerebral vessels, yet, the full acceptance of the doctrine will not advance us a step towards an intimate knowledge of the nature of the disease. What is the condition of these vessels in the intervals between the paroxysms? If permanently engorged, why do the fits intermit? If not always turgid, why are they relieved, and why filled, at definite periods of time? Besides, an analogous influx and distention of the vessels of the head takes place in simple fits of anger without convulsion—in intoxication, apoplexy, delirium, paralysis; how and in what physical circumstances does each of these differ from every other? This is the true difficulty of which we are seeking an explanation; yet this most essential question is evaded or neglected by Parry throughout the whole of his ingenious and laborious works on pathology, in which almost all morbid affections are resolved into mere mechanical effects of the mass and momentum of the blood. Pritchard seems to have been less insensible to the insufficiency of his theory in leaving unexplained the source or efficient cause of "the local influx and fulness" of which he speaks; for he goes on to say, in addition—"It is obvious, indeed, that the last step in the process which gives rise to the determination of blood towards a particular organ, is a dilatation of the vessels of that part." This is probably true; but whence arise the peculiar and characteristic symptoms? In phrenitis, where we have the same determination, the same dilatation whether spontaneous or forced, the same fulness and turges-

cence, there are no convulsions. Why not? And how account for the prompt, and, in many cases of epilepsy, the total subsidence of all symptoms of cerebral disorder?

I make these remarks here, in order to open your eyes to the defects of this specious mode of philosophizing in our science; a candid confession of ignorance of what we really do not understand, is far more manly and honorable than the assumption of an important air of discovery and intelligence, when nothing has been added to our knowledge. In a similar spirit of unsatisfactory generalization, Dr. Cheyne announces the doctrine, that epilepsy is uniformly to be classed among the developments of strumous disorder, and professes to regard it as no less exclusively one of the manifestations of scrofula, than tubercle itself. For my own part, I have no doubt of the frequent connection of the two, and have witnessed the consentaneous prevalence of epilepsy and consumption in the same family in different members of it; yet, I have seen epilepsy produced, in numerous instances, by occasional causes, as, for example, by intemperance, by terror, by venereal excesses, and especially the first, where there was not the least reason for suspecting a strumous constitution.

I shall offer but one farther observation on this subject. It is to predict, that we shall hereafter find many of the cases of epilepsy, hitherto arranged among the secondary or sympathetic varieties, truly idiopathic, i.e. dependent directly and immediately upon cerebral disorder, organic or functional; and shall trace many of the digestive and other derangements, which are now looked on as the origin of epilepsies, to be merely incidental effects of the same local lesion or morbid action, whether nervous or vascular, in the encephalon, which gives rise to the more uniform and essential phenomena of epilepsy.

Of the Treatment. During the fit, generally speaking, little can be done for the patient. Care should be taken to prevent his injuring himself by his struggles. A pillow should be placed under his head; a wedge of soft wood, or a pledget of cloth, introduced between his teeth, to prevent the laceration of his tongue, and all ligatures and tight clothing about the body, and especially the neck and head, promptly loosened. The practice, so common among attendants and nurses, of endeavor-

ing to force open the clenched hands of the epileptic, is highly applauded and strongly urged by Dr. Reid, who, in the Dublin Transactions, declares that the paroxysms may always be thus shortened. In a case recorded in one of our periodicals, I find it incidentally mentioned by a patient in her account of her symptoms, that if, at the approach of a fit, her hand is unclenched and the fingers forcibly extended, the attack will be warded off. If the face is flushed and turgid, I employ cold affusions to the head, or lay upon it cloths wrung out of cold water. When the convulsions subside, I endeavor to render the patient's position comfortable, that the sleep into which he falls may refresh and restore him, and take care that his extremities are warm, and that he has free air about him.

Instances occasionally present themselves which require more active interference, though I think not often. In recent cases or first attacks, in young and plethoric subjects, and where a dilated pupil, an inordinate degree or protraction of insensibility after the convulsions have ceased, and a stertorous noise in breathing, give reason to dread an apoplectic tendency, venæsection must be resorted to, and blood drawn as freely from a large vein as the pulse will permit. I need not inform you, that this operation is not to be indiscriminately or carelessly performed, however. "To open a vein upon account of the fit," exclaims Heberden, "is a needless waste of blood, which may weaken the patient, but not the disease,"—a statement of opinion somewhat too universal, but containing a proper warning; when we reflect upon the common prejudice which so loudly demands the opening of a vein in all cases of convulsions and sudden seizures of almost every character, and which so few young physicians have the courage to resist.

I have had occasion to mention to you two cases in which I saw violent convulsions brought on by the use of the lancet. Copeland gives two instances of decided injury inflicted in the same way. The best rule is, not to meddle too much with the epileptic paroxysm in any stage of it. A young lady, long my patient, had one day passed through the convulsive stage, and was lying tranquil and soporose, when a friend entering and being much alarmed by her ghastly aspect, seized a pitcher and dashed water forcibly in her face. She was immediately re-

attacked with a violent and protracted convulsion, the worst I ever witnessed.

The management of the epileptic, in the intervals, is next to be considered, and constitutes vastly the most important portion of the Treatment. It may be properly divided into two parts, the rational and the empiric, and we cannot be said to have done our duty fairly to our patient, until we have exhausted all the resources referred to under either phrase. As it is by all pathologists acknowledged, that we have not hitherto succeeded in detecting the intimate nature of the morbid action in which the disease consists, or upon which its train of symptoms is immediately dependent, our first endeavor should be to ascertain, if possible, the true condition of the patient, from which we may infer the predisposition under which he labors; and to procure an accurate history of the remote or exciting causes which develope the attacks. The predisposition may be transient or permanent. The exciting causes may be such as we can remove, control, modify or counteract. All these points are to be duly considered. When these causes are apparent, something can always be done for our patient; when they are remediable, we may, with some confidence, endeavor to inspire him with cheerfulness and hope; and even when they are beyond the reach of our means of cure, we must still strive to diminish the intensity of their influence upon the constitution.

The first of the rational measures is indicated by the general condition of the subject. If of full, robust and plethoric habit, his diet and mode of living must be carefully regulated. His food should be chiefly of vegetable material, and no more than is necessary to sustain a due degree of animal vigor. It may, in such instances, be proper to abstract a little blood. I prefer the lancet; others choose to cup the back of the neck or the temples, or apply leeches to the angle of the jaws. These measures are more clearly called for under such premonitory circumstances as sometimes give warning of the approach of a paroxysm—pain or throbbing in the head—tinnitus aurium—flashing of light before the eyes—vertigo, etc. A total abandonment of all stimulating drinks is necessary as the very first step to be taken. Intemperance is, perhaps, the most fruitful cause of epilepsy, both predisponent and exciting.

In the contrasted class of cases to such as I have been describing, those, namely, which present paleness, muscular feebleness, general debility and apparent anemia, an opposite course is required. Here, a generous and even stimulating diet must be prescribed—habits of exercise—tonics—change of air. Some advise wine and malt liquors; but I am, on the whole, persuaded, that the chance of injury from these, is greater than the prospect of benefit. Iron has appeared to me the best of our tonics here. Zinc has been highly eulogized; the oxyde, or flowers of zinc, is most often used. It is given in as large doses as the stomach will bear, without nausea or vomiting—from 5 to 20 grains. Gaubius, Percival and Hufeland report favorably of it. Rush states that he cured a case of ten years standing with it. The sulphate is also employed. Two of the salts of copper are said to have been exhibited with success. Cullen recommends the sulphate; and we have satisfactory testimony to establish the claims of the sub-sulphate of copper and ammonia, the cuprum ammoniacum. The cases of a father and his two daughters cured by the use of this triple salt in combination with valerian, are authentically given us. The vegetable tonics seem less adapted to our purpose here than the metallic, and have been abandoned after fair and persevering trial.

An almost universal approbation is given to the use of purgatives upon the Hamiltonian system. Their influence, I suppose, is chiefly revulsive, though they probably act as alteratives and deobstruents, removing any obscure visceral affection which may have disordered the sensorial functions. The drastics have been generally preferred; they are given in small dose and with great perseverance—jalap, scammony, aloes, gamboge, and elaterium, are thus used. I select rhubarb, combining it with an alkali, and adding some aromatic, or moderate doses of camphor. Under this course, adhered to with constancy for months and years, have occurred the most satisfactory examples of cure and of relief which I have witnessed among epileptics. I have said that these cathartics are to be administered in moderate doses, and a gentle but uninterrupted action on the bowels maintained. If properly managed and duly watched, this treatment will improve the health and condition of every patient—instead of

debilitating, will be found productive of increased strength, and will at least protract the intervals between the fits.

The impression entertained by some physicians, of the frequent dependence of epilepsy upon scrofula, which indeed Cheyne regards as its essential predisponent condition, has led to a full and persevering course of experiments with iodine and its combinations. I am not aware of any decided results obtained as yet, but I confess myself to entertain some hopes of advantage from these remedies, and would recommend for farther trial, the dilute solution of Lugol, and the deutiodide of merc: and potassium. This latter, especially, is one of our most efficient alteratives, and seems particularly well adapted to cases occurring in scrofulous families, or connected with any of the familiar signs of strumous degeneracy of constitution.

Next, we mention under this head of rational remedies, the several modes of counter-irritation. Of these, each practitioner has his favorite, and indeed a preference among them will be occasionally indicated by the circumstances of the patient and the contingencies of each case. The hair should be worn short, or indeed, in bad cases, shaved from the head. Blisters are advised to be applied over the scalp, behind the ears, to the back of the neck. While some keep them open with stimulating dressings, others allow them to heal, and repeat their application successively to different parts of the surface. Issues and setons are established and inserted, not only about the head and neck, but in the arms and breast. Caustics of various kinds are eulogized—the nitric acid, pure potash, etc.

Under this head of the rational treatment of epilepsy, we may next speak of the management of cases regarded as properly sympathic or symptomatic. While such attacks are recent, we may hope much from the removal of the original or primary affections upon which they depend ; far otherwise, however, when they are of long standing, and have been allowed to become habitual. The associated cerebral disorder here, at first, doubtless, merely functional, seems to throw off its parasitic or secondary character, becoming independent, whether by habit or by its conversion into a structural affection. This state of things is almost beyond the control of our art, yet, as we can never distinctly pronounce upon this change of circumstances,

we are bound ever to trace back the disease to its beginnings, and attack it in its most accessible seats.

1. In epilepsy connected with depraved conditions of the digestive system, the purgative course above advised, is specially indicated. Mercurials should be occasionally exhibited for their alterative effect. Emetics also have been found useful. Turpentine is said to be serviceable, not only as a purgative but specifically, being affirmed to exert a peculiar sedative or tranquilizing influence over the nervous system generally. It is, as you well know, one of our best anthelmintics, and verminous irritation is a frequent cause of convulsions. It should be given in doses large enough to purge moderately, ʒii. ter die, in milk or mucilage. I think favorably of it; it will rarely fail to better the condition of the patient, more or less.

2. It is not always an easy task to ascertain the nature or degree of the disorders of the genital system which produce epilepsy. Amenorrhœa and dysmenorrhœa must be removed by the appropriate means. When the organs appear to labor under morbid excitement, it will be necessary to deplete freely by the lancet and purgatives, of which aloes and turpentine are most confided in. This latter is well adapted here, and seems, strangely enough, admissible in the most opposite and contrasted cases, exciting when the determination is defective, and controlling it when too great, by its revulsive and secretory effects. When this system is in a state of exhaustion or torpor, or the extreme debility which follows "self-abuse," tonics must be perseveringly exhibited, a generous and nourishing diet allowed, the cold bath frequently used if it can be borne, and a long journey undertaken. The patient must never be left alone, and every effort made to lead him to habits of correct self-control and prudent caution. In the worst examples of this sort, it may be well to blister the sacrum and the thighs, and administer the tinct: lyttæ to the production of strangury.

3. In metastatic epilepsies, such as arise from repelled eruptions, dried up ulcers, etc., we must endeavor, if possible, to restore the original disease as the lesser evil of the two. If we fail in this, we must substitute some other drain or counter-irritation by issues, setons or caustic, or moxa. If the attack has followed the disappearance of habitual or periodical hæmorrh-

oids, leeches should be applied to the anus. If connected with the removal of tumors, we must bleed generally, if it can be borne; if not, the head should be shaved, and leeches or cups applied. The free use of purgatives here is also beneficial.

4. When the fits are foreshown by the aura epileptica, we must closely investigate the condition of the part of the body where this sensation seems to originate. If any morbid peculiarity present itself there, it must be remedied or removed. If nothing be detected, we are, nevertheless, advised not to neglect the part thus affected. Some keep a ligature applied on a limb above the source of the aura, tightening it when the sensation commences. This, we are told, occasionally succeeds. Some blister the part; others institute issues there, or insert setons, or burn with moxa. Accidental scalding of such limbs, is said to have cured epilepsy.

On the supposition that some irritating influence was conveyed along the nerves to the brain, the branch, leading from the spot at which the aura took its rise, has been repeatedly cut, or a portion of it excised. The operation is said to have succeeded repeatedly, and the respectable authority of Sir A. Cooper has been referred to. This distinguished surgeon related, in his lectures, a case in which epilepsy followed a blow on the thumb. The aura commenced from that part, and took the course of the radical nerve. Here 5-8ths of an inch were excised.

A woman was admitted to Guy's Hospital, under the care of Mr. Key, who made the following statement. "About three years previous, she perceived an extraordinary sensibility on the inside of the right arm above the elbow; the slightest touch, even the wind blowing her shawl against it, would throw the muscles of the arm into convulsive action, which would continue for several minutes. After this distressing affection had lasted about twelve months, she became epileptic. Of the approach of each fit, she was warned by a tingling sensation, with slight pain, beginning on the inside of the arm, and running up the course of the ulnar nerve, through the axilla to the neck; her head was then twisted round, and she fell down insensible, in a regular epileptic paroxysm, continuing ten or fifteen minutes. The preternatural sensibility of the arm had now disappeared, but she constantly wore several pieces of broad tape around the

upper arm; and whenever she felt the aura indicative of the approach of a fit, she had them drawn as tightly as possible, thus preventing frequently the attack threatened." After full trial of other remedies, Mr. Key excised an inch of the ulnar nerve, but as far as appears, without any result.

It remains now to speak briefly of the empirical treatment of epilepsy; the employment of remedies without any definite indication, but merely on the ground of alleged benefit having been derived from them in the previous management of this terrible malady. One of the most ancient of these anti-epileptics, and one of those most trusted to, is the misletoe of the oak; probably introduced into practice in those remote ages when the Druidical superstition held sovereignty over the minds of our British ancestors; it still retains its place, and its usefulness is affirmed by writers of great respectability, among whom are enumerated Haller and DeHaen and Van Swieten. Frazer records nine cures made with it. He prescribed it in powder in a camphor emulsion. Camphor and valerian are both to be mentioned here.

Digitalis is entitled to a more special place than either. In combination with the "polypody of the oak," it is a very ancient prescription, which, after being long left to empirics and the common people, has been lately re-introduced into practice by Dr. Sharkey, who, in a recent periodical, recommends a strong infusion of it in porter, to be given until the subject is fully narcotized and vomiting brought on. He recites several cases of cure by it. I saw it fairly experimented with in the case of a young physician, who was kept fully under its influence for several days, seeming often indeed, at the very point of death, with large and frequent vomiting, vertigo, dilated pupil, pulse thirty to forty; but without any effect ultimately.

The nitrate of silver is recommended by numerous and respectable authorities, among whom I enumerate Baillie, Roget, Johnson, Cooke and Copeland. The latter considers it most beneficial in asthenic cases. It is offered in increasing doses, beginning with half a grain and going on to six or eight grains in the day. I seldom prescribe more than one-eighth or one-sixth in each pill however. The effect seems to depend greatly upon our assiduous perseverance in its use. It sometimes

produces a particular eruption, which, when it occurs, seems to aid or perhaps only to point out its salutary operation. The objection to it is, that it occasions now and then a peculiar, bluish discoloration of the skin, which cannot be removed. Johnson gives an instance in which, to use his own words, "a gentleman became blue in less than three months from the commencement of its administration." I have also seen it salivate slightly. For these reasons, it should never be taken long, say more than five to six weeks, without some intermission.

Galvanism has been experimented with by several physicians, and we have favorable reports of its effect from Drs. Duncan and Mansford. The latter proposes its employment in a peculiar mode, which proved successful in a case detailed to me by the late Professor Anthony, of Augusta, Georgia, as follows. "A negro girl, aged ten or twelve years, had been epileptic eight or nine months. After the first fortnight, she never passed twenty-four hours without one or more fits; often from eight to twelve in this period, differing in duration and intensity." A fair and persevering trial of the ordinary plans of treatment having been made by Dr. A. and other physicians, altogether unavailingly, he determined upon resorting to galvanism. "A gentle current of the fluid was kept passing through the body for some days, one of the poles of the galvanic apparatus being applied to the back of the neck over the spine, and the other to one of the legs a little below the knee. Each of these spots was previously blistered, to allow of the more free communication of the galvanic influence from one to the other." The plan was completely successful. The patient had but one fit after the application of the apparatus; her general health rapidly improved, and her intellect, which had been obviously impaired, was restored to its former soundness.

I ought not perhaps to omit the mention of the fact, that the trephine has been employed in the cure of epilepsy, in cases where circumstances indicated lesion of the brain, from a morbid condition of the bony envelope of that organ. The operation is discussed and advocated by some of the earlier writers. In modern times, instances of its successful performance are recorded by Blake, Guild and Elliotson; the last named of whom, "refers to a case in St. Thomas' Hospital, where the trephine re-

moved a piece of bone with a spicula, from its internal surface, and cured the disease." It is affirmed that Prof. Dudley met with entire success, in a case in which a bony tumor was attached to the inner plate of the piece taken out. From Dr. Wells, of Columbia, I have an account of a patient, whose skull had been fractured in childhood, (at two years,) by a kick from a horse, and upon whom he operated at the age of fourteen. Here, the result was highly promising; there was an entire intermission of the fits for several months—from March to November; and although the disease ultimately returned, it was in a form very strikingly mitigated, the intervals being long and the paroxysms slight.

In concluding the observations which with much labor and study, I have thus, for your use, collected from the mass of writings upon the subject of epilepsy, it is painful for me to be obliged in candor and fairness, to state to you the melancholy rarity of recoveries from this terrible malady. I have had the happiness to witness the removal of the disease, in a few recent instances; after some months standing, the cases become exceedingly difficult and unmanageable; when their duration has extended into years, they seem almost beyond the reach of our divine art. What wonder then, that the ancients, with their meagre list of remedies, should look upon them as altogether hopeless, and regard the wretched subjects of a disease so dreadful, as the living monuments of the wrath of Heaven, or the helpless victims of magic and sorcery.

CHAPTER LII.

NEURALGIA.

As in physiology the functions of the sensorial system are topics of unsettled discussion, and the uses of its several parts still constitute subjects of warm debate, so in pathology, it will be found that the diseases of that system, except when they exhibit manifest lesion from organic change or mechanical de-

rangement, are exceedingly ill-defined and imperfectly understood. Indeed, until very recently, no minute or careful investigation of the morbid affections of the nervous system, has ever been conducted upon proper principles; and the credit of directing our attention to the true modes of enquiry, belongs to a few modern writers exclusively, among whom, Marshal Hall and Ludwig should be first named. Perhaps the English physician just mentioned, carries somewhat to an extreme, his disposition to ascribe the more doubtful and ill-ascertained forms of disease, to inflammation and irritation of the spinal chord and the nerves issuing from it; but he even attributes to this source many common and familiar maladies.

In the warfare which has been aroused, on all these points, I shall take no share, nor become a partizan of any of the contending authorities. I propose merely to set before you such views as I have been led to entertain, and direct you to the best results I have been able to arrive at, in the earnest hope that every day will bring us more and more light upon these obscure and difficult topics.

It has been found impossible, thus far, to agree even upon the language to be used. Neuralgia is a vague term, which simply, and etymologically, signifies nervous suffering; and what suffering is not nervous? It is applied here, I suppose, for no other than a negative purpose, being intended to imply the absence of inflammation of the diseased tissue, in any of its obvious forms, or as tending to any of its ordinary consequences; the pain which is referred to, being attributed to some undefined change of action or condition in the nervous filaments distributed to the part. The preference of this term would seem to imply farther, that the extremities or expansions of the nerves, are exclusively affected. On the other hand, the phrase Spinal Irritation, is used to denote such derangements of the nervous function, wherever displayed, as originate and have their principal seat in the spinal chord, and are thence radiated by some law or impulse. It often happens, that the most careful examination fails to detect any change in the condition of the medulla or any of its envelopes, or in the roots of the fasciculi of nerves which spring from or terminate in it, and the word irritation is carefully and properly chosen and dwelt on, as signifying something

characteristically distinct from inflammation, which, it is taken for granted, would impress some notable alteration upon any structure subjected to it.

A third phrase, by which many of these affections of particular branches of nerves have been long designated and familiarly known, is derived from the French, and seems to me to be expressive enough to deserve to be retained. By Tic douleureux, we mean the painful sensations which shoot along the course of some nerve, giving rise to the most intense suffering, transient, intermittent, and recurrent.

I shall preserve each of the above terms, and attempting to indicate some natural lines of distinction, which shall aid us in separating and dividing properly into classes, the array of neuralgic and spinal disorders, I shall, very briefly, treat of them under three heads, as follows:

1. Under the appellation of tic douleureux, I shall comprise the painful affections of particular nerves distributed to the limbs and upon external surfaces, and attacking, so far as they can be traced, the branches or extreme filaments only, leaving undisturbed their common source—the brain and medulla spinalis.

2. I shall recognize under the head of spinal irritation, the painful affections of whatever parts, which give distinct proof of their being essentially connected with, or derived from some morbid condition of the spinal chord.

3. Lastly. I shall reserve the word neuralgia, to designate painful affections of the internal viscera, whether permanent or intermittent; provided it can be clearly made out, that there is no inflammatory disorder nor any organic change in the structure of the viscus assailed. Pain is, indeed, the only constant symptom of this class of maladies, and all their effects and results may be very reasonably attributed to the influences of severe pain upon the system generally. In many of them, it is important to remark, there is not any proof of the impairment or arrest of the special function of the part affected. The secretion of a secreting organ or surface thus attacked, may go on as if in health, or with no notable modification, as in gastralgia, gastrodynia, hystero-dynia, nephralgia, many examples of which, are apparently purely neuralgic.

To describe any of the diseases, included under the general

head of neuralgia, is no easy task; I must, nevertheless, endeavor so to pourtray them, as to enable you to recognize their prominent features, and to distinguish them when you meet with them; and guide you in the adaptation of the remedies required in each.

And first, of Tic douleureux. The fifth and seventh pairs, of all the nerves in the body, seem most liable to be thus affected. Its most frequent seat is, doubtless, the face and jaw. Patients complain loudly of the intense severity of the suffering they endure—speaking of the morbid sensation sometimes, as though a current of fire had been transmitted with electrical rapidity through the nervous filaments, renewed again and again, after a brief interval; at others, as a dull aching, slowly increasing and extending until it becomes intolerable anguish, and then as slowly subsiding for awhile. I have seen a stout and intrepid man under this torture, succumb and fall at last from his chair, in a state of almost complete incapacity, with his eyes deeply reddened and protruding from their sockets, and his face flushed and turgid. At times, the nerves of the teeth alone are deranged, probably constituting the very worst and most obstinate variety of tooth-ache.

The female mammæ are among the seats of this disorder, which may also assail both the upper and lower limbs. Of this last, I have seen two instances, one of which corresponds nearly enough, with Good's case of neuralgia pedis, occurring also in a clergyman. The calf of the leg was, in this gentleman, attacked with occasional paroxysms of intense pain, which became so frequent, that it was difficult for him to stand or walk. He had undergone a very persevering course of treatment for rheumatism, with no effect. Suspecting a gouty origin in the case, I advised the use of guiac and colchicum, which benefitted him promptly, and with a view to the improvement of his general health, which had become somewhat impaired, he made a voyage to England. Among numerous men of note, whom he saw and consulted there, was Sir Benjamin Brodie, who approved the plan of treatment he was following, and stated that he had met with several similar cases, and that he regarded them as gouty neuralgia. The second to which I alluded, was a physician, whose case presented this peculiarity, that he was never

attacked, except in the erect posture, and that a paroxysm was invariably put an end to, on his lying horizontally. At my desire, he frequently rose, and attempted to continue standing; but the pain in the calf of the leg would become so excessive and intolerable, that his face would grow pale, and his whole surface relax with a cold, clammy sweat, and it was evident that syncope would quickly ensue. He was, after a tedious time, relieved by the free use of opium, with the mercurials, and wearing a bandage tightly from the toes up above the knee. This last measure was instituted under the impression, that an exciting or aggravating cause was found in the distention and dilatation of the vessels of the limb.

The cause of tic douleureux is very obscure. Some writers affirm its connection with cachexy or general impairment of health; but this connection though frequent, is by no means uniform. I have known two or three instances of it in persons of apparently robust constitution. Many imagine it to arise from malaria; but this opinion seems to me untenable, for the simple reason that it is by no means of more frequent occurrence in malarious regions than elsewhere. Nay, if I may judge from its comparative infrequency in our own district of country, I would say that malaria, so far from being its efficient source, does not exhibit any obvious influence in its production. Cold, both in itself and as alternating abruptly with heat, has been suggested, but appears inadequate and irrelevant, as no definite relation has been made out between the intensity of its application or the frequency of exposures to it, and the development of this alleged effect.

The narrow extent and circumscribed locality of the disease, is shown in the repeated instances of entire and permanent removal of the pain, after excision of a portion of the nerve with its envelope. Some of these operations it is true, have been only partially successful, the relief afforded having been temporary. Here, the return of suffering has been accounted for, by supposing the excised portion of nerve to have been reproduced; or some other route of nervous communication with the sensorial centre to have been established; or better still, perhaps, by the suggestion of an extension of the diseased condition to the portion of nerve higher up, and in connection with the centrum

commune. It is true, that several failures have occurred, the excision having been unattended with any benefit, and this has happened in such a proportion of instances, that physicians are less willing to advise it than formerly. Many and various are the methods of medical treatment proposed, but none of them are entitled to much confidence. The general health should be attended to. Venesection and topical depletion are advisable, if the subject be robust and plethoric. The opposite or anemic condition is, however, more common, and tonics are required. Of these, iron is doubtless the best, and should be prescribed freely. The common rust or carbonate, deserves a preference. Cinchona has been often employed. Large doses of sulph: quinine are indicated, as some suppose, both by the malarious origin of the disease, and by its periodical character—a pretty regular interval being often observed. Both Pereira and Watson have spoken very highly of aconitine, which is directed to be applied in an ointment, to the course of the painful nerve. The very powerful and expensive preparation of it, made by Mr. Morson, of London, has indeed effected wonders, in a few reported cases of great severity and obstinacy. The ointment of iodide of mercury, has also been extolled; and I should expect at least equal benefit from a similar employment of veratrine, which, like the alkaloid from wolfsbane, may be both narcotic and counter-irritating.

2. Of Spinal Irritation. The vertebral column is the seat of many sympathetic sufferings, with which every practitioner is familiar. In fevers of every type, in many intestinal ailments, and in uterine complaints, reference is continually made to the back and loins; and in lumbago and some sciaticas, there is abundant proof, not only that the spine is affected, but that it is the principal seat of disease.

The symptoms of spinal irritation vary with the part of the column in which it is fixed. If high up, the fingers feel more or less benumbed, and often tingle very unpleasantly. There may be occasional palpitation of the heart, and thoracic uneasiness. If lower down, there is prompt fatigue in standing and walking, with aching of the thighs. Micturition sometimes attends, or a troublesome feeling of fulness of the bladder. If the back be carefully examined with the fingers, pressure will

give more or less pain, when applied to the spinous process pretty firmly, and if the patient have not felt uneasiness there previously, he will now become aware of it.

A gentleman who had been spending the summer in one of our northern cities, had all the while been under the care of one of the most eminent physicians of our country, and though at first relieved somewhat, by the remedies employed, had at last ceased to derive any benefit from them. He had been treated for tic douleureux, and complained of very frequent and agonizing flashes of pain along the left side of his neck and face, attended sometimes with perception of light in the left eye, and occasionally with a quick contraction of the muscles of that side of the neck, and of the lids of that eye. But on examining him, I found that the spine between, and at the second and third cervical vertebræ, was permanently and exquisitely sensible to pressure. To this spot, then, I directed my attention, and made frequent and free application of leeches, with immediate relief. Besides this, I put the patient upon the large use of carbonate of iron. His cure seems to be permanent, although he was for a long while so fearful of the return of his sufferings, that on the least uneasiness occuring in that part of the neck, he was prompt to use the leeches and iron of his own accord. The severest counter-irritation to the nerves of the face, which seemed chiefly affected, was in this case ineffectual. He had been very frequently subjected to moxibustion, among other things, yet with little or no relief.

I was applied to for advice, in 1839, by a physician, who was annoyed by a constant sense of formication in the arm and leg, specially troublesome on the right side, but not entirely wanting on the left. At first, he dreaded hemiplegia and apoplexy, and was largely bled twice, purged several times, and blistered extensively. He still grew worse, the morbid sensation disturbing the function of touch, and harrassing him so much that his fingers, as he showed me, were vesicated and sore, by his perpetual friction and percussion with them upon objects within his reach. Upon inquiry, I found that he was frequently attacked with vertigo and headache, and that the upper portion of the spine was tender on pressure, and sometimes ached spontaneously. His digestive system was so much out of order, and

a series of gastric affections had so long preceded his other ailments, that I was led to attribute them all to that source. Counter-irritants were applied perseveringly, along the course of the spine and to the epigastrium; his diet was carefully regulated; he remained at rest for a time, and avoided all exertion and excitement; the nitrate of silver was internally administered, and no other medicines given. Under this treatment, he rapidly, and thus far, permanently recovered.

Let me here guard you against an error likely to become a common one. Practitioners having of late, had their attention emphatically called to the spine, as the source and centre of a great variety of diseases, find, upon manual examination, that in a very considerable proportion of cases of chronic ailment, however commencing, and wherever apparently fixed and prominent, some portion or portions of the vertebral column are tender upon pressure. In all such, the inference is at once drawn, that these are instances, hitherto undetected, of true primary spinal irritation; and this inference is more strongly drawn, and considered to be clear, when very great relief or absolute cure has followed the application of remedies locally, to the spine, after a failure of the ordinary course of management. This process of reasoning is often fallacious, however, and seldom altogether satisfactory. Spinal irritation, it should be remembered, may be either secondary or original, and in a great number of chronic disorders, it ensues, either as the result of the maladies themselves, or from the causes which produced them becoming more influential, by prolonged action; or possibly, as the effect of remedies or remedial management instituted and unduly persevered in. Several of the examples of "spinal irritation" offered by Dr. M. Hall, in his valuable work, seem to me to be thus secondary; and it does not appear to me to be a rare accident by any means, that an affection of the spinal chord shall take place as a coincident result of some common cause, with the general affection of the widely distributed nervous filaments on the surface. This is, perhaps, most likely to happen in renal diseases, and in inveterate dyspepsia.

"I have very frequently met with cases," says Hall, "where a very high degree of organic disturbance existed, yet there was present little or no irritation of the spine; no complaint of pain

there, having been made, and manipulation causing no distress; nevertheless, a careful and persevering application of local remedial treatment terminating in a perfect cure, gave irrefragable evidence that the source of disease had been rightly apprehended; but that the sympathetic, par vagum or phrenic nerves, and not the spinal, had been the primary seat of morbid action." From the successful "application of local remedies" in such cases, we are, indeed, apt to believe that the part thus aimed at, was the "source" of all the symptoms. But before we settle down upon this conclusion, it behoves us to reflect how important a centre of action, influence and sympathy, is the medulla spinalis, and therefore, how very efficient a point for the agency of *revulsives* in general. On the very same grounds as above indicated, one of our western brethren has formed and maintains the opinion, that intermittent fever consists in, or is a mere consequence of spinal irritation. He has been, he tells us, very successful in arresting the formation of a chill, and thus preventing a paroxysm by the application of long strips of mustard plaster down the back, on both sides of the spine. He generalized too hastily, and did not carry his experiments and investigations far enough. Had he done so, he would have found that the same effect will follow the application of counter-irritants to the epigastrium, favoring the theory of its gastric origin; and sometimes their application to the extremities, whence has been derived support to the idea of its dependence upon vascular congestion. And if he had still found the spinal column the best adapted point for such local applications, it would only have proved, what is at once admitted, that it is the most influential centre of revulsive movements.

Again, it was ascertained by Dr. J. K. Mitchell, of Philadelphia, and our profession is much indebted to him for the useful observation, that some rheumatic attacks, entirely unmanageable by the ordinary modes of treatment, gave way readily on the application of depletants and counter-irritants to the vertebral column, and near it. But if, reasoning like Dr. Hall, we should hence conclude that rheumatism is merely one of the exhibitions or modes of spinal irritation, we should fall into a great mistake. For experience will soon convince you, that not all rheumatisms are curable by cupping the back; nay, that some are not in the

least degree relieved by this operation, and that others are easily removed by general measures alone.

Spinal irritation is much more frequently met with in females than males. It does not very often develope itself before puberty. It belongs to what is called the nervous temperament, though not exclusively. It is apt to be associated with more or less cerebral affection, and great mental excitability. In two, among my male patients, it was attended with obvious and distressing determination to the head. Its connection with hysteria, has been matter of familiar remark; or rather, physicians, with Watson, have dwelt on the frequency and closeness with which it is simulated by this protean disease. Every practitioner should be careful to avoid error here; yet I am rather disposed to differ from such as lose sight of the very natural and possible coincidence of the two affections—a combination that I have often met with—and regard the apparent tokens of spinal irritation as unreal. No reason is given, except their sudden disappearance in certain instances; but I am not aware of any thing in the nature of the case, that shall prevent its immediate subsidence and its periodical return. I repeat then, that while in your observation of all cases of this nature, you are to be on your guard against deception, voluntary and involuntary, on the part of the patient, yet you are not to allow your suspicion of female cunning to carry you beyond the limits of reason and humanity.

Two of my female patients have been somnambulists, not naturally, but while laboring under the spinal irritation. In another, there was not only phrenitis or cerebritis, but a prodigious and inexplicable exaltation of the powers of the organs of sense equally, fully, if not surpassing all that is related in the books. This symptom only appeared in the somnambulistic condition, during which the case very much resembled that of Jane Rider, so well told by Dr. Belden. In two instances now under my observation, there is extreme susceptibility and excitability, both physical and moral—in one heightened occasionally to insanity, intermittent, but tenaciously recurrent, though not at any regular interval. Such associations, which, as I have affirmed, are by no means unfrequent, render the cases of the

disease under discussion always highly interesting—an interest enhanced, too, by the uncertainty and difficulty of cure.

These two offer such well marked and distinct pictures of this unfortunate malady, that I will describe them briefly to you. The first has been long a martyr to severe suffering. There was from the beginning considerable pain in the back—of course aggravated by exercise and by the erect posture; but as this is a common symptom of a long catalogue of diseases, it attracted little attention. Frequent headaches next came on, and the heart began to act with great rapidity and irregularity; with palpitations and sense of suffocation or globus hystericus. The digestion was impaired, and the strength failed, so that the patient rose unwillingly from the recumbent position; and what with her actual debility aud the pain in the back, increased on rising, was readily disposed to syncope when she sat up. Her sleep was interrupted, and her mind constantly excited, with great talkativeness, especially at night. It was now discovered, accidentally, that the spine was at several points very tender on pressure. In the neighborheod of the eighth dorsal vertebra, this tenderness is so acute, that a touch threatens syncope, and at two or three other places, pressure made with even moderate force, leaves an aching that lasts for many hours, attended with tingling of the lower limbs. This patient exhibits constant frequency of pulse; is readily startled and greatly disturbed by any noise; as I have said sleeps little; is liable to occasional paroxysms of fever from slight causes, such as the visit of a friend, a pleasant conversation, etc; is habitually costive, and has little appetite with imperfect digestion, being confined to the lightest and mildest diet. She always obtains relief from leeches to the spine, and from counter-irritants—some of which indeed, when they act promptly, tend to bring on fainting, she says, by the suddenness and degree of relief they give. She seems to derive some advantage from prussic acid, and the cautious use of opiates. She has so far recovered as to enjoy for some months the ability to walk about and mingle in society, but still demands unremitting care and attention.

The second case which I shall detail, came under my advisement from the very beginning, and has afforded me the best opportunities for observation of the history and progress of the

disease. The first symptom noticed here was pain in the back and loins, aggravated by any use of the lower limbs, but more by standing than by walking, and subsiding again when she lay down. There was some general excitement of the system, with loss of sleep, the pulse being rather frequent and quick. After a time there was constant aching across the pelvis posteriorly, with pain following the course of the crural nerves, descending to the calves of the legs, and connected with a sense of muscular feebleness and incapacity; sometimes with numbness or tingling, which has indeed, though not often or in very great degree, affected the arms and fingers also. These symptoms continued to increase, until the patient, if not absolutely unable, was exceedingly reluctant to rise at all from the recumbent posture; and when she did sit up or walk, complained of great augmentation of all her sufferings, lasting for several hours after. Examination showed much tenderness along all the lumbar vertebræ, and at one point higher up, near the fourth dorsal; this was relieved by mustard, Granville's ammoniacal lotion, blistering, leeching and cupping, but especially the latter. Cupping indeed, with the preceding scarification—usually so painful an operation over an irritated and delicate part—gave a singular degree of positive pleasure, a phenomenon of hysterical character doubtless, inexplicable but familiar; was eagerly asked for, and always prolonged as much as possible. After long impairment or voluntary disuse of locomotive power, this patient has recovered, but perhaps not perfectly. She walks, however, quickly and firmly, though readily disposed to fatigue, and frequently complaining of pain in the back and loins, and of occasional tenderness on pressure.

The advocates of the prevailing doctrines as to spinal irritation would, however, regard my sketch of it as exceedingly meagre, if I did not at least allude here to the affections with which they affirm it to be so often closely connected; nay, of which some of them maintain it to be absolutely the root and source. Among these, under one or the other head, Marshall Hall enumerates, in his ingenious treatise, diseases of the heart—of the lungs, both phthisis and asthma—and of the liver; dyspepsia; cramp in the stomach; diabetes, chorea, tabes mesenterica, hysteria and monomania. I have already spoken of the

difficulty of ascertaining the nature of the connection, in such cases as these, between the spinal disorder and the other symptoms. I am not persuaded that they stand to each other in the relation of cause and effect. That such affection of the medulla may aggravate them all—increasing the sufferings of the patient and the difficulty of cure, I do not doubt, and will not deny. That it should always be inquired into, and receive proper attention, is an established rule which must not be neglected. It is highly probable that symptoms of each of the maladies arrayed above, may show themselves during the protraction of a spinal case, and be removed during the progress of its cure, or disappear when it is relieved. In certain anomalous instances recorded in your books, this association or simulation, if they will have it to be such, is very striking and impressive.

Thus as I have spoken of a variety of toothache, which is properly a tic douleureux, so I have seen instances of spinal irritation productive of quasi rheumatic affections, such as those first noticed by Dr. Mitchell. The same may be true of hysteria and chorea, and, as has been asserted, of asthma.

3. Visceral Neuralgia. I heartily wish it were in my power to throw any light on this very obscure but important branch of my subject. All I hope, and what indeed I chiefly aim at, is to excite your curiosity and arouse your interest in regard to it, that your attention may be specially directed to the accumulation of facts, and the establishment of clear, correct and useful views concerning it.

The ganglionic system, the sympathetic nerves so called, in which are seated the disorders we are now about to discuss, are asserted by Bichat and Sir Charles Bell to be insensible. "They may be cut," says Bell, "or pinched in the living body without causing pain." The parts which they supply, however, are capable of highly varied and delicate sensation and suffer intensely in their morbid states. It is unimportant to our present inquiries, whether these morbid impressions are conveyed through the ganglionic or the spinal system. Most writers, however, assume that the ganglionic nerves acquire when irritated and diseased, the new power of receiving and communicating impressions, just as is supposed to be done by the ordinary nerves of sensation.

1. The first of these forms of visceral neuralgia which I shall mention here, is the cerebral. Head-ache is, perhaps, the most frequent of all the sufferings complained of by invalids in civilized, and especially in refined life; and any one who has at all considered the subject, must be aware of the infinity of modifications which it presents in different individuals, and in the same individual at different times. That it results from affections of various tissues, cannot be doubted; and, it seems little less clear, that the same tissue may be subject to more than one mode of derangement productive of pain. It is well known, that some of these are inflammatory, because they are attended by all the organic changes that are the ordinary consequences of inflammation. In many varieties of what are called congestive disorders, fevers, etc., head-ache is also a prominent symptom—itself of congestive character, doubtless, and not inflammatory. But these will include only a portion of the immense number of grievous attacks referred to under this appellation, some of which are so locally and strictly circumscribed, that they can hardly be attributed to any vascular disorder, and though exceedingly vehement, and frequently repeated, leave behind them no discoverable traces. Such, for instance, is hemicrania—such that fixed pain, often at the very vertex, which may be covered with the point of the finger—such are those generally known as hysteric head-aches, and those spoken of by patients themselves as nervous head-aches, and attended by cramps of the fingers and of the muscles of the legs and toes. In some of these, it is not uncommon to find the scalp itself so tender, that it cannot bear the touch—nay, the hair itself, is affirmed by Larrey, to have exhibited, in a soldier under his care, this preternatural sensitiveness.

Now, as I set out with the pathological doctrine, that all life being derived from the nervous and vascular systems, all disease consisting in morbid modifications of vital action, must be primarily seated in these systems; it follows, then, that where there is no change in the vascular condition of a part or organ, the subject of obvious disease, such disease must depend upon a morbid condition of its nervous tissue—in other words, must be a nervous affection, which we may very well denominate neuralgia. In obscure enquiries like these, we derive some aid

by reasoning backward, and drawing our inferences, as to the nature of any malady, from the specific qualities of those remedies best adapted to its relief or cure. Hence, as we find many of these "nervous head-aches" most manageable by narcotics, we are entitled to regard them as probably resulting from what we term nervous excitement. Opium, digitalis, camphor, and certain drugs which we consider anti-spasmodics—assafœtida, valerian, musk, ammonia, are among the most common and serviceable prescriptions here.

2. Passing by, as uncertain and questionable, the suggestion of a neuralgic character ascribed to croup and asthma, in cases unassociated with the tokens or results of inflammation, I would speak here of gastrodynia and gastralgia, (as Barras well styles it,) among the well defined examples of visceral neuralgia. I need not remind you, that dyspepsia often exists, and is long protracted, without notable proof of inflammatory change or any vascular disorder; and it is, perhaps, in such cases especially, that the sufferings of the patient are intensely great. Intolerable pains are complained of in the region of the stomach, admitting of little alleviation by art, perhaps, but disappearing suddenly, and recurring at uncertain intervals. If capable of being controlled at all, these affections are more under the influence of narcotics than any other remedies. Opium will often relieve them; camphor sometimes—wine, tobacco, assafœtida, and occasionally, I know not how, oxyde of bismuth, and water impregnated with carbonic acid gas. Prussic acid will, in a certain proportion of instances, act like a charm; in others, musk and the volatile oils, and aromatics. It is to be remarked, that the anti-phlogistic regimen, both positive and negative, is entirely unsuited to these cases, and that the ordinary measures of revulsion fail completely of any good effect.

Some have considered the intestines also liable to neuralgia, and colica pictonum has been selected, by writers of authority, as a striking example. It is undeniable, that the nervous tissue and function of the bowels are very prominently disturbed in this malady; but to constitute a separate class of diseases, we must lay down specific and definite boundaries, not to be transgressed or infringed upon. It is the characteristic of neuralgia proper, that the part attacked by it is not notably altered in

appearance or subjected to organic change; nay, as I have said, its functions often go on, and are performed unremittingly in the midst of whatever difficulty and suffering. Nay, strange as it may seem, it is nevertheless true, that distant parts are more likely to have their functions sympathetically interfered with and interrupted, than the organ primarily assailed. In gastralgia, the digestion of food may go on, and the patient be well and substantially nourished by the aliment taken, even while he is annoyed by double vision, or his mind startled by the frequent apparition of phantoms; and in nervous head-ache, the intellect is often clear and active, when the stomach is vehemently nauseated, and the muscular system thrown, by sympathy, into torturing cramps. But, in colica pictonum, not only are the physiological functions of the intestinal tube impaired or put an end to, but organic changes of condition promptly supervene, which have already been described in their proper place.

3. Neuralgia of the genital and urinary apparatus, deserves a fuller and more extended consideration than can be allotted to it here. It is not a very frequent form of disease, yet you will occasionally meet with it, and it implies so much suffering, that there will be great merit in adapting to it a promptly successful mode of treatment. It is chiefly known to practitioners under the title of nephritic colic, for which some have recently substituted the phrase nephralgia. The latter term would be more appropriately reserved to express that condition forming a very prominent part of the history of renal disease in the calculous diathesis, in which, whether a renal concretion be formed and passed, or not, the irritation commencing in the kidney spreads itself, with intense agony, to all the parts connected with it functionally and sympathetically. True neuralgia may and does exist when there is no morbid alteration of the urine, nor any evidence of the presence of renal concretions; these are the obvious tokens of nephralgia. No one can help being struck, however, with the close similarity of the paroxysms, affording indeed good ground for the suspicion of renal disease in every case of nephritic colic.

The mode of attack may vary somewhat in different subjects, and in the same subject at different times, but is generally

thus.—The patient feels a deep-seated aching in the back over the kidneys, dull, heavy and oppressive, sometimes, but not always increased by pressure. After the lapse of an uncertain period of time, this connects itself with a pain far within the abdomen, near the ilium and above the pubes, fixed and intolerably acute, drawing the body down to that side, and rendering an erect attitude impossible; flatulence always or almost always attends, whence the allusion to colic; it is, indeed, supposed that a portion of the colon is involved in the extension of the morbid sympathies, which go on to include the ureter and the bladder, with grievous micturition, and sharp pangs just above the symphysis. The testicle sometimes on both sides, but usually on one only, is extremely painful, and, in a majority of cases, strongly drawn up toward the ring; and this sympathetic affection has been regarded by some as a diagnostic of this special affection. It is not so, however, but occurs very frequently during the passage of a renal calculus down the ureter, and I have twice met with it in enteritis. It is to be observed, that the pain in the testis is by no means, as some have stated, dependent upon and produced by its violent retraction; I have known it intense where there was no perceptible retraction—and, indeed, in one case of this sort, saw it so much affected as to remain swollen and inflamed for some days after the paroxysm which disordered it had quite subsided. No words can convey the faintest idea of the intolerable anguish endured by the patient under the circumstances described. Sydenham, in a paragraph containing the earliest notice that I have read of this disease, speaks of the pain as "most atrocious;" and the stoutest and firmest men—for as far as my experience has extended, it includes no female—give evidence, by their groans or loud cries, of the tortures they undergo. The stomach becomes irritable, so that nothing can be retained upon it, and the thirst is unremitting and unquenchable. I have once or twice seen a febrile exacerbation brought on. It is worthy of remark, that the function of the kidneys is so little apt to be disturbed. I have known it continue unimpaired through the repeated paroxysms of several years; the urine, which was carefully noticed, exhibiting in all that time no obvious change either in quantity or quality.

Some patients recover from an attack of this sort suddenly and completely, and are never assailed again. Others remain liable to a repetition of such paroxysms, which recur at uncertain intervals and under the influence of unknown agencies, for nothing can be more obscure than the causative mode of impression here. I have not been able to trace any source or origin for it in any mode of life or state of constitution. In one unfortunate subject, I saw the paroxysm repeated fourteen times in as many successive days; then an interval of forty-eight hours passed over, after which there was a fifteenth—since when, though often menaced with renewal, he has had no formed attack. The paroxysms vary in duration, as I have myself witnessed, from three to thirteen hours; they will average, I think, about six or seven.

Treatment. Among the remedies found most available, if used early, is the purgative. Its active operation is strongly revulsive, and will rarely fail to give decided relief; but if its administration be delayed even a short time, the stomach will become too irritable to bear it, and will soon refuse to tolerate anything. We must endeavor to quiet it with opiates, of which I have found the simple solution of muriate of morphine in water the best. The dose prescribed must be concentrated and effective; meanwhile a cathartic enema should be given, and the patient immersed in the warm bath. If a first attack, and in a robust, athletic subject, the lancet may be freely used, and afterwards cups applied to the loins. Stupes and fomentations to the back, the abdomen and the pubes, afford some comfort, but our chief reliance must be placed upon anodynes, taking care to keep the bowels soluble. The combination of opium with calomel may be exhibited in proper doses at due intervals, and the warm bath often resorted to, in which the patient should be detained until completely relaxed. Among the local applications useful in this especially, but in all the other forms of neuralgia, Granville's ammoniated liniment has received most eulogy, and is well entitled to a trial. I have seen it frequently relieve, but scarcely less often fail.

In order to prevent a recurrence of this most distressing malady, we must enquire carefully into its probable or possible causes, and set about to remove them or counteract their effects.

It is affirmed to be often associated with dyspepsia, and the doctrine is plausible enough; but of the subjects that have fallen under my care, only one is a dyspeptic. Two are athletic, sturdy men, enjoying excellent health, in the intervals eating heartily and digesting well. One is somewhat intemperate. Two are specially regular, or rather abstemious in their habits. Three are of highly nervous and excitable temperament; one appears as remarkably phlegmatic. It is evident, that the measures of prevention must differ in these different conditions. If, as is affirmed to be generally the case here—making closer the analogy already alluded to which connects this form of disease with the lithic diathesis—if there be acidity of stomach, alkaline remedies are required, of which the bi-carbonates of potass and soda are the best. The bowels are almost always costive and disposed to flatulence, a state which must be corrected chiefly by proper attention to diet, but purgatives may become necessary. I have found advantage in prescribing a combination similar to the formula so highly eulogized by Dr. Rush, of aloes, coarse turpentine soap, and opium in small amount, or some one of the salts of morphine; pills containing these ingredients in well adapted dose, are to be taken regularly at night, and occasionally in the day, when any uneasiness exists in the parts affected.

4. Uterine neuralgia is the only remaining variety whose nature is so clear as to call for a notice from us under this head. It is usually shown in connection with the periodical determination to the organ to which the human female is subject, and described familiarly as dysmenorrhœa, of which it is, doubtless, one of the most frequent modes. I have seen it occur after labor, however, both natural and premature. One striking instance of the latter kind, presented itself to me about twenty-four hours after delivery, the patient being attacked by the most intense pain in the uterus, without fever or spasmodic or irregular contraction, or anything uncommon in the appearance or amount of the ordinary discharges. Dr. Prioleau, who saw her with me, advised large doses of camphor, which, in the course of a few hours, gave relief, 12 grains being taken every hour or two for some hours, and followed by no ill consequences.

The unhappy women who are the victims of this painful

malady, declare its torments to be indescribable. Some suffer only while menstruating, but the majority complain a little while before and after the effusion begins and terminates; and, in others, the pelvic region is scarcely ever entirely free from an aching or dull sense of uneasiness. When the menstrual period arrives, this is aggravated into intense and acute pain, seated principally in the uterus, but extending around the loins, across the back, down the thighs, and over the whole genital and urinary apparatus. It is a common opinion among these patients, that the amount of the discharge is deficient, and they anxiously desire that it should be increased and rendered more free. I have seen no satisfactory evidence that it is in quantity below the average. The attacks are by no means confined to any particular temperament or class of constitutions; I have met with it alike in the sanguine and plethoric, and the anæmic. In some it is combined with that condition of the organ in which a membranous exudation is thrown off; but this is not very general, happening only, I think, in excitable and full habits, when the blood abounds in fibrine, and there is some tendency to inflammatory action or true hæmorrhage.

It is usual to declare that women laboring under uterine neuralgia are barren, and their infertility is attributed to this morbid condition of the genital system. The fact is, however, not so. I know many mothers who suffer dreadfully from this form of dysmenorrhœa. The worst and most obstinate instance I have ever had under my notice, is in a lady who has five fine children, though herself a wretched invalid, worn out by tortures which, for many years, have bid defiance to all the resources of art. I have been, indeed, rather inclined to imagine that the nervous sensitiveness—morbid at least in amount it is true—which forms an essential constituent of the disease under discussion, excites the whole generative system, and induces a degree of amativeness or even salacity which fits it for conception and re-production.

Again, the uterus is probably a mere receptacle for the ovum, and its condition, unless some mechanical obstacle be thereby presented, has little to do with the creative stages of generation, as we know that many women conceive while going through the earlier processes of change from the terrible infliction of

carcinoma of the womb. All that can be laid down positively in reference to this matter, is, that barren women are more liable to uterine neuralgia than such as are fruitful; but we know nothing of the causes or of the relations of these coincident conditions—coincident, but by no means essentially connected. The whole enquiry into the causation of neuralgia, in any of its forms, is as yet absolutely conjectural; and not one word has yet been written by the numerous authors who have hitherto treated of the subject, calculated to throw a single ray of light upon it.

I have nothing new to offer concerning the treatment of uterine neuralgia. I have succeeded best by the persevering employment of the vol: tinct: of guiac: so highly recommended by Dewees as applicable during the intervals. In the paroxysm opium should be freely used; the best form, perhaps, is the simple solution of some one of the salts of morphine—I prefer the muriate. These will occasionally fail, and we must then depend chiefly upon camphor, which is to be administered in large doses and in substance, say from 5 to 10 grains, carefully watching its effect upon the nervous system and the pulse. The warm bath generally, from time to time, and more frequently the hip bath, will give some relief. Sinapisms or hot mustard poultices, applied over the sacrum and upon the inside of the thighs, are good adjuvants. After the bowels have been evacuated, either under the action of a prompt purgative, or of irritating enemata, these last may be employed to convey opium or assafœtida, both of which are occasionally found serviceable.

CHAPTER LIII.

RHEUMATISM.

The Motory System, constituting one of our physiological divisions, comprises all the organs of locomotion, passive as well as active. The bony skeleton with its joints, ligaments, tendons, etc., and the extensive muscular apparatus with its appendages of fascia and aponeuroses, are included under this head. These several parts, so various in their composition and structure, and exhibiting such diversified modes and forms of vitality, are necessarily liable to diseased actions as extensively diversified and various.

Many of the morbid conditions which find their proper place here, especially among those located in the osseous structures, are incorporated in your surgical treatises as being combined with external organic lesions, and demanding the assistance of mechanical art. Others are rare, and deserve to be arranged rather with the morbid curiosities of nature, than as objects of practical attention.

Others still, and this class will comprehend the majority of the affections of the muscular fibres, the muscles of voluntary motion especially, are merely sympathic for the most part, or symptomatic; never occurring, or so seldom that the exception requires no notice, but in immediate connection with and dependence upon certain other forms of disease seated in other systems and inseparable either pathologically or therapeutically from these, their parental disorders. Such, for instance, are tetanus, hydrophobia, cramps, convulsions as in epilepsy and hysteria, and paralysis, as in chorea Sancti Viti, hemiplegia and paraplegia.

Under the present general head, then, I propose to treat of but two maladies, singularly allied in history, seat, symptoms, and indeed in every thing but cause—Rheumatism and Gout; the first, one of our most familiar ailments—the second, thanks to the prevailing spirit of reform, becoming more and more unfrequent annually, and perhaps destined, within one or two gene-

rations, to be totally extinguished, and regarded by our successors as matter of history, like the black death, the sweating sickness and the ancient leprosy.

Rheumatism. If frequency of occurrence constitute for any disease a claim upon the notice of our profession, the affection recognized under this unmeaning, or inappropriate title, may demand special attention. It implies, in many instances, very intense degrees of suffering; is often productive of extreme inconvenience to the patient, in addition to the pain and danger it may occasion; and not very rarely incapacitates him, while in the very bloom of youth, or the vigour of manhood, for participation in any of the duties, occupations or enjoyments of life. As holding thus a prominent place among the "medicable ills" which assail our species, it behoves every physician to ascertain and know, as far as may be, its nature and causes, and the means of combating its influence with propriety and effect.

Rheumatism has been, from very early times, divided into the acute and chronic, or, in phrase proposed more recently to be substituted, the entonic and atonic, to which some pathologists have suggested the addition of a third form, intermediate and of mixed character, the sub-acute. These several modifications are not always so easily separable from each other as the terms given above would seem to imply; the line of distinction is not drawn in certain cases without hesitation and difficulty: yet, in their extremes, they really present so little in common and differ so widely, that Cullen, although he has complied with custom in placing them together, has expressed some uncertainty whether they ought not to be considered as forming distinct genera, while others have arranged them as different species of the same genus. I confess myself unable to resolve the doubts on this subject, of which I shall say more in the proper place; the difficulty is, however, greater in speculation than in practice, and it will be my duty to furnish such rules for your guidance, that your patients, at least in an infinite majority of the cases that are hereafter to come under your care, shall suffer nothing from the theoretical uncertainties which hang over the Pathology of Rheumatism.

Various opinions are strenuously maintained as to the exact

seat of what is called Rheumatic Inflammation. It affects the joints, whence its names Arthrosia, and Arthritic Fever; some assign it to the fibrous, and others to the condensed cellular tissues; some to the lymphatic system. It also affects the limbs between the joints, and thus gives color to the opinion held by Cullen, and after him, Carmichael Smyth, that it consists in a true inflammation of the muscles; Hildebrand thought it had its seat in the serous membranes. We know that it sometimes implicates the skin, and occasionally attacks the diaphragm and heart. I am somewhat sceptical as to its metastatic invasion of the stomach and intestines, though it may assail the muscular portion of their structure; and I altogether disbelieve its intrusion upon the brain and other viscera non-muscular. I have already alluded to Hildebrand's views; his countryman, Richter, thought it a sort of universal modification of disease, as I mentioned in treating of dysentery, which he regarded as a rheumatic affection of the bowels. Huxham, before the entire explosion of the Humoral notions which gave its strange name to the disease, wrote of it as a "sharp serous rheum," which might be directed upon, and derange, in its own way, every portion and tissue of the body.

For my own part, I am inclined to hold, with Craigie, that the chief, if not the exclusive, seat of rheumatism, is the tissue which is termed "aponeurotic"—"the aponeurosis, fascia, or tendinous expansion, which, invariably connected with the periosteum or capsular ligaments at the articular extremities, covers or supports each muscle to a greater or less extent, penetrates into the substance of the muscle and passes at each joint from one part of a limb to the other, and from the limbs to the trunk, forming a covering of the greatest extent, next to the skin, in the human body."

I cannot doubt the existence of a constitutional condition, a state of the general system with which rheumatic inflammation is connected, and upon which it is indeed dependent. But this rheumatic diathesis, if this phrase be employed to express such a condition, is peculiar, specific, absolutely sui generis, and does not admit of description or definite portraiture. It is not only true that particular individuals are especially subject to rheumatism, but this predisposition, it is well known, may be trans-

mitted hereditarily, like all other specialities of the person, the family, and the race. Beyond this, and the fact that a second attack supervenes more readily upon any given individual, owing not only to the building up of a constitutional diathesis, but probably also, in some measure at least, to obscure changes impressed upon the parts first affected—beyond this, we know little of the predisposing causes of rheumatism. Muscular fatigue is, perhaps, the only one which we can affirm to be definitely pointed out, and the malady is hence accounted for in its aptness to attack the hard-working laborers of the lower classes. It is also commonly believed, that a limb or joint which has been previously twisted or dislocated, or weakened by a blow or sprain, is ever after more liable to be acted on by the several circumstances that tend to give rise to rheumatic inflammation.

The exciting or occasional causes are, in general, all such circumstances as tend to obstruct or impede the ordinary healthy transpiration from the cutaneous surface. The application of cold or of moisture, as in a current of cool air, in coming out of a warm room into a chilly atmosphere, especially at night, in getting the feet or body wet, sitting on a damp floor, sleeping in damp sheets, will give rise to it. Some of its local developments are distinctly ascribed to the local application of cold, as in rheumatism of the head—cephalalgia rheumatica, seated in the epicranial aponeurosis, and in stiff neck—torticollis, and in facial rheumatism, the patient will tell you he sat near a half open door or window, and in sciatica or lumbago, he will remember sitting on damp ground, or exposing the lower part of the trunk. Yet this ancient and long received etiology, is now warmly disputed. Chomel, an authority always to be respected, is at the head of those who maintain the innocence of the application of cold to the surface, and finds, as he affirms, upon close examination, that a very small proportion of the cases, not more than two in nine, are properly to be attributed to this source. And, on a large scale, the statistics present a more plausible support to his argument than you would imagine—that is to say, without occupying your time by tabular statements, rheumatism is not of such marked comparative frequency in the exposed professions as you would anticipate—soldiers, for example, and sailors; nor in the colder seasons of the year, vernal

and summer attacks being pretty nearly as numerous as those of winter and autumn; nor in the colder climates—nay, you will think it singular, that rheumatism prevails less in Nova Scotia than at the Cape of Good Hope. Nevertheless, it seems to me clear enough, that the popular opinion on this subject is well founded, and we have from Haygarth and Bouillaud, direct statistical facts in abundance to sustain it. In this country, it would, indeed, be difficult to subvert or shake it, so universally is it received both by the vulgar and by our profession. "Rheumatism," says Professor Chapman, "generally proceeds from the action of some evident cause, and is never, like gout, primarily seated in the stomach." "We apprehend,"—it is Professor Caldwell who speaks—"we apprehend the most radical and essential difference between gout and rheumatism to be, that the former always, and the latter never, originates in the stomach." But, in thus ascribing the latter to evident causes, or external as contra-distinguished from internal influences, these unshrinking sympathists can have had reference to no other than the agencies of atmospheric temperature in their several modes of application.

Acute rheumatism comes on with a sense of stiffness and pain in some one or more of the joints, or in some muscular part, attended early with a greater or less degree of fever, whence some insist upon regarding the disease, in this acute or entonic form, pyrectic as it is almost invariably, as arthritic or rheumatic fever; and, indeed, it is not easy to say, whether the constitutional or local affection ought to be considered as primary and paramount.

The local pain is of severe and depressing character; the part is red and swollen, and intolerant of pressure or motion. The general disorder keeps pace with the arthrosial inflammation; the pulse is full, hard and frequent; the skin hot, dry and harsh; the tongue whitish and furred; there is thirst, headache, restlessness. The pains are almost always exasperated at night, when the fever also rises highest; a certain remission or degree of palliation being observable in both in the morning, with some moisture on the skin. Hall affirms that the perspiration is of acid quality.

Rheumatic inflammation is one of those characterised as in-

constant, shifting occasionally from one joint to another. This metastasis not very rarely, it is said, affects also the internal organs, the heart being most liable to such invasion. Sometimes its outer surface is inflamed, pericarditis occurring—sometimes endo-carditis or inflammation of its inner surface takes place. These unfortunate complications are known by the intense pain which assails the region of the heart, attended often by difficulty of breathing and always by palpitation, intermission of pulse, and many tokens of extreme general distress; the face and lips being livid, with great prostration of strength. Craigie also maintains, that the very substance of the organ may be thus attacked.

A peculiarity of this species of inflammation is, that, whatever may be its intensity or duration, it never gives rise to suppuration in any of the tissues which it affects. This law is announced absolutely, and with no impropriety, the exceptions recorded being so few in number as by no means to affect its correctness. Among these, it happened to myself, to meet with two instances in the same patient, the only fatal case of ordinary rheumatic fever that I ever saw. There was in this individual, a youth of about twelve, suppuration of the knee joint, implicating the bursa of the ligament of the patella, and also one of the joints of the right index finger. Effusion of the ordinary synovial fluid in undue amount, is not uncommon; when such swelling occurs, the pain is usually lessened, the effused fluid being generally absorbed afterwards.

The duration of acute rheumatism varies, extending from a few days to three or four weeks; if not properly managed, it may run into the chronic form, or terminate in permanent stiffness, or loss of power and of motion in the part attacked.

It affects both sexes apparently alike, and every age. Heberden saw it at four years; I have seen a distinct and well marked case in a boy of three. As you would suppose, the acute or entonic form is met with most generally in the young and robust; the infirm and aged being liable to the chronic variety. No rule of this sort, however, is exempt from numerous exceptions; the worst case of chronic rheumatism that ever I saw, was in a stout, hardy individual in the prime of life; and I have attended many old subjects of acute febrile rheumatism.

Diagnosis. "Rheumatism," says Heberden, "is a common name for many aches and pains, which, though owing to very different causes, have got no peculiar appellation. It is besides, hard to be distinguished from some which have a certain name and class assigned them; it is thus often doubtful whether the pains be gouty or venereal or strumous." From all these, you will be able, I think, to separate it by careful inquiry into the history of each case. The first attacks of gout are made upon the smaller joints, the great toe especially; venereal and strumous arthritis pronounce themselves by obvious connection with other local affections and with defined constitutional disorder.

Prognosis. Acute rheumatism is rarely fatal, and if treated with any reasonable degree of care and prudence, it will very generally subside and disappear without permanent lesion. In certain hectic diatheses, the fever connected with it may become exquisitely irritating and exhausting, as in a case already alluded to. Or the metastases, as they are denominated, to internal organs, so much dreaded, may supervene and destroy the patient promptly, or by tenacious organic derangement. I have met with an example of each of these modes of death from rheumatic affection of the heart. In one of them, a female, whom I saw in consultation, the patient died after suffering for a few days the most intolerable anguish. With intense pain in the cardiac region, there was a quick, abrupt, irregular, intermitting pulse, the breathing being oppressed and laborious. In the second, a youth of fourteen, the external symptoms subsided somewhat hastily, leaving behind them an enduring palpitation of the heart with dyspnœa. The organ enlarged perceptibly, the left ventricle especially being hypertrophied; he sunk gradually, dying in the third year. No examination of the body was permitted in either case. Let me distinctly declare to you my belief, however, that the frequency of this connection between ordinary rheumatism and carditis has been enormously exaggerated by certain modern pathologists. Bouillaud asserts that half the attacks of rheumatism are associated with, or productive of pericarditis or endo-carditis. On the other hand, Heberden remarks on the rarity of internal rheumatic affections; he declares these internal metastases to occur very rarely—"rarissime;" and Callisen dwells on the pertinacity of the exter-

nal tendencies of this form of inflammation. With these last authorities I fully agree. Rheumatism is, in these regions, one of our most familiar maladies, and in a practice of a quarter of a century, I have seen and known but the two cases recited above of internal rheumatism. I am not very anxious to explain or account for the error. It is possible that original attacks of the phlegmasiæ may be incorrectly set down as rheumatic, under a false theory; or as it is urged by some writers, the extravagant use of the lancet, in which Bouillaud and others have indulged, may produce consequences, thus dwelt on, as parts of the disease under discussion.

Treatment. The earliest and most prominent indication in the treatment of acute rheumatism, is obviously the reduction of vascular excitement, morbidly great, both locally and generally. Our most ready means of effecting this is venæsection, which is almost universally advised and resorted to. Under all ordinary circumstances, you will not hesitate to employ the lancet efficiently; taking away, at once, a sufficient quantity of blood to make a decided impression upon the pulse and circulatory system universally. About the inflamed joints too, you will place a proper number of leeches, or apply the cups in the neighborhood. It may be proper to repeat this sort of depletion in robust subjects and highly inflammatory attacks, but there is a point of time at which you must begin to exert a degree of caution in regard to it; when the transition occurs into the sub-acute condition, so called, the fever assuming a character rather irritative than merely symptomatic, and the constitution falls into an excitable condition, readily associated with increasing debility, both sensorial and vascular. The lancet will now become dangerous, even in the most skilful hands, and utterly destructive when employed by the inattentive and reckless. For myself, I prefer to regard venæsection chiefly as subservient or preparatory to the administration of diaphoretics and opiates. These will not produce their best effects until depletion has been premised, and the febrile force and frequency of the pulse have been brought down. Beyond this, the lancet is likely to do mischief. I have known chronic rheumatism result directly from this ultra venæsection; and I am confident that you will find practitioners conversant with internal or metastatic rheumatism, in an exact ratio

with the exclusiveness of their dependence upon "free bleedings." Hence the vehement and though indiscriminate, not unfounded, invectives against this practice, to be found in the works of so many modern and ancient writers. Lieutaud warns us against "opening a vein more than three or four times at most, as productive of tedious protraction of the disease." Heberden doubts the benefit of large or repeated bleedings, and tells us that "one of the worst rheumatisms which he remembers, immediately succeeded a most profuse and exhausting epistaxis." "Very profuse bleedings," says Cullen, "occasion a slow recovery, and if not absolutely effectual, are ready to produce a chronic rheumatism." Some modern pathologists look upon rheumatic irritations as neuropathic rather than properly inflammatory; and no one denies the presence of an element of this character, as at least modifying the nature of the case, if it be not the most prominent of its characteristics. Now, there is no method by which we can so surely develope or enhance this nervous element as by venæsection; thus increasing the sufferings of the patient, impairing his constitution and protracting or rendering permanent his infirmities. The result of the whole warmly conducted dispute then, concerning the employment of the lancet in acute rheumatism is, that you are to use freely, but not abuse the remedy; and that you are to be guided in its application by the received rules that govern the resort to it in other forms of disease, but with something of added caution.

The next step in our treatment is the exhibition of cathartics. Some physicians have not hesitated to denounce altogether the use of purgatives here, as unsuited and even injurious, by the necessity which they occasion of motion which is painful to the patient, and by the centripetal tendency which they give to the fluids, by their action on the internal surfaces. On the latter point, I have already expressed my opinion. I have seen no such ill effect as is here threatened, and am not fearful of its occurrence. Experience abundantly proves that their good effect as depletory, and perhaps in some measure as revulsive, (for even revulsion is not so unsafe as it has been pronounced, in so tenacious and violent an arthritic affection,) far more than compensates for the inconvenience to which the patient is put. Much has been said of the preference due to certain articles of the

class over others; and Parr, speaking out the prejudice of many practitioners, declares pointedly against the neutral salts as unfit. In my hands, they have succeeded well, however, either alone or combined with rhubarb and some aromatic.

Diaphoretics, I have already hinted, constitute the chief remedies in rheumatism; yet they require to be properly chosen, and carefully adapted to time and circumstances. Sweating has been long regarded as the natural solution of a rheumatic attack, but it is not every cutaneous discharge which is thus critical and salutary. Spontaneous sweats often appear, which do the patient no good. These are usually partial, and transient or intermitting. We can force such by the heat of the bed clothes, as is often done domestically, and by hot drinks and hot applications to the surface, which the patient submits to the more readily, as he is usually liable to a recurrence of occasional chilliness. Rutherford asserts, that under these circumstances no sweat flows from the pained part, which continues rigid, harsh and dry.

Those sweats only are salutary, which come on gradually and diffusively, with a diminution of the hardness and constriction of the surface, the pulse becoming fuller, softer, slower, or less abrupt and frequent. We may commence early the diaphoretic plan of treatment, by combining our sudorifics with the cathartics already advised. Thus, to the common compound cathartic powder of jalap with sulph: potass, we may add the tart: antimon:, or prescribe a solution of sal epsom in infus: rad: senek: or serp. When these have acted sufficiently upon the bowels, the purgative may be left out, and the antimonial will then deserve our chief reliance. It may be given in such dose as the stomach will tolerate, and either in solid or fluid form. James' powder is much used in England, and as a substitute for it, the pulv: antimon: of the shops, here. Perhaps the common tartar emetic is more worthy of our confidence than either. They may be given alone, or combined with nit: potass:, seneka, serpentaria, etc. Opium, which is one of the best of our sudorifics, possesses besides, the singular and inestimable advantage of administering immediate relief to the intolerable sufferings of the patient. It may be added to the antimonials, or conjoined with ipecac:, as in Dover's powder, a happy formula, which strikingly

exemplifies the advantage of a resort to the combined operation of energetic medicaments. It should be given in as large doses as can be borne. Its inventor, we are told, prescribed not less than thirty to forty grains, repeated every few hours. We can seldom venture beyond fifteen or twenty, twice or thrice in the night, when chiefly I exhibit it. I have long used opium freely, and with such benefit and success, that I will not take up your time with the discussion of the speculative objections which some theorists still continue to urge against it. Abundant authority in its favor, can be brought, both from the writers of Europe and our own country. Of the former, Cazevave, and of the latter, Holmes and Bigelow, Webb and Mauran may be specified to you. Some other diaphoretics are proposed, and may find a place in the management of protracted and tenacious cases. Camphor is one of these; it is seldom ordered alone, but usually in combination with opium. So also we may say of the spt: nit: dulc:, which in full dose, is a good adjuvant to our other stimulant diaphoretics. The acet: ammon:, is also mentioned under this head. Sulphur may often be exhibited with advantage, in tenacious rheumatisms of transitive or sub-acute character. The doses should act in the slightest degree as laxative, not more than once or twice in the twenty-four hours. It determines to the surface, which it keeps moist and warm, and perhaps, is of use too, as in intermittents, by its tonic and anti-periodic properties.

At this juncture, the cinchona has been much used and highly eulogized, and in advocacy of its very decided utility in rheumatism, we have the very respectable names of Morton, Fothergill, Fordyce and Haygarth. The sulph: quinine is, perhaps, the best form, and it may be united, pro re nata, with camphor or opium, or some of the salts of morphine, or with serpentaria or the carb: ammon.

Mercurials are employed by many reputable physicians, both in this country and in Europe. I do not perceive their adaptation to the case, and have never been in the habit of depending upon them. Hall and Craigie both declare, that they prescribe frequently and with great benefit, the combination of calomel and opium. I do not doubt their facts, but ascribe the good done, almost exclusively to the opium administered. Guiac is

with many, a favorite medicine, in all rheumatisms; it does not seem to me suited, at all, to the early stages of entonic or febrile cases, but will often prove serviceable in the sub-acute or local affections, such as lumbago, sciatica, or cephalalgia. The tincture is to be chosen, and should be given in full dose, from one drachm to half an ounce, so as, like sulphur, to prove gently eccoprotic. Under similar circumstances, colchicum is alike beneficial, though this remedy seems to have a much wider extent of adaptation, and may be used early, and even in the acute cases. It will act as emetic and purgative, in large doses, and I think, somewhat as narcotic also. Veratrine is its active principle, probably. The new remedies, aconitine, delphine, etc., are all employed here, but I have not had any satisfactory experience with them.

Local Treatment of the joint affected. While thus bestowing our principal attention upon the general management of the disease, we are by no means to neglect the local remedies adapted for the relief of the inflammation seated in the limbs or other parts. Of the application of cold, I have only to observe, that however strongly it may seem to be indicated, by the heat, pain and swelling, and redness, its effect here is equivocal and unsafe. The patient seems instinctively indeed, to desire warmth and protection, and if there are any metastatic propensities connected with the nature of this inflammation, this is surely the way to arouse them most promptly. I cannot, therefore, recommend it to you, although it is said to be in successful use among the Russians and our own aborigines, and other semi-barbarous tribes.

Of topical bloodletting, I have already spoken; if not indispensable, it is almost uniformly palliative. Leeches or cups may be used. Stupes and fomentations, and soft, warm poultices, and local vapor baths, are all comforting and soothing; and after the painful sensibility of the surface in the neighborhood is somewhat reduced by these means, a vesicatory will be found a very impressive and beneficial revulsive, which may be repeated from time to time, if circumstances require. Prof. Mitchell, of Philadelphia, has discovered that counter-irritants of this sort, are frequently more serviceable when applied to the spine, than directly over the part. He selects that portion of the column

whence issue the nerves that supply the seat of the inflammation. The suggestion is a valuable one, and deserves your attention.

Concerning the various internal seats of rheumatism, whether originally misplaced or retrocedent and metastatic, it is necessary to make a few remarks. A majority of pathologists regard the rheumatic affections of the heart, the diaphragm, etc., as being truly inflammatory, and, like original phlegmasiæ, occupying the same localities, demanding the most prompt and vehement depletion. Others look upon them as neuralgic, or neuropathic, or of specific character, and propose corresponding modes of treatment. All agree upon counter-irritants, as being immediately necessary. Some administer mercurials freely; others depend upon colchicum; opium has its advocates, and I think, exhibits a preponderance of testimony in its favor; it must be given in large dose. My experience, I have said, is happily very limited, as I trust yours may be, in these terrible attacks. One of the patients whom I spoke of formerly, was bled again and again, and otherwise depleted, and in every way subjected to counter-irritation. She sunk soon, and her sufferings were indescribable. The other took colchicum, guiac and opium, and his chest was blistered for many months, and afterwards kept irritated by tartar emetic, etc. The result, though postponed a long while, was unfavorable. If so unfortunate as to encounter a case of rheumatic carditis, phrenitis, diaphragmitis or gastro-enteritis, I should be guided by the condition of the patient. If the pulse were full and strong, I would bleed him to the relief of the symptoms or to syncope. I would immerse him in the warm bath, and relax his skin and general system with some one of the antimonials. I would then endeavor with full doses of opium to procure for him quiet and repose. If, on the contrary, his pulse were feeble, his visage livid, and his muscular strength sinking, I would exhibit opium largely, with camphor, alcohol, and other diffusible stimulants. In both cases, I would apply mustard, and afterwards epispastics, near the seat of pain. For these, if the case become protracted, I would substitute issues and setons, and prescribe mercurials to an alterative extent, with iodine, occasionally using colchicum, digitalis, and opium pro re nata, as narcotics, diaphoretics and diuretics.

We go on next to treat of CHRONIC RHEUMATISM. I have always doubted, whether in their extreme limits, the several forms of disease included under the generic title of rheumatism, have any thing in common; it is certain, nevertheless, that in their intermediate shades, we find it often difficult to draw such lines of distinction, as shall clearly separate them. Perhaps, to follow up a suggestion more than once alluded to, if we consider the malady as composed of different elements of which neuropathy and true inflammation are the chief, at one end of the scale, the inflammatory, and at the other, the neuralgic, shall be found prominent; yet the organic changes of the latter, or chronic affection, prove that there is, sufficiently energetic in its mischievous results, a morbid action in the vessels, as well as derangement seated in the nervous filaments of the tissue assailed. Cullen gives us a delineation, which he intends both as descriptive and diagnostic, and I am not sure that it would be easy to offer you a better: "When the pains are still ready to shift their place; when they are especially severe in the night time; when they are attended with some degree of pyrexia, and with some swelling, and especially with some redness of the joints, the disease is to be considered as partaking of the nature of acute rheumatism. But when there is no degree of pyrexia remaining; when the pained joints are without redness; when they are cold and stiff; when they cannot easily be made to sweat, or when, while a warm sweat is brought out on the rest of the body, it is cold and clammy on the pained joints; and when especially the pains are increased by cold, and relieved by heat applied to them, the case is to be considered as purely chronic rheumatism."

As you would infer from the above paragraph, chronic rheumatism is most frequently the consequence of the acute form unsuccessfully managed; but it may occur originally. Its causes are the same, however, as of the other variety, modified in their influence, we scarce know how; cold and moisture, especially when combined, as in damp beds, wet clothes, wet feet, etc. The predisposition seems to be created by any considerable degree of bodily fatigue, or previous exhaustion and debility. A physician of my acquaintance rode many miles to visit a patient. He arrived late on a warm summer night, and having prescribed,

lay down imprudently under an open window and fell asleep. After some hours he awoke to find himself altogether incapable of motion, and though in the very prime of life, and enjoying, until then, excellent health, remained to the day of his death, four years after, in a state of most deplorable helplessness, without fever or any other token of constitutional disorder.

It is usual that a limb, or only one joint may be attacked, or a few of the joints at once. They show, at first, no change of shape or color, but after a while, the muscles which move them emaciate and wither away; all the tissues seem to decay, with loss of symmetry; and in the smaller joints and membranes, as the fingers and toes, hands and feet, there are irregular enlargements, with a white, dull, waxen appearance, very peculiar and characteristic.

Two of the seats of chronic rheumatism have been thought worthy of special name and notice. Lumbago is a word which you will often meet with in your books, and hear. It denotes an affection of the dorso-lumbar region, occasioning great stiffness, and pain on motion; the body being sometimes rigidly upright, sometimes kept in a half bent position. The muscles of the back and loins, and perhaps the spinal ligaments, are here affected. Sciatica or "hip gout," is a similar affection of the hip or gluteal region, deep seated in the parts about the joint, and often spreading down the thigh, with great lameness. At first, there is inflammation only of the aponeurosis of the gluteal muscles and part of the tensor vaginæ femoris; but afterwards, it attacks the sciatic nerve, thus presenting a most annoying complication of neuralgia with rheumatism. Both lumbago and sciatica are most frequent in old people, and are, in a majority of instances, of a chronic form; though I have seen them assume, as well, the acute and sub acute character.

Treatment. Chronic rheumatism not only does not require, but will not bear the measures of energetic depletion recited to you, as fulfilling the indications presented in the acute form of the disease. Yet, I have known bloodletting carried to an enormous extent; the physician I spoke of, was immediately bled to the amount of forty ounces, with evident aggravation of all the symptoms present. Generally speaking, this obscure and tenacious affection seems unconnected, if not incompatible with

the actively phlogistic diathesis, the sanguineous temperament. Even local bleeding by cups and leeches, will fail to do any service, unless in cases which partake more or less of a transitive character—an acute or sub-acute modification. Perhaps this mixed condition is more often met with in lumbago than any other variety of rheumatic affection, and in the early stages of sciatica.

There are few maladies on our long and dark catalogue, in which the indications are more obscure, or the practice more empirical or less successful. Experience has, on the whole, dictated a preference of medicines and formulæ which combine the narcotic and diaphoretic and stimulant properties ; and it is by a persevering, yet prudent and judicious use of such prescriptions, that we are entitled to expect to render most service to our patients. The guiac, of which the vol: tinct: is the preparation generally chosen, has been long, and I think, not undeservedly celebrated here. It must be given in as full doses as the stomach and bowels will bear, without disorder. From its known influence over arthritis, you will lay special stress upon it, whenever you have any reason to suspect the presence of gouty predispositions. The colchicum is adapted to a similar class of cases, and often exhibits very impressive influences. I frequently combine the two, adding a proper amount of tinct: opii:, to prevent nausea or catharsis. Of colchicum, the books record numerous and greatly exaggerated eulogies. Williams speaks of it as "a happy desideratum, a mild, yet powerful medicine ; capable of substituting calmness, tranquillity and balmy sleep, in the place of pain, weariness and sleepless nights; a renovation of long lost limbs and comparatively robust health, in lieu of feebleness and emaciation."

Prussic acid has been employed with advantage in chronic rheumatism. Dr. Coates, of the Penns: Hosp: reports "two severe cases, in which this agent was eminently serviceable, and in combination with subsidiary means, effected permanent cures."

The phytolacca decandra, pokeberry, has been loudly extolled. I have seen it a good deal used in domestic and hospital practice; but the brandy in which the berries were infused, appeared to me the most pleasant and energetic portion of the tincture. Savin has been a favorite remedy of Prof. Chapman. It seems

to be best adapted to old cases, and such as would have been styled by Lieutaud "frigid rheumatisms." It must be given in large dose, from gs. xv to ℈i, three or four times a day, and with some perseverance. Cubebs are also prescribed, and all the other varieties of pepper. Turpentine and each of the volatile and essential oils, have had their advocates. Cantharides in tincture, are said to be of obvious advantage, especially if pressed to the production of some irritation, probably revulsive, of the urinary apparatus.

Sulphur is, I think, more uniformly beneficial. How it acts, is difficult to say. Its dose should not be large enough to purge the patient; and it may be combined usefully, with several of the stimulant diaphoretics, as camphor, æther, ammonia and opium. Of late, it has been used externally upon the surface—as for psora and other cutaneous affections, in the mode commonly spoken of as sulphureous fumigation. Very little ingenuity is requisite for the construction of an apparatus for this purpose; the principal difficulty to be surmounted, lies in the absolute necessity, that the sulphurous acid gas generated by the process of combustion, shall be so closely confined that none shall escape to enter the lungs of the patient. Galès, in Paris, Del Carro, of Vienna, and a long list of respectable names might be adduced, in favor of this process. The effects of this sulphurous vapor bath, are of a stimulant character, and require, to develope themselves, not more than fifteen minutes to half an hour. There is first a stinging or prickling over the naked body; the face flushes slightly; the pulse rises in force and frequency; a full, free sweat breaks out, and the patient becomes somewhat vertiginous, languid and exhausted. In many instances, cures have been effected by a few repetitions of such fumigations. Phosphorus, æther, and several other substances, which yield, on combustion, stimulating gases or airs, have also been applied in a similar way. They possess, so far as I know, no superiority over sulphur, and when thus volatilized, besides being irrespirable, remain liable to combustion, and are thus highly dangerous. In the use of some one of them, a gentleman of this city was severely burnt. Warm and hot baths have long been popular remedies for chronic rheumatism, and the natural have been preferred to the artificial always. Whether this be owing to the fact that such thermal waters, almost of course, contain

some peculiar ingredients, or that the heat of the bath is more uniformly kept up at a high point, I will not say; nor am I prepared to pronounce decisively upon the popular opinion, that springs, like those of the Virginia Valley, in our own country, impregnated with sulphuretted hydrogen, are more beneficial than the simpler and purer waters, both as baths and as taken internally, in abundance. Even cold bathing, especially with sea water, has had its advocates. I should be unwilling to apply cold to the entire body of most of the subjects of chronic rheumatism, that have come under my care; but I have, more than once, seen decided benefit from the forcible affusion of cold water upon the affected part—the spout bath. It will not be easy to diagnosticate the cases to which it is adapted; but I have known no injury follow its experimental employment.

The disturbed and impaired state of the constitution, with which this most tormenting disease is apt to associate itself, has led to the persevering use of tonics and alteratives. Cinchona, in many of its forms of preparation, and in combination with camphor, ammonia and serpentaria, has been thought serviceable. The sulph: quinine is the best mode, after all, of administering it. The infus: and extract of sarsaparilla are largely employed, but I have no confidence in the article. As combined with mezereon, guiac:, sassafras, etc. in the Lisbon diet drink, it has obtained an undeserved reputation from the undoubted good properties of the stimulating diaphoretics with which it is associated.

Arsenic has been thought a serviceable tonic in old cases; and in the broken down constitutions of malaria districts, will often prove itself a valuable adjustant. Mercury, the subject of such warm dispute among writers on rheumatism, has not seemed to me well adapted to simple, unmixed cases, whether acute or chronic. In union with opium, I occasionally prescribe it, when I suspect any complication with derangement of the digestive system. You will often have reason to doubt whether there may not be some constitutional modification impressed by previous venereal contamination of the system. Here, you may resort to the merc: corros: sub: introduced slowly and by very small doses, or (which is perhaps better) to the dent iodide of mercury and potassium. Iodine indeed, both simply and in several of its combinations, has been gradually gaining the favorable notice of the

profession. The formula of which I have spoken, and the iodides of iron and of potassium are preferred. They all seem to deserve a persevering trial.

The local applications for the relief of chronic rheumatism, are exceedingly numerous and diversified. On the principle of counter-irritation, a great variety of acrids have been suggested, and there has been warm contention as to which among them deserves most confidence. Croton oil, mustard, and turpentine; tartarized antimony, veratrine, and iodine in ointment and strong tincture, have been fully experimented with. I prefer the cantharides to them all, and put on repeated blisters at intervals. Granville's ammoniated liniment is sometimes effectual, when the vesicatory is unsuited. If the part is much swollen or distorted, firm pressure with a roller bandage, as tight as can be borne, will be found useful. I have seen good done, in waxen emaciation and distortion of the wrist and fingers, by the splint, carved to fit, and worn along the arm and hand, as in cases of paralysis from lead. Balfour recommends percussion over the painful and withered joints; it may be done in various modes, the best perhaps being by a hard stuffed ball, or one of gum elastic on a handle.

Strong friction on the part, is a very impressive and beneficial mode of treatment. The hand perhaps is the best instrument; next, a flesh brush, sufficiently hard. Its utility may sometimes be aided by the interposition of volatile oils and other irritants. Extraordinary cures of stiff and disabled limbs and joints, abandoned and neglected by professional men, are, to their great shame and mortification, every day made by coarse and ignorant manipulators, simply by virtue of energetic and long continued rubbing, handling and shampooing the part. The case of the celebrated Chenevix is much in point here. Having heard of the cure of a noted race horse, crippled by rheumatism, under the hands of a trainer who sweated him daily by forcibly exercising him, the great chemist put himself through a similar process, with very happy results, limping his two or three miles out and back daily, under an immense mass of clothing, and heavy blankets, until his powers of motion were quite restored.

Electricity and galvanism are agents of a nature not to have been overlooked in the management of such cases as we are now discussing. On a former occasion, I hinted my belief that there

is a marked difference in the modes of therapeutical influence exerted by these fluids, identical as they are considered by chemists. In lumbago and sciatica, I have, if I am not deceived, seen most good effect from smart shocks passed from the Leyden jar across the loins or through the hip, or sparks drawn in a stream from the parts, the body being saturated with the fluid and insulated. In general rheumatic affection of the smaller joints and of the limbs, a preference appears to me, on the other hand, due to the employment of the galvanic trough or pile, or the electro-magnetic apparatus, lately invented and easily manageable.

Applications of this kind, to be at all hopeful or available, require frequent repetition, constant employment and resolute perseverance; without which we shall never indeed relieve a chronic rheumatism.

Last, though, perhaps, not least on this long list of remedial measures, is acupuncture—the introduction of a needle of steel into the parts pained and suffering. This instrument has long been in use among the Easterns, the nations of India, the Japanese and others, for a very great variety of diseases. Since European and American physicians have become acquainted with it, many attempts have been made to ascertain its modus operandi, and to define the conditions that promise benefit from it. It is generally regarded as acting by some modification of the electrical energies; it is considered as properly adapted only to the management of rheumatism and tetanus, and local pains of a neuralgic or neuropathic character. I need hardly describe the instrument or its mode or insertion. It has been considered inappropriate to acute and inflammatory attacks. Perhaps, when there is much fever present, the local pains, in such cases, will not be likely to be relieved; yet in the locally acute and sub-acute, as well as the purely chronic, I have seen it promptly effectual. Berlioz of Paris, remarks that "vague and wandering rheumatism sometimes attacks the respiratory muscles; the patient is obliged to remain motionless; deep inspiration is almost impossible; acupuncture dissipates at once this distress, and restores to the muscles their full liberty of action. In one or two minutes, a patient, whose sufferings drew tears from him, exclaims, that he is quite cured."

Mr. Scott, who introduced the operation from India into England, was assailed with severe rheumatic pain in the loins,

which for three days, was so violent as to render respiration almost impossible. No fever or general derangement being present, acupuncture was resorted to. The needle was passed, by his friend Mr. Jukes, into the muscle opposite the second lumbar vertebra. "As soon as it had penetrated to the depth of an inch, a sensation arose, apparently from its point, which Mr. S. described as resembling that produced by the passage of the electrical aura. Three other needles were inserted into different parts of the muscles of the back and loins, and in the space of three to five minutes, the pain subsiding gradually, ceased altogether; the patient rose, dressed himself and left the house in good health."

I have seen many failures of such experiments, but, have also witnessed several most surprising and gratifying instances of successful acupuncture; in one of which the needle permanently relieved a (quasi) rheumatic pain in the wrist, which had afflicted and disabled the patient, according to his previous statement, for three years.

The general management of the Rheumatic is a matter of no little importance. He must be clothed comfortably, rather warmly perhaps; guarded against all exposure to sudden atmospheric changes, and protected from chilly night air, dews, rain and irregular draughts of air.

His diet must be nourishing, and if his system fall into an atonic state, somewhat stimulating also. He should wear flannel next the skin, and the emaciated limbs and joints should be enveloped in folds of soft flannel. Cold is always injurious in chronic rheumatism. Let the sufferer, then, if it be in his power, seek an equable climate, a genial sky. Our seasons are too variable, and subject to vicissitudes too sudden and violent. But let him enjoy as much as possible the open air, and take every mode of exercise, active and passive, that it is within his power to endure. He must shun despondence, idleness, languor and inactivity. With unshaken fortitude and steady resolution, he must do and suffer all that has the tendency to preserve what may remain of the original vigor and energy of his system. We can scarcely hope to inspire with new powers of motion the joints and muscles of an enfeebled body and a shattered constitution.

CHAPTER LIII.

GOUT.

This disease, denominated by Cullen, Podagra, from its most usual location in the foot, and, by Parr and others, Arthritis, a term which implies inflammation of a joint, is among the most obscure and least understood of the infinite number which crowd the lists of our several systems of nosology. Every point in its character, history, pathology and treatment, has been and still continues to be warmly contested, and it is with much difficulty that anything like a clear, connected and consistent statement concerning it is to be made out. I shall not occupy your time, nor fatigue your patience, with a repetition of the several opinions which have been advanced upon the various points in debate, but shall proceed to give you, briefly, the views which I myself entertain of the matter after attentive observation of such facts as have come under my own notice, and careful examination of all the documents upon the subject within my reach.

Gout deserves to be considered in two separate and distinct forms, and in this respect resembles, and may be compared to scrofula. Like scrofula, it constitutes a peculiar diathesis or morbid state of constitution, a condition of which the whole frame partakes in every part, and upon which depends the predisposition to its several developments. These make up the diseased appearances to which the name of gout is applied, and by their difference in location, give the various names by which the several forms of gout have been, and are distinguished. Nothing is better ascertained, than that the gouty diathesis or predisposition is capable of being transmitted hereditarily. That it is thus transmitted is matter of common remark, and in reference to the usual source or origin of gout, furnishes one of the best examples of the fulfilment of the scriptural threat, "that the sins of the fathers shall be visited upon the children, even to the third and fourth generation." The peculiarity of morbid conformation thus communicated, is often so full and so com-

pletely developed in the offspring of a gouty ancestry, that regular paroxysms have been met with in young children, who are entirely exempt as yet from the influence of any of the circumstances to be hereafter enumerated as exciting causes.

That climate has no little effect in promoting these gouty tendencies, we may fairly infer, I think, from the fact that the disease is so much more prevalent in Great Britain than elsewhere. It has been attempted to explain this circumstance, by a reference to the habits of full living, in which the British nation are known to indulge. But our countrymen make use of as large a quantity of food as they. The French drink more wine; and the Germans and other northern nations of Europe more ardent spirits; and yet the British Islands are pre-eminently noted for the number of arthritic as well as scrofulous cases; the former being met with in the higher ranks of society—from the King and his prime minister to the fox-hunting knights of the shire; and the latter among the lower classes in crowded cities, and in manufactoring towns and villages. Indeed we shall be led, by a perusal of the English writings upon gout, to the belief that our professional brethren of that country are, in a peculiar degree, martyrs to this painful disorder; as most of them take occasion to acknowledge, in feeling terms, not only a scientific, but also a personal acquaintance with the subject of which they are treating; and this renders their opposite and contradictory testimonies particularly embarrassing to an impartial and uninitiated inquirer after truth.

Among the circumstances which tend to originate a predisposition to gout, I must not omit to record, as doubtless the principal, all such habits of full living and indolence as produce a plethoric state of the system. Plethora, the fruitful parent of so many evils, perhaps the very corner stone of the arthritic diathesis, is a state or condition of the vessels with which this diathesis is very generally, if not invariably connected. Indulgence and excess of all kinds lead to this result, whether in the pleasures of the table, in the use of wine, of ardent spirits or malt liquors.

The exciting Causes of gout are almost infinitely numerous—the predisposition in arthritic constitutions being often so strong as to be capable of being developed by the slightest variation from the ordinary routine of habits, and sometimes developing

itself spontaneously—the actual disease being, I believe, transmissible hereditarily, as well as the diathesis or constitutional tendency.

Caldwell, in his notes to Cullen's First Lines, declares that he had seen a regular paroxysm in a boy of six years old, whose ancestors for several generations had been subject to it. We have mentioned, on authority equally good, a child not more than eight months of age subject to regular paroxysms. The most common of the causes which bring on a fit of the gout are—intemperance of any kind; debauchery; a full meal of stimulating food; nay, a single glass of wine, or the smallest quantity of any article which disagrees with the stomach, whether from a dyspeptic or debilitated state of the organ, or from idiosyncrasy. It is occasioned likewise by fatigue, by a deprivation of the usual indulgence in sleep, and very often by uncommon degrees of exertion of the intellectual faculties. A strain or twist of the ankle or any part of the foot, or a blow received upon it, will sometimes serve to bring on gouty inflammation of the joint so hurt. In no instance is the necessity for a pre-existent disposition to any particular form of morbid affection so evident as here. No possible application or combination of exciting causes can produce a paroxysm of gout, unless the constitution has been previously prepared to receive the peculiar morbid impression through which it is developed.

History. I shall follow the division of gout into Entonic and Atonic; the first implying a paroxysm of local inflammation of the arthritic character, united for the most part with a greater or less degree of fever or vascular excitement: the second consisting more in general disorder of the system, and especially connected with derangement of the digestive functions, uncertain in its nature or symptoms, but invariable in its occurrence; and without fever or obvious inflammation. Gout is farther divided into Regular and Irregular. It is regular when we have an inflammatory affection of some joint or joints. When this inflammatory affection of any part of a limb subsides suddenly, and the morbid action appears to be translated to some of the internal organs, it is denominated Retrocedent gout. Another form of irregular gout is termed Misplaced, when in a gouty

constitution such inflammation attacks the internal organ, without previous pain or inflamed state of any joint or limb.

The Pathology of gout is involved in great obscurity, which from the functional nature of the disease, seems likely to be permanent. It has been for hundreds of years an object of particular attention with the profession, whose reiterated efforts have hitherto failed to elucidate most of the contested points in its history. In ancient days, the predisposition or diathesis was supposed to consist in the presence of a peculiar morbific matter in the system, which required to be eliminated, and which was thrown off or attempted to be thrown off by the restorative energies of nature, exerted in the formation of a regular paroxysm. Cullen, who succeeded in driving this hypothesis of morbid matter from the field, has given us a substitute very little better, in which the supposed vis medicatrix naturæ still holds the place of primary influential agency in the production of the disease. For the sake of illustrating the observation made long ago on the absurdity of the common references to the offices of this imagined restorative energy of nature, I will introduce here, in his own words, his explanation of the pathology of gout. "In some persons," he says, "there is a certain vigorous and plethoric state of the system, which at a certain period of life, is liable to a loss of tone in the extremities. This is in some measure communicated to the whole system, but appears more especially in the functions of the stomach. When this loss of tone occurs, while the energy of the brain still retains its vigor, the vis medicatrix naturæ is excited to restore the tone of the parts, and accomplishes it by exciting an inflammatory affection in some parts of the extremities. When this has subsisted for some days, the tone of the extremities and of the whole system is restored, and the patient returns to his ordinary state of health."

I need not remark here, I am persuaded, upon the inextricable confusion of words and ideas, which runs through the whole of this unintelligible paragraph. The value, however, of Cullen's practical observations, is by no means diminished by the unfounded nature of his speculations; and he has not failed to notice, what I must not omit to press upon your particular attention, viz: the special connection which seems to exist between

the gouty diathesis, and some derangement of the digestive functions; and upon this acknowledged connection, has been based the doctrine at present prevailing, and warmly advocated in this country by Professors Chapman and Caldwell, that gout actually consists in a certain deranged state of the alimentary canal. This they infer from the facts "that the stomach is the internal part that is most frequently, and often considerably affected by the gout; that the paroxysms of this disease are commonly preceded by an affection of the stomach; and that the symptoms of irregular gout are, for the most part, affections of the same organ."—(Cullen.) These facts, however, though impressive and undoubted, do not by any means warrant the deduction thus drawn from them. Gout, it may be admitted, is connected in the majority of instances, with certain peculiar, and often permanent forms of digestive disorder or derangement; but it does not essentially consist in this disorder; they are rather to be viewed, (as in scrofula,) as coincidental effects of the same morbid cause acting upon the constitution generally. The suddenness of the onset of the paroxysm, and its occasionally equally rapid disappearance or subsidence, seem to me altogether incompatible with the opinion of their being dependent on, and symptomatic of chronic gastric disorder. Here we should be under the necessity of supposing the effect to be independent of its assumed cause. Besides this, nothing is better known than the existence of gout in men who enjoy otherwise, the most perfect health. This is a circumstance so remarkable, that arthritic patients have been considered objects of envy; and Heberden complains, that in his time there seemed to be much more anxiety prevailing to obtain an attack of this fashionable disease, than was shown even by the sufferers, to get rid of it. But from the universal sympathies of that all important organ—the stomach, we should surely be led to expect, not only a liability to pain and swelling of a limb, but a general languor and debility, both of body and mind; and such, indeed, we find to be essential consequences of all the known and acknowledged forms of gastric disorder, whether structural or functional. From the absence, then, of these symptoms in many cases, we have, I think, a right to infer the independence of gout upon gastric

derangement, although they may be in numerous other instances coincident, and apparently connected.

A paroxysm of entonic regular gout, begins most commonly with a pain and swelling of the first joint of the great toe. The skin at the part, is very red, very smooth, and the vessels appear distended. There is more or less fever attendant, with general uneasiness, heat, and some oppression at the stomach. Both Parr and Good, who were fellow sufferers under this disorder, describe the kind of pain as distinct and peculiar.

With all the intense vascular and nervous excitement in the part, "it is numbed, heavy, and incapable of action; so that if the pain could be for a moment forgot, the foot would be found to feel like a paralytic one, and though the muscles which raise the leg are not affected, they drag it along with much difficulty." It was owing, I suppose, to this combination of sensations, that Dr. Oliver, of Bath, was induced to consider gout as partaking of the nature, both of rheumatism and palsy. The duration of the inflammatory action in the part which it first attacks, varies from twenty-four hours to three or four days, but before it has quite ceased, often seems to be removed to another toe, or to extend itself to the ankle or knee. The first fit seldom, however, lasts more than a week or ten days; the symptoms then go off entirely, leaving the patient in excellent health and perfect comfort. They recur again, it may be, not until a year has elapsed, but afterwards become more frequent; until, perhaps, they are almost permanent, or attended with no remission, except two or three of the warmer months, and now seem to include under their tyrannical dominion, almost every portion of the frame. I have seen the tip of the nose affected with intense gouty inflammation, in a subject of hereditary gout. The attacks of an old gout are less painful, but of a longer continuance, and attended with a greater and more lasting weakness.

Among the worst consequences of the repetition of the arthritic paroxysm, or of the full and complete development of the gouty diathesis in the vessels, is the deposition of earthy concretions in the joints of the toes, fingers, etc. These concretions are called chalk stones, and are said to be composed of the lithates or urates, and phosphates of lime, resembling very much

the several varieties of urinary calculi. Dr. Wollaston, in a paper published in the Phil: Trans: 1797, describes them as consisting of the urate of soda. It is not easy to account for these extensive depositions in the joints of old martyrs to gout. A singular case is given in the books, in which almost every part, except the hollow viscera, was a mass of chalk; yet the urinary organs were not diseased. The author attempts hence to disprove the supposed general connection of gout with urinary concretion, which has been inferred from the identity of these masses in composition with those found in gouty joints.

Atonic gout is described as the result of the arthritic diathesis, affecting infirm or debilitated constitutions, in which the attack is not determined to, or fixed in any particular part; no local inflammation is perceptible; but we have general uneasiness, restlessness and distress, with annoying disorder of the digestive functions, loss of appetite, nausea, sour eructations, sometimes vomiting, flatulence, constipation, etc. In the mean while, the true nature of the case may be shown by the occurrence of slight and fugitive pains, in which consists the "flying gout," of some of the older writers. This state of things, if not relieved, may terminate in gradual subsidence—in a regular paroxysm, the arthritic inflammation fixing itself in some limb—being determined to some internal organ, it may occasion misplaced gout, or may slowly wear out the powers of the constitution, producing general dropsy and entire exhaustion of the patient. The retrocedent and misplaced forms of irregular gout, have been incidentally spoken of, and indeed, the peculiarities are sufficiently indicated by the denominations applied. The former is preceded by a regular paroxysmal affection of one or more of the joints ordinarily attacked, which suddenly subsiding, the patient is seized with violent disorder of some of the internal viscera—the brain, stomach, or intestines. Gout is said to be misplaced, when these internal disturbances occur in a gouty constitution unpreceded by any of the accustomed local inflammations. It may thus assail the brain with vertigo, apoplexy and paralysis; or the bladder, when there is micturition, or painful and frequent desire to pass water, with or without strangury, and attended by an acrid discharge of mucus from the urethra. Directed upon the lungs, it gives rise to the symptoms of pneumonic inflamma-

tion, in high intensity, and sometimes a species of dyspnœa, with great pain, but apparently unconnected with fever or inflammation.

The heart also, is liable to these attacks; being oppressed, debilitated, with intermission of action and palpitation; sometimes with intense pain, at others with sobbing, gasping, syn cope and instant death. But misplaced gout most frequently seizes on the stomach, which organ becomes sensible of the severest suffering. A burning heat, or a feeling, at times, of great coldness, with weight and oppression, are connected with sudden prostration and sinking of the powers of the patient, constituting one of the most serious and alarming states of disease which we can be called on to remedy.

The Diagnosis of gout is perfectly easy, as regards all other diseases, with the exception of rheumatism, and even here, I have seldom met with any cases in which the distinction was difficult. The peculiar appearance of the inflamed part, in the gouty patient—a singularly smooth and tense state of the skin, with a glossy shining glow, and a deep cherry redness; the fact, that in the first fit gout almost invariably attacks the smaller joints, as the toes or fingers, which are seldom or never the exclusive seats of rheumatism—and it is in the first paroxysm alone, that we shall ever be likely to confound gout with rheumatism, as by the repetition of the attacks with their peculiarities, we become soon aware of the existence and influence of the arthritic diathesis; the suddenness, too, with which the gouty pain and swelling come on and assume an excess of intensity, rarely reached by rheumatism, in its greatest violence and longest duration—these will serve us as distinguishing marks.

We shall also be assisted by referring to the difference of the causes which produce the two affections, and to the almost contrasted habits of body and circumstances of constitution, in which they are severally most likely to supervene.

Treatment. Until of late years, the majority of the most respectable names of our profession were enlisted among the advocates for an inefficient and temporizing method of managing patients affected with gout, which scarcely merits to be spoken of as medical treatment. Gout was regarded, as you have been told, by the older writers, as consisting in the presence of a pe-

culiar morbific matter necessary to be occasionally elimenated, and thrown off by some outlet.

Cullen modified this notion so as to do away with the reference to the supposed morbific matter in the system, but attributed the paroxysm in a similar way to the restorative effects of the vis medicatrix naturæ. In both systems of pathology, the occurrence of paroxysms was considered to be necessary, and though their repetitions might be regarded as evils, yet they were lesser evils than those they were intended by nature to remove or to remedy. No wonder then, that during prevalence of either of these modes of belief, gout was looked upon, in some measure, as a sacred malady, and the poor arthritic, with little sympathy for his imagined beneficial sufferings, left to the exclusive remedial efficacy of "patience and flannel," the proverbial applications in podagra. Clearer views of the nature of disease, have since given more professional courage; and we are not afraid, at the present day, to apply to our treatment of gout the same general principles which govern us in our management of other affections; making due allowance, as in every case we are bound to do, for the particular modifications in the nature and circumstances of the morbid action, which may be ascertained by experience and observation.

The Treatment, is fairly divided into the paroxysmal and the preventive, or such as may be necessary during the intervals of the attacks. On the first accession of the fit, if the case is recent, and the patient young and robust, venæsection should be promptly resorted to. The propriety of this practice has been much disputed; but I think I am justified in saying, that the result of the discussion is decidedly in favour of the lancet, in the above circumstances. Dr. Parr, who seems unwilling, however, to countenance it, declares that he knew a judicious practitioner, who, on the first appearance of a paroxsym, was in the habit of taking a large quantity of blood from the arm; or, if possible, nearer to the part affected. He was of a strong, robust constitution, and had followed this plan for many years, without inconvenience. I would by no means, however, expect to derive advantage from blood letting in the habitual gout of old arthritics; or when the constitution of the patient seemed debilitated, or impaired.

The employment of purgatives has met with nearly as much opposition as venæsection; an opposition founded on the same views, of the impropriety of interfering with the supposed salutary operations of nature, and the danger of substituting worse symptoms than those of the paroxysm. At the present day, however, there are few physicians who would hesitate to purge actively and freely; and the practice is both rational and successful. We thus remove irritation from the alimentary canal, which is almost always disordered, and reduce the vascular excitement so commonly, I might say universally, present. I have never seen any the least ill effects from this practice; but, on the other hand, have repeatedly witnessed after it an almost immediate diminution of the severe pain, a solution of fever, and, in some instances, an evident subduction of the paroxysm. The common cathartic powder, composed of a combination of jalap with the sulphate of potash, is well suited to the case. Some practitioners are fond of the mixture of epsom salt with magnesia. To either of these formulæ an aromatic may be added with advantage: as the essential oil of mint, or of anniseed.

Emetics are sometimes prescribed in the gouty paroxysm; and may be used without fear, and with benefit, whenever a disordered and irritable stomach, with vomiting of foul porraceous matters, call for a cleansing out of this important organ. I have chosen to employ, in preference, the ipecacuanha.

The excessive pain uniformly attendant on a fit of the gout, early led to the adoption of opiate, or anodyne remedies; but, whether from any dread of their consequences, or from experimental proof of their inapplicability, I cannot say; they are now, however, rarely used. We are told of an arthritic, who kept a regular diary for 40 years of the length of his paroxysms, and their intervals; he noted that from the time he commenced the free use of opium, the former were shorter and milder; the latter were more prolonged. I do not consider opium adapted to regular entonic gout in an early attack; it will almost invariably fail to remove, or even lessen pain from inflammation, until the vascular excitement is reduced. When the disease becomes fixed, however, and the paroxysms have recurred frequently with a tenacious periodicity, the exhibition of opium, in some of its forms, is not only free from objection, but proves our best

and most efficient palliative, if indeed it does not absolutely subdue the vehement pain of the attack.

I scarcely know whether to arrange under the head of narcotics, or purgatives, or emetics, the celebrated specifics whose employment is even now so fashionable: I allude to the eau medicinale d'Husson, and the tincture of colchicum. These are distinctly asserted, by the writers who have treated of the matter, to be identically the same; although the composition of the former has been most studiously kept a profound secret. The effects of the two are so precisely similar, as to give sufficient countenance to the notion of their identity. The former was long since invented by a French officer; the latter was brought into notice principally by Sir Everard Home, whose papers you will find in the Philosophical Transactions. They both produce vomiting and purging, with depression of the pulse, and great languor; which symptoms are attended with rapid diminution of the local suffering. It is asserted, however, by the advocates for their specific or antidotal efficacy, that the arthritic pain and inflammation are often entirely subdued, without any evacuations of any kind being produced by the proper dose of the medicines; this is affirmed particularly of the French preparation. The dose of each is about 60 drops to ʒi; the tinctura colchici being, perhaps, the least energetic of the two. A more recent specific, known from the name of its discoverer as "Wilson's Tincture," has seemed to me still more effectual than either of the above. It appears to resemble them closely in its modus operandi, and has very seldom failed in the numerous experiments I have seen made with it. Veratrine is suggested as probably the chief ingredient in this nostrum; a conjecture which has derived support from some attempts to imitate its effect with the tinct: veratr.

The local management of the inflamed limb, or joint, next demands our attention; and on entering on this subject, we are obliged to tread upon the unextinguished cinders of angry debate. Shall we apply to the pained and swollen part the usual local remedies for inflammation, or is this resort forbidden by any peculiarity inherent in the nature of the case before us? Arthritic inflammation differs specially from all others; it does not terminate in any species of effusion, or in suppuration, or in gangrene. There is not on record, so far as I am aware, a sin-

gle instance, in which any of these consequences followed a gouty inflammation, however intense, or long continued. The vessels which have been subjected frequently to this species of morbid action, show its eccentric and characteristic tendency by their aptitude to deposit the chalky concretions formerly described, which clog the joints, prevent their motion, and finally occasion obstinate and troublesome ulcers. Now it is rational to suppose, that a form of inflammation so peculiar and distinct, as the arthritic thus shows itself to be, should demand certain peculiarities of management; we do not treat pustular inflammation with poultices, nor anthrax with lead water. It is agreed on all hands, I believe, that leeches are a safe and proper application to the gouty joint. Large numbers should be put on to occasion any prompt effect. Blistering has its advocates: yet I must say, that I have not seen it exert much immediate influence upon the case. In a patient, in whom the arthritic inflammation affected the ankle and knee, as well as the foot, I have known blisters prove evidently serviceable when applied to the knee; they only added to the irritation when put on the lower seats of the attacks.

We now reach debateable ground, and enter upon the consideration of a measure forcible and impressive, calculated in the utmost degree to shock the prejudices of the advocates for the ancient and established expectant practice, of "patience and flannel." Dr. Kinglake, confident in the belief that gout is principally, and in its own nature, a local affection, thought it but fair and proper to assail it with all such local means as were adapted to reduce the inflammation, which was its principal symptom, and ventured boldly to plunge the limb into cold water.

The doctrine upon which he proceeded, is undoubtedly erroneous, whatever may be thought of the practice which he deduced from it. It is certain that the relief from pain and inflammation which follows the cold bath is prompt and obvious. The remedy, therefore, attracted as it deserved, much attention, and public opinion concerning it has been, since its introduction, in a fluctuating state. It was not a difficult matter to prove the incorrectness of Dr. Kinglake's pathology of gout, and the impropriety of a practice built upon false principles was readily inferred. The numerous facts however, which were brought for-

ward in favor of the plan, both by patients and physicians, it was impossible to overlook or gainsay.

As a further confirmation of the truth of the declaration of the wise man, "that there is nothing new under the sun," the use of cold water in gout was traced back to Vander Heyden and Camerarius, who flourished a century before, and Dr. Kinglake was thus deprived of all claims to originality. Next we have the affirmation of several respectable authorities, that the use of the bath, although it did not fail to effect the removal of the local sufferings, yet was followed by the terrible consequence of metastatic affections of more important parts—the patients dying of retrocedent or misplaced gout. It was observed too, that many gouty persons, while in the habit of using the cold bath with apparently complete success, died of apoplexy, palsy, etc., as was declared by Cullen to be the fact with those who resorted to the use of the Portland powder, to be hereafter mentioned. Nay, Dr. Parry, whose name stands high among the first pathologists of his day, declares positively, when treating of metastases of disease, that in two cases he knew "immersion of a gouty foot in cold water, which produced instant relief of the pain, and a proportional abatement of the inflammation, to be in a few hours followed by hemiplegia." On the other hand, testimony of equal weight and point is by no means wanting, to establish the safety as well as the efficacy of the refrigerating plan. It is not necessary to adduce any other than that of Good and of Harvey. Dr. Heberden tells us that Harvey, "upon the first appearance of gouty pains in his foot, would instantly put them off by plunging his leg into a pail of cold water." Good, being attacked with gout for the first time, in his forty-seventh year, "bore with patience and submission under the ordinary management, the pain and inflammation, which continued to increase for three days; he then unrolled the flannel in which the limb was wrapped, and immersed it in cold water four or five times in succession." The application, he says, was peculiarly refreshing; the fiery heat and pain, and all the inflammatory symptoms instantly diminishing. He continued the same practice for five or six years afterwards, with the same benefit, and without experiencing from it the least inconvenience or injury. I shall be glad to see the safety of this plan established; but I confess

that I have not ventured to resort to it in any case, being deterred by the dread of the evil effects recorded by Dr. Parry, in whom I have always placed much confidence. I must therefore leave you to determine for yourselves; having laid before you, as fairly as I was able, the present state of the controvesy upon this matter.

A number of other local applications, supposed to be less equivocal in their ultimate effects, have been proposed, as cloths dipped in tepid water, light poultices, oily and opiate frictions, most or all of which I have seen tried without any effect; nor should I omit to mention here the singular, and as it has been punningly called, "striking mode" of treatment proposed by Dr. Balfour. I allude to the gentle percussion and compression of the inflamed part. I have never seen a patient who was willing to let me touch his gouty joints, except in the most cautious and tender manner, and have therefore been unable to experiment with this method.

The intervals between the paroxysms of gout are at first long and afford us much opportunity of doing service to the patient. The Prophylactic treatment, properly so called, will come under our consideration by and bye; at present we go on to speak of the particular remedies which have been found to promote the immediate object in view, viz: the prevention of the recurrence of these fits, or if we cannot effect thus much, the postponement of their access, and the consequent diminution both of their frequency and intensity. For it is well ascertained, that each gouty paroxysm tends strongly to increase the force of the diathesis, and to lay a foundation for a quicker repetition, and an augmented severity of the attacks. And this consideration alone should make both the patient and his physician willing to risk something, in order to remove or put a stop to a forming paroxysm—an intention altogether incompatible with the ancient notions on the subject, but consonant both to reason and sound pathology. It may be perhaps considered somewhat singular, that the remedies which have been recommended as possessing efficacy in putting an end to the paroxysm or allaying its severity, have no influence whatever as preventive of its access; thus the tincture of colchicum and l'eau medicinale, so celebrated for their anti-arthritic virtues, are of no use here. The general con-

nection of gout with gastric disorder, has led to the adoption of several modes of treatment directed towards the stomach; and the correctness of the expectation is clear and obvious. The alkaline salts have been much employed to neutralize the prevailing acidity, and of these magnesia deserves the preference from its superior laxative powers; much advantage being derived from an occasional cathartic operation on the bowels. The various tonics have been tried in succession; but very little stress is laid upon any except the class of bitters.

A compound of several of these, entitled "the Portland powder," from the secret recipe for making it being bought by one of the dukes of Portland, rose into very high estimation at one time in England. Cullen, however, who had some peculiar notions concerning the effects of the bitters, set himself against it, and contributed much to the downfall of its reputation by declaring that "many persons who had been relieved by it from the ordinary symptoms of gout, had been attacked with apoplexies, asthmas, and dropsies, which proved fatal." I cannot help agreeing here with Heberden, who affirms that the Portland powder lost its reputation partly by having all the natural ill effects of the gout attributed to it, among which he specifies apoplexy and palsy. And I am unable to trace the connection between the cause and effect suggested by Cullen. The loss of the tone of the stomach, which is occasioned by persisting too long in the use of bitters or taking too large doses of them, has been spoken of, but I do not believe them to be possessed of the malignant properties insinuated here.

It seems to have been generally allowed, that this compound of bitters did actually exhibit not a little anti-arthritic influence. Heberden declares, further, that its disgrace was not owing to its doing too little, but to its doing too much; as the dread of being cured of the gout was, at that time, much greater than the dread of having it. I consider it, hence, as not unlikely, that in the rotations of medical opinion, this medicine may again rise into notice, and perhaps deservedly. The best of all the formulæ, however, with which I have any experience as being useful in subduing or controlling the gouty diathesis, is the guiac. The vol: tinct: is preferable; the addition of the ammonia seems to promote its efficacy. Its good effects are in great measure

attributable, no doubt, to its powerful stimulant and diaphoretic operation; but, besides this, it seems to me to possess a specific and peculiar action.

Having thus gone through, in some detail, the management of regular entonic gout, it comes next in order to speak of the atonic form of the disease. I confess I am unable to point out, with certainty, any means of distinguishing clearly when the general sufferings formerly enumerated as being present in attacks of this sort are really attributable to gout. We must be guided by our knowledge of the patient's constitution, his habits, and the answer to the question whether or not he has previously suffered by a definite attack of gout. We have always here a low, depressed state of the system, and the resort to stimulants of the most active and energetic character is absolutely indispensable. Of these, the camphorated julap, with ammonia, æther, brandy warm or made more stimulating with spices, are among the best means of supporting the system, while we proceed, without delay, to procure a free evacuation of the bowels. Rhubarb, with ginger, capsicum, mint, or some other aromatic, is perhaps to be preferred, and should be assisted by the prompt and stimulating enemata, such as the turpentine emulsion. In the meantime, the extremities should be bathed in warm water, and if any of the limbs or joints should be visited by slight or flying gouty affections, the morbid action should be invited to fix itself there by the application of a sinapism, of a blister, or of the actual cautery, as by moxibustion.

Irregular gout, in both its forms, retrocedent and misplaced, may assume either the entonic or atonic character. If the entonic gouty affection fix itself upon any internal organ, the brain, the lungs, the stomach, I am totally at a loss to see why we should not treat the case precisely as we should a similar inflammatory or congestive affection of the same parts from other causes; and, indeed, I find this opinion announced by the accurate and judicious Heberden, although somewhat cautiously.—"Wherever there is a doubt," he says, "whether the attack be gouty, or what is called inflammatory, then blisters, and other remedies suitable to both these cases, should be used till the doubt can be cleared up by a little delay; but if the danger be too urgent to admit of this, it will be far more hazardous to neglect bleeding in an

inflammatory distemper, than to take away blood in the gout." And, again—"If the lungs be strongly affected, bleeding will often be unavoidable and necessary, although we be sure that it is a gouty affection." The same observations will apply at least with equal force to the brain and the stomach, organs of equal delicacy and importance.

On the other hand, if the attack should assume the atonic form, as it most usually does, especially when the stomach is affected, we are called upon for the most instant and unremitting use of the local, and diffusible stimuli. The pain and oppression under which the patient labors are severe and alarming in the highest degree, and require for their relief unshrinking boldness and steady assiduity in the exhibition of all the means within our reach. Laudanum must be given with æther and the vol: alkali; camphor and the musk julap are highly extolled. Hot brandy must be drunk internally, and applied externally to the pit of the stomach and abdomen. The skin must be stimulated by embrocations with hot spirits, cayenne pepper and turpentine, and the misplaced or retrocedent gout invited to the extremities, its ancient and proper domain, by the application of mustard, vesicatories, or, if time and circumstances urge, the actual cautery by moxa, cones of carded cotton, or by the heated iron. In short, nothing must be omitted, whether of internal or external administration, which may tend to arouse the prostrate energies of the system and excite the torpid sensibilities of our patients. The blow struck is indeed violent, but the influence and agency of the morbid cause are often transient, and if successfully opposed for a short time, will cease to oppress the vital powers. A corresponding decision and readiness are demanded on our parts, without which nothing can be done, and nothing effectual will probably be even attempted.

The Prophylactic management of gouty patients is the more hopefully instituted, and the more successfully carried out, in proportion to the clear and definite knowledge which we possess of the causes that tend to produce the disease. These causes have been already enumerated; among them are full living, intemperance in eating and drinking, indolence, habits of unduly protracted study or inordinate intellectual exertion, excess in the indulgence of the passions. With the bane thus set plainly

before us, we can be at no loss to discover the effectual antidote; the true difficulty lies, unfortunately, in its application.

Temperance—moral, mental, and physical; a plain and regulated diet, and vigorous exercise, or, I should rather say, labor—hard labor in the open air: these few injunctions comprehend all that it is necessary for the arthritic to submit to.

Milk has been preferred by many practitioners as an exclusive diet; but it disagrees with some, and is disgusting to others. Indeed, it has always appeared to me unreasonable to fix, in this way, upon any individual article, when we can obtain our object as well by allowing, within a certain range, that variety without which appetite palls, and digestion, which in the order of nature "waits on appetite," is of course impaired, or at least goes on languidly. It is by no means desirable, that the system of the patient should be reduced in tone, or brought down below a normal point.

The Plethora forming so considerable a part of the predisposition to arthritis, as of so many other diseases, does not consist in the actual amount or quantity of fluids within the vessels, but in the disproportion between their fulness or state of distention, and their tenacity, vital elasticity, and capacity of re-action upon their contents. Repeated bleedings, we know, reduce the latter as rapidly and more permanently than they diminish the mass of fluids and the force of their circulation; and the same I think is true also of diet reduced below the proper standard, as when made exclusively vegetable, or perhaps in any way exclusive.

To prove the wisdom of the Scotch physician's advice to a gouty patient, rich, luxurious and indolent, "to live on sixpence a day, and work for it!" we have on record numerous instances in which such persons who had formerly lived high, being reduced to want by adverse fortune, "have exchanged," in the quaint phrase of Lieutaud, "their gout for poverty." This author tells us of "a certain nobleman, who being about sixty years of age, given up to every kind of debauchery, and now tormented with gout, so that he could neither stand on his feet, nor take hold of any thing with his hands, resolved to abandon his depraved manner of life. Discarding, therefore, his pleasures and desires, he allowed himself nothing but pheasants

boiled, with no condiment, bread and water, as his only aliment. While thus endeavoring to follow a life of virtue, and make amends for his wickedness by even a late repentance, he not only received," says Lieutaud, "a foretaste of eternal salvation, but gradually repelled his now inveterate and knotty gout, and, without thinking, entirely eradicated it." This is only one out of a thousand similar authentic histories that might be recited to you from our older books, to precisely the same purport.

I cannot but reflect with astonishment upon the negligent manner in which the physical education of the children of gouty families is conducted. Although the force, the certainty, and the tenacity of the arthritic predisposition is familiarly known to all concerned, by the experience of several successive generations of afflicted descendants from a luxurious ancestry; and although the influence of the ordinary habits and mode of life in developing the disease is matter of every day remark, yet race after race tread wilfully or blindly the same downward path, and are content to transmit, with added foulness, the contaminated stream, to their children and to their children's children. While we wonder at and pity this infatuation, let us endeavor to remove it. Let us open the eyes of fond parents to the evils which they are thus entailing upon their offspring; let us do all in our power to check the spreading degeneracy. The physical, as well as the intellectual condition of man, is fully deserving our best care; and indeed, any exclusive efforts directed for the improvement of either separately, must necessarily be attended with very partial success.

The present state of society in our own beloved country, is well adapted to promote our laudable exertions. We possess, in sufficient abundance, all the elements of civilization and refinement; while our population is not yet dense enough, and our wealth is too equally diffused, to allow of the introduction of the extremes of luxury and effeminacy.

Our sons should be universally trained to temperance and to labour. Their frames thus hardened by honorable toil—their muscles strung by exercise—and their intellectual powers strengthened by the spirit of freedom and ambition, they will render perpetual the existence of a nation uniting the wisdom and vigour of manhood, with the buoyancy and freshness of youth.

CHAPTER LV.

DISEASES OF THE EXCERNENT SYSTEM.

The Diseases of the Excernent System will be readily inferred, from a moment's reflection upon the importance of the functions with which they interfere, to be highly interesting. The office of excretion scarcely seems to be the exclusive business of any other organ than the kidneys. The lungs and the skin are thus occupied constantly, it is true, but both of them are engaged, too, in effecting other purposes than the mere depuration of the blood. As this is, however, the chief function of the skin, I arrange here the maladies that have their seat in the cutaneous integument. The lungs and their ailments have already received a fair share of our notice. Respiration is by no means proved to be a simple separation of effete matter, but implies re-composition as well as decomposition—admission of oxygen as well as elimination of carbon—a mingling of more with less highly vitalized fluids, and an ultimate assimilation and animalization of the chylous products of digestion. The liver and large intestines have, with more reason, been arranged under our present head, but we must not assume that we yet know all that is to be known of the uses of the bile, or that it is proved to consist altogether of effete materials. As to the lower intestines, they are, doubtless, principally receptacles for the unassimilable portions of the ingesta, and hardly deserve to be regarded in any other light. It is not easy to set apart any maladies to which they are exclusively subject; continuous as they are in structure, and in functional action separated only by an undefined line, they partake of the disorders of the upper portions of the tube. Of the affections of the kidney and the morbid conditions of the urine, and of the bladder and tubes which retain and convey that fluid, I am hereafter to speak; at present, we shall proceed to consider the more frequent and familiar diseases of the Cutaneous integument—a long and varied list, the classification, arrangement and description of which, have given very great trouble to the nice pathologist. Indeed,

so numerous and diversified and complicated are they, that a very large proportion of them can hardly be recognized or pourtrayed without the aid of the engraver and the colorist.

The Skin is liable, of course, to inflammation from an infinite number of causes, each of which exerts a controlling or modifying power, and determines the nature and appearance of the resulting changes. Thus, heat and cold, and irritants of all imaginable variety, animal, vegetable and chemical, give rise to definite effects. We attribute certain others to the peculiarities of the structure assailed, and others still, to the specific nature of the constitutional disturbances with which they are associated. Some cutaneous inflammations are merely local—some are essentially pyrectic, involving the whole system at once—some that are non-febrile, spread slowly their influence throughout the organism—some are acute, others chronic—some are diffuse, others circumscribed—some are irregular in aspect, others very distinctly figured, nay, even symmetrically uniform.

You are familiar with many of the terms in use to denote these diverse appearances—squamous, vesicular, papular, pustular, phlegmonous, erythematous, punctuate, etc., in which the learning of the several writers on these topics has delighted to display itself by the coinage of significant words chiefly from Greek and Latin sources. I shall not go over any enumeration of them at present, but reminding you of the paramount object, which I have ever kept in view, of practical usefulness, I propose to discuss briefly a few of this large class of maladies; such as being most common in the region of country in which we live, will be most often met with in your future professional practice.

Of these, the most important are the Eruptive Fevers—the Exanthemata proper. Their general history presents striking characteristics, which distinguish them from all the ordinary diseases of the skin. 1. They are essentially pyrectic—that is, the whole system participates in the morbid condition affecting the cutaneous surface, and fever attends, with marked determinations both to the mucous membranes and to the nervous centres, the disorders of which, are incorrectly, I think, regarded by most pathologists as sympathetic; they seem to me to be uniform and essential portions of the history of exanthematous

disease. 2. With the exception of erysipelas, which, it is generally agreed, should nevertheless be placed among them, they are self-limiting, a phrase which I have already carefully defined. They come to an end, subside and disappear, at a given period. 3. They are contagious—perhaps with the same exception noted above, though that, as I shall show by and bye, is somewhat doubtful. Each case becomes a generating centre, and, under favoring circumstances, a cause of successive attacks in those exposed to the presence and action of the contagion generated. 4. They leave the system, in greater or less degree, indisposed to, or insusceptible, of a second invasion of the same nature. In some, the protection thus given, seems perfect and complete; in others, the immunity is far less absolute. Here, again, we must again except erysipelas, which rather tends to increase, by once affecting the subject, his liability to be again attacked; urticaria also, and perhaps some of the varicelloid affections, seem to be capable of repeated intrusions.

Another interesting class of cutaneous inflammations is composed of those which are connected specifically with certain inquinations of the humors, and obvious deteriorations of the constitution. Such are the scrofulous, the gouty, the venereal, all of which require, of course, to be treated of under those heads. I am not sure whether the herpetic should be classed among them, but I am persuaded that it may very properly be made the title or designation of an extensive series of affections. At times, indeed, the whole system seems to be brought under its influence. It is one of the few eruptive disorders that assume both the diffuse and figured forms. The first is common and very troublesome, constituting the most annoying variety of pruritus, both of the vagina and the anus, spreading over the lips and the eyelids, and dipping into the roots of the hair and beard, where it fixes itself most tenaciously. In ring-worm, and in shingles, it takes on a circumscribed character and retains a defined figure, and, in the latter case, is always, as far as I have seen, pyrectic.

Some of the worst varieties of this class, are to us mere pathological curiosities, as being met with only within particular geographical limits remote from us; such are yaws, sivvens, pellagra. Yaws are confined, as far as is clearly known, to the

West Indies, and to the black race; sivvens does not make its appearance except in Scotland; and pellagra is found no where but in Lombardy. There are many analogous affections which prevail particularly in one locality rather than in others, but are not so exclusive as those just named—for example, the swelled leg of Barbadoes, bucnemia, which derives its appellation from its more frequent occurrence in one of the Caribbean islands than elsewhere, yet may be met with in any country. I have seen a few cases here, two of them in one family.

The skin is not always inflamed in the same portion of its tissue or structure. When external and entirely superficial, the inflammation is called erythema; it may affect the inner or lower surface when it constitutes—in the language of some pathologists, phlegmon. The results of all these modes will of course vary. Some merely separate the cuticle which flakes off; this happens in measles and scarlatina, and is called desquamation. Small red points form as in nettle rash, it is not well understood how. Pimples are elevated as in acne; these may contain a minute quantity of serum, which readily dries and rubs away—or may elevate the cuticle with a vesicle containing what is very commonly called "lymph." You must not be misled by the improper use of the word here. The effusion from a blister—that which forms in a burnt or scalded or fretted part—that contained in the blebs or bulla of pemphigus or pompholyx, seem to me by no means to partake of the characters of the fluid so styled in physiological writings. It is serum only, differing little, if at all, from the sub-cutaneous effusion in anasarca, or the abdominal fluid in ascites. It is readily substituted by pus, when the vesicle becomes a pustule, as we see in numerous examples of all the conditions I have mentioned, and as happens every day in variola and varioloid, and in vaccine, when the pellucid lymph, as we term it, of the seventh and eighth days, is changed into pus on the twelfth and thirteenth, and hardens subsequently by exsiccation (?) into a scab. In some cases, the whole substance of the skin seems inflamed; in others, again, the morbid action seems confined to the conical eminences denominated papillæ, which swell and grow red from the distention of their minute vessels. The former include all the tubercular inflammations, as they are styled by Willau and

Bateman, elephantiasis, leprosy, bucnemia, etc.; the latter state is shown in strophulus, lichen, and prurigo. In some, the affected structure is destroyed; as in small-pox, which consists in a circular or annular inflammation of the chorion or true skin, enclosed within a red ring or zone, which Craigie describes as being formed by the outer corial surface, highly vascular and elevated. This he calls "the phlyctidine," a mode of cutaneous inflammation which, he says, may also be produced artificially with tartar emetic. But, however closely the eruption from tartar emetic may resemble that from small-pox, and the resemblance is very exact, I have never known it produce pitting like the latter.

We must not omit to notice the frequent concurrence of cutaneous eruption with gastric disorder, sometimes in the unquestionable relation of cause and effect, but more frequently as coincident effects of a common cause, and occasionally as mere unconnected concomitants.

There are certain persons who cannot indulge in particular articles of diet without suffering some such eruption, which has hence obtained vulgarly the name of "surfeit." In some, the mushroom produces this effect; in others, the eating of pungent stimulants, as pepper, mustard, and the like; and in great numbers, the use of shell-fish as food. An erysipelatous swelling and redness, in which weals arise like the mark of a blow or of a stripe with a whip-lash, from gastric disturbance, is not very rare among children, and even occurs among adults.

In all the exanthemata there is notable disorder of the general system, the cutaneous inflammation being only one of the elements of the almost universal disturbance of the organism. From this uniform and indissoluble connection of the several processes in the history of these maladies, has arisen the belief in the metastatic nature of the affections of the several tissues. The word eruption took its origin from, and is expressive of, this idea; the phrases "repelled eruption" and "striking-in" convey a reference to the same doctrine. It is undoubtedly true, that, in this class of diseases, there is exhibited a sort of necessity for the development of their characteristic inflammation on the surface at a well known, regular and duly appointed period. If it does not then show itself, there will take place in

its stead a series of annoying and often dangerous symptoms. If, showing itself, it does not persist for the ordinary and regular time, or go through its usual progress, and, more especially, if it suddenly disappear or subside, it is said "to be repelled" or "to strike in;" and long experience has pronounced the subject to be in serious danger from congestion or inflammatory irritation of some internal organ on the one hand, or, on the other, from exhaustion or irremediable prostration.

Nay, it is not in the eruptive fevers alone, that this contrasted association is observed to take place. We cannot easily account for or explain the fact, but we must not refuse the testimony which goes to prove, that, in the most chronic and local affections of the skin, it is not always safe suddenly to dry up the habitual exudation, if there be any, or to put an end to the irritation and inflammation. A thousand instances are on record which go to show the danger of such abrupt change. The gastric disease which so long tormented, and was ultimately fatal to the great Napoleon, is ascribed to the hasty drying up of a long persistent itch or dartre, acquired at Toulon in the very beginning of his brilliant career. Delirium and mania, coughs and dyspnœa, and palpitation, are said not seldom to have arisen from the same source.

I am not satisfied with any of the pathological views of this obscure subject. That, in many cases of cutaneous disease, whether febrile or non-febrile—whether confined to the external surface, or spread over the mucous membranes within, there is a peculiar alteration, contamination, deterioration of the fluids of the body, the blood especially, cannot, I think, be reasonably doubted. But I cannot go with the ancient physicians, who were led by the facts I have above alluded to, into the belief, that in all these instances there is a requisite extrication and elimination of some morbific matter, whose retention would be injurious to the animal economy. We must allow, that in no other example was this ancient doctrine so plausible as when applied in reasoning upon the phenomena of the eruptive fevers. There is, however, something peculiar and individual in the history of each of these. Rubeola, be the cuticular appearances what they may, is not itself without a quasi-catarrhal affection of the respiratory tract of mucous membrane. Scarlatina essen-

tially implies an inflammatory irritation—specific doubtless in its nature—of the gastro-intestinal and the urinary surfaces; and small-pox involves an analogous condition of both the digestive and respiratory apparatus.

Now, if at the proper and precise stage of the progress of each of these, and of all similar disorders, the natural and ordinary share of morbid action fail to occur, or is in any manner prevented from finding its place upon the cutaneous integument, a contrasted or reversed determination, or quasi-revulsion must happen, assailing, with undue force, the tissues usually implicated, or perhaps involving some which bear no part in the common course of the disease; and this irregularity is apt to be productive of serious and even fatal evil. I am not sure whether the reasonings adapted to the above cases, will apply to the purely local and chronic eruptions. These certainly present difficulties of another kind. If psora depend, for example, as is generally admitted, on the presence and irritation of a particular insect, the acarus psoræ, it is impossible to perceive any reason for the supervention of the evil results alleged to have followed when an abrupt cure had been effected.

The view which I have taken of the relation between the cutaneous affections in the eruptive fevers, and the internal determinations with which they are associated, seems to derive confirmation from the well known facts—1st. That they differ much among themselves as to the degree of relief that follows the "breaking out" of the eruption. Thus, in measles, urticaria and miliary fever, the gastric and general uneasiness subside very notably when the skin becomes covered; this relief is much less notable in scarlatina, and is not observed at all in erysipelas. 2. That, in some of them, at least, the more extensive and abundant the eruption, the more intense will be the visceral and organic disturbance. In small-pox, which divides itself, you know, into distinct and confluent, the danger of the patient is very regularly proportioned to the amount of eruption. So, I think it is in erysipelas, and so, generally though not uniformly, in scarlatina. But, the very reverse ought to be true, if the cutaneous inflammation were revulsive or metastatic.

Concerning the Pathological nature of this class of diseases, there has been much dispute. While one set of writers seem

disposed to regard them as mere cutaneous phlegmasiæ, others maintain, and with more apparent reason, that the affection of the integument is by no means of a simply inflammatory character. Among the other differences by which they are separated from each other, these are not the least notable. In erysipelas, the skin presents the clearest proofs of being violently inflamed; it gives the sensation of heat and soreness, and is tender to the touch. In scarlatina, the heat is much higher, and more pungent to the feeling of another, though it is by no means so much complained of on the part of the patient himself; there is far less soreness, and very little tenderness on pressure and friction. In many cases from the beginning, and in all when it has begun to decline, it is exceedingly itchy, and rubbing and scratching are not only well borne, but eagerly sought for. In measles, there is little either of heat, soreness or tenderness, and I am somewhat doubtful whether the skin can be, with any propriety, said to be inflamed at all, in the ordinary meaning of the word. In small-pox, the inflammation is often destructive, leaving deep seams and scars. Some of the local and chronic may be inflammatory, or not so, according to circumstances. Acne may be a mere punctuate elevation, an obstruction, as some affirm, of the minute sebaceous follicles, or may become a severe and tenacious inflammation, acne rosacea. Herpes, in many of its varieties, defies all cooling and sedative applications; but the peculiar itching and burning which it inflicts, are readily palliated or put an end to by the stronger local irritants and even sharp acrid applications, as citrine ointment, acetic acid, tinct: of cantharides.

It would, perhaps, be difficult to assign a satisfactory reason why we have not included under the general head of the Exanthema, certain febrile disorders not usually enumerated here, typhus and typhoid fevers, for instance, and pestis—plague. The most minute and scientific treatises on these, assert the uniformity of the eruptive affections with which they are attended, and yet there is a prevailing unwillingness to remove them from the order of Idiopathic fevers. This is, doubtless, owing to the obviously less importance of the eruption in such examples. It is a mere concomitant, as was formerly remarked. It does not seem to connect itself with the symptoms that pre-

cede or follow it either diagnostically or as a prognostic—certainly not in the relation of cause to which any of the results are ascribable. Perhaps, I ought to modify, in regard to pestis, the assertion just made as to the diagnostic import of the eruption, the buboes and plague spots, which, as some authors tell us, serve to denote the invasion of the terrible disease where it would not otherwise be suspected. Other writers, however, lay less stress upon it, and it would, indeed, be strange if a characteristic like this should so often escape attention, as would seem to be the fact.

Typhus and typhoid attacks are readily enough recognizable by their general phenomena, as when occurring in negroes who cannot exhibit at all the rose colored spots, and in whom it is even difficult to detect petechiæ.

Farther, the exanthemata differ very much in relation to the actual importance of the cutaneous affection considered as a portion of the disease. This difference I am disposed to regard as associated with, if not absolutely dependent upon, the evidently inflammatory nature of the eruption in certain cases. Thus the patient does not appear to be in any greater danger in measles, when the eruption has been most vivid and abundant, than when the efflorescence has been most partial, least marked by redness and least prominent. Scarlatina holds a middle place here, and I cannot profess myself indifferent or careless about a case in which the skin is specially covered with the characteristic redness. But in erysipelas we may generally measure the degree of risk incurred by the violence and intensity and by the diffused extension of the cutaneous inflammation; and so also in small pox, which is always mild in proportion to its distinctness, and kills by its confluence.

How then do the exanthemata prove fatal? Obviously in various modes, and by no means uniformly alike. Some patients die in what we call the eruptive stage of the attack, probably from congestion oppressing some vital organ—the brain or the heart, and this is a mode which evidently may be common to them all. Some die in a stage farther advanced, from undue intensity of the inflammatory determinations to internal organs associated with them; in measles from pulmonitis; in scarlatina anginosa, from tonsilitis and laryngitis; in erysipelas from phre-

nitis and memingitis. Lastly, some die in a condition, not noticed definitely, so far as I am aware, by any author; produced by the unintermitting and protracted impediment to the performance of the essentially vital functions of the external integument of the body. Take for example, the instance of small pox. In this loathsome disease, when confluent, the offices performed by the skin in the animal economy are all for a longer or shorter period, suspended by the state into which its tissues fall from the commencement; thickened, tuberculated, vesiculated, pustulated, undergoing destruction by suppuration, and as some say, by partial sloughing, its transpiration, exudation, absorption—all its functions must stop. Large portions of it are thus lost too, and must be replaced by what we call new skin; eschars in fact, incapable, as I have maintained, of carrying on the natural and normal actions of original tissues any where, certainly unfit for a time at least, in the present case. Let us reflect how difficult it must be for the other organs of depuration—the lungs and the kidneys—themselves profoundly diseased, much deranged in action and impaired in capacity, to supply its place in these exigencies of the system; and we shall wonder rather that so many recover, than that the actual proportion of deaths should occur under so many causes of mortality. Some die of dropsy, the urinary organs yielding, as so often in scarlatina; perhaps oppressed and irritated by the extra demands made upon them as I have just suggested, in the performance of their excretory or depurative office, on account of the incapable condition of the skin. The pulmonic engorgement and the hepatic affections which are occasionally fatal, may arise from a similar source and grow out of the same contingencies.

In studying the diseases of the skin, I would propose to avoid the entanglement likely to follow too close a dependence upon or observance of the conventional and arbitrary modes of arrangement and classification, so common among the authors who treat professedly of the subject. I would consider, 1. the seat; 2. the nature as far as it can be ascertained; 3. the cause; 4. the complication or association with the affections of the system, and its parts—of each separately and in order.

1. Of the seat. "The cutaneous envelope is composed of four layers; the epidermis, rete mucosum, corpus papillare, and cori-

um." "Cutaneous inflammation may be seated, in the cuticular surface of the corium; 2. in the papillæ or minute elevations of the corium; 3. in the substance of the corium; 4. at the inner or cellular surface of the corium."

2. The nature of the eruption. Hyperœmia is an undoubted element in all, and the same may perhaps be predicated of inflammation; but if so, the term must be employed with some allowances, demanded by the modifications in nature as well as in the degrees of prominence and intensity evident in different cases. The seat of the affection will also perhaps modify its nature. Some affect the bulb of the hair of the head and face, and produce ulceration or baldness; some give rise to desquamation; some to effusions of serum or lymph or purulent matter, which may be contained in papulæ, vesicles or pustules; or thrown off, drying in scales or scabs. A large number of these eruptions fix themselves in preference upon the skin of the face, on account, as is supposed, of the greater fulness and force of vascular action in that portion of the surface.

3. The causes of cutaneous affections undoubtedly give direction in the great majority to the whole course of the disease. Specific contagion is the source of many among them; as is proved definitely by the fact of inoculation. So widely does this principle extend, that I am inclined to regard them all as capable of thus transmitting themselves, provided only there be some definite and uniform secretion or effused fluid produced by the morbid action of the vessels of the part affected. All the exanthemata are contagious—erysipelas alone excepted, if this be an exception, a point to be hereafter discussed—and contagious not only by their palpable secretions, but by their impalpable emanations. A delicate nostril can detect, I think, a peculiar and characteristic odor as belonging to the effluvia which exhale from the subjects of all the febrile affections of the skin, and indeed many others.

Of the chronic cutaneous diseases—the non febrile—there are several which are conveyed by mere contact. Itch for example, is promptly propagated in this way, and the fact is singular in some of its relations. All the symptoms are ascribed as I before told you, to the presence and irritation of the animalcule, acarus psoræ. Now it is difficult—as experimenters say—to dislodge

this minute insect from the cell which he is reported to inhabit in the vicinity of the itch-vesicle; so difficult that we cannot imagine, in all the infinitely numerous instances of the communication of the disease by a hasty touch, the escape or removal of this very domestic creature from one person to another. The secretion from the vesicle, the formation of which is attributed to his presence—must therefore itself too be a means of extending the disease, properly contagious; it must be capable of acting upon a sound and unbroken cuticle; it must be exceedingly tenacious of its contagious property, retaining it after complete and long desiccation, as is proved by the frequent infection from sleeping in beds used, or wearing clothes, gloves, and the like, formerly worn by a patient.

Herpes, I doubt not, is communicable by inoculation, as in the use of the same comb and brush, so common in families and boarding schools; sycosis and mentagra, as well as herpes, are frequently caught in barber's shops, by the employment promiscuously of the implements of shaving and hair-dressing. It is my uniform custom to insulate, as completely as I can, every case of cutaneous disease; and by strictly enjoining abundant ablution, frequent changes of dress, and all other modes of the observation of nice cleanliness, to prevent all accumulation or concentration of the materials of contagion and infection.

Numerous agents, by their chemical or otherwise irritating qualities, give rise to particular and well known inflammation, when applied to the skin. The cashew nut, the rhus vernix, and rhus radicans "poison" those who handle them. Tartar emetic, ipecacuanha, croton oil, capsicum, mustard, turpentine, and many others, give rise, each to its own distinguishable mode of inflammation. Soot collected in the loose folds of the scrotum, excites cancer scroti in chimney sweeps. Fermenting dough produces eczema—baker's itch, in the hands of those who work it without frequent and careful washing; and so in many other of the arts of civilized life, the manipulators suffer from the materials they employ.

Some of the maladies we are discussing, depend upon obscure modes of causation, connected with geographical, or geological, or climatic contingencies. Thus the pellagra of Lombardy, the sivvens of Scotland, the radesyge of Norway, and the yaws of

the West Indies, are confined altogether or almost exclusively, to the localities and people designated. The most minute investigation into the circumstances which surround the subjects of these diseases, has failed to elucidate the peculiarity of condition to which we may ascribe their origin. I set aside, after mature consideration, all the attempts that have been made to trace these, or indeed, any other cutaneous disorders, to the food on which their subjects are accustomed to subsist. It is clearly established, that for the production of any one of them, the concurrence of several elements in their influence on the body is absolutely requisite. Scabies has been attributed to the use of oatmeal as the diet of the Scotch, and pellagra to the maize of the Lombards; but psora is found every where among the poor and uncleanly, however they may live, whether upon animal or vegetable sustenance, and maize has for centuries formed the principal support of many American tribes, among whom pellagra is unknown.

I ought to notice here, however, as apparent exceptions, perhaps, to the rule above laid down, the unquestionable influence of alcoholic drinks, in the production of certain forms of cutaneous inflammation, fixing almost exclusively upon the face; the rosy pimples, "whelks and bubukles," which adorn the Bardolphian visage, and which, thanks to the glorious progress of the temperance reform, are now becoming comparatively so rare among the civilized nations. With this exception, it may be affirmed, that so powerfully available are the assimilative energies of the human constitution, that no diet in use among men, however it may be adapted to deteriorate the general health, seems capable of impressing any specific changes upon the skin, probably not upon any of the tissues. Scurvy itself, so long ascribed to the mere diet of sailors, is never generated among the trappers or Indians of the West, or the Esquimaux, subsisting as they are often forced to do, upon an exclusively salt or animal diet; provided they are not straitened for a proper amount of nutriment, or otherwise subjected to concurrent influences, morbid and depressing.

4. The complications or associations uniting cutaneous maladies with other disorders of the system. Some of these are, perhaps, to be looked upon as coincidences only, while others again,

stand connected in the relation of cause and effect. The first, and perhaps the most striking result of the present inquiry, will be a great surprise at the very limited number of diseases which are purely and exclusively local affections of the skin, even among the chronic and non-febrile. Next, we shall find an extreme difficulty, as has been shown already, in detecting the nature of the connection in many cases; these then I would designate rather as simple coincidences, than as being in any known or definable manner dependent one upon the other, any more than the several symptoms of vascular, nervous and visceral disorder, which concur to give the history of any idiopathic fever, are connected. In the eruptive fevers, with hardly an exception, the tokens of general or febrile derangement precede the efflorescence on the surface; nor do they seem to observe any essential proportion in degree or violence, to the amount or intensity of cutaneous inflammation that is to follow.

In some of the exanthemata, if not in all, the whole mass of blood seems imbued with new and peculiar properties. Scarlatina and measles, may be conveyed by sanguineous inoculation, and small pox attacks the fœtus in utero. In vaccine, and in erysipelas, this change in the condition of the circulating fluid does not seem to take place, or rather has not been proved by experiment. Nay, in syphilis, in which the inquination of all the humors seems to be as complete and permanent, as it is transient in the examples given above, we have not any foundation for the belief that the blood either of the veins or the arteries, or of the diseased portions of skin, is capable of transmitting the infection, which can only be communicated by the virus secreted from a primary ulcer; the exudations from secondary ulcers are denied by the majority to possess this poisonous power.

These discrepancies go to show that every one of these affections must be studied apart, must be individualized. Classification, which aids so efficiently the botanist and the mineralogist, may tend, unless corrected by prudent caution, to mislead us in our pathological inquiries.

With these few and brief observations upon the general subject of cutaneous diseases, I pass on to the consideration of the most important and familiar of the classes into which they have been divided, the exanthemata, namely, or eruptive fevers;

under which head, I shall treat of rubeola or measles, erysipelas, scarlatina, vaccine, variola, and dengue. If the foregoing remarks are desultory, rather than arranged according to the scientific niceties in which these topics have been enveloped, I will remind you that this is partly owing to the real difficulty attending the acceptance of any of the arbitrary views proposed for our guidance, and partly to the limit of time which forces me to the most practical course of discussion, however abrupt it may occasionally appear.

I insert here for convenient reference and comparison, two tables of cutaneous diseases; the first taken from Dunglison, the second from Craigie—authors whom you may always consult with advantage, and whose works are entitled to a place in all your libraries.

Dr. Dunglison, in his "Practice of Medicine," separates "eruptive fevers" from "diseases of the skin." He admits "eight divisions of cutaneous diseases, according to their elementary characters."

I. The Exanthematous, which he regards as "partaking rather of the nature of hyperæmia than of positive inflammation." Erythema.

II. The Vesicular, characterized by small acuminated collections of fluid beneath the cuticle, including—1. Herpes. 2. Eczema. 3. Scabies or Psora.

III. The Bullar, from bulla, a bleb—a blister or elevation of cuticle by serum, including—1. Rupia. 2. Anthracion.

IV. The Pustular: by small collections of purulent matter in the cutis vera, or under the cuticle, including—1. Ecthyma. 2. Impetigo. 3. Acne. 4. Mentagra. 5. Porrigo.

V. The Papular: by simple prominences; no effusion; furfuraceous desquamation; including—1. Lichen. 2. Prurigo.

VI. The Squamous: by red spots or patches, followed by scales or lamellæ of cuticle, including—1. Lepra. 2. Psoriasis. 3. Pityriasis. 4. Ichthyosis.

VII. The Tuberculous: by solid primary tumors tending to suppuration, or destructive ulceration, including—1. Lupus. 2. Elephantiasis Græcorum. 3. Frambæsia. 4. Molluscum.

VIII. Maculæ, discolored states of the skin, including—1. Lentigo. 2. Chloasma. 3. Nævi.

IX. Syphilides.

Of eruptive fevers he recognizes four varieties, which he describes under the first four heads given above; "taking the elementary form of the eruption as the basis of the classification."

I. The Exanthematous, including—1. Measles, true and false. 2. Scarlet Fever. 3. Nettle-rash. 4. Erysipelas.
II. The Vesicular, including—1. Miliaria. 2. Chicken-pox.
III. The Bullar, " 1. Pemphigus—Pompholyx.
IV. The Pustular, " 1. Small-pox. 2. Cow-pox. 3. Glanders.

Dr. Craigie "regards it as most expedient to arrange the cutaneous inflammations, according to the part of the skin in which they are specially seated, according to the mode in which the inflammatory action proceeds, and according to the effects which it produces, in the following order:

"Diffuse or Spreading Inflammation. I. Cutaneous inflammations seated in the outer surface of the corion, and generally spreading along it.—Measles—Rubeola. Nettle-rash—Urticaria. Rash Fever, Scarlet Fever—Scarlatina. Common Rash—Erythema. Rose Rash—Roseola.

"Effusive Inflammation. II. Cutaneous inflammation seated in the outer surface of the corion, producing a fluid which elevates and detaches the cuticle.—Rose, St. Anthony's Fire—Erysipelas. Bleb Fever, Bullose Fever—Pemphigus, Febris Bullosa. Simple Blebs—Pompholyx."

"Punctuate Papular Inflammation. III. Cutaneous inflammations commencing in circumscribed or definite points of the corion, producing minute eminences.—Gum, Gown, Red Gum, Tooth Gum—Strophulus. Sun Rash, Prickly Heat—Lichen. Itchy Rash—Prurigo."

"Punctuate Desquamating Inflammation. IV. Cutaneous inflammation of the outer surface of the corion, more or less circumscribed, affecting its secreting power, and producing exfoliation of the cuticle. Scaly Leprosy—Lepra. Scaly Tetter—Psoriasis. Dandriff—Pityriasis. Fish-skin Disease—Ichthyosis."

Punctuate Vesicular Inflammation. V. Cutaneous inflammations originally affecting the outer surface of the corion, circum-

scribed, definite or punctuate, producing effusion of fluid, first pellucid, afterwards slightly opaque, with elevation of cuticle, with or without further affection of the corial tissue.—Miliary Rash—Miliaria. Chicken Pox—Varicella. Shingles, Vesicular Ring Worm or Fret—Herpes. Cow Pox Vesicle—Vaccinia. Heat Spots or Red Fret—Eczema. Limpet-shell Vesicle or Scab—Rupia."

"Punctuate Phlegmonous or Pustular Inflammation. VI. Cutaneous inflammations originally affecting the outer surface of the corion, afterwards its substance, and producing matter more or less distinct.—Small Pox—Variola. Malignant Pustule, Persian Fire—Carbunculus—Anthrax. Itch—Scabies. Moist or Running Tetter—Impetigo. Great Pox—Ecthema. Scall or Pustular Ring Worm—Porrigo."

"Punctuate Chronic Phlegmonous Inflammation. VII. Cutaneous inflammations originating in the substance of the corion, sometimes at the bulbs of the hair, and terminating in partial or imperfect suppuration, with formation of scales, crusts, etc., and more or less destruction of the corial tissue.—Boil—Phyma, Furunculus. Whelk—Acne. Scalp or Chin Whelk—Sycosis. Canker—Lupus, Noli me tangere. White Scall—Vitiligo.—Yaws—Frambœsia, Rubula. Sivvens—Sibbenia."

"Punctuate Phlegmono—Tubercular Inflammation—Chronic. VIII. Cutaneous inflammations, chronic, attended with general affection of the fibro-mucous tissues.—Arabian Leprosy—Elephantiasis. Arctoic Leprosy, Radesyge—Lepra Norwegia. Wart—Verruca. Lombard Evil—Pellagra. Soft Tubercle—Molluscum. Crim Evil—Lepra Taurica. Scherlievo, Falcadina—Lepra Pedemontana. Austrian Itch or Scab, Mal di Rosa—Lepra Asturiensis."

CHAPTER LVI.

VARIOLA.—SMALL POX.—VARIOLOID AFFECTIONS.

SMALL-POX is a well known febrile disease. Cullen arranges it among the exanthemata, and characterizes it as inflammatory and contagious. Baron and Willan contend that it was known to the ancients; but we have no intelligible notice of it in history, before the sixth century, and certainly no professional recognition or description earlier than that of Rhazes, who wrote about the beginning of the tenth.

It appears to have been universally confounded with measles until the time of Sydenham, who first clearly separated them; from him also, we derive the division of Variola, so familiar ever since, into two forms—discreta et confluens—the distinct and confluent. We should be careful to understand these terms, however, as referring to differences merely in grade or intensity; and by no means implying any diversity of specific character.

The history of small pox may be comprised under successive heads or stages, of which there are commonly admitted—1. The stage of incubation. 2. That of maturation. 3. That of decline. The first includes all the phenomena that occur, between the period of exposure and the time when the eruption shows itself. It is not necessary to discuss here, the possibility of any other causative agent than contagion, to which we attribute unhesitatingly the exclusive production of small pox. When the contagious matter is introduced into a wound purposely made, we speak of the subject as inoculated; this process shall be described by and bye; at present, we shall consider the circumstances of atmospheric infection, when the patient is said to take the disease "in the natural way." The latent period after efficient exposure, is differently stated by different authorities, who agree very generally in placing it somewhere between seven and twenty-one days. You will be struck here with the analogy of the malarious latent period, which those most familiar with it set down as of the same extent. The average date of attacks, is calculated by some as fixed at the ninth, by others, at the four-

teenth day. During this stage of incubation proper, the patient may or may not retain his usual health. Gregory alone, insists that it is always a condition of more or less malaise, discomfort, disorder, depression.

The actual invasion, like that of other fevers, is certainly, in the majority, sudden and unexpected. The patient is seized with a sense of chilliness, a shivering, or formed rigor, followed by heat, pains in the head, back and limbs, gastric oppression, and nausea, going on occasionally to retching and vomiting. To these symptoms are soon added soreness of the throat, with difficulty of swallowing, and the spitting of a tough, offensive mucus; and not unfrequently, dyspnœa, cough and pain in the thorax.

In young children, the access of this annoying malady is often marked by convulsions—quasi epileptic—of greater or less severity, alternating with drowsiness or coma.

2. On the third or fourth day, the eruption makes its appearance, and the second stage commences. Pimples are first observed on the forehead and over the face; next, on the neck and arms, whence they spread to the trunk and over the lower limbs. These papulæ assume, in a day or two, the vesicular form, being distended with a thin serous fluid; while the febrile disorder above described, subsides, and in ordinarily mild cases of distinct small pox, goes off entirely. It has been disputed, whether there is any development of successive papulæ. I will not venture to deny the occurrence of occasional exceptions in very slight attacks, but the rule has been, according to my own experience and observation, that additional eruption presents itself in steady progress for three or four days.

The papulæ are not thrown together or scattered promiscuously; but collected into groups, assuming, perhaps somewhat vaguely, a crescentic or semi-circular form. They enlarge in diameter, and are surrounded by a halo or florid areola; on or about the sixth day, their apices become flattened, or even depressed in the centre; and the fluid contents grow yellowish and purulent. About the eighth day, the marginal ring begins to grow pale; the central depression disappears; and the pustule, now hemispherical in shape, is much thinned at the summit, and easily broken. The suppuration of the vesicles, how-

ever, is not universal; many of them, especially on the limbs, subside, their serous contents being absorbed, leaving a hard, dry, brown spot on the cuticle. The pustules are fullest, as well as most abundant on the face, which is diffusely swollen with heat and itching; the eyes, indeed, are frequently closed entirely for a day or two, by the swelling of the lids.

Variolous pustulation is not confined exclusively to the skin. It extends over the adnata, and may even attack the surface of the cornea. The base of the tongue and the throat, the larynx, not unfrequently, and the trachea, sometimes, are thus assailed. The patient is hoarse; coughs much; the tonsils and salivary glands are engorged and enlarged, with great difficulty of deglutition, and constant excretion of tough and offensive mucus from the mouth and fauces.

3. Maturation being now completed, the third stage of desiccation or decline, arrives. On the tenth or eleventh day, the swelling of the face goes down; the inflammation, both pustular and diffusively cutaneous, abates rapidly; the pustules having partly discharged their contents, especially those on the face, which are for the most part likely to burst, dry away, shrivel and scab over, forming crusts. The general or constitutional disturbances have subsided, pari passu with the cutaneous irritation; and from the seventeenth to the twentieth days, the crusts drop away, leaving a new surface of skin of a reddish brown color, with here and there "pits" or slight depressions. The case may thus terminate without farther danger or inconvenience; and such is the history of a mild attack of Distinct small pox, variola discreta.

In Confluent small pox, we go on to remark, the eruptive fever is almost uniformly violent and severe; and attended with urgent internal suffering from congestion, or inflammatory determination to the respiratory and digestive organs and surfaces. The eruption comes out at once, more hastily and thickly crowded from the first, and in its progress coalescing over the face, and often over many other parts. The countenance is deformed by the degree of swelling, and the skin intensely inflamed. Not only suppuration, but very frequently extensive ulceration takes place, and the sloughing spoken of by Hunter, occurs, producing deep pits, scars, seams, blindness and deformity.

The febrile symptoms do not subside when the eruption breaks forth; there is merely a slight remission, sometimes hardly perceptible. Becoming again violent about the seventh or eighth day, this "secondary fever," as it is termed, continues without abatement, during all the remaining course of the disease. The tongue and mouth are often dry; the pulse is frequent, and for a while tense and chorded, but soon yields and is feeble; the breathing is difficult; drowsiness comes on, increasing into coma; and the patient sinks exhausted with intolerable sufferings.

The Prognosis is favorable in distinct small pox; in the confluent form it is the reverse. Bad cases may be known from the first, by an imperfect eruption, the vesicles rising very little, being rather livid than florid, and filling, or as the phrase, is, maturating badly. If at any time the pustules flatten, and the skin becomes pale or livid, the danger is great, especially if the pulse and strength fail, and the mind is observed to wander. The occurrence of any urgent internal determination is to be dreaded, whether to the brain, as shown by delirium, coma, etc., or to the respiratory organs, with pain in the side or chest, cough and dyspnœa.

The sequelæ of small pox are often very serious. Deformity and blindness, as I have said, or a persistent opthalmia, a chronic diarrhœa, anasarca, occasionally follow it. The voice is in some permanently changed, and rendered disagreeable, by injury done to the soft palate. Scrofula is said to be excited to severe and rapid development, and the predisposition to pulmonary disease generally, but more especially tubercular or scrofulous phthisis.

Autopsy. The variolous eruption is found not only on the skin, the vascular network or rete mucosum being the seat of the pustules, but extends to the mucous tissue lining the mouth, fauces, pharynx, trachea, larynx, and upon the conjunctiva. The structure and formation of the pustule in these positions, is not well made out.

Craigie, in his "Elements of Pathological Anatomy" and his "Practice of Physic," has given us a minute account of all the observations made by himself and others, of the structure and changes of the cutaneous pustule of small pox; of which detail I offer you the following abstract. The primary points of inflammation—phyctidia—commence at the cuticular surface, and

spread at the same time by radiation along the surface and by penetration downwards. Each point thus surrounds itself with a hard, red, elevated circle. A fluid is secreted within, and on cutting open the phyctidium on the eighth or ninth day, we find opaque, thick, purulent matter in its centre, which may be removed, exhibiting the true skin hollow, cupped, red, rough, villous,—not ulcerated,—and without a slough. "The external covering and the foundation of the whole phyctidium is formed by epidermis, and within its cavity and especially in its margins where they spring from the skin, is found a thick substance of a consistence almost mucous, but which when scraped off with the knife, which is easily done, forms a granulated pulpy mass." This is pronounced by Craigie, definitely, to be a new and characteristic product: it is what Hunter speaks of as "the variolous slough."

Although it has been asserted that such pustules have been found in the stomach and intestines, both Craigie and Gregory assert that they never exist there; nor upon the genito-urinary mucous tissue. But the gastro-enteric mucous membrane is often seen in a state of extensive and vehement inflammation.

In many subjects the brain and its membranes are found dark with vascular congestion. In others the lungs are engorged and hepatized, and the pleura inflamed.

Treatment. During the eruptive fever of small pox, if we are aware of the nature of the case, there is little temptation to interfere, when the attack is mild. I know not that there is any risk or evil, in the ordinary management of fever of equal intensity applied here. If at the time of access there are exhibited determinations to the head, lungs, stomach, etc., violent and severe, the lancet may be used, and its effect aided by mild purgatives. The mercurials are supposed to exert here a pecular efficacy, but of this I am not satisfied. Great gastric oppression, with foul tongue and fetid breath, require an emetic, especially if the retching be insufficient, and fail to empty the stomach of its crude contents and morbid secretions. Mild emesis can scarcely do harm, and is serviceable besides, by favoring a centrifugal determination of the fluids. It often relieves the infantile convulsions which precede the eruption.

The purgatives which I have advised to be used with modera-

tion during the eruptive fever, must be abstained from when the papulæ are forming upon the skin; after this, the bowels should be kept free by laxative enemata.

The use of the warm bath, should be one of our earliest measures in the management of negroes and of whites of the lower class. It is beneficial to children attacked with convulsions, who may be relieved with the lancet cautiously employed, if the pulse be full and hard and the face flushed; and on the other hand, if pale and feeble, may be tranquilized with small doses of the tinc: op: camph. The apartment of the sick should be well aired, and perfectly clean. He should lie on a firm mattrass, and if able, sit up occasionally. The cool regimen, so vastly preferable to the heating system anciently in vogue, must not, however, be carried to an extreme. It will, if urged, do harm, when the pulmonary symptoms are prominent. Nor do our negroes, in general, bear it well, unless much modified.

Light mucilaginous drinks should form the only nourishment. The sore throat should be gargled often with tepid water, and the inflamed eyes washed from time to time with milk and other mild collyria, and carefully protected from light and other irritants.

To prevent the pitting, so much feared, many expedients are proposed. I have not confidence in any one of them. The resort to them in confluent and really severe cases is trifling, and in distinct small pox there is little deformity left.

The larger pustules and confluent masses of pustules may be punctured with a lancet, and the matter gently pressed out. Some supposing light and air to be the causes of ulceration and sloughing, keep the apartment as dark as possible, and cover the face with gold beaters skin or masks of various kinds, while others have advised the application of nit: argenti to the still imature vesicles, to prevent their farther progress and complete pustulation.

In the secondary fever, most advantage is derived from the mildly stimulating diaphoretics, as the infus: rad: serp: with slight additions of æther, camphor, or ammonia. I employ opium unhesitatingly and freely, when it is required to relieve the cough, dyspnœa, restlessness, and other sufferings of the patient. It does not seem contra-indicated by any circumstances but those which

show a tendency to coma. I prescribe Dover's powder or the camphorated tincture.

In protracted cases, when the strength yields, cinchona is of much service. The infusion may be combined with other remedies. Extensive crusts are rubbed off occasionally by the motions of the patient in bed, leaving painful sores. These must be dusted with cinchona or finely powdered chalk, the pressure of the body frequently changed by the attendants, and extreme cleanliness inculcated.

If the "striking in" of the eruption, as the phrase is, occur, the pustules flatten and become indistinct, with failing pulse, and cold and livid surface, it is necessary to stimulate promptly and energetically, both by internal and external means.

The treatment of the convalescent requires much attention. He is covered with a new and highly susceptible integument, and is specially liable to the ill effects of exposure and alternations, from which he must be guarded strictly by proper clothing. His diet should, for a long time, be plain and unstimulating, though nutritious.

Variolous contagion is both palpable and impalpable. It may be communicated palpably by contact with the diseased person or with fomites, and by inoculation, or the direct insertion of small pox matter into a wound. It is also capable of diffusing itself impalpably through the atmosphere. At what stage of the case a sick body becomes thus a focus of contagion, is not clearly known—perhaps from the sixth or seventh day, when a peculiar odor or effluvium begins to be given off.

The latent period, the interval between infection and invasion, is also doubtful; it is usually rated at from nine to fourteen days. The effects of inoculation show themselves earlier—about the fourth day.

Small pox attacks the same person but once—a rule clear and positive, though not without exceptions. This exemption gave great importance to the practice of inoculation, which enabled the subject to select his own time and circumstances for suffering the disease. It is difficult to account for the immense difference in violence and mortality between the casual and inoculated small pox.

Variola is liable to many modifications in history and character, some of which have been pointed out and separated in common language by special denominations, while the strong similarity which they present to each other and to the common stock of all, is indicated in the use of a word now become familiar every where, *Varioloid*.

All the old writers speak of irregular forms of small pox. Sydenham is particular in detailing the varieties which the disease offered, in the several years of its epidemic occurrence under his own notice. Lieutaud speaks of a "spurious small pox," occasionally taken for the legitimate. Parr tells us that "the varieties of small pox are numerous." Others tell us of water-pock, of wind-pock, stone-pock, etc. in almost unnumbered diversity. It was only among the English, and not by them until the time of Heberden, that varicella (chicken pox) was distinguished from small pox—that is, by the profession; nurses and common people had noted and named these varieties at least half a century before. Morton, of the time of Sydenham, speaks of it as mild small pox. His cotemporary must so have regarded it, if he met with it at all. And though Heberden, Willan, Rayer and McIntosh talk very positively of the distinctions between the two, yet other writers have not been able to mark them so clearly. Thomson, for instance, maintains varicella, in all its varieties, to be a modified small pox, and while Willan recognizes it only as presented in the serous or vesiculous form, Rayer acknowledges that it occasionally assumes a pustulous condition. With regard to the grade, which is made the source of distinction between distinct and confluent small pox, it should be remembered, that Ring has given us a case of confluent chicken pox, and that McIntosh has recorded two fatal cases, one in a child, the other in an adult. Heberden speaks of a malignant sort of chicken pox, in which "the continuance of the pain and fever, after the eruption, and the degree of both these, though there be not above twenty pustules, are, as far as I have seen, what never happens in the small pox." Chicken pox has been known to pit the skin, and distinct small pox often fails to do this. If we receive the diagnosis of McIntosh and others, who discern chicken pox by the succession of crops and pustules, what shall we say to Heberden's acknow-

ledgment of his having seen four cases of its unequivocal occurrence in small pox? These are "the only instances," he says, and his language is striking, "which have happened to me, something like what is *often talked of*—a second crop.

It seems to me that the above observations, in making which I have referred in preference to the old writers, exhibit plainly enough the difficulty of distinguishing small pox from its kindred affections, if their actual identity be not established. The term varioloid is a new one, first used by Thomson, in his "Account of the Varioloid epidemic," which prevailed at Edinburgh, in 1811. Cross gives an excellent history of a similar epidemic, (which, however, he terms small pox,) as occurring at Norwich. The same pestilence, it is asserted, raged about the same time in France, Italy, and Germany, from which last source it was brought into America in 1818, making its first invasion in Baltimore, (Md.) and Lancaster, (Penn.) It was first noticed in Charleston in January, 1824.

Varioloid has been assumed to differ essentially from variola, (small pox,) because first—it affects persons known to have previously passed through attacks of regular small pox; secondly, it affects persons previously vaccinated; and thirdly, it presents certain peculiarities of history and character, which serve as distinguishing marks.

The first of these alleged reasons is obviously of no force. It was long since observed, that small pox sometimes failed to destroy the liability to its own recurrence, and instances of its repetition are to be found in all the old writers. "Petrus Borellus," says Heberden, "records the case of a woman who had this distemper seven times, and catching it again, died of the eighth attack." Dr. Oppert, of Berlin, relates the case of a girl, who, at six years of age, had confluent small pox. Seventeen years after, she was again attacked, and died of the disease. A similar case is authentically stated to have occurred in this city. If it is replied, that these cases are too few in number to affect the general rule, that small pox invades the constitution but once, we readily acknowledge the correctness of the assertion, and proceed to apply the inference to the case before us. During the prevalence of the epidemic of 1823-24, in Philadelphia, (call it varioloid or small pox,) but sixteen persons are reported,

by Drs. Bell and Mitchell, as attacked with it, who had previously small pox. A similar list may be made out of cases of the same kind occurring here, while the pestilence prevailed among us, so limited in number, however, as to prove most conclusively, that variola protects, at least in a certain degree, from varioloid disease.

With regard to the second point mentioned above, it is only necessary to observe, that no well informed physician of the present day, retains any confidence in the absolute preventive power of vaccine against the invasion of small pox, however much he may be disposed to confide in its unfailing modifying influence. But of this, more hereafter.

Thirdly, the principal peculiarities which are supposed to characterize the varioloid, and to offer specific marks by which we may discern it, are, so far as we have been able to collect, the following:

First, the eruption comes forth in successive crops.

Secondly, the pocks or pustules, when formed, are conoidal, without a central depression.

Thirdly, they are vesicular, not multicellular, as small pox is.

Fourthly, they are smaller than the variolous.

Fifthly, they contain lymph and not purulent matter.

Sixthly, they dry and fall off without pitting.

Seventhly, their progress and maturation are unattended with secondary fever.

To all these we would rejoin, that the circumstances above described are by no means regular or connected in their occurrence; and that if they were, they would not imply sufficient distinctness to constitute a separate form of disease. For,

First, in the small pox, the eruption is sometimes incomplete at first, the pustules appearing to thicken as the disease progresses; and it is well known to all nurses, to be easy to increase, locally, the number of pocks, by exposure of part of the body to long continued heat, as by lying on it, wrapping it, or exposing it to the heat of a fire.

Secondly, thirdly, and fourthly, the size and configuration of the pustules, vary much in the most clearly defined cases of small pox. Upon the same individual, some will be seen large, and others small—some conoidal, and others depressed in the

centre. The internal construction of the pustules will be found to differ in a corresponding manner; the conoidal are vesicular—those which present the depression in the centre are, like the vaccine, multicellular—that is, divided into many separate cells or spaces. If I have not greatly deceived myself on many occasions, I have further noted that the pock changed its appearance in this regard during its progress; at first vesicular and conoidal, it exhibited afterwards a depression at the apex, becoming flattened and multicellular. But upon this, as it is by no means important to the argument, I shall lay no further stress, content if I can draw the attention of the profession to it by the remark.

Fifthly, as to the assertion, so often repeated, that it is characteristic of the varioloid vesicle to contain lymph or serum, and not pus or matter, as the common phrase is, I affirm, on the other hand, that true small pox virus is limpid and colorless. The most experienced inoculators, as for example, Parr and the two Suttons, always preferred clear transparent lymph. It is in the latter stages of the pock, after common inflammation supervenes upon that which is specific and peculiar, that we find purulent matter; and the few cases of varioloid or modified small pox, which run on into this stage, exhibit just as distinctly the formation of pus. If the inflammation of the skin be stopped at an early stage, we prevent this; and such, as I shall hereafter show, is the most important of the train of effects attributed to the vaccine.

Sixthly, John Hunter has somewhere declared, that in each pock of the variolous eruption, a slough of the cutis vera takes place, answering in dimensions to the size and form of the pustules. This sloughing forms the pit or depression left by small pox, and the circumstance is assumed by him and others—Ring, for example, and Dr. Adams—to be peculiar to and diagnostic of small pox, and to depend, not upon the intensity of the inflammation, but on its specific nature. Thus, they propose to separate Varicella or chicken pox, from variola or small pox. It is easy, however, to demonstrate the fallaciousness of this test, supported as it is by the authority of such high names. A pit is not made by every small pox pustule. In distinct small pox, and in inoculated persons, there is frequently left no mark or

trace of the location of a pock. Goethe, when a child at Frankfort, was attacked by small pox there—long ill—but had the good fortune to escape without being disfigured. Mary, Queen of Scots, so remarkable for her exquisitely fascinating beauty, had the small pox in her early childhood—but, says Bell, "it must have been of a particularly gentle kind, having left behind no visible trace." Nor can it be doubted, that the chicken pox and the (so called) varioloid, occasionally, though seldom, produce similar sloughs or depressions, and so leave marks on the faces of those who have gone through an attack.

Seventhly, secondary fever is often wanting in the mild cases of distinct small pox, and very rarely occurs in the inoculated. Dr. Parr, indeed, mentions the absence of it as a peculiar character of inoculated small pox. It is clear, then, that no inference can be drawn from its absence, of a nature favorable to our opponents. It arises, like the secretion of pus, from the irritation of the cutaneous surface, and is proportioned in degree to that irritation. It is, therefore, met with now and then, both in varicella and varioloid.

I believe varioloid to be identical in nature with small pox, because they are promiscuously capable of producing each other. The modifications which have been noted and discussed, I attribute, in a vast majority of the instances presenting themselves at the present day, to the influence of vaccine, of which I shall speak presently. In others, (for they are confessedly irregular,) to certain indefinable and varied peculiarities of constitution, or habit, or condition of body in the affected subject.

Under this head of varioloid, I unhesitatingly coincide with Dr. Thomson in comprising Varicella, (chicken pox.) This gentleman entered upon the course of observations, upon the Edinburgh epidemic, made by him with so much care and nicety, a thorough believer in the opinions of Heberden and Willan, with regard to the separate and independent nature of chicken pox. His candor, however, did not long permit him to remain the advocate of this view of the matter. "During the epidemic, I had occasion," he says, "to observe natural small pox, modified small pox, and the disease which I had been

accustomed to regard as chicken pox, co-existing in the same situations, and appearing in their progress to produce one another. In three families in particular, situated at a considerable distance from one another, and between which, except through their medical attendants, no sort of intercourse had existed, my attention was strongly excited by observing chicken pox arise in unvaccinated children, from the contagion of malignant small pox. The occurrence of this event, in circumstances which left no room for doubt, because there appeared to be no possible source of fallacy in the observation, led me to conceive that all the various appearances of the epidemic, in the different classes of persons whom it attacked, might be produced by the operation of one and the same contagion."

Phenomena precisely similar have occurred under my own observation, in the several invasions of this eruptive disease, call it what you will. Such of my patients as had not been previously vaccinated, or had not had the small pox, exhibited for the most part the regular symptoms of variola, as it is found described in the books and recognized by the best authorities. Those, on the other hand, who had been protected by either of the above means, had the disease modified variously, and in different degrees of mildness—some of them scarcely, others not at all, distinguishable from varicella. That the same contagion is capable of producing these several forms of variolous disease, whether regular or in any manner modified, is not only proved by their occurring thus together spontaneously, or in the natural way, but has been definitely established by repeated inoculation with the matter of the modified vesicle, varioloid or varicelloid, in which regular well-marked small pox was the result of the insertion of the virus. Among such examples, the case of Dr. Hennen's son, of Edinburgh, is most worthy of being detailed. This boy, from whatever source infected, was seized with an eruptive disease, concerning which Dr. Thomson thus explicitly expresses himself:—"If I had been requested to point out the case, which seemed to me to correspond most accurately with the descriptions of chicken pox, I should certainly have fixed upon the eruption of Dr. Hennen's boy." It was the circumstance of Dr. Hennen's viewing the disease in his son, as a

well-marked example of chicken pox, that led him to think of instituting the experiments which produced such interesting results. These results may be stated briefly, as follows:—In four children inoculated from the above case, the disease was mild, and of short duration—varioloid or varicelloid; in two, it exhibited the appearance of small pox. In three men, who caught the infection from sleeping in the same rooms with these inoculated children, the disease was "uncommonly severe"—not to be distinguished from small pox; and in a fourth, under the same circumstances, "the mildest variety ever described, of chicken pox."

Upon these grounds, then, I cannot help reprobating the introduction of a new term, the application of which is not only unnecessary, but calculated to confuse and lead into error. The modifications which have been assumed to constitute a separate disease, dignified with the specific appellation of varioloid, are each and all of them to be found described by the old writers, under various names. Thus we have from Dr. Huxham, "an Account of an anomalous form of Small Pox at Plymouth, in 1741." Thus we meet among the old writers with the phrases, horn-pock, stone-pock, water-pock, wind-pock, crystalline-pock, swine-pock, sheep-pock, chicken-pock, and numerous others, by which they intended to point out the undefined, but not uncommon varieties, which the variolous eruption occasionally assumed. I have already remarked, that chicken pox was familiarly recognized as one of these varieties until the time of Heberden, who separated it under the name of Varicella or Variola pusilla, in which he was followed by Willan. I now add, that Dr. Bateman, closely as he was attached to Dr. Willan's views in general, found reason to doubt their correctness in this particular, as appears from an extract of a letter, written by him to Dr. Howitz, of Copenhagen, in which he says, "I am much inclined to concur with you in the supposition, that chicken pox is, in fact, modified small pox."

These varieties and irregularities formerly noted of variolous disease, arose from peculiarities of constitution probably, in some instances; in others, from local or general condition of atmosphere, habits, manners, etc., and perhaps in most, from causes entirely unknown and unassignable.

To all these is now added, a more general and an uniform disturbing cause—the influence, namely, of the vaccine; and hence, at the present day, these variations and modifications are more regular, and better defined than they were of old, as well as infinitely more frequent.

CHAPTER LVII.

VACCINIA.

VACCINIA, the vaccine, derives its origin from the cow, (vacca.) It was first made known to the medical profession in 1798, by the justly celebrated Dr. Jenner, whom we rank, unhesitatingly, among the greatest benefactors of the human race. The history of vaccine is an exemplification of the acuteness of the remark of Southey, in his Omniana, "that most things are known before they are discovered." Prela, physician to the Pope in 1825, contends, plausibly, from passages in Pliny and Celsus, that the vaccine was known to the ancients, under the name of boa. It had been long observed, in Gloucestershire and Dorsetshire, two of the dairy counties of England, that their cows were occasionally affected with a species of ulceration about the udder, which communicated to the hands of the milkers a pustular eruption. The occurrence of this eruption was noticed to have conferred upon such persons a security against the casual infection of small pox, and such was the "general opinion," says Parr, "that the inoculator, who attempted to convey the small pox to one who had been thus previously affected with vaccine, was ridiculed." There was no difficulty in following up so plain a hint, and the artificial communication of this disease, as a preventive of variola, was tried first by a farmer of that country, and afterwards by Dr. Jenner, with the most satisfactory results. The early writings of the latter on this subject were received with scorn, and his papers refused publication among the Philosophical Transactions. It, how-

ever, forced its way into notice; the value of the discovery was, after vehement and angry debate, established on the most authentic basis, and the zeal of its promulgator amply rewarded by the British parliament. Since that time the vaccine has been extended all over the globe, and all nations of mankind have exulted in the benefits thus bestowed upon them. It was first introduced into this city by our highly esteemed historian and practitioner, Dr. David Ramsay. To the present time it has enjoyed the undoubting confidence of the profession, with scarcely a solitary exception, and at once superseded, and almost entirely suppressed, the practice of inoculation.

Vaccination is performed by introducing, under the cuticle, a small portion of lymph, taken from a vesicle about the eighth, ninth or tenth day, while yet the fluid distending the vesicle is transparent and colorless. The puncture remains unchanged until the third or fourth day, when slight elevation and inflammation are perceptible, which increase slowly. About the sixth, it assumes a regular circular form, with a depression in the centre. The vesicle is completely developed on the eighth or ninth day, and attains the average diameter of one-third of an inch. An areola now surrounds it of an intensely florid red color, and some febrile excitement of the system is perceptible, with stiffness, pain, and slight swelling under the arm, if the vaccination be performed about the usual spot, above the elbow. The diamter of the areola differs from one to two inches. It is attended with a degree of roughness, hardness and intumescence of the skin over which it spreads—circumstances which denote its existence and extent in the black. The vesicle is multicellular, that is, composed internally of numerous spaces or little cells, which communicate freely with each other. The fluid within these cells begins to dry away on the eleventh or twelfth day, having previously lost its transparency, and become milk or straw colored; the areola at the same time declines, and gradually disappears. About the twenty-sixth day, a hard round scab of mahogany color, smooth on the outside and remarkably hollowed in the centre, falls off, leaving a permanent cicatrix or scar of peculiar and characteristic aspect—its surface being marked with minute pits or depressions, similar to those on the head of a thimble, "denoting," probably, "the number of cells of

which the vesicle had been composed." It has been observed that, in variolous inoculation, the vesicle forming at the point of insertion has been attended by the eruption of others in different parts of the body; but as respects vaccine, it is a fact of very rare occurrence. Two such instances, however, have been communicated to me authentically.

I shall not attempt to describe any of the numerous deviations from the above history, which are to be met with in the irregularly diversified forms of what are called "spurious vesicles." Suffice it to say, that any striking or obvious departure from the ordinary phenomena, in the progress of a vaccine pustule, should make us cautious of confiding a patient to its protective influence. Vaccine, like every other disease, may undergo certain modifications from the condition of the recipient, an infinite majority of which are slight and unessential, not affecting its character and influence, nor impairing its genuineness. Others there are, however, though few in number, which change the nature of the specific action, either locally, or in its effect upon the system, and thus render it "spurious." Of the local modifying causes, the principal and most common is the mechanical irritation of the vaccinated spot, (as by rubbing,) by which a common inflammation is substituted for the specific, and a common sore produced. Erysipelatous inflammation may also supervene and interfere with the formation of a regular vaccine pustule. Vaccine may, perhaps, be affected by or combine with some forms of constitutional disease, and thus take on a hybrid state. All cutaneous affections disturb the regularity of its progress, if they do not hinder the success of the operation, and no physician vaccinates as willingly from a pustule on the arm of a patient known to labor under scrofula, herpes or lues venerea, etc., as from a healthy subject. There is a lurking doubt in the mind of every one, however scornfully he may regard the humoral pathology, whether he may or not, by vaccinating from such a case, communicate a mongrel disease.

I am disposed to lay some stress upon the progress of maturation of the vesicle, although this may be slightly hastened or impeded, without detracting from the value of the pustule. Thus the temperature of the season, if high, may occasion it to anticipate twenty-four or thirty-six hours perhaps; and severe cold on

the contrary, by checking the cutaneous circulation, may retard it in an equal degree. The debility or robustness of the subject, may give rise to like results.

The pustule should be prominent and clearly defined, and the areola distinct and vivid. There should attend some febrile disturbance of the general system. The appearance of the scar, as above described, I consider as of much importance. We should re-vaccinate when this peculiar appearance is wanting, and when the scar is smooth and resembles that of a burn.

I do not find the observation made by any writer, but I have certainly noticed the occurrence of a doubtful or spurious vesicle to cause much difficulty in procuring, subsequently, the satisfactory results of vaccination in the production of a regular or genuine pustule.

Vaccination is, of course, best and most successfully performed with fluid lymph, taken immediately from the vesicle, but this simple mode of communication is not always possible. When required to be transported to a distance, or kept for any length of time, it may be preserved by various methods. The fluid is caught on a small plate of glass, which is pressed closely against another of similar size and shape, and the edges waxed to prevent the access of air. We receive it on the points of quills, likewise protected from the air by envelopes. Cotton thread is dipped in it, and laid aside with equal care. But in the scab we have the most convenient means of preserving and transporting this invaluable agent. It has been kept for years, and found capable of commmunicating the genuine disease, just as when recent. It may be protected from the contact of air and moisture by immersion in softened wax and spermaceti. It is scarcely necessary to remark, that the first scab alone possesses the specific vaccine character; if this falls off, or is rubbed off too early, another may succeed it, but possesses none of its useful properties.

It is difficult in this latitude, to preserve any form of vaccine matter, (even the scab not excepted,) through one of our summers. The heat and moisture of our climate, in the warm months, occasion it to undergo a deterioration or decomposition, which renders it unfit for use—at least, such has been the uniform result of numerous experiments, made with the greatest nicety and care. If we fail in transmitting the vaccine from one subject to

another, in continuous succession, through the summer and autumn, we find ourselves under the necessity of obtaining a new supply from our more fortunate brethren elsewhere.

Some have strenuously argued the propriety of recurring occasionally to the udder of the cow, the original source of vaccine, to ensure its genuineness, and renew it from time to time; but it may now be looked on as settled, that its primary and essential characteristics are unchanged and unimpaired by any imaginable number of transitions. Nay more, it is obviously improved by thus passing through the human system; it is so modified as to have become a milder malady, though not less effectual in its influence on the constitution. A person inoculated directly from the cow, always suffers more, much more it is said, than one who receives the infection from a human vesicle, and as far as has been ascertained, with no corresponding advantage to compensate.

Among the animals which have been found capable of receiving and communicating the vaccine, are the horse, the ass, the camel, the buffalo, the goat, the sheep, and the baboon.

It has been doubted whether variola does or does not exert a reciprocal influence upon the vaccine—whether it tends to prevent its introduction into the system, or in any manner or degree modifies it, or disturbs its regularity when so received. But the most positive proof has been obtained, of the transmission of perfect vaccine, through constitutions previously subjected to the variolous impression. It has been in this way brought across the Atlantic, by the successive vaccination of individuals among the passengers and crew of the vessel, many of whom were known to have had the small pox.

Much has been said of the difficulty of communicating the disease more than once to the same constitution. Gregory, of the small pox hospital, declares that "it is impossible, or nearly so, to reproduce the vaccine in any thing like its genuine form, where the cicatrix left by a preceding pustule is perfect, and the result of a perfect vesicle." Dr. Darrach, of Philadelphia, in experimenting on this subject, found that the repeated insertion of the matter in the arms of vaccinated children occasioned a local disease, exactly similar to that produced by the first operation, with the exception that the pustule and scab were much diminished in size. In none of these cases could fever, or any

other constitutional effect, be discovered. Unprotected children were, with complete success, vaccinated from one of these scabs not larger than a line, (one twelfth of an inch in diameter,) which was the result of a fourth insertion of the virus.

The duration of the influence of the vaccine—the permanency rather of the effect which it has wrought upon the system—has been denied by some who are staunch believers in its temporary power to destroy the susceptibility of the body to the invasion of small pox. But the mass of facts collected under this head, certainly goes to prove, that whatever may be the result of the vaccine inoculation, whatever the impressions made by it upon the organism, this result, these impressions, are not likely to be impaired or obliterated by any process of time, or any changes in the state of the system from any cause. Of two hundred and fifty cases collected by Dr. Gibson, "in which small pox is said to have occurred after vaccination, it appears that by far the greater number had been vaccinated less than two years." In Dr. Thomson's account of similar eruptions, they occurred at various intervals after vaccination, from a few days to fifteen years, not warranting, in any degree, the suspicion that the power of the vaccine is weakened or exhausted by time.

On the whole, I am nevertheless disposed to agree with the lamented Forry, late editor of the New-York Journal, and author of the Boylston Prize Essay on the protective powers of vaccine, that "the more you vaccinate the better;" and with Roesch, would lay down the following rules on the subject: 1. To vaccinate every individual, even those who have had the small pox. 2. To re-vaccinate every ten or twelve years; and if at that interval the operation fails, to repeat it annually until it succeeds again. To which, I would add a third—3. To vaccinate and re-vaccinate universally, when variola becomes epidemic.

Some of the more recent statistics of Prussia and of England, go to show that the trifling inconvenience of these re-vaccinations, is far more than compensated by the evident advantage which has resulted from them.

To ascertain the true influence of vaccine upon small pox, is an object of the utmost importance. I will, therefore, briefly and formally recapitulate the points fairly established, by a due consideration of the facts collected on every side.

First, Vaccination is no longer to be regarded as exhibiting the absolute power of preventing the access of small pox. In some persons, it does seem completely to destroy the susceptibility to variolous contagion; in all it diminishes notably, though in different degrees, the liability to be infected.

Second, The introduction of the vaccine virus into the system in its genuine form, and in the proper manner, never fails to produce there such changes as to modify certainly, the future influence of the variolous poison, if, under any circumstances, it should affect the constitution.

Thirdly, The modification thus asserted, does not appear to consist essentially in a diminution of the violence or duration of the first stage, the eruptive fever. This, though it is in general very slight, may be as severe as in casual small pox.

Fourthly, Nor does it appear to imply essentially a diminution of the quantity of eruption upon the skin, although the number of pustules is usually very limited in small pox, after vaccination.

Fifthly, The great power of the vaccine unquestionably consists in modifying the progress of inflammation in the variolous eruption. Hence the slighter degree of cutaneous irritation, which terminates in numerous instances, without secretion of either lymph or pus—the less amount of matter formed in the pustules (when effusion does occur,)—the sudden check given, in a majority of cases, to the suppurative process, after it has commenced—the early disposition to rapid drying. Hence the absence or transient duration of opthalmia, which, with ulceration of the cornea and destruction of the eye, constitutes the worst and most unmanageable sequela of unmodified small pox. Hence the rare occurrence of sloughing of the cutis, and consequent pitting, seaming and scarring of the skin. It has now become happily, as unusual as it once was common, to see a person deformed with these marks of small pox. Hence, lastly, the infrequency of what is termed secondary fever, and its mildness, when it does show itself. This is well known to be the most dangerous of the several stages of unmitigated small pox; it is tedious in duration, and leaves scarce one constitution in a thousand, without inflicting severe injury and permanent deterioration. The convalescence from small pox is, on this ac-

count, in the unprotected, notoriously slow. On the other hand, there is no convalescence more rapid or more perfect, than that of a patient who has been assailed after vaccination. He recovers both perfectly and promptly.

"Observe," says Dr. Gregory, "how strikingly opposed to (contrasted with) each other in this respect, are the influences of inoculation and vaccination. Inoculation lessens the quantity of eruption but does not alter, in the slightest degree, the progress of inflammation in that which is thrown out. Vaccination, on the other hand, while it does not (necessarily) affect the quantity of eruption, always influences more or less the progress of inflammation in it."

Sixthly, Nor can it be denied, that as far as we have a right to draw our conclusions from the tables of mortality, published in reference to this question, vaccination tends much more surely and effectually to the prevention of fatal results, than inoculation. Thus, among the cases stated to us by Doctors Bell and Mitchell, as occurring in Philadelphia, in 1823–24, out of two hundred and forty-eight, sixty-four had been previously vaccinated, of whom one only died; seven had natural small pox previously, three of these died; nine had been inoculated, three of these died; thirteen unknown, no deaths. Of those entirely unprotected, (one hundred and fifty-five in number,) there died eighty-five, more than one half—a dreadful mortality.

It is surely impossible to set in a stronger light the advantages of vaccination, than is done in the above paragraph. Results similar to these are given in the annual reports of the National Institution of Great Britain, and in every other authentic document, without exception, to which we have access.

In our own community, variolous and varioloid diseases have prevailed repeatedly. I give a list of the deaths, extracted from our annual bills of mortality, as follows:

1824,	small pox, 1	swine pox, 1
1825,	" " 49	
1826,	" " 29	
1827,	" "	swine pox, 1
1828, 1829,	no deaths recorded.	
1830,	small pox, 17	varioloid, 4.—Total, 102.

Of whom, as far as I could ascertain, on the most diligent inquiry, but one was known to have been previously vaccinated. The greatest number of cases occurred in 1829–30. Vaccination had then been urged extensively. The city and suburbs contain a population of 40,343. During the whole of the above period, cases of small pox were occasionally brought into the harbor by vessels from infected ports.

If we ask, how has this ancient and justly dreaded pestilence been deprived of its terrors, and shorn of its fatal energies, what shall be the impartial answer? Not by any change in the nature of the case, not by any loss of its inherent power over the human constitution, for the mortality among the unprotected is most appalling—greater than that of yellow fever, or perhaps even the plague, amounting every where, it would seem, to fully one half. Nor is it owing to such protection as inoculation affords, for that practice has been obsolete among us for the last quarter of a century. But it is clearly attributable, and we do not hesitate to ascribe it to the kindly influence of the vaccine—the most valuable among the generous benefits conferred upon their fellow men, by the cultivators of the divine art of healing.

CHAPTER LVIII.

MEASLES.—RUBEOLA.—MORBILLI.

It is not a great while since medical authorities have assigned to measles a distinct and specific place in the long list of diseases. The more ancient writers comprehended it under the same head with variola, giving it the diminutive title, morbilli. The differences which they exhibit in progress, in character and in history, are so obviously essential, and now so familiar, that we cannot help feeling some astonishment that they should ever have been classed together. There are not wanting, however, certain points of resemblance, as their contagiousness—their occasional epidemic prevalence—and, in particular instances, the

aspect of the earlier stages of eruptive inflammation. Even as late as the seventeenth century, physicians puzzled themselves with these careless mistakes and uncertainties. Sennertus discusses the question, "why the disease assumes in some constitutions, the form of small pox, and in others, that of measles?" And Diemerbroeck, in 1787, says "differunt (morbilli,) a variolis accidentaliter, vel quoad magis et minus."

Rubeola is a contagious exanthem, consisting, seemingly, of two elements—fever, of catarrhal character, with a peculiar cutaneous eruption. This combination constitutes the fully formed disease; but the separation of the two is sometimes observed, and these departures from the ordinary history of the affection, have been exalted into a second species or variety, by Willan and Good. The regular type being known as rubeola vulgaris, Good styles the variety first alluded to, rubeola incocta, to express its imperfect development; Willan, aiming only at the description, calls it rubeola sine catarrho. The vulgar know it as "bastard measles." That, on the other hand, we may have the rubeolous fever without the eruption, is asserted by several writers, and a sort of relation or connection between the epidemic catarrhal affections, known as influenza and true measles, has been inferred from their frequent occurrence together and in rapid succession.

The invasion of measles is attended with the common symptoms of fever—rigor or chill, followed by heat of skin, headache, nausea and gastric oppression, with hard and frequent pulse and thirst. On the second day, the catarrhal symptoms develope themselves; there is frequent sneezing, the eyes being red, suffused and watery, the throat somewhat sore, with a harsh, rough, teasing cough. On the third day sometimes, but more frequently on the fourth, the eruption makes its appearance; it is first perceptible, I think, on the palate and roof of the mouth, and the forehead, spreading over the face; on the next day, it is visible on the breast, and gradually covers the arms, body and legs. It is described as being formed of minute points or heads, less even than a millet seed, of a dusky red color, a little elevated, slightly rough, and arranged in patches, which are disposed in a crescentic shape, sometimes almost circular. It begins to fade on the face about the sixth day, and subsides in the reverse

order of its appearance. We must not imagine these dates to be precise and absolute; they are merely approximative. It does not show itself, in some instances, until the fifth or sixth day; in one reported to me, not before the twelfth. Its common duration, as above said, is from three to four days, fading slowly. Rush saw it last, in a case in 1789, not less than nine days. Its subsidence is attended with itching, and the skin dries off or desquamates with small branny scales. The fever does not diminish so promptly or strikingly, on the coming out of the eruption, as is seen in variola, but continues with little abatement, until that subsides. The eyes suffer much, the lids being often swollen and œdematous. The inflammation is by no means confined to the external surface; bronchitis and diarrhœa are often attendant, and regarded by some, as accidental complications; by others, as metastatic affections; I am rather disposed to consider the respiratory and digestive mucous surfaces as partaking with the skin in the specific morbid action which constitutes the disease. This may be greater or less in degree, may be more or less equally diffused, and may be, by whatever contingencies, determined more to one of these tissues than another.

Measles is almost always of the inflammatory type, but in particular localities and in certain epidemic visitations, has been known to associate itself with fever of low or typhoid character. This has been admitted by some writers, as a third species or variety, and entitled rubeola nigra—black measles. The eruption, instead of its usual florid color, is here of a dark red or purplish hue. It is described as being attended with some degree of languor and debility, but as by no means serious or alarming. I have met with no examples specifically according with their delineations ot this species. The only instances resembling it, that have ever occurred to me, were of ordinary rubeola, in which, either owing to a typhoid predisposition in the system, or from some other cause, a general collapse or prostration of the vital powers took place, with lividity or dark discoloration of the eruption.

The Cause of rubeola—its origin or primary source is unknown. We meet occasionally with single cases, generated we know not how—perhaps as the very first of all such cases must have been spontaneously generated. At present, we only know

it as contagious and epidemic. Its contagiousness is admitted universally at present, I suppose. Our countryman, Dr. Caldwell, who sometime since stood alone in denying it, based his opposition to the received views, upon the fact, that "it is not communicable by inoculation, the only conclusive test," as he maintains, "of contagion." His premises are in every way erroneous. Neither typhus fever nor hooping cough are communicable in this way, yet it would require some hardihood to deny their contagiousness. And with regard to measles, Home, Speranza, and others, have made decisive and successful experiments on the subject. Home conveyed it by introducing into the nostrils of a healthy person, a dossil of cotton soaked in blood drawn from a cutaneous vein, at a part of the surface most thickly covered with eruption. Thus excited, the disease was perfectly identical with, and fully equalled in violence the natural attack. Like all other contagious diseases, it frequently occurs as an epidemic, spreading widely and rapidly. Its invasion in this way, usually happens in spring.

The latent period between exposure and access, is stated by Heberden to be about nine days; by M. Hall, at ten to fourteen; by Willan, at sixteen. Home makes it, after inoculation, six. The period of greatest contagious power, is supposed to be while desquamation is going on, and to continue as long as this process is taking place; even for a fortnight after seeming convalescence.

Rubeola affects the constitution but once, and hence, perhaps it is, that we see few cases comparatively in adults. I have stated the rule; there are doubtless many exceptions. Rubeola without catarrh, incocta, bastard measles, is said to afford no protection against a second attack. These I am disposed to regard as merely local cutaneous inflammations, of the specific rubeolous character, assailing individuals much exposed to the contagion, at a period when the constitution, for whatever reason, is in an unfit state for the reception of the disease, which thus spreads its force on the surface. I have seen three adults thus attacked a second time. I have also met with one instance of the repetition of true measles, in a lady, at an interval of ten years. She was very ill on both occasions.

The general Prognosis is highly favorable; yet the malady is

by no means entirely devoid of danger. The risk, in ordinary cases, is proportioned to the intensity of the eruptive fever—to the importance of the disorder of the mucous surfaces—and though in a very indefinite way, to the amount of cutaneous eruption. Children are sometimes assailed with convulsions, in the eruptive stage. Adults are more liable to opthalmia, bronchitis and diarrhœa. These disturbances, as I have said, I regard as specific. If the eruption suddenly disappear, there is great reason to dread the affection of the internal tissues and organs, which must suffer unduly, whether the determination of morbid action to them, be truly metastatic, or only aggravated by the untimely withdrawal of that proportion which has been directed safely to the skin. The protraction of these visceral disorders, after the disease has gone through its ordinary duration, constitutes probably, the greatest source of mortality from measles, whose sequelæ, as they are called, have thus become universally dreaded. Marasmus, probably from mesenteric tuberculation in children, phthisis in the pre-disposed, chronic diarrhœa and chronic opthalmia, are not unfrequently the consequences of severe or ill-managed attacks of rubeola.

The Diagnosis of measles, is not generally difficult. It has been mistaken for urticaria, and oftener for scarlatina; indeed, Morton calls the latter "confluent measles," alluding to the corresponding phrase as applied to variola. The first day of all eruptive fevers, presents symptoms so similar, as to allow of no distinction. On the second day of the attack of measles, we can hardly fail to notice the catarrhal irritation of the nostrils and thorax, and the watery redness of the eyes. These are not prominent in any of the kindred exanthemata. The cutaneous inflammation, if examined carefully, will be found sufficiently peculiar. Measles runs in defined patches, circular or crescent-shaped—scarlatina is in irregular spots or continuous. The rubeolous eruption is always elevated and rough, that of scarlatina is softer and smoother, and of a velvety feel. A delicate nostril is soon aware of a characteristic odour, which belongs to each of them, and indeed, to almost all diseases. I cannot describe it, but am sure I can recognize many in this way.

There is, you should be aware, a sort of hybrid affection, partaking of the nature of both scarlatina and rubeola; designated by

Dunglison as false measles, and known by various names to the profession and among nurses—French measles, bastard measles, etc. Here you have the ulcerated or inflamed throat, and red tongue of scarlatina, with the catarrhal cough and sneezing of measles; the gastric derangement is more than commonly urgent; the eruption is in points, and rough, like measles, but irregular in shape, and soft and swollen, like scarlatina. I have seen examples of this kind, occasionally, all my life, but they occurred in numbers, in the winter of 1842, and the spring of 1843. I am informed that they were very numerous at that time, in Columbia, S. C., whence indeed, the first was derived that I met with. It is difficult to distinguish these cases, in which the preponderance of one or the other sets of symptoms, will give name and character. They are not very serious, but I doubt their future protective influence.

The Autopsy of measles presents nothing characteristic or uniform; indeed, so few die during the active progress of the disease, that the observations made are too scanty, to give room for any definite statements on this point. The secondary affections which have proved fatal, have produced the ordinary lesions connected with their idiopathic history. Congestions and inflammations, cerebral, thoracic and abdominal, with their effusions, adhesions, ulcerations, and other results, require no special delineation. It is acknowledged, too, that in some of the worst instances of mortal impairment of constitution from the attack of measles, no trace of organic injury was discoverable.

Of the Treatment. In a great majority of those assailed by rubeola—a self-limiting disease—which runs a given course and subsides after a few days, with small proportional mortality, it would seem reasonable to believe that very little interference on the part of the physician is required or indeed justifiable. Such is indeed the fact; and nothing is demanded of us but a judicious supervision of the general management of most of the cases. A well ventilated apartment, kept at a temperature comfortable to the feelings of the patient, and somewhat darkened to prevent irritation of the eyes, should be chosen for him; here he should remain, preserving chiefly the recumbent position, and if the season be cool and the catarrhal symptoms annoy him much, he should remain in bed favored by the equable warmth of the covering.

He may take mucilages or the farinaceous articles as diet, with sub-acid fruits, and use diluents freely. If the stomach be much oppressed with nausea and ineffectual retching, an emetic of ipecac will give him relief. If the headache be particularly severe, a mild cathartic will probably be useful; after which, demulcents through the day and a Dover's powder at night, or a full dose of tinct: op: camph: will subdue his thoracic irritation and cough. These measures will be aided much by the application of warm poultices and fomentations, made variously relaxing and counter-irritating, to the chest, to the stomach and abdomen. You thus perceive how little I approve of what is called "active practice," the use of the lancet, the drastic purgatives, etc., in ordinary attacks.

"Common measles," says Parr, writing in a climate colder, moister, and better adapted to this depletion than ours, "common measles rarely require bleeding."

"Venæsections," says the quaint old Lieutaud, "are seldom to be repeated, unless there be danger of inflammation of the lungs, difficulty of breathing, etc.; otherwise they are not only superfluous but hurtful; notwithstanding what those may prate to the contrary, who led by their own hypothesis, see nothing but inflammation in almost all acute diseases; for I have often observed, not without concern of mind, that while patients have escaped who were committed to nature, others who were subjected to this imprudent method, winged their way, in great numbers, to the etherial mansions."

I would fix your attention upon the point hinted at in the above quotation—that the case is not one of mere inflammation, which we can by our remedies overcome and subdue; there is here a complication of specific morbid action destined to continue for a time, which below a certain point, will be far less influenced by our methods of depletion, than will the vital powers of the patient. I do not deny, however, that there may occur such vehement determination to the thorax, such well marked pneumonia or severe bronchitis, as shall require the lancet. Here we must bleed freely and promptly, taking away a sufficient amount to make at once a decisive impression on the system. In such instances too, we shall derive great advantage from a persevering exhibition of the antimonials. The tartar emetic is to be prefer-

red, and given in as full doses as the stomach will tolerate, combining it with the tinct: opii.

The engorgement of the air passages in very young and aged persons and in the infirm, known as peripneumonia notha, which sometimes attends both the early and the advanced stages of measles, is best relieved by a prompt emetic, which will bring away immense quantities of a thick tenacious mucus, with great relief. I prefer the sulphate of zinc or copper, or the mixture of salt with mustard; either of which will depress and debilitate far less than the ordinary formulæ, of ipecac and antimony, and may therefore be repeated more readily from time to time.

It is an almost uniform domestic custom to administer a cathartic. In subjects of common strength this is not to be objected to, and will be found to diminish the sufferings from febrile and catarrhal excitement on the first and second days. The purgatives selected should be unirritating, and is best combined perhaps with some diaphoretic. A very useful formula everywhere prescribed in our country, is the solution of sal: epsom in infus: rad: serp: and when it has operated sufficiently, the infus: of serpentaria may be persisted in with benefit as a sudorific. I would advise the cathartic to be abstained from, always however, on the third or fourth day, or just at the breaking forth of the eruption, in order that the centrifugal determination to the surface, proper to that period, may not be impaired or interrupted. At this time I should prefer, if I prescribed at all, some remedy which would promote determination to the skin, which must now bear its part of the morbid changes, destined to go on in a connected series. With these views, I mention only to disapprove of the resort to cold affusion, proposed by Magrath, and "the cool regimen" so eulogized by some other practitioners. I will not stop here to discuss its adaptation to small pox whence, by an incorrect analogy, it has been transferred hither; I will not dwell upon the reasonable doubt whether it has been carried too far in that malady, from a natural feeling of horror at the ancient usages of the heating and alexipharmic system; but I contend that from the very fact of the essential and uniform presence of the catarrhal element, which forms a portion of the history of rubeola, it is entirely unsuited here.

In small pox too, the cutaneous inflammation is vehement, te-

nacious, and destined to form the most prominent part of the disease throughout a large share of its duration—while in measles, it is never violent; it is transient, too, and holds both in importance and continuance, a very different relation to the protracted internal and visceral affections with which it is associated; the pulmonary and abdominal disorders so well known to constitute the chief dangers it is our duty to shun. Hence, although I would cautiously abstain from all extremes, yet I would prefer the evils of too high temperature to the risk of chilling the surface and repelling the eruption.

The unpleasant occurrence of the "striking in" of vulgar phraseology, sometimes produced by exposure to cold, sometimes the result of too violent action of a cathartic, occasionally happens spontaneously, and when no imprudence or mismanagement has been committed. Whether as mere coincident effects of the common cause, or as the consequences of such recession of the inflammation from the surface, we have always a train of urgent and troublesome symptoms betokening great danger. In children, convulsions often supervene suddenly. I have seen fatal cholera and diarrhœa follow in a few hours. Extreme prostration and debility, with great paleness or lividity of the surface, are usually the precursors of death. Every professional exertion is here necessary, and must be made hastily and assiduously, and all our efforts will scarcely avail to save our patient from impending destruction.

The hot bath, 100° fahrenheit or more, made more stimulating by the addition of salt or mustard; sinapisms, hot mustard poultices, and turpentine, must be employed promptly; frictions applied to the cold, flaccid skin; camphor, brandy, the vol. alkali, administered internally, and in no timid doses. The internal use of turpentine, in large quantity, has been advised, with or without tinct: opii; and the exhibition of alcoholic enemata. Marshall Hall exhibits also the stimulant emetics, such as mustard and salt. If you succeed in arousing re-action, it must be sustained by cordial nourishment, wine whey spiced, arrow-root with brandy, and free doses of sulph: quinine with camphor; while epispastics are put on in due succession and number.

An opposite condition of the system is said sometimes to

concur with this striking in or subsidence of the eruption; the congestion being active, the internal determinations sthenic or inflammatory. In such cases, a few of which are on record, (vide McIntosh,) the lancet has been used with success, and topical depletion attended with benefit. One or two of these have happened in children, whose convulsions have been arrested by these means, aided by cold affusion to the head, while the feet were kept in hot water or irritated by mustard, etc.

I have mentioned the typhoid complication of rubeola. It is not an unfrequent variety among our black population, and constitutes a very serious and often fatal form of disease. At the beginning of such attacks, the emetic is a very generally applicable, and often an invaluable remedy—indicated by the thick, furred tongue, fœtid breath, and oppressive nausea. I prefer the quicker articles mentioned above—the sulphates of zinc and copper, and the mustard with salt. By the concussion thus communicated to the system, we remove visceral congestion, relieve vascular oppression, and determine well to the surface. This last effect must be continued and aided by the steady use of the cordial and stimulating diaphoretics—æther, camphor, ammonia, opium, and serpentaria. The bowels may be gently moved with enemata, or, if more be required, with calomel or ol: ricini with turpentine. Stimulants and stimulating nourishment are often required to be given as freely as the stomach will bear.

The cough, which harrasses your patient, will require demulcents and anodynes. Any mucilaginous infusion may be made the basis of your formulæ, to which you may add, as expectorant, proper proportions of squill or tart: antimon: or ipecac. A full dose of Dover's powder, or some other opiate preparation, should be nightly offered, and smaller quantities added during the day to your cough mixture. If diarrhœa supervene, opium will be your chief dependence; it may be combined with the acet: plumbi. If contra-indicated, the cretaceous mixture, with kino, will be found serviceable.

The opthalmic irritation which attends must not, in the meanwhile, be neglected. Cooling and sedative lotions may be laid over the eyelids, and, if the inflammation threaten to become serious, leeches to the lids and to the temples, or a cup to the

back of the neck, or even a free bleeding may be required; after which, a blister between the shoulders or behind the ears will be useful.

Your convalescent must not be permitted too early to expose his eyes, weak and irritable as they will be, to the undue action of light, or to venture into the open air without the protection of some additional clothing. His diet must be mild and easily digested, and he must be advised to return slowly and with caution to his ordinary habits of living and his customary occupations.

CHAPTER LIX.

ERYSIPELAS—IGNIS SACER—ST. ANTHONY'S FIRE—ROSE.

Whether Erysipelas shall be arranged with the Exanthemata, is still an unsettled question. Nosologists are pretty nearly equally divided, but a numerical majority, perhaps, favors this classification. It differs, in many particulars, from those which I have made to accompany it under this head. For example, it is not proved to be contagious. The evidence on this point, recorded by Dr. Wells, of London, must not be overlooked; and the opinion of Copland, that it is infectious, is entitled to due weight. Nevertheless, the amount of testimony, though it has accumulated somewhat of late, is still insufficient to establish the doctrine. It is not to be denied, that some peculiar condition of the air in the wards of hospitals at known periods, seems to predispose to erysipelatous inflammation, and that the tenants of such wards are attacked in large proportion; but unless we can show that this condition is generated by the persons of the sick, and not by the other circumstances present, we shall not be warranted in assuming the contagiousness of the disease. The tenacity of this condition, as confined to a particular locality, is curiously illustrated by the fact stated in

Dr. Hillyar's "Narrative" of "the peculiar tendency to erysipelas in the ship Caledonia for several years." She was always, he says, "a sickly ship—a larger proportion than usual of her crews suffering under any existing epidemic, and with erysipelas generally, as a concomitant malady."

Some unknown contingency may spread its influences widely enough to deserve consideration as locally epidemic, or the development of these agencies may be explained by combination. Thus, in Dr. Wells' examples, there was, probably, a typhoid state of fever conjoined with the erysipelatous eruption, and I have more than once remarked upon the tendency of typhus, not only to exhibit in itself, under favoring circumstances, a contagious property, but likewise to render communicable all the diversified forms of disease with which it may become associated.

Again, erysipelas, unlike the acknowledged exanthemata of which we have been treating, so far from operating any change in the constitution which shall forbid its attacking a second time, seems rather to leave behind it a predisposition, greater or less, to its own recurrence. In some persons, indeed, this predisposition is so strong, that the intervals between the attacks are of very brief duration. Hence it is, doubtless, that Copland declares erysipelas to be capable of generating a "constitutional diathesis." In others, a local inflammation, closely allied in character to that of true erysipelas, fixes itself with unconquerable and persistent tenacity. And again, all the other exanthemata are self-limiting in the true sense of this word—that is, they come as decidedly to a termination at or about a given time, as they continue and progress for a known period. In this, the proper meaning of the phrase, erysipelas is as indefinite as the majority of diseases. Its average duration may be calculated at from six to nine days, but it often lasts from two to three weeks. Weatherhead observes plausibly enough, that "erysipelas appears to partake of the nature both of the exanthems and the sympathetic cutaneous diseases. It is often ushered in by a precursory fever, and is at times infectious; it is also as frequently to be traced to some idiosyncratic or sympathetic affection of the primæ viæ."

Writers have offered us a number of distinctions by which

they propose to separate erysipelas into as many species or varieties, but I am not satisfied that there is any true ground for these views. Tweedie proposes the following:—E. Verum, E. Phlegmonodes and E. Gangrenosum; but the reference here is evidently to the results or modes of termination of the local inflammations, which must depend upon a great diversity of uncertain and transient contingencies.

Laycock has placed some stress, and, as it seems to me, not unreasonably, upon the greater proclivity of the part of the surface supplied by the respiratory nerve, to be attacked by erysipelas, and the greater fixedness of the disease in that seat. This refers to an old distinction which recognized as the most important and frequent of all the forms of the disease, Erysipelas Faciei—E. of the face and head as contrasted with E. Erraticum or the wandering, unsettled, comparatively unimportant eruption upon the trunk and limbs.

Erysipelas comes on with chilliness or rigor, alternating with irregular flushes, which at last prevail, and give burning heat of skin, attended with headache, full, hard, bounding pulse, redness of the eyes, throbbing of the temples, thirst; there is uneasiness at the stomach with a foul, furred tongue and fœtid breath; there are also pains in the back and limbs, with muscular languor.

The eruption varies in the time of its appearance. Most usually on the second day, some swelling is perceptible, with redness of the skin of the nose or cheek or lip or ear, spreading gradually, but not slowly, over much of the face and the head. It is worthy of remark, that the cutaneous inflammation is almost always confined strictly to one side of the face, bounded by the median line which divides it into two parts. More rarely it attacks simultaneously both sides.

This inflammation, which is highly characteristic in aspect, and bears a very much more important relation to the constitutional symptoms, than the cutaneous affection in any of the exanthemata, with the single exception, perhaps, of confluent small pox, deserves a careful description. It is of a darkish or dusky, not a florid red, growing pale on pressure, and resuming its original hue not very rapidly—from which signs of inactive circulation, probably, it is that Copland regards it as an asthenic

form of inflammation; there is evident swelling or elevation of the surface, with a mixed sensation of soreness and burning, whence its name of "fire" in several languages; the swelling and redness extend themselves, thus becoming diffusive, yet the line is always well marked which separates at the time the diseased from the healthy skin. There is never any central pointing as in phlegmon, nor is the elevation very notable. Its seat is in the whole of the skin, penetrating all its tissues, and sometimes affecting the cellular substance beneath. Erysipelas, says Weatherhead, "consists in an inflammatory affection of the sub-cutaneous cellular membrane, whence proceeds the attendant anasarca—extending through the corion to the rete vasculorum, whence the efflorescence—and sometimes to the vessels of the lamina albida, whence the occasional vesications."

When it has reached the lip, it occasionally extends within the mouth, attacking the fauces, pharynx and larynx. The face is swollen and distorted, the eye being shut or nearly closed, and the lid thickened and puffy with soft semi-transparent enlargement. Occasionally, as I said above, both sides of the face are thus swelled, both eyes hidden, the lips immensely thickened, and the deformity hideous. On the fourth or fifth day, vesications form by separation of the cuticle, which is raised and contains a thin sero-albuminous effusion. These break on the fifth or sixth, and their contents ooze out, drying away and leaving crusts or pellicles. In very favorable cases, there is no vesication; the rough and irregular surface subsiding, with a change of hue to yellowish. Both the above forms run through their course by the eighth or ninth day, ending finally in the desquamation of the old and the formation of new cuticle. In the phlegmonoid variety, pus is secreted into the sub-cutaneous cellular tissue, which even sloughs out occasionally. The fluid is of a thin consistence and unpleasant odor, often mixed with sanious serum.

Erysipelas Gangrenosum, as its name imports, is distinguished by its peculiar malignity. The color of the part is purplish, small vesications form early, and black spots are seen in the skin, which go on sloughing with great local destruction occasionally, and always with much danger to the patient.

Erysipelas Erraticum is of frequent occurrence. It is to be

met with among children as well as adults, and is called by nurses, I know not why, "the hives." Red patches of various size and irregular shape, having all the characteristic appearances of erysipelatous inflammation, break out upon many parts of the body and limbs, frequently changing their place. They are attended with much itching and some burning and soreness. There is generally no great degree of febrile irritation; yet, in some cases, the constitutional disturbance is serious. The progress and duration of this variety are irregular. Some individuals suffer from perpetual predisposition to it, so as very seldom to be free from it for any considerable length of time.

The general disorder of the system in erysipelas keeps pace with the cutaneous inflammation, and bears a notable relation to its extent, modified by its form and the locality it occupies. The face and head are, in every respect, its worst seats. There is apt to be delirium, at first violent and distressing; this gradually declines into a low despondency, with incoherent muttering, and on the seventh, ninth, or eleventh day, coma supervenes, with obvious prostration of the powers of life. This is more to be dreaded, if the inflamed part assumes a livid hue and collapses suddenly, while the pulse sinks.

The Diagnosis of erysipelas can hardly be difficult in any defined example. A speculative confusion has been suggested with erythema, but, not to speak of attendant circumstances, which, it appears to me, must prevent all chance of error, erythematous inflammation is readily distinguished by the want of thickening of the cutis—by the unchanged surface of the cuticle, and by the gradual shading of the lighter colored blush lost in the healthy skin. Hosack defines erysipelas to be "a fever in which some part of the body is affected with heat, redness, swelling and vesications. The tumor is soft, diffusive, and irregularly circumscribed, and not accompanied with throbbing or acute pain. The last mentioned circumstances distinguish the tumor of erysipelas from that of phlegmon; and the presence of tumor, together with vesication, distinguishes the disease from erythema."

The Prognosis in sporadic erysipelas is generally favorable; it is much less so when the disease is endemic or epidemic, as when fixed in the wards of a hospital or in an ill-ventilated

house. A great many unfavorable combinations or modifications, however, are described, which you should keep carefully in mind. The most serious of these consists in the determination to the head above alluded to. Some affirm this cerebral or meningeal congestion or irritation to be metastatic in its character. I have not found it so; the symptoms of internal disorder being greatest always while the external inflammation was most intense, and subsiding as it declined. The supervention of coma is most alarming among these cerebral disturbances, perhaps; but it is very little less so to find your patient sinking into a low muttering delirium, picking in the air above him or on the bed clothes, with dry tongue, tremors or subsultus tendinum.

If the fever assumes the typhoid type, the pulse sinks and becomes contracted, and the eruption is dusky, livid or interspersed with purple or black spots—the prospect is indeed gloomy. This is a condition into which the intemperate and debauched are likely to fall. Indeed, your prognosis must always be influenced by the previous habits of the individual—his age, constitution and circumstances, at the time. In the contaminated air of the wards of the large and crowded European hospitals, as we are informed by the best authorities, the symptomatic erysipelatous inflammation that often follows the slightest scratch or puncture, accident or injury, proves fatal in a large proportion.

The Autopsy presents little that is characteristic. When the brain has been affected, the membranes are reddened and the vessels injected—the arachnoid has been found opaque, and serous effusions are met with; but none of these appearances are constant. Wells and Baillie both tell us of instances of delirium and coma, where no cerebral lesions whatever were discoverable.

The Causes of erysipelas, beyond the infection, contagion, or epidemic influence formerly discussed, are not clearly understood. Intemperance in the use of distilled and fermented drinks will give rise to it, and so will gross living on coarse oleaginous diet; but many temperate men and delicate and refined females are assailed by it. Many affirm its connection with some vice of nutrition or depraved state of the organs of

digestion; but it is very difficult to designate this particular condition. It is occasionally associated with the gouty diathesis, and attacks of regular arthritis are said to have alternated with erysipelatous inflammation of some part of the surface. Among the exciting causes are enumerated a full and stimulating meal, more especially if of indigestible food, as of some fish and shell-fish, exposure to sudden vicissitudes of weather, and the influence of extremes of temperature, as when the season is extremely hot or cold.

Of the Treatment. Sporadic erysipelas met with in ordinary private practice, not only bears, but requires, pretty active depletion. The lancet is very generally used, but a certain degree of caution should be observed in its employment. When the head and face are assailed, and early delirium or coma has threatened, we must bleed freely. There seems to be a definite advantage in pressing the venæsection to deliquium; indeed, some have attributed all the benefits of blood-letting to the syncope induced. Thus, Martin Solon being about to open a vein in a delicate and timid young lady, she was so much alarmed at the preparations made, that she fainted; on her recovery, the cutaneous eruption had disappeared, but returning in a few hours, he proposed again to bleed her, she again fainted, and the inflammation subsided entirely.

If the patient were of doubtful vigor, and the pulse uncertain in force and hardness, cups might be applied to the back of the neck, or leeches to the temples and angles of the jaws.

Allusion has been made to the frequent connection of the disease with certain undefined derangements of the stomach and other digestive organs, and hence physicians were led to the exhibition of emetics, which indeed are often found serviceable. They are indicated by foulness of the tongue, with gastric oppression, nausea and ineffectual retching. I would prefer the tart: antimon: alone or in union with ipecacuanha.

In the same class of cases, Cathartics are also of much importance. The resinous and drastic are advised as most strongly revulsive, and calculated best to derive from the brain. Jalap with tart: antimon: or the bi-tartrate of potass: or calomel with ipecacuanha may be selected. These will act thoroughly, and produce a general sedative and diaphoretic effect. The conti-

nued administration of the tartarized antimony, in as large doses as the stomach will tolerate, is a practice highly eulogized by the best and most recent authorities. It is said to be beneficial, not only, nor even chiefly, by its sudorific influence, but by its peculiar sedative or anti-phlogistic, or, as some call it, febrifuge operation. If it act too freely on the bowels, this may be checked by combination with tinct: opii, or avoided by diminution of dose.

In epidemic erysipelas, however, and in hospital practice, we rarely meet with the disease in this sthenic or inflammatory form; and it is found necessary to modify the treatment, and adapt it to the varying contingencies.

Topical depletion may be cautiously tried by cups and leeches; the less debilitating emetics used, such as sulph: zinci: or sulph: cupri; and the mercurial cathartic, with rhubarb or magnesia, made to produce a moderate effect. But even these mild depletory measures are often forbidden. In the London Hospitals from the time of Sir George Fordyce to the present day, we are told that it is commonly necessary to begin at once the exhibition of tonics and stimulants; and free doses of cinchona are given from the commencement, with wine and other cordials.

Graves tells us, that in Dublin, he is forced to resort to the sulph: quinine both by the mouth and in enema, with wine and camphor—to which, from a notion of the usual presence of acidity in the stomach, he adds magnesia.

Copland advises free doses of turpentine, alternately or combined with calomel and camphor, when coma threatens, or has supervened in these bad cases; and affirms that he has seen benefit too from mingling colchicum with the other remedies indicated.

If the patient should sink into a state of prostration, whether from the gangrenous tendency of the cutaneous inflammation, or the typhoid type of the fever under which he labors, we must have recourse to the prompt and assiduous employment of the highest order of diffusible stimuli. I would rely most confidently on the alcoholic mixtures with mucilage. Some, however, prefer the vol: alkali; indeed, one writer maintains that it deserves to be regarded as absolutely specific here. It is urged by others still, that we should persist, in the meanwhile, with the

more permanent tonics, of which the majority consider the preparations of cinchona and quina decidedly the best; while a few contend for the special adaptation of the mineral acids.

The treatment of the cutaneous inflammation by local means of relief, must not be neglected. A great diversity of opinion exists, however, as to the measures most appropriate, and I am inclined to think that less benefit is to be expected from any of them than you would anticipate from a perusal of what is said by writers on the subject. A long list has been made out of these local applications, affording great variety to select from. Leeches to the inflamed skin are affirmed to diminish the sense of burning and soreness, and lessen the tumefaction.

To allay the severe irritation, as well as the general restlessness, opium is used externally as well as internally. The Dover's powder is often beneficial after proper depletion, and I have never hesitated to prescribe the alkaline diaphoretic mixture. To the part itself, undiluted laudanum is applied by some, while others prefer a lotion made by dissolving opium in pure water. Willan foments with milk, bran and water, thin gruel, a decoction of elder flowers and of poppy heads. The analogy of appearance with burns, has led to the envelopment of the inflamed skin in carded cotton, it is said with good effect. Velpeau advises the sulphate of iron to be used as a lotion, and put on as an ointment. Chloride of lime is also used as a wash. Many dislike any unctuous applications, and direct absorbents to be sprinkled in a dry state upon the vesications when broken, such as meal, wheat flour, magnesia, starch, bark, etc., with a view to prevent the sero-albuminous fluid which exudes, from trickling over the neighboring parts, upon which it is supposed, without proof however,—to exert an acrid and irritating influence. Even if this were true, frequent ablution with clean tepid water or with a watery solution of opium, or with some of the chlorides, would be a better protective. Bateman disapproves of powdery applications, and washes "with a cool but slightly stimulant lotion, such as the diluted liquor ammoniæ acetatis.

Some extol the effect of compression, when feasible, with a bandage or even with strips of adhesive plaster. Copland, Hutchinson, Lawrence and others, make incisions freely through the inflamed skin into the sub-cutaneous cellular tissue; thus

depleting locally, relieving the tension of the parts, and giving vent to any effusions or secretions. This plan is fully sanctioned by the best authorities, and should be resorted to without hesitation in severe cases, unless specially contra-indicated. The nitrate of silver, at first employed to prevent the spread of erysipelatous inflammation, by rubbing it freely around at a little distance from its margin, is now also applied upon the inflamed skin, and as we are told with great success. The following paragraph incidentally appears in the "Report of the Massachusetts State Lunatic Asylum," for 1842: "During the past season, erysipelas, with tendency to suppuration and gangrene, has been somewhat prevalent in this vicinity, and a few cases have occurred among our patients. Three or four of these had extensive suppuration and were quite severe, but the free application of nitrate of silver arrested the progress of inflammation. In three cases, in the incipient stage, the free use of the caustic, so as to destroy the scarf-skin, entirely arrested the progress of the inflammation, and put an end to it at once.

Until of late, as I mentioned, all oily applications were prohibited, but we have learned that the strong mercurial ointment, and even mere lard, are occasionally useful and palliative.

With the view, I suppose, of substituting a less injurious and perhaps more transient mode of irritation and inflammation than the specific morbid condition already present, certain vehement and impressive measures are proposed.

Undiluted alcohol—strong ammoniacal fluids—a saturated tincture of iodine, nay spts: of turpentine, are laid upon the part; blisters are recommended by Dupuytren and Physick, and there is abundant testimony in their favor. Willan, however, warns us that "it is not safe to put them on or near the diseased surface," and gives us a similar warning too as to leeches. I have found vesicatories serviceable, however, as general remedies; that is, as counter-irritants, to the back of the neck or legs, when there was urgent determination to the brain, and as excitants in low and exhausted states of the system. The actual cautery too has found an advocate in Baron Larrey, who touched with the hot iron distinct points of the erysipelatous surface, and not without benefit.

For my own part, satisfied that the inflammation in its simpler

forms, possesses very little destructive tendency, and has an obvious disposition to come to a spontaneous determination, in a few days at farthest, with mere vesication and the loss of a portion of the cuticle, it is my custom to interfere very little, in ordinary cases, with the part affected. Frequent ablutions, when there is any oozing of serum, and, perhaps, keeping the surface covered with a soft, thin cloth, wet with a watery solution of opium, constitute most of the local treatment I advise. But in erysipelas phlegmonodes or gangrenosum, I resort both to incision through the inflamed skin, and the free application of the lunar caustic around the margin and over the surface; with these I have succeeded best, in giving relief to the suffering of which the patient complains so loudly, and in arresting the farther spread of the disease.

I have little doubt of the correctness of Copland's opinion, as to the occasional formation of an "erysipelatous diathesis," as he phrases it, understanding by that term, a strong constitutional proclivity to renewal and repetition of attacks of this sort. To prevent a frequent recurrence of them, to which some persons are so subject, it will be necessary to institute a strict examination into the habits of the patient, and to lay down such rules for his guidance, as may serve to obviate this morbid tendency. We can often trace the predisposition to excess in the indulgence of appetite, both in regard to food and drinks. All such intemperance must be avoided. Gross articles of diet, fat and salted meats, highly seasoned dishes, pickles, cheese, shell-fish, etc., must be thrown aside. Milk, eggs, and the farinaceous preparations, constitute the best aliment for such persons. If they are indolent, a due amount of exercise must be enjoined upon them; they should rise early, and retire early to rest, and learn as promptly and thoroughly as possible, the salutary lessons of moderation and self control.

CHAPTER LX.

SCARLATINA.—SCARLET FEVER.—FEBRIS RUBRA.

Among the eruptive fevers, scarlatina is justly considered as holding a very prominent place. A perusal of its recorded history, leads, I think, unavoidably, to the belief, that within the last quarter of a century it has been increasing notably in importance, and has extended its ravages in a remarkable manner and degree. I fear also, that we are bound to acknowledge the fact, that from causes not at all understood, and in defiance of the close attention it has attracted from our profession, it has progressively become a more serious and fatal malady than formerly.

Scarlatina is not specifically mentioned by any writer, previously to the middle of the seventeenth century; and when it first attracted the notice of physicians, seems by the names affixed to it, to have been universally confounded with other familiar diseases, or to have been regarded as a mere modification of these diseases. By Morton, for instance, it was styled morbilli confluentes, confluent measles, as bearing the same relation to rubeola that confluent small pox has to the distinct form of that exanthem.

The two appellations now commonly employed, in speaking and writing of it, mean the same thing, and point to the same characteristic circumstance in its history, the redness, namely, of the surface. "Scarlatina" is an Italian word, applied in its description by the author, who speaks of it first as appearing at Rome; and "scarlet fever"—"febris rubra," either as a translation, or from inevitable allusion to a very striking symptom, is the title used by Heberden, in his essay upon it. To Withering, however, who wrote much later, is ascribed the merit of having drawn out its diagnostics with accuracy, and separated it distinctly, from all the other forms of disease with which it had been confounded. In marked attacks this distinction is clear and easy, but even now, we occasionally meet with cases not easily diagnosticated.

Scarlatina is commonly spoken of by authors, as presenting

itself under three forms—s. simplex, s. anginosa, s. maligna. These are apparently differences merely in degree of violence, or perhaps of extension, so to speak, produced most generally, it is probable, by contingencies acting upon individuals, but often depending also upon endemic and epidemic influences. In certain localities, scarlatina is usually severe, and apt to be in large proportion fatal. On the low alluvial banks of sluggish rivers, and in the neighborhood of marshes and mill ponds, and in densely populated and ill ventilated quarters, wherever typhus and typhoid affections are frequent and obstinate, scarlet fever, when it invades, is likely to put on a formidable aspect.

So also in particular seasons, an epidemic scarlatina will be found highly malignant in the same place and among the same population in which a preceding epidemic has been notoriously mild. This difference, which arises often from causes so obscure, as to be altogether out of our reach, seems at other times reasonably attributable to the particular condition of the atmosphere, its moisture or dryness, the temperature prevailing, the course of the winds, and so on. We are told by Dr. Forry, that in Rondout and its neighborhood, on the Hudson river, where malignant fever prevailed in the summer of 1843, scarlet fever, invading at the commencement of the next winter, spread widely and put on a most pestilential violence. This he ascribes, plausibly enough, to the lingering influence of that state of the air, whatever it was, which produced the fatal fevers of the few months previous. A similar example in our own community, seems to confirm these views.

In Charleston, whether appearing sporadically or spreading to an epidemic extent, scarlet fever has, until quite recently, assumed a mild and manageable form; although we were not absolutely exempt from attacks of exquisite intensity. But in the autumn of 1843, and the succeeding winter, it attained a wide prevalence among us, and startled us with a proportional mortality altogether unprecedented. Yellow fever had shown itself among us in the summer of that year, and it is notorious, that the largest share of deaths occurred in the vicinity of districts infected by that pestilence, especially upon Charleston Neck. The deaths from scarlatina, are recorded in the bill of mortality for 1843, as amounting to twenty-eight set down two-thirds of

that number, in addition, for "the Neck" proper, and you have a list far beyond that of any former year.

Of the Causes by which scarlatina is originally generated, we can take no cognizance whatever; the production of this class of specific maladies, is the topic most impenetrably obscure in all pathology. Of its mode of extension, we know that it is propagated by contagion, and is promptly disposed to spread epidemically. The universal agreement upon the doctrine of its contagiousness, renders it unnecessary, perhaps, that at this day any formal evidence should be adduced in proof.

I might content myself with a reference to this general consent; but I will add farther, that besides the impalpable communication from the diseased body through the surrounding atmosphere, experimenters have succeeded in transmitting it by inoculation with blood taken from patients laboring under it. Puncturing or making an incision where the deepest and most florid hue was noticeable on the surface, or where the skin was most thickened and elevated with papular roughness, the fresh fluid thus received upon the lancet, has been found efficient in communicating it to a healthy subject.

When it becomes epidemic in its extension, and spreads rapidly over wide tracts of country, it may be doubted whether we are to attribute this dissemination of it to a diffusion of contagious matter, or to a coincident concurrence of the unknown agencies that generate it in separate and distant localities. I do not hesitate, however, to avow my opinion, that like many other epidemics, it widens its range by an actual elimination and diffusion of a contagious principle, a true materies morbi.

The matter of contagion in scarlet fever, I fully agree with Watson in regarding as singularly subtle, active, and tenacious. In well marked, violent cases, especially if long protracted, I have noted a peculiar odor exhaled by the patient, perfectly distinguishable, and indeed, not to be mistaken. It is highly offensive and disgusting, nay, I have known it occasion very depressing sickness and nausea, in attendants and visitors. In one instance, occurring in the winter of 1843, I could perceive this offensive smell, immediately on opening the front door below, while my little patient lay in a chamber above stairs. To palliate the abomination, we removed him from room to room, but

it was never got rid of till the family left the house for a fortnight, and had it thoroughly scoured, white-washed and ventilated. I may venture to affirm, that cases in which this exhalation was remarkably strong and abundant, were in an obvious degree centres of infection.

Symptoms and History. In depicting scarlatina, we may proceed with reference to the three forms usually recognized, the simple, anginose, and malignant. These, I have said, are spoken of as mere differences of degree or of violence; perhaps they may be looked upon more properly, as distinguishing the greater or less extension of the influence of the diseases over the several organs and tissues. Thus the most simple and mildest variety of scarlatina shows itself merely on the cutaneous surface, with little or no constitutional disturbance, febrile or otherwise. In the anginose, we have the mucous lining membrane of the digestive tube irritated and inflamed, with soreness of the throat and glandular swellings about the neck, and a long train of consequences depending upon this condition; and lastly, in the malignant form, the internal organs are also assailed, with prompt congestion or destructive inflammation of vital parts.

You will meet with all these, during the same epidemic, nay, in the same household, and at the very same time. One child in a family will be carried off by the pestilence in a day or two, or in a few hours; while another shall not willingly lose a meal, or be confined to bed, though covered with the characteristic eruption. Willan, combating the idea of any specific differences among these classes of cases, concludes with the positive decision, that "they all proceed from the same source, because, under the same roof, in large families, some individuals have the disease in one form, and some in another, at the same period."

The simple variety of scarlatina, comes on like other pyrectic affections, with or without chilliness—though there is scarcely ever a marked rigor. This may be followed by some headache, gastric uneasiness, and pain in the back and limbs; vomiting very generally attends, with thirst, redness of the eyes, frequent, quick hard pulse, and a hot dry skin; there is restlessness, with anxiety and depression. On the second day, the eruption or efflorescence shows itself; first about the face, then the chest, the axilla, the arms, and so on, progressively spreading over the

body and limbs, and assumes a deeper and more florid hue. You will find that authors differ somewhat, in their minute description of this rash or eruption. Tweedie paints it as consisting of "innumerable red points or dots, which are at first of a pale red color, but afterwards assumes a deeper tint, giving the affected portions of skin, not only a uniform red appearance, but a perceptible roughness, which is most evident on the breast and extremities." It is disposed in patches of irregular shape, with intervals, at first, of a marked paleness; the skin, at the bending of the joints, is first colored, and thence it extends, until in severe cases it becomes, as I have frequently seen it, absolutely confluent.

Other writers tell us that it is at first papular, and that it occasionally presents an intermingling of small miliary vesicles, which are said to resemble the sudamina of typhoid fevers. In one patient in whom the cuticular inflammation was more intense than I have ever seen it, with quasi erysipelatous deformity of the visage and enormous swelling of the eyelids, which could not be separated for some days, the skin, on being examined by a lens of good magnifying power, offered to view an almost continuous series of lenticular vesicles, which, indeed, were elevated perceptibly to the touch—filled seemingly, with a thin transparent fluid. I readily distinguish, I think, these varieties of scarlatinous efflorescence, of each of which I have seen numerous examples—the miliary, the erysipelatous, and the diffused; the first has been described, the last is that which is most commonly regarded as characteristic. But we meet with a soft, glossy, tumid inflammation of the skin, in some cases, coming out in stripes or weals; less fixed, too, than the other forms, but occasionally changing place, not of so deep a red, nor of so high a temperature. This, if it were not for the concurrent circumstances, would scarcely be known from what nurses call "hives," the "erysipelas erraticum" of children. I have seen it connected both with the milder and the fatal varieties of the disease.

The eruption, of whatever form, arrives at its height on the fourth day, and begins to decline on the fifth; its duration may vary a little in relation to its intensity, the milder and more scattered subsiding rather earlier, and the more diffused and intense

remaining with little change, even as late as the seventh and eighth. It recedes as it spreads; the alternating paleness of intervals of skin returning, widening more and more, and the cuticle beginning to desquamate; generally in small branny scales, but not unfrequently in large patches, and sometimes coming off the hand and foot in one continuous piece, like a glove or stocking. This process is generally attended with troublesome itching of the skin; and the cuticular irritation is occasionally productive of secondary eruptions, irregular in appearance, difficult to describe, and tenaciously annoying.

The febrile symptoms usually subside pari passu with the eruption, the gastric disorder ceasing in ordinary attacks when that has come out fully. About the third or fourth day, the tongue puts on in greater or less degree an appearance well known and characteristic. Through a whitish mucous fur which overspreads it, bright red points project, and increase in number, until the whole organ is at last intensely red and somewhat sore to the touch. The lips and cheeks, and, indeed, the whole surface of the mouth, fauces and pharynx, assume the same aspect, sometimes becoming dry, and even slightly brownish. This state of things remains a day or two after the cutaneous eruption, and may leave for a still longer period, a degree of soreness and susceptibility to heat or cold, or acridness or harshness of substances taken into the mouth.

2. Scarlatina Anginosa presents, in addition to the train of symptoms above enumerated as belonging to the simple form, and in connection with a greater prominence and higher violence of the constitutional disturbance, a series of grave and troublesome ailments. The throat is much swollen and vehemently inflamed; there is sometimes ulceration of the surface of the tonsils and uvula, but more generally a crust of plastic lymph covers the membrane and passes down the pharynx, grievously impeding deglutition. For the most part, the respiratory organs are but little affected, yet this dyphtheritic crust is sometimes continuously deposited to the rima glottidis, and even within the larynx, constituting a very alarming, dangerous, and often fatal complication of croup. In some cases indeed, it is impossible to swallow at all, fluids being regurgitated instantly, and passing through the nose. The secretions from these surfaces are

often in a singular degree acid and irritating; if swallowed, they bring on nausea and diarrhœa, and from the nostrils an offensive matter is poured out, which inflames and ulcerates the lip. Ulcers of disgusting smell and horrid aspect form upon the cheeks and lip, and the gums are swollen and spongy. The parotid, submaxillary, and cervical glands are hard and enlarged, so as by their pressure to occasion dyspnœa; and impeding the circulation, they give rise to cerebral disorder, coma, and convulsions. The redness and heat of skin are intense; the temperature is said to have risen to 112° of Fahrenheit.

3. Malignant Scarlatina deserves to be regarded, perhaps, as one of the most uncontrollable forms of pestilence. It assumes such a protean diversity of character that it would be vain to attempt to pourtray all its anomalies. It makes its invasion sometimes, by attacking the brain, and this affection may be either inflammatory or congestive; phrenitis being developed, on the one hand, or on the other, coma and convulsions. The little patients thus assailed, die not unfrequently within twenty-four or thirty-six hours, without offering any cutaneous eruption whatever, the nature of the case being rather inferred than clearly known, from the repeated concurrence of such fatal accidents, with the presence of well marked scarlatina, or unquestionable exposure to its contagion.

Again, the attendant fever is, either from the first, or becomes at some stage of the attack, of low or typhus type. The eruption is never well or floridly thrown out; the skin is pale or livid, and cold; the face loses its turgidness and looks shrunken, while the adnata of the eye puts on a deeper red; the rash sometimes "strikes in" or disappears suddenly, with low muttering delirium, a feeble, fluttering pulse, nausea, difficult respiration, and convulsions or coma. This state of things is most apt to supervene about the fourth day. When the fever assumes the low or typhoid character, of which I have just spoken, the ulcers in the throat, or inflammation of the fauces and pharynx, are apt to become gangrenous, and sloughing more or less extensive, may take place. This sloughing is by no means so common as has been supposed—the sloughs so called, being generally portions of false membrane or plastic lymph thrown off and discolored with grumous and half putrid blood, but oc-

casionally, there is actual loss of substance. In Dr. Morton's case, an abscess in the neck filled with blood, which flowed out through a leech bite so rapidly that the patient died in a few hours. A friend tells me of an instance in which the sloughing of the throat was deep enough to implicate the carotid. The child dying instantly of the hemorrhage.

There are numerous derangements of organs and tissues so generally connected with scarlatina, that it is not easy to decide whether they should be described as constituent portions of this terrible malady, or more properly regarded as incidental sequelæ. In its progress, it is capable of affecting, and indeed does affect, in masses of cases, every tissue and organ of the body. Opthalmia assails the eyes, which remain weak and intolerant of light for a long time, and the lids reddened, heavy and swollen. The ears discharge for weeks, a noisome fluid; nay, the organ is destroyed, and its bones fall out in a state of caries or necrosis. The nostrils are corroded and the septum eaten away by the acrimonious secretion. A chronic pleuritis or pneumonia is left behind, which may become fatal weeks after apparent convalescence, with pulmonary abscess or empyema. A chronic diarrhœa is often troublesome. There is a tedious arthritis or inflammation of the joints, quasi rheumatic. The kidneys, however, seem to me more uniformly implicated than any other portion of the body, besides the skin and throat. I am indeed doubtful whether they escape entirely in any case.

Since I have learned to be particular in my inquiries as to the renal secretion, I find it uniformly altered from the beginning, in quality, or deficient in quantity. It is apt to be thrown out at first, in very small quantities, and not only high colored but dark and turbid. It is often more or less bloody, and this state of the urine I have seen continue for weeks. It is thus that I account for the well known and familiar fact, that dropsy is the most uniform of the sequelæ, so called, of scarlatina. And the essential nature of the connection seems to me to be fairly inferable from the observation so extensively made, that the mildest cases of this exanthem, are quite as likely to be followed ultimately by anasarca, as the most severe. The intumescence becomes notable, on the average, from the sixteenth to the twentieth day, and increases, so that the distension of the skin of the

trunk is painful, the face is deformed into a doughy mass, the eyes can scarcely be opened, the inability to move or the indisposition to motion, probably combined with languor and muscular debility, confines the patient to one position, while he suffers too much from dyspnœa to permit him to lie down a moment. He is drowsy, dejected, loses his appetite, retches often, passes little urine, which is albuminous, often bloody, turbid, brownish, offensive, full of a cloudy mucus, and depositing a dark, thick sediment.

As a general rule, scarlatina affects the constitution but once, though there are many exceptions recorded. Sir Gilbert Blane asserts truly, that the majority of our patients are children; yet I have had numerous adults under my care affected with it. These seem to me to be rather less liable than children, to the secondary series of symptoms, or so called sequelæ. With Dr. Willan I may affirm, that as yet it has never happened to me to meet with a second attack.

All the exanthemata offer for the embarrassment of the practitioner numerous complications and irregularities, and scarlatina perhaps most of all. These show themselves too, not only as one would expect, in individual instances, but in considerable numbers of cases. Thus you will hear of the occurrence of an eruptive fever in a particular neighborhood, which for some time the physicians in attendance have been unable and unwilling to name. I well recollect, in the spring of 1842, watching several patients through an eruptive fever, in which the symptoms of urticaria, measles and scarlatina were so curiously intermingled, that I was unable to satisfy myself of the predominance of either.

An individual picture or two of the irregularity of our present subject may be instructive and interesting. In a little girl three years old, the eruption and attendant circumstances were such as we usually meet with in anginose attacks of average force. The throat had not been very badly affected, and the inflammation seated there subsided with the cutaneous efflorescence. But the tongue and lips ulcerated foully and angrily, and the glands under the jaw were swollen and indurated. There came on, about the tenth day, a second eruption, resembling the first, except that the cutis was more thickened, and the inflammation was more elevated and diffused over the body, showing itself little on

the face; it was of less intense redness too, and was fading into a brownish leathery tinge, when a third eruption showed itself, papular, conical, and gathering specially about the joints, attended with itching. The skin at the date of the second was puffed, as if œdematous effusion had begun. The lips, tongue, gums and cheek all this while continued ulcerated—the stomach disturbed with nausea—the bowels irregularly lose—with emaciation and loss of strength. The dropsical appearances soon subsided, but the other ailments were tenacious and protracted.

In a female patient aged seven years the ordinary scarlet rash was, from the first, attended with a papular conical eruption, especially distinct about the hands; its roughness contrasting strongly with the smooth velvety feel of the first, which assumed what I have called the erysipelatous form. The pointed eruption disappeared first in this instance.

Convalescence from scarlatina is rarely uninterrupted, as has been already stated—or regularly progressive. Yet this sometimes happens; more frequently, in proportion, with adults than children; and although it may seem paradoxical to make the assertion, more frequently among these latter when the attack has been severe than if mild or moderate. This, noticed by many writers, has been variously explained, and is generally ascribed to some carelessness or imprudence committed; but I regard it differently, believing that the susceptibilities of the system are in the one case exhausted by the force of the malady, and in the other left ready to be affected by its tendencies diffusive as we know them to be, and progressively extending over one tissue and organ after another.

The best convalescence is here rather tedious, as the mucous lining membrane of the digestive tube regains slowly its capacity for its functions, and thus there can be no rapid recovery of strength. As to the removal of the secondary ailments or sequelæ, it is impossible to fix any limit to their duration, and the invalid improves so imperceptibly, that he can scarcely tell where to date his restoration to health; weeks and months often elapse before we can pronounce him well.

Diagnosis. It is not generally difficult to distinguish scarlatina, but I have confessed that some obscurity may now and then hang over particular cases. The early period of the eruption

coming out, on the second or even the first day, as I have repeatedly seen; the promptness of its spreading; the florid hue of the surface; the deep red clear glistening tongue; these are all characteristic marks. The general smoothness of the eruption—its form not tending to the circular shape of the rubeolous patches, and the absence of catarrhal symptoms, distinguish it from measles, with which it has been confounded.

So may excellent pathologists contend for its absolute identity with cynanche maligna—which I still continue to regard and have elsewhere treated of as a separate malady—that I have litttle inclination to urge the controversy, which indeed is of little or no therapeutical consequence. But I may be permitted to repeat, that though the affection of the throat be apparently similar and the cutaneous efflorescence, (of which I deny the similarity,) be somewhat analogous, yet the condition of the tongue, the want of the peculiar scarlatinous heat of skin and the absence of scarlatinous contagion—these taken together, yield us a satisfactory diagnosis.

Of the Prognosis I must speak in some detail. It is not safe to pronounce carelessly upon the ultimate result of cases commencing with the most trivial symptoms. In the same family I came very near losing (when they were apparently convalescent, one from pulmonum anasarca, the other from diarrhœa,) two fine boys, for whom it had been unnecessary to prescribe during the course of the eruptive fever a single dose of medicine, so lightly had they been assailed. Of the first I had been careful, because of the morbid appearance of the urine which he had passed; the second had given no premonition to warn us of his danger. The anginose cases threaten most in proportion, I think, to the dysphagia, the acrimony of the mucous secretions, and the glandular derangement. These two latter sources, according to Watson, become centres of a reinfection, a sort of secondary inoculation or contamination of the system. Under judicious management, this modification, though never free from risk especially among scrofulous subjects—will rarely prove fatal in an ordinary constitution, under good management and prudent nursing.

But, in the malignant variety, the proportional mortality is very great, and some of the histories of such epidemics are

really terrible to read. The particular symptoms denoting special danger, are, an eruption only partially thrown out, or of dusky hue or mingled with petechiæ. If it disappear suddenly, "strike in," as the phrase is, or become purplish in color, with a cold skin, and pulse feeble and quick, there is imminent risk of death. Dyspnœa, sighing and syncope, are bad signs. We infer unfavorably from a very fœtid breath, acrid discharge from the nostrils, ulcers in the mouth, and throat angry looking or sloughing or disposed to bleed. I have not often met with the sloughing ulcer; the sore throat is membranous, more frequently quasi-dyphtheritic. It is in these cases that the supervention of croup is most to be feared. Large glandular swellings coming on early, or persisting long, threaten evil. It is very unpleasant to meet with great determination to the brain, with phrenitis or muttering delirium, coma or convulsions. Worst of all, and most hopeless, are the marks of strongly pronounced congestion, oppression of vital organs, collapse—capillary paralysis. Such attacks, as Magendie said of similar cases of cholera, commence where other diseases terminate in the death of the patient.

As to the sequelæ or secondary ailments, they are never to be disregarded. Yet it is truly surprising how seldom the hydropic effusions prove fatal, especially as we know them to be so generally connected with a deeply engorged, congested, irritated and inflamed state of the kidney. When the renal excretion is sufficiently abundant, and of ordinary appearance and composition, we may hope much; the disappearance of glandular swellings, the return of appetite, of flesh and strength, prove the validity of our patients' convalescence.

Autopsy. You will have inferred from the brief history just recited, the infinite variety and extent of lesions discovered in bodies dead of scarlet fever. A minute recapitulation from the records would occupy too much time, and would not, indeed, prove of any very great value. Suffice it to say, that the results of inflammation are every where traceable—in the brain by its increased vascularity, the thickening and opacity of its membranes, and the various fluids effused within the ventricles upon its surface and at its base; in the thorax, by abscess, and effusions of pus and serum. Ulceration of the cartilages of the

larynx has been met with. Inflammation of the intestines, peritoneal effusions and induration of the mesenteric glands, are described. The kidneys show all the consequences of morbid determination to their surfaces and parenchyma, among which, the most serious, is the granular degeneration of their substance, or "Bright's disease."

Of the Treatment. In the mild and simple cases of scarlatina, which so often present themselves, whether sporadically or during a prevalent epidemic, the patient, I think with Sydenham, has more to dread from the "nimia diligentia medici," and the anxiety of his attendants, than from the malady itself. He should be kept apart in a well ventilated chamber, and be placed on absolute diet. In many subjects, no farther interference will be necessary.

The gastric irritation may be oppressive and annoying. If the stomach be not emptied of its contents by spontaneous vomiting, warm water or a mild emetic may be given for that purpose; after the accomplishment of which, a mustard poultice may be laid upon the epigastrium, and small doses of paregoric exhibited, to quiet the disturbed organ. When the pulse rises, the skin becomes hot and dry, and head-ache is complained of, a mild cathartic may be prescribed. If convulsions threaten, the lancet may be resorted to, or leeches put to the angle of the jaw or temples, while cold is applied to the head. Let me repeat to you, that these more impressive means of depletion are seldom necessary, and even when most obviously indicated, require to be employed with caution. Willan gives us a warning as to the use of the lancet in this disease, and I have but rarely been driven to it. Cups and leeches are less objectionable. Of purgatives, I usually select for children the castor oil, and calomel for adults, followed by a solution of Epsom salts with rhubarb. If any further medicine seem demanded, it is a diaphoretic, and the alkaline mixture with tinct: opii camph: will suffice. When the efflorescence upon the surface is fully thrown out, the heat of skin in this disorder is higher than we ever meet with elsewhere, attaining to 106, 108 and even 112° Fahrenheit. This suggested, naturally enough, the cold affusion, urged by Currie as so important a palliative or remedy, and recommended by Bateman, Tweedie, Craigie, etc. Now,

although I do not belong to that school which represents the cutaneous affection in the exanthema as metastatic and revulsive of, or alternating with the concurrent gastro-enteric irritation, I cannot help regarding the morbid action, or influence of the morbid poison, as diffused over many tissues, of which the skin must and ought to bear a very large proportion, and which, indeed, this surface bears most safely and with least risk of injury. I am, therefore, somewhat unwilling to relieve the skin by any means of very forcible repulsion, at the risk of an undue concentration of the force of vascular determination upon the more delicate and important internal structures. The eruption, indeed, is among the most active and tenacious that we know, yet it can be unseated, and will occasionally disappear, as in the other exanthems, an accident always betokening, if not productive of, great danger. Rayer expresses the opinion, that there is more liability to subsequent dropsy where cold affusion has been employed. The cold affusion forms no part of my treatment of scarlatina. I sometimes venture upon partial sponging of the face, arms, breast and feet, with cool or tepid water. This is refreshing and not unsafe.

In anginose cases, it is customary to apply leeches in proper number to the angle of the jaw and around the neck, for the relief both of the throat and the tumified cervical glands, promoting the flow of blood, and fomenting the part afterwards by warm poultices. Gargles are generally irritating and injurious in the early stages, but the steam of warm water may be inhaled with advantage. Scarification of the tonsils has been advised. It was once customary to vesicate the throat beneath the jaw, but this is inconvenient, and, as some maintain, injurious, as likely to bring a troublesome membranous ulceration and inflammation of a quasi-erysipelatous character. I have, however, derived some benefit from blisters applied to the back of the neck and between the shoulders, where the dysphagia and dyspnœa were severe. It is, perhaps, on account of the pressure upon the vessels which carry blood to the brain and return it, made by the indurated glands, that so many of this class of cases present the symptoms of cerebral disorder, sometimes phrenitis, but more usually coma or convulsions. These require the hair to be cut close, the head kept cool, and revulsion

to be attempted by mild cathartics and counter-irritation to the extremities.

Under these circumstances, we are urged by many to the repeated and assiduous administration of emetics, of which ipecac:, tart: antimon: and sulph: cupri are preferred. I do not, by any means, approve of their general or indiscriminate employment; but there are contingencies which call imperatively for the resort to one or other of them. The ipecac: is best adapted for the mere relief of a stomach oppressed by foul secretions or irritating exudations from the inflamed surface. When there is an offensive ulcer or a dyphtheritic crust on the tonsils, etc., I prefer the sulph: cupri, which is especially indicated, if the symptoms threaten croup. This contingency I have witnessed, and have seen fatal results from the extension of this crust into the larynx, an occurrence which Rayer says never happens, and Alison speaks of as not uncommon. Diarrhœa supervening, whether from the irritating nature of the fluids swallowed, or from an affection of the mucous lining membrane of the bowels themselves, you will be forced to prescribe anodynes and astringents, of which the cretaceous mixture with kino and tinct: opii, or the solution of acetate of lead with some preparation of morphine, will be the best. The last mentioned formula will often quiet the irritable stomach, relieve pain, and procure sleep, when every thing else is immediately rejected.

The only fatal cases I have seen in adults, were of this intestinal combination. One of them sinking under cholera, with immense alvine discharges of serous quality—the other being assailed, on the third day, with vehement and indomitable dysentery.

Under the general head of "malignant" scarlatina, there are probably included some of the most pestilential and helplessly destructive modifications of disease. When assuming their most exquisite intensity, some of these attacks are altogether beyond the reach of our resources; but it is unnecessary to remind you that the gradations are infinite, from the mildest to the most violent; and that vast numbers occupy that intermediate and doubtful position which constitutes the true field for professional skill and sagacity. The very character of an attack may undergo the most definite changes, from the simple be-

coming anginose and malignant; and the most threatening may subside into comparative or absolute mildness. The circumstances cannot be clearly pointed out which aggravate or ameliorate this pestilence. In some families and neighborhoods well nurtured and well attended, it is in large proportion fatal during the same season in which it has spared the children of the poor and destitute. Throughout the last quarter of a century, while its character has undergone notable variation as it prevailed from time to time in our city, it has uniformly exhibited among the inmates of our Orphan-house its minimum ratio of mortality, a fact which is undoubtedly creditable in a high degree to the physician, attendants and supervisors of that beneficent institution.

In the management of the serious cases of scarlatina, which we are now about to consider, it will be impossible to follow any general rule. The condition of the patient must be carefully considered, and the closest attention paid to the symptoms which from hour to hour, and often with great rapidity of movement, present themselves. When collapse threatens, stimulants will frequently be demanded from the very beginning. Of these, each practitioner has his favorite. Ammonia has, by almost universal consent, come to be regarded as very generally adapted, and the carbonate may be prescribed, dissolved with mucilage. Capsicum is very extensively employed, and at one time enjoyed a high reputation. Besides its stimulant quality it is supposed to exert locally a very beneficial influence upon the inflamed surfaces. For myself I have never derived any advantage from it in scarlatina. Nay, I have never known a patient who did not most earnestly refuse it, even when profusely diluted, as burning pungently the irritable surface of the tongue, fauces, pharynx, etc. These are on the other hand, in cynanche maligna, entirely insensible to it, and here I depend very much upon the capsicum. Wine whey, wine and camphor may all be used in turn. When the surface is cold and livid the patient should be placed in the hot bath, and on his removal mustard poultices and stimulating frictions resorted to.

Our stimulants must, in such contingencies, be exhibited with great boldness and decision, or our patient is lost. A low muttering delirium—a glazed, unsteady eye—a livid or bronzed

countenance—a faint and fluttering pulse: such symptoms as these demand instant aid. Æther, laudanum and brandy, must be given internally in no timid doses, and heat, in the most convenient forms, applied to the extremities, while we irritate the surface of the trunk and limbs with warm sinapisms, terebinthenate embrocations, or frictions with other acrids. And if we thus succeed in re-lighting the almost extinguished lamp of life, we must not suffer it again to expire by too soon withdrawing the stimulants which have restored its flame. In such cases the throat when examined is often found more or less swollen, of a brownish red color, spotted with masses of adhering lymph or aphthous crusts, or livid with ulcers of an ashy aspect. The rapidity with which this gangrenous inflammation sometimes spreads, is truly frightful, including the tonsils, arches of the palate and uvula, the lining membrane of the nostrils, eustachian tube, pharynx, æsophagus, and, though rarely, the larynx also. If an emetic be thought necessary, under these circumstances of feeble circulation and general depression of constitution, I would prefer the sulph: zinci or cupri, or mustard and salt, to the nauseating drugs, ipecac: or tart: antimon.

When it is thought proper to act upon the bowels, if an enema be not sufficient, calomel is among the safest cathartics, and may be combined with camphor or the vol: alkali. The spts. of turpentine have been found appropriate in certain instances of remarkable torpor and feebleness. Cinchona may, in its several preparations, be advantageously united with our stimulants and diaphoretic formulæ. Its infusion with serpentaria, perhaps, deserves a preference.

As local applications or washes for the mouth, fauces and throat, the chlorides and chlorates, and even chlorine itself, are strongly recommended. Watson eulogizes the chlorate of potass: which should be drunk freely. If the patient cannot swallow nor gargle, the chlorides of lime and of soda may be used with a mop, or injected forcibly into the mouth and nostrils.

The sequelæ of scarlatina, the long train of maladies which result from the several congestions, irritations and inflammations of the organs and tissues implicated in the course of the attack, must be briefly spoken of. The ophthalmia, otitis, bronchial and pulmonary derangements, dyspepsia and diarrhœa, present, as it

has seemed to me, no peculiar phenomena, although rather more tenacious than similar attacks arising otherwise, and are best managed by the ordinary treatment discussed elsewhere. Not so with the hydropic affections so commonly met with in this relation. These have two obvious sources. Anasarca, of distinct and insulated character, may arise simply from the cutaneous inflammation which has run so high; and when dependent solely on this cause, will probably soon subside of itself, or be found readily curable. But the dropsies which result from a diseased condition of the kidneys, are evidently far more serious, and are likely to be found troublesome and obstinate. In both, the urine will be found albuminous—in the latter, it will also be turbid, and perhaps bloody. The general health will be more disturbed—there will be pain and weakness of the loins, where pressure will probably give some uneasiness, and may detect fulness and enlargement of the organ.

I am uncertain whether the renal affection is properly inflammatory—at any rate, the remedies applicable to diseases truly inflammatory, are seldom appropriate or useful here. Some have resorted to V. S., they tell us, with benefit. More frequently the loins have been cupped or leeched, the saline and neutral cathartics have been administered, and many regard the sup: tart: potass: as singularly serviceable.

I prefer, for my own part, to depend on the cautious employment of digitalis and colchicum, keeping the bowels carefully soluble, rather with the oily, resinous and mercurial, than with the saline purgatives. Poultices should be frequently applied over the kidneys, and the tepid or warm bath used often. The patient should be warmly clothed, and carefully protected from draughts of air or vicissitudes of weather. When the temperature is comfortable, and the sky clear, let him have moderate exercise in the open air, and adapt his diet, with nice attention, to the capacity of his digestive apparatus. This course will prove very generally successful; it has happened to me among all the threatening cases of scarlatinous dropsy, and they are very numerous for which I have been consulted, to witness but a single death. This occurred in a child of particularly bad constitution, whose life had been nothing but a long disease, and who bore every mark of universal scrofula.

The terror and dismay naturally consequent upon the prevalence of scarlatina, especially when as an epidemic it has exhibited the malignant influences which so frequently characterize it, have given much importance to the discussion of the means of prophylaxis or prevention.

When experimenters discovered the possibility of communicating the disease by sanguineous inoculation, a transient hope arose, that, like small pox, it might, when thus spontaneously brought on, prove of more benign character, or that some advantage might be gained by the choice of time and circumstance. Nothing, however, seemed to give any confirmation to this hope, which soon died away, and is now never heard of. Yet, as different scarlatinous epidemics differ so extremely and so obviously in their ratio of proportional mortality, it does not seem to me unreasonable to avail ourselves of the fact, and choose, for our young subjects, who, when brought up in cities, at least can hardly escape an attack at some time or other, a period when they will run less than the average risk, as, for instance, when the prevailing epidemic is of specially mild character and small proportional mortality.

Another prophylactic method, which has of late years gained ground, and received much notice from the profession, consists in the employment of belladonna. This was first suggested by the celebrated Hahneman, the father of the Homeopathic school of medicine. He was led to this discovery, if it be one, by his peculiar views of the modus operandi medicaminum. The doctrines of homeopathy, as the word indeed implies, are founded on the belief, that diseases are to be successfully combated by such remedies, and such only as produce effects upon the system similar to their characteristic symptoms. He observed, that belladonna, when taken internally, gave rise to heat and dryness of the throat, swelling of the sub-maxillary glands and a cutaneous eruption—sometimes a mere efflorescence, at others a papular rash. Hence, he inferred boldly, or sagaciously, that as these symptoms were analogous to those of scarlatina, he had found, in the source of them, not only a remedy for, but a preventive of that exanthem. Since 1807, it has been very extensively experimented with, not only in Germany, but in France also, England, and our own country, and a very large mass of evi-

dence has been accumulated in its favor. The quantity of belladonna which he advises, is of course very minute. The general mode of prescription, recently in use, is as follows:— Three grains of the extract are to be dissolved in one ounce of distilled water, and of this solution two or three drops are to be given, twice a day, to a child under twelve months, and one drop more for every year above. The length of time during which we should persist in this course, does not seem to be pointed out with distinctness. Professor Koreff thinks it should be carried on eight or nine days at least before exposure. Nor do I find any definite statement, or even any calculation, as to the duration or permanence of its protective influence upon the constitution.

Its advocates farther maintain, that even when it has failed, from any adverse circumstances, to prevent the attack, it is certain to render it obviously milder, a very important fact, if established.

You are aware of my unwillingness to set in array negative against positive testimony, and my readiness, always, to acknowledge the preponderance due to the latter over the former. I mention, therefore, without laying any undue stress upon, the numerous records of unavailing efforts to prevent, or even to modify, in any notable degree, the attack of scarlatina in exposed subjects, by the use of belladonna, that I myself have repeatedly tried it both in the small dose above mentioned, and in four or five times the amount, hitherto, without having derived the least perceptible good effect from it.

But I would not be justified, if I omitted to press upon your attention the claims of a prophylactic, which, as far as is yet known, has been productive of no evil whatever, and which, on the other hand, is asserted upon very respectable and increasing evidence, to have been followed by the most beneficial and satisfactory results.

CHAPTER LXI.

DENGUE.

By this name is known an eruptive fever, or exanthematous affection, which, in 1827–28, spread extensively over the West Indian Islands and the neighboring coast of the American continent. It seems to have appeared first in the island of St. Thomas, the chief town of which, it invaded in September, 1827, attacking in rapid succession almost every individual in a population of about 12,000. Towards the end of October, it passed over to the neighboring island of St. Croix. We hear of it, in November, in St. Bartholomew's, and in Antigua in January, 1828. It prevailed at Havana in the succeeding April, at New-Orleans in May and June; and in July and August affected very generally the inhabitants of this city, and reached Savannah (Georgia) in September and October. During the same summer, it is said to have shown itself at several points of the Gulf of Mexico, south of the Mississippi, and even along the Atlantic coast of South America; but we have no authentic details of these occurrences, which were merely noticed in the newspapers of the day. As winter approached, it ceased gradually, either having no new subjects to attack, or subsiding like other epidemics, and has not, since that period, been met with any where in a definite or regularly recognized form; in this its brief duration, in the suddenness of its appearance, in the rapidity of its spread, and in its total subsequent extinction, offering a striking resemblance to the black death of the fourteenth century, and the sweating sickness of the sixteenth, and several other shapes of pestilence which have, at different points of time arisen and died away, scattering among the nations horror and affright. Happily, however, as the record will show, it was much unlike these plagues in proportional mortality; bringing in its train infinitely less of danger and of death than of mere suffering.

No definite signification is attached to the title by which it came to be universally known. The negroes at St. Thomas called it "the dandy fever," from the stiff, affected gait of those labor-

ing under it. In Cuba it was termed "Dengue or Dunga;" whether this is merely a modification of the English slang-word dandy, thus altered in Spanish pronunciation, is not clear. One writer affirms that the word occurs in the vulgar cant of the lower classes in Havana, and is used to denote the staggering uncertain walk of an intoxicated man. We shall see, as we proceed in the description of the disease, the application of these phrases.

Symptoms. Dengue usually made its attack with pain, stiffness, and swelling of some of the smaller joints, often of the muscles of a limb, rigidity of the neck, aching of the back and loins. These pains were followed, after an uncertain though generally brief period, by headache—suffusion of the eyes—abrupt, full, frequent pulse—hot, pungent, dry skin—restlessness, thirst, and other tokens of febrile excitement. The fever did not remit, but declined and disappeared in a great majority of cases on the second or third day. In this early stage the tongue was generally clean, and the stomach quiet, but sometimes there was nausea or even vomiting. The determination to the head was occasionally violent. Instances occurred in which delirium was among the first symptoms, coming on at the commencement, and enduring until the subsidence of the febrile paroxysm. At this time the skin lost its heat and dryness, becoming relaxed, with abundant perspiration; and the local pains were all lessened in degree. A sort of miliary eruption or rash in some persons attended this sweating stage, and in a few others preceded both the local pains and the fever. It was, however, as connected with this first stage of dengue, a very inconstant affection, seeming rather a mere accidental coincident than a symptom. The pains of the joints and muscles which, as has been said, were diminished in severity at the subsidence of the febrile exacerbation, did not go off entirely; a degree of swelling, stiffness, and tenderness of the affected parts remaining permanently, though varying much in intensity in different individuals. This condition of things constituted a sort of deceptive interval between what may be described as the first and second stages of this strange disease. Many now believed themselves to have past through the attack, and attempted to resume their ordinary occupations; but soon had occasion to discover that their sufferings were by no means

at an end. On the third or fourth day, there being no fever present, or a very obscure degree of it, the tongue would begin to be coated with a yellowish fur, and the stomach would become distressed, uneasy, and irritable. The patient was now low-spirited, fretful, and anxious. Vomiting came on in some, with great languor, lassitude and debility, and restlessness at night. This was regarded as the most oppressive and insufferable of the stages of the malady. On the fifth or sixth day from the invasion, the period varying somewhat in different individuals, the annoying symptoms just described were relieved by the coming out of an abundant eruption, met with so constantly and in so very great a proportion of the cases, that it clearly demands to be considered a characteristic and essential circumstance in the history of the disease. It consisted of minute papulæ, somewhat elevated, of a florid red, and distributed in irregularly-shaped patches; the feet and hands being somewhat swollen, with a sense of numbness and thickening. It appeared first on the face, then on the trunk and thighs, gradually spreading to the extremities. It resembled scarlatina more than measles in the hue and aspect of the skin, but was less diffused or confluent than either. When fully developed, it was attended with some itching and burning of the surface, and at this time a second febrile paroxysm came on with return or aggravation of the muscular and arthritic pains. Inflammation and enlargement of the lymphatic glands in the neck, axilla, and groin attended in a good many cases; these parts being apt to continue swollen and painful for some time after convalescence was fairly established. In a few instances, suppuration of these tumors took place. The eruption disappeared after two or three days' duration, becoming gradually paler, with some desquamation of the cuticle.

Of all the symptoms of dengue the affection of the joints was the most tenacious and troublesome, adhering for weeks to some patients, and constituting a sort of permanent lameness or loss of mobility. Nay, even now (January 1835,) some of the population of cities visited by this plague, persist in speaking of the rheumatic or quasi-rheumatic decrepitude and pain under which they labor as "the effects of the dengue."

All classes of persons were subject to this singular exanthem,

and all equally and alike. The aged and the young, the infirm and the robust, the native and the stranger, the black and the white, all shared the same sufferings. Very young children were liable to the disease, even from a few days after birth ; nay, some were supposed to be actually born with it. The circumstances of these latter cases are described as follows :—The mother having recently passed through the attack, or still laboring under it, the skin of the infant at delivery was observed to be of a scarlet red, the tongue and lips smooth and fiery ; it was obviously in pain, and could not bear to be disturbed, screaming violently if lifted, or if its limbs were moved ever so gently. Below the fifth year of age, convulsions very often attended the invasion, and in some instances were repeated with frequency throughout the whole course of the attack. In very advanced life, there were from the first, great debility and extreme prostration. Some old people were afflicted with erysipelatous inflammation of the lower extremities, supervening after the eruption had disappeared.

Pregnant women when attacked, were very liable to abortion, and a remarkable number of miscarriages and premature labors occurred. The violent pains in the back and loins, which came on so generally at the invasion, extended downward into the thighs, and the uterus being thus excited, the fœtus was ultimately expelled. A sore mouth was among the frequent symptoms of dengue, and one or two instances of pretty severe glossitis occurred. In the worst of these, the appearance of the organ has been completely altered, and its functions much impaired, indeed nearly abolished ; the articulation being extremely indistinct, and the capacity of appreciating taste and flavors singularly defective. The surface of the member is intersected with deep lines, which divide it in every direction, like flesh which has been "chopped" for culinary purposes. The ulcers formed in the mouth were often very irritable and painful, and healed slowly and with difficulty. Then followed a free flow of offensive saliva, with lividness and sponginess of the gums, offering considerable resemblance to the symptoms of mercurial ptyalism. In a few cases hemorrhage occurred from the gums and fauces.

Pathology. Dengue is to be classed properly among the exanthemata. It is an eruptive fever of distinct and specific char-

acter. Its essential symptoms are, in the first stage, a painful affection of the joints and muscles; and in the second, divided by an interval obvious and sufficiently regular, a cutaneous eruption. The arthritic inflammation of the first stage, was attended by fever of the ordinary inflammatory type, of twenty-four to forty-eight hours' duration. The eruption was preceded, as is usual in the exanthemata, by considerable gastric oppression, with nausea, and sometimes vomiting. Let us separate the characteristic from the incidental circumstances of its history, and from the former proceed to designate its correct name and true pathology. 1. An arthritis—a painful and apparently inflammatory affection of the joints—was in a vast majority of instances its earliest symptom. The attack was rarely ushered in by a formed chill or febrile rigor. In general, the very first indication of seizure consisted merely in a painful affection of some joint or limb. In my own case, a single finger of the right hand became swollen and stiff, for more than an hour before any other symptom of the invasion was observed. Other joints then became successively painful, and after a considerable interval, fever supervened, ushered in by headache, etc. A child, four years old, complained, on rising early in the morning, of pain in the foot; his hand next became stiff, then his knees, etc., but he ate his breakfast as heartily as usual—the disease gradually developing itself during a space of at least five hours before any febrile exacerbation could be perceived; though the pulse, breathing, and condition of the surface were frequently examined. A very old negro woman was ascending a stair, when she was suddenly seized with such severe pain, that she was utterly unable to proceed. Her fingers, the chief seat of her complaints, were all of them bent, and could not be straitened, and the intensity of suffering was such that she lay prostrate, with tears, and loud cries, and sobs. Some hours elapsed before she had any fever, and then there was but a moderate paroxysm. In a very stout and manly youth, the pain at the very tips of the fingers was so intolerably severe, that he wept bitterly. He had been much relieved by fomentations and opiates, before any degree of fever supervened.

As it was the almost universal fact, that these arthritic affections had thus endured for some time before the invasion of fever,

with its ordinary concomitants, headache, red eyes, full, abrupt, frequent pulse, hot, pungent, dry skin, thirst, etc., so it was rather uncommon to find the stomach notably disturbed at this period or stage. Among the other irregular or incidental symptoms, was an eruption already mentioned, which showed itself occasionally thus early. It was a mere rash, and was met with oftener in children than in adults.

2. The characteristic eruption made its appearance later, after the subsidence of the febrile paroxysm, and constituted a distinct second stage. After a duration, varying in different cases, the pain and inflammatory fever above described, abated, or went off, to the great relief of patients, who often thought themselves now quite well, and whose sufferings indeed, sometimes, though in a very small minority of examples, ended here. But it should be remembered, that when the case was thus abruptly terminated without a second stage, the patient was liable to be attacked again and again, with the arthritic affections and other ailments of the first stage.

The eruption which has been thus indicated as essential, was preceded by great gastric distress, which, as in all the other exanthemata, diminished, as the skin became suffused, and was followed by a sort of secondary febrile exacerbation. It should be remarked, too, that the arthritis, which had been greatly relieved, returned at this time, henceforward remaining pertinaciously annoying for an indefinite period.

This singular union of an eruptive fever with inflammatory affection of the joints, deserves surely to be regarded as a new and peculiar malady—a form of disease hitherto unknown and undescribed. The West Indian practitioners, who first met with it, did not fail to notice this combination of circumstances, which formed the prominent points in its history, and indeed gave it character. Hence one styles it scarlatina rheumatica.* Another, exanthesis arthrosia,† and a third designates it "an eruptive articular" or rheumatic fever.‡ But the vulgar appellations given it by the English negroes at St. Thomas, and by the common people of Cuba, have prevailed, and are in general use.

As it extended itself in various directions, some of its more

* Cocke, Edin. Jour. † Nicholson, ib. ‡ Stedman, ib.

striking features may have been softened down, or it may have been impressed with certain modifications, by the influences of locality, or by mingling with endemic diseases. In this way, perhaps, we may best account for the fact, that some of the physicians who met with it in the latter months of its brief existence, have suggested its resemblance to, or identity with other and well known forms of fever. Thus Osgood and Lehman, who saw it in Cuba, seem disposed to regard it as the ordinary fever of that region, under certain peculiarities of circumstances not well explained; and Waring, of Savannah, dwells upon its close analogy with the "breakbone fever of 1826, and the epidemic fever of 1827," (a bilious remittent,) in that city. Still closer are the points of similarity which may be found in the history of the breakbone fever or remittent, described by Rush,* as prevailing in Philadelphia, in the summer and autumn of 1780, and the epidemic of Calcutta and Berhampore, pourtrayed by Dr. Mellis, in 1824–25.

Rush's fever was met with in July. It affected all ages and both sexes. Medical men would seem to have been specially liable to it. No other febrile disease was observed during its prevalence. It came on sometimes with rigor, seldom with a chilly fit, and often without any sensation of cold. Many instances occurred, in which it was introduced by a delirium. The pains which accompanied it were excessively severe in the head, back, and limbs; in some they affected the neck and arms, and in one case, produced a difficulty of moving the fingers of the right hand. Hence the disease was sometimes believed to be a rheumatism, but its more general name, among all classes of people, was the "breakbone fever." A nausea universally, and in some instances, vomiting, attended. A screatus or constant spitting was in many cases observed through the whole disease. The bowels were in most cases regular. The tongue was generally moist, and of a yellow hue. The skin was moist, especially when the case terminated on the third or fourth day. The pulse was quick and full, but never hard; there was little or no thirst. A rash often appeared on the third or fourth day, which proved favorable; it was accompanied by a burning in the palms

* Vol. i. p. 216.

of the hand and soles of the feet. At this time, many people who were not confined to bed, and some who had no fever, had an efflorescence on their skins. Convalescence was slow and tedious. A bitter taste in the mouth, and a yellow tongue, continued for nearly a week. Most of those who recovered, complained of nausea and total want of appetite. Great dejection of spirits was the most remarkable attendant on convalescence. A young lady proposed, he says, to change the name of the disease, and to call it in that stage, the breakheart instead of the breakbone fever. A remark to the same purport, and almost in the same words, was made to me by a Spanish woman recovering from dengue, who had never heard of Rush or his writings. The mildness of the requisite treatment, and the small proportional mortality, are, also, points of resemblance. The differences, however, are not less marked and striking. In Rush's fever, there were remissions every morning, and sometimes in the evening. The exacerbations were more severe every second day, and sometimes two exacerbations occurred in one day. When the fever did not terminate on the third or fourth day, it often ran on to the eleventh, fourteenth, and even twentieth days, assuming in its progress typhoid symptoms. Rush does not regard the eruption as an essential, or even a very prominent part of the disease. Indeed, he does not describe it at all, merely terming it "a rash;" though he speaks of it as a frequent and favorable symptom. On the whole, it seems reasonable to conclude, that the two maladies, although presenting some curious coincidences, are, in nature, essentially distinct and different; one being an eruptive fever, new, specific, and peculiar, while the other is nothing more than an autumnal remittent, a malaria fever, somewhat modified by an unknown agency. And the same remark applies with equal correctness, but with more force, to the epidemics referred to by Dr. Waring, of Savannah, who makes his breakbone fever of 1826, identical with the autumnal fever of 1827, which again he looks upon as identical with yellow fever; thus mingling in promiscuous confusion yellow fever, ordinary bilious remittent, breakbone fever, and dengue. Dr. Daniel, of the same city, considers "dengue to be certainly an exanthematic fever," though he does not regard its invasion in 1828, as its first occurrence, but believes it to have

existed previously, in 1826, when it bore the name of the break-bone fever. He contends justly for the essential nature of the eruption, and remarks forcibly upon the danger of treating it as an accidental symptom. He states, that when it has been repelled or prevented from appearing by mismanagement, almost every part of the system is liable to be attacked. Several cases of mania, consequent upon repelled eruption, he affirms, occurred within his observation, and refers to a case of tetanus thus produced, which terminated fatally.

Dr. Osgood, of Havana, has suggested, that the cause, origin, and the nature of dengue, are identical with those of yellow fever. It would seem scarcely necessary to do more than compare the descriptions of the two, to be struck with a strong impression of their utter dissimilarity; the following discrepancies, however, may be briefly alluded to, as clearly disproving any relation between forms of disease so distinct. In this city, where yellow fever is frequently met with, it prevails only in the autumnal months, August, September, and October; very few cases having even been known to occur in July. It is the disease of unacclimated constitutions—emphatically "the stranger's fever." Native children are occasionally attacked by it; adult natives and old residents may be said to be secure from its invasion; a rule to which the exceptions are as infrequent as second attacks of small pox or measles. African negroes are not susceptible of it. It never extends into the surrounding country, and notoriously respects such portions of the suburbs as are particularly elevated, dry, and airy. But dengue made its entrance into Charleston in June, and spent its force before the end of July; it attacked promiscuously native adults, the oldest residents, strangers, children, and negroes, whether natives or Africans. It allowed no exemption to any locality of suburban residence, and spread, though to no great extent, in the neighboring country.

It is still doubtful where dengue originated or first showed itself. Allusion has been already made to an epidemic which prevailed in Calcutta and its environs, in 1824–25. From the description of that pestilence, in a paper published in the Transactions of the Medical and Physical Society, by Dr. Mellis, it would really seem to be identical with the dengue of the West Indies and Charleston. Its universal sway, "attacking alike

the new-born infant, the aged, the robust and the weak, the rich and the poor—the suddenness of its invasion, intensity of pain in the muscles and joints, the heat and scarlet red color of the skin, the eruption or rash being succeeded by exfoliation of cuticle"—these are phenomena common to both. The sequelæ are equally analogous. Dr. Mellis notices "great prostration of strength and general debility, weakness of the stomach, continued pains in the joints and œdematous swellings of the extremities." Such are the familiar effects of the dengue.

It is proper, next, to inquire into the cause or source of this exanthem. Nothing has been distinctly indicated on this point in the history of the Calcutta and Berhampore epidemic, assuming this to have been the dengue. Of the West Indian Islands, St. Thomas was first attacked. This is considered one of the most unhealthy situations among them; the town being a free port, rich and populous, and possessing an excellent harbor, is always crowded with vessels from every part of the world. St. Croix, described as the very reverse of St. Thomas, in its physical and political character, and universally reckoned one of the healthiest islands, was next assailed. "So high," says Stedman, "is its reputation for salubrity, that it has of late years become a favorite resort for invalids from the United States of America, where it is considered the Montpelier of the West Indies."

The writers on this singular disease may be divided into two classes, one of whom, confounding it with other malaria fevers, regard all investigation into any special or particular cause of its production as superfluous; while their antagonists, considering it as of novel and specific character, conceive it necessary to follow up the inquiry, and trace it to its peculiar source or origin. From what has been said above of its history and characteristic phenomena, it will be readily inferred that I belong to the latter class of physicians, and believe it to be capable of proof, that dengue is a malady of contagious nature. We hear of it in Bengal, in 1825. After the silent progress of a year and more, it shows itself in 1827, in a free port, in the Caribbean Sea, where ships from every quarter of the world find ready entrance. Stedman says, it was alleged to have been brought there by a vessel from Africa. He thence traces it satisfactorily to St. Croix. Successively affecting the remaining islands, it reaches Cuba in

the spring of 1828, whence, in June, it obtains easy access to Charleston, New-Orleans, Vera Cruz, and Carthagena. In each of these cities, it is attributed to contagion as an obvious source, and is regarded as having been imported from some point at which it was known previously to exist.

It is, however, a matter of acknowledged difficulty to prove to absolute demonstration, the contagiousness of any form of disease which is not capable of being communicated by inoculation. In the instance of such maladies, an attentive observation of all the circumstances of their origin, history and progress, offers us the only means of arriving at a probable conclusion concerning their nature and properties. Rational probability, indeed, is the utmost that we can here attain, and an ingenious caviller may always succeed in throwing in our way objections and difficulties, which shall oppose themselves to any positive decision of the point in dispute. Two special objections are offered by those who deny the contagiousness of dengue, and the same have been, with equal correctness, applied to the cases of measles, scarlatina, and hooping cough. The first is the fact, that when you have traced such disease as far back as you can, you still must arrive at a spontaneous origin, or its production from local and obvious causes, and they perceive, or affect to feel, no more hesitation in supposing several spontaneous sources than one. They also assume the principle, that no disease which has been generated in any other mode, or by the operation of other influences, can take on, in its progress a contagion, and become capable of spreading itself in this way.

But even small pox must have had a beginning, and syphilis and psora, both of which may be produced by uncleanliness of person, are capable of communication to the cleanly. Still farther, although we are here entering upon debateable ground, it is not always possible to trace continuously from step to step the course of measles, or hooping cough, or scarlet fever. They seem occasionally to arise in positions insulated from all chance of contagious transmission by any mode. Few physicians at the present day, doubt the contagiousness of typhus—a doctrine, to the support of which, as large and weighty a mass of testimony could be adduced, as to any other in medical science.

But it is well understood, that typhus is often generated under certain concurrent circumstances, with which the profession is familiar, and that one case so generated, may become a centre from which the disease shall diffuse itself on all sides. The second objection alluded to, is the rapid spread of dengue whenever it has appeared. The circumstance forms a striking feature in its character. But there is nothing peculiar in this part of its history, and it is most illogical and unscientific to regard the epidemic prevalence of disease as disproving its contagious power. The phrases epidemic, epidemic constitution of the air, and the like, which are in common use among practitioners of physic, have no definite meaning; they refer exclusively to the general extension of disease. But no one, at all conversant with the history of disease, can entertain a doubt of the tendency of all febrile maladies whether contagious or not, to become epidemic; that is, to spread themselves in this prompt, universal, and irresistible manner. Small pox, measles, hooping cough—all afford frequent illustrations of this principle. It would be ridiculous to pretend to trace all the cases of these that occur, when they prevail in any population, from one to another, and thus to account for every individual instance of its supervention. As in dengue, so in small pox, persons are attacked who have been altogether secluded, whether accidentally or through caution.

In all discussions of this kind, the first step to be taken is to decide upon the relative value of negative and affirmative statements—the proper rule being that which Haller has laid down in philosophising upon physiological experiments and inferences, "that negative observations are entitled to little or no weight, when in opposition to positive assertions." If, for example, a very few instances were brought forward upon good testimony, of the spread of any infection in certain specified communities, additional numbers would be of no farther importance than this, that they should, by diversity of position and circumstance, obviate the suspicion of a local cause common to all affected. Suppose it to be made out, that a given malady being introduced into five such communities, had spread itself among them, seizing a few, many, or all within its sphere, it would be to no purpose to reply to the inference of its contagiousness drawn from such

statement, that in twenty, fifty, or one hundred other instances of similar introduction, it had failed to occasion any such extension, or give rise to new cases.

Contagion, perhaps, of all the morbid agents which produce disease in the animal constitution, would seem, on first consideration, the weakest—inasmuch as it requires the greatest number and variety of concurrent circumstances to favor or ensure its impression; while on the other hand, that which we term, after Sydenham, the epidemic constitution of the air, is vastly the most pervading and powerful. Every physician fails occasionally in transmitting vaccine and small pox by inoculation. But when the latter becomes epidemic, it is known to affect persons most perfectly secluded, and guarded with all possible nicety against every imaginable approach of diseased subjects and every shape of fomites. What is the epidemic condition of the air in this latter case, but the solution or diffusion within it of the matter of contagion? What is it in any case but the diffusion throughout the atmosphere of the cause of disease, whether contagion, or malaria, or some other unknown and undefined agent?

Not only is the impression of contagion thus uncertain, as is proved by its failure, but its sphere of action is contracted within narrow limits—a few feet probably, as most writers agree. Whether this is the mere result of dilution, or whether the eliminated virus undergoes some alteration in its specific properties, in consequence of its admixture with air, is not determined. When we take into consideration these circumstances, and reflect farther upon the ordinary healthfulness of communities among whom contagious diseases are suddenly intruded, and the general absence or negation of that predisposition upon which disease requires so uniformly to be built up, we shall rather wonder that contagious maladies spread themselves so often and so far as they do, than that they should be confined usually within certain observable limits as to the extent of transmission and number of subjects, and that they should so frequently be suddenly lost, and seem to terminate abruptly, as in the case before us, a short though very remarkable existence.

It is for the most part a difficult task to point out the precise origin of any form of disease, and with respect to what are called, vaguely, general epidemics, the attempt has been notoriously

futile. Local epidemics, however, among which dengue must of course be ranked, if its contagious nature be denied, are always, as pneumonia typhoides, for example, limited to particular season and temperature; or, as in the case of bilious remittent, dysentery, and yellow fever, to certain localities and circumstances of soil and surface, conjointly with season and temperature. But dengue has, in its brief career and well known history, shown no correspondence with any of these, being neither limited by season, local position, nor atmospheric change. Its gradual progression from one place to another, allowing abundant room for the anticipation of its arrival, and the fact that "it followed," from the time when it first appeared upon the American coast, "the great routes of commercial intercourse," are strong evidence in favor of its contagiousness. But there are positive and marked facts which seem to us leave no room for reasonable doubt on the subject.

Dr. Stedman traces the communication of dengue clearly from St. Thomas to St. Croix. Christianstœdt, which is the seat of government of the latter, and on this account, and from its proximity to the former island, enjoys a freer intercourse with it, was invaded a week or two before the town in which he resided Frederickstœdt. The first patient whom he saw had arrived three days before from St. Thomas, and the disease appeared first in the family with whom this patient had come to reside; among them, indeed, it raged exclusively for some time, with the exception of a family residing opposite, the head of which had frequent mercantile business with Christianstœdt. From there it extended through the town. "The disease," he says, explicitly, "spread from family to family, and from estate to estate exactly in proportion to their contiguity, or to the intercourse that might happen to exist;" and gives an instance of the latter kind, when, from the communication between two estates belonging to the same master, the one near town and the other four or five miles distant, the negroes on the latter estate "got the disease at a time when it had not spread to any other in that neighborhood."

In the city of Charleston, the earliest cases happened in persons connected with vessels that had arrived from the Island of Cuba, where dengue then prevailed. This fact is clearly made out upon the authority of two physicians of the highest respec-

tability. Professor T. Prioleau attended the first patient, a negro, who was put on board the brig Emmeline just in port, whose captain had been ill with dengue a few days before he left Havana. The next persons attacked were the ship-carpenter and his family, who went on board to effect some repairs in the same vessel. From these the disease spread as from a centre. A short time after these events occurred, Dr. P. G. Prioleau was called to attend the family of the captain of another vessel who had arrived here about the same period, laboring under the disease. The dates in these instances are worth recording. Captain W. arrived in Charleston on the 31st of May, ill of dengue: on the 20th of June, his wife was seized; on the 1st of July, two of his danghters; on the 2d, his son; "it soon extended to the rest of the family." Prof. Prioleau's first case, the negro above mentioned, was taken ill on the 10th of June; his second case on the 23d. Here we have two central spots whence the dengue rapidly diffused itself throughout the city. These early patients were far from being in the same neighborhood. The brig Emmeline lay at Knox and Pritchard's wharf, in the upper part of the town. Capt. W. resided in Tradd-street, nearly or quite a mile distant.

Farther circumstances of a similar nature deserve notice, as tending to throw some light on the nature and history of this strange affection. It made its appearance at two points in the vicinity of the city, the qualities of the soil and atmosphere of which were as strongly contrasted as possible. One of them, Haddrill's point, is an elevated sandy bluff, about four miles from Charleston, across the bay, noted for the salubrity of its air, and the health of its inhabitants. It has never been invaded by the yellow fever, even in the most pestilential seasons of its epidemic prevalence. Yet some cases of dengue occurred there, introduced, as he himself had stated, by a clergyman whose family resided at Haddrill's, while he attended to his official duties in the city, and by "a neighbor similarly situated." The second instance was that of a plantation lying about four miles from Charleston, in the opposite direction, in a low malaria country, the residents upon which were annually subject to ordinary remittent fevers. The head of the family and a negro having visited the city, were both taken ill in about a week afterward; the

wife of the former was next seized, and the disease afterwards extended among both the whites and the negroes in the place.

Prognosis. The prognosis in this singular affection was remarkably favorable. Perhaps no form of disease is known in which the proportion of deaths is so small, compared with the numbers attacked. Influenza alone spreads with a universality of invasion at all resembling it, and even influenza is inferior in the infrequency of exceptions to its attack. "In a population of about 12,000 souls who occupy the town of St. Thomas," says Stedman, "scarcely a single individual escaped." In all its seats few died; whether managed by the best professional skill or mere domestic attention, or totally neglected. Yet there was a vast difference in the degrees of this suffering undergone by different patients, and not a little in the duration of this suffering and in the rapidity and perfectness of their convalescence. The aged were most severely handled, remaining frequently infirm and debilitated, with languor and emaciation. Corpulent persons usually suffered much, and recovered very slowly. The intemperate paid in this, as in every other form of disease, a heavy tax for their degrading indulgences. In many it served to usher in formidable paroxysms of delirium tremens. Dengue, indeed, can hardly be said to have ever proved fatal of itself. The rare instances in which patients died, while laboring under it, presented some complication under whose incidental symptoms the patient sank; or some extreme feebleness of constitution in which the remedies employed were productive of fatal effects. More than one example of this nature is placed on record.

Treatment. The violence of the early symptoms of this singular malady seemed to call imperatively for the most prompt and impressive measures. The lancet was the favorite resort of a majority of practitioners, who ascribe to it a notable power in controlling the force of the attack, and lessening the duration of the patient's sufferings. Cathartics and diaphoretics were also almost universally employed—each physician selecting those formulæ in which he had most confidence. Both the saline and mercurial purgatives had their advocates, and were maintained to be specially adapted to the case. The antimonials, in the earlier stages, and afterwards Dover's powder, and the other stimulating diaphoretics, were in general use. The ordinary

domestic practice, and a large majority of cases were treated without professional aid, consisted in the administration of a mild purgative combined with or followed by a sudorific, as the solution of Epsom salts in infusion of seneka, or serpentaria, or hot lemonade, until the bowels were freely opened; the patient was then covered up moderately warm, and warm drinks given from time to time to produce and keep up free perspiration, while the parts most pained were fomented with warm water, or bathed in spirits. Such, with slight modification, was the practice that I followed in the few first cases that fell under my care; but an early observation of the happy influence of opium over the extreme sufferings of the sick, led me ultimately to depend on it exclusively, or nearly so, from the invasion to the termination of the attack; and the progress of the season, and the spread of the disease gave multiplied opportunities of noting the propriety and value of the practice. A lady, in the seventh month of pregnancy, being attacked by dengue, and menaced most urgently with premature labor, one hundred and twenty drops of tinct: opii were prescribed immediately, and ordered to be repeated within a proper interval. After three or four such doses, she fell asleep, and woke almost entirely free from pain. Another, within a few days of her time, was not only quieted in a similar manner, but absolutely relieved from all inconvenience by the same treatment; rising out of bed the second day, going through the eruptive stage without illness or suffering, and in ten days after, being delivered of a fine healthy child. When summoned to a patient, it soon became my custom to administer, without delay or preparation, such a dose of opiate as seemed proportioned to and indicated by the severity of the attack, from a teaspoonful of common laudanum down to such a lesser dose of this preparation, or of the tinct: op: camphor: as was suited to the age and other circumstances. If the head was the seat of great pain and vehement determination, cold affusion was made, or it was bathed with spirits, while the feet were immersed in hot water; to the swollen and suffering joints and limbs, warm fomentations and poultices were applied. The above dose of anodyne, which acted, also, as diaphoretic, was repeated at intervals of one or two hours, until the symptoms were relieved. It was usually prescribed unmingled, sometimes however, in com-

bination with the acet: ammoniæ, a combination which seemed applicable when the pains were less severe, with a continuance of heat and dryness of skin, and persistence of febrile excitement. On the return of pain or fever, forming the second stage as above described, the same remedies were again resorted to, and with the same advantage, controlling, as it seemed, the gastric distress, no less effectually than the arthritic pain and irritation.

In comparing the several modes of treatment, it would seem fair to remark that, if the patients subjected to the mild remedial regimen just detailed, suffered no more at the time than those who were more actively depleted by the lancet, and cathartics, and emetics, and passed through a convalescence not more protracted than those, they must certainly be considered as gainers, inasmuch as they were put to far less annoyance and discomfort. Yet it would not be too much to affirm, that the arthritic pains which they endured were more promptly relieved; that they underwent less constitutional derangement; that they fell into a less degree of general debility, and consequently convalesced more rapidly; and that, though they did not, perhaps, obtain the privilege of absolute exemption from the rheumatic pains, stiffness, and incapacity, which so long haunted every community in which dengue had shown itself, yet they were notably less subject than others, to these inconveniences.

In this singular disorder, the local pains usually preceded, by periods of considerable length, any symptom of fever or constitutional derangement. Hours would often intervene, during which the patient would limp through his usual occupation or amusement, and even eat heartily, and apparently digest well. Cases, indeed, occurred, in which the whole of the first or quasi-rheumatic stage would be gone through in this way, and the nature of the attack displayed at last, only by the breaking forth of the characteristic eruption. Now, it would hardly be in accordance with received opinions, to affirm that the arthritic pains here were of an ordinary inflammatory nature; obscure as they are, they may be regarded as congestive, or simply irritative. The opiate was here as applicable as in the cold stage of an intermittent. And even subsequently, if fever did supervene, it did not seem to contra-indicate the opiate, as being the effect of

a peculiar and specific form of inflammatory irritation transient in duration, and happily determined by the nature of its proximate cause to external parts, or parts of no vital importance. In this early stage, opium was, indeed, specially serviceable. All physicians were apt to resort to the opiate in the second stage, administering it freely in some form of combination; the Dover's powder being a general favorite. But although its exhibition was even here of undoubted advantage, the golden opportunity for obtaining its highest benefit was past; the main object of our art, the prevention of evil, was unaccomplished; the storm had swept by, and its consequences were, with special difficulty, if at all, remediable. It is no easy matter to account for the great prostration of muscular strength and restorative energy so often left by a paroxysm so transient, and not unfrequently so little violent in degree; yet this circumstance constituted a prominent feature in the history of the case under consideration. The contest was still to be carried on. We had to deal with an eruptive disease, and if the forces of the constitution had been impaired, either by the intensity of the attack, or by the remedies employed, as the lancet, cathartics, antimonials, etc., the centrifugal determination which formed the next essential step in its progress would be slow and imperfect, and the stomach and other internal organs would suffer in proportion. At this juncture, many were tempted, by the great gastric uneasiness and oppression, to direct purgatives of various quality, mercurial, saline, or resinous, but usually with an increase of the internal disturbance, a postponement of the period of cutaneous inflammation, and a consequent protraction necessarily, of the duration of the attack. This was attended, too, for the most part, with an ultimate aggravation of the violence of the local pains, and an increase of their tendency to become fixed, and assume a chronic inflammatory disposition. The miserable stage of restlessness and oppression was soonest ended in those who remained at rest in a recumbent posture, confining themselves to the lightest diet, and avoiding all exposure to changes of temperature. In the old and infirm, and in such as had weakened themselves, and given tenacity to the centripetal determination, by the previous employment of improper medicines, it became necessary sometimes to resort to the highest

order of diffusible stimulants, in addition to the opiate; as camphor, brandy, vol: alkali and æther, with sinapisms to the epigastrium and extremities.

The vivid eulogium which Rush passes upon the usefulness of opium, in the somewhat similar affection described by him as occurring in Philadelphia in 1780, is worthy of notice in this connection. "Its salutary effects in procuring sweat and a remission of the fever, led me," he says, "to prescribe it in almost every case, and always with the happiest effects. Those physicians enjoy but little pleasure in practising physic, who know not how much of the pain and anguish in fevers of a certain kind may be lessened by a judicious use of opium." In a more extended experience, this benevolent man would have been delighted to find that it was entirely unnecessary, at least in a large majority of the cases, to wait for what he styles "the proper evacuations," but that this relief or diminution of pain and anguish might safely be accorded to the patient at the very commencement of the attack, and thus his severe sufferings shortened by many hours, or lessened at once most notably in degree.

I will take this opportunity of expressing, in conclusion, my belief that our profession has much to learn upon the subject of the admissibility of opium in the treatment of fevers generally, and declaring, as I do with entire sincerity, that the most agreeable and satisfactory of all my experience in the healing art, has consisted in the employment of this divine remedy in states of the system, and under circumstances which dogmatists of all sects have taught to offer positive contra-indications to its exhibition.

CHAPTER LXII.

DISEASES OF URINARY ORGANS.

The kidneys, I have already said, are the only organs of the body of which we can affirm that their office is exclusively excernent. The lungs and skin both absorb or admit the entrance of oxygen, and probably many other substances, while engaged in the elimination of carbon from the blood. Some of the azote taken into the system with the food, escapes perhaps by the lungs, for some of the experimenters say they have found in the expired air a proportion of nitrogen, though it is denied by others. Some may find its way through the liver in the bile; but to the kidneys is entrusted the duty of excreting this effete agent almost entirely. The peculiar constituent of urine, hence called Urea, is composed of it in great measure, consisting, according to different analyses, of one-third, or two-fifths, or nearly one-half of azote, combined with carbon, hydrogen, and oxygen.

Urea is proved to exist always in the blood; it must be got rid of by incessant elimination, its retention being followed not only by injurious consequences, but being soon and inevitably fatal. The organs destined to throw it off, are also the great outlets for a thousand varied matters into the body, which are readily detected passing through them and escaping with the urine, impregnated obviously with their characteristic properties of taste, smell, chemical affinity, etc. Thus we see the qualities of asparagus, of rhubarb, æther, alcoholic liquids of various kinds, turpentine and so forth, in the fluid which is ejected, within a short period after swallowing them.

The healthy urine is itself a most compound solution of salts, acids, and other ingredients. Fourcroy gives us a list of its constituent matters, extending to thirty. Henry enumerates twenty-one. Berzelius, regarded as one of the best authorities, fifteen. Brande has no more than eleven, viz.: water, urea, uric acid, carbonic acid, phosphoric acid, common salt, sulphate of soda, phosphate of lime, phosphate of ammonia, phosphate of

soda, albumen. To these silex is added by both Henry and Berzelius; and sulphur is considered by Bostock, after Henry and Prout, as also established.

Conceive the play of chemical affinities among these thirteen principles, and then add the numeral accidental additions made to them occasionally in good health, and often in disease, and you may imagine the infinite diversity of morbid urines—of only a few of which is it necessary or proper to treat here.

I ought to say, in entering upon this subject, that, although in ancient times an undue stress was, doubtless, laid upon the changes in the appearance and constitution of the urinary secretion as affording information concerning the condition of the patient in diseases generally, yet that I know no single point in which my professional brethren of the present day are so much to blame as in their indifference to, or, I might almost phrase it, their total neglect of this mode of enquiry.

The healthy urine is always acid, as exhibited in its effect upon test-papers properly prepared. Some attribute this to the presence of a free acid, the uric or lithic; and in this view, I am disposed to coincide. Bostock, however, agrees with Prout, that the acid is not in a free state, but combined with a base forming some super-salt. The quantity of urine poured out in health, is differently estimated, from Prout, who places it at thirty-two ounces, to Haller, who rates it as high as forty-nine ounces in the twenty-four hours. The specific gravity is, as you would suppose, a little above that of water. Its color, slightly yellow, may depend upon the salts it holds in solution; but Prout supposes it, as well as the peculiar odor, to be owing to a separate principle or principles. In all these respects it will, in the same individual, differ very remarkably within a few hours; being affected readily, andyet, it may be, not morbidly, by almost every article of food or drink taken, by the varying states of the atmosphere as to heat, dryness, etc., and by many of the emotions of the mind. Remember that many of these changes, some of them quite striking, too, are entirely compatible with the enjoyment of good health.

Of the morbid states of the urine, let us, first, consider briefly those which are principally exhibited in mere departure from the natural standard of quantity. It may be excessive or defi-

cient in amount. Of the first, we have two varieties. 1. Sub-aqueous urine, as some have called it. In a large class of nervous affections, at the head of which stands hysteria, the kidneys secrete a prodigious flow of limpid urine, almost destitute of its well known hue and smell. I know of no importance to be attached to this observation, farther than, that in doubtful cases, it may assist us in diagnosing hysteria, and distinguishing it from other maladies which it may simulate. I have not been able to ascertain whether in the analogous cases of somnambulistic and mesmeric excitement, the kidneys are similarly acted on. Heberden, in his commentaries, enumerates the frequent discharge of a sub-aqueous urine, as one among the symptoms of what he styles "valetudo conquassata," a state almost identical with Sir Henry Halford's "climacteric disease," or breaking up of the constitution.

2. Diabetes, a most untractable malady, consists in the too rapid passage through the kidneys of the ingesta, imperfectly subjected to the processes of assimilation; and as we are to infer from the prompt emaciation and complete atrophy of the patient, of all the absorbable portions of the body besides. In one form of diabetes—D. insipidus, the urine is limpid and inodorous; in another, diabetes mellitus, it is quite saccharine. In the latter case, the uric acid, one of the constant ingredients, as you were told, of healthy urine, disappears, and it was thought the urea itself went to form sugar; but a more careful examination has proved that such is not the fact. The urea continues to be formed, and exists in its usual quantity, but is detected with difficulty, being "masked by the presence of the sugar." Diabetic urine, of this kind, has a pale straw or yellowish green tint and a smell resembling whey or milk. The disease is with us so rare, that I have never seen it, nor known of its existence here; in other places it is so much the reverse, that, as Willis tells us, the younger Dr. Babington was shown by his father twenty-three cases at one time.

I once met with a prodigious and exhausting flow of urine in an old mulatto woman, who discharged, in one night, upwards of twenty-four pounds, which I saw collected in the morning. It was not limpid, but of ordinary appearance as to color, and of the usual odor. She seemed somewhat enfeebled by it, but

presented no other definite ailment, and was not prescribed for, recovering spontaneously.

The quantities of urine poured out by some diabetics continuously, for days and weeks, are almost incredible. Craigie says, that thirty pints have been discharged every twenty-four hours, for months together. In an instance given by Morgagni, the average was forty-two pounds; the amount of from eight to sixteen pounds may be stated as not very uncommon. This profuse flow is attended of course with great and rapid emaciation and debility; digestion is impaired, but the appetite is often urgent and insatiable; the thirst, too, is ceaseless and intolerable; the skin is hot, harsh and dry; the mind becomes imbecile as the body wastes away.

On the other hand, there is the contrasted state of the secretion—defect of urine—anuria (Willis)—ischuria renalis (Cullen)—paruria inops (Good.) This is often a symptomatic affection, as in cholera and in yellow fever, you will remember there occurs in bad cases, sometimes a total suppression of the function of the kidneys. This suppression takes place, though happily not very often, as a separate malady, and it is a serious, nay, in large proportion, a fatal one. It soon connects itself, if unrelieved, with cerebral disorder, and the patient dies apoplectic. It is affirmed, that at times a vicarious elimination of urine goes on from some other organ or part, while the kidney is thus inactive, as from the navel, in one instance, from the stomach, by vomiting, in another; and thus the life of the patient is prolonged indefinitely—perhaps he recovers. These stories are told us on excellent authority, but are difficult to believe. We have, on authentic record, accounts of the total suspension of this excretion for many days—from four to nine—without any vicarious discharge; after which it was resumed, and the patients recovered. In most of these, there was a urinous smell given off from the surface of the body, and found to belong to several of the secretions. So in dogs, after extirpation of the kidneys, the blood is found to contain notable quantities of urea.

Urines morbid by their quality, are of two kinds.—1. Those which differ from healthy urine merely in the proportion of some of its usual constituents; and, 2. Those which contain some super-added ingredient. Of the first, we have a considera-

ble variety. As the urea and the uric or lithic acid are the truly specific excretions of the kidney, so it is in the proportion of this latter, that we shall have to notice the most common, and perhaps the most important alteration in the urine. And this seems to me the proper place to announce to you my full assent to the doctrine taught by the best authorities among modern pathologists, that the changes in the quality of this very variable secretion do not generally depend upon any local disorder in the organ by which it is separated. I do not deny that this is sometimes the fact with many or most of them, and will endeavor to draw a proper distinction on the subject when speaking of the diseases of the organs themselves; but I am satisfied that most of the morbid states of the urine are consequent upon, and arise from, derangement of the digestive system and function. Craigie is so fully impressed with this view, that he includes the changes of which we are about to treat, under the head of indigestion, and gives a graphic, and, so far as my experience goes, a faithful picture of the constitutional condition of the subjects in whom they are developed. I formerly told you that the concretions found in the joints of gouty persons, are lithates or urates, proving that the lithic acid may be formed elsewhere than in the kidneys; and thus we have been led to infer the existence of a state of the system to which the phrase "lithic diathesis" is applied. It is in this lithic diathesis, connected closely with the signs of dyspepsia, in the great majority of those who are affected with renal disorders, that we have the lithic acid deposites from the urine, forming what is called "red sand," gravel, renal calculi, and stone in the bladder; a series of the most grievous and tormenting maladies that afflict the unhappy race of man.

Holland, however, takes the opposite side of the question, and suggests that the lithic diathesis is based upon or grows out of the inability or indisposition of the kidneys—whether from a vice of structure or mere function, he does not decide—to separate or get rid of the urea; which remaining in the blood, now too highly azotized, is the origin and cause of all the symptoms and results.

When the uric acid is deposited within the kidney, the urine is often scanty, sometimes high colored and turbid. It frequently

lets fall a crust of yellowish brown or pink color on the side and bottom of the vessel, which when examined by the microscope, presents crystals of prismatic or rhomboidal shape, well figured by rayer in plate, (at end of Vol. I.) This condition of the fluid voided, may either precede or attend or follow an attack of what was fomerly known as nephritic colic, exactly similar to the description given you under the head of visceral neuralgia. There is pain in the back and loins, in the region of the kidneys, fixing in addition upon a point in the front of the abdomen, about half way between the superior spinous process of the ilium and the umbilicus. These are intensely violent, and are attended by micturition or frequent and uneasy efforts to pass urine, and sometimes by tenesmus, pain in the groin, in the testicle and penis, in the bladder and indeed by pain spreading over the whole abdomen and pelvis. The pulse is usually tranquil, if not slower than natural; the stomach becomes irritable, with much nausea and occasional retching; there is great thirst. These sufferings at last go off spontaneously, or are relieved by the treatment, and the patient enjoys a transient respite. But most ordinarily, in a day or two, the micturition returns with pain in the bladder, penis and testicle, and down the thighs, and after many efforts and with more or less difficulty, a calculus concretion is extruded through the urethra. This is often of rounded shape, in size and form like a small pea; sometimes it is a congeries of crystals of a fawn color, or brownish yellow. Unless the morbid qualities of the urine be corrected, this scene will be repeated from time to time until the powers of life give way, and the patient dies exhausted by the irritation of such paroxysms. Yet some vigorous or tenacious constitutions endure them long. There is now living among us an old revolutionary soldier of about ninety years, who has for the greater part of his life been a sufferer in this way, and had discharged a great number of calculi. When the symptoms above detailed, which we refer to the disturbance aroused by the passage of a renal concretion along the ureter into the bladder, are not followed by its exit through the urethra, the patient of course is likely to undergo the infliction of its increase in the bladder, with all the terrible consequences resulting therefrom. Yet we must not fail to remark that the formation of stone in the bladder does not al-

ways succeed the most definite attacks of this nature; where we have been most fully persuaded of the escape of a calculus from the kidney, and its passage into the bladder, from whence it has not been discharged. It is not easy to account for such facts, but their occurrence is undeniable. I have myself known several of these paroxysms, whether nephralgia, nephritic colic or neuralgia, happen to the same and to different individuals, among whom, one at least was proved to be a subject of the lithic diathesis, by the actual passage at other times, both before and after of renal calculi, of very small size. I have known several of these paroxysms, and some of them of great severity, happen without the escape of any calculi or concretions from the bladder, and yet the sufferers exhibited subsequently no tokens of the presence of stone in the bladder.

Willis supposes that in such instances the calculus or concretion, whose uniform existence as the cause of all the symptoms he does not seem to doubt, undergoes a re-solution in the urine, which from some transient variation in its qualities, has in the intervals become capable of dissolving it. I am by no means content with this view of the matter, but would propose the following, which, like his, is conjectural to be sure, but as it seems to me more reasonable and probable. It scarcely admits of a doubt that neuralgia of the urinary organs may occur independently of the presence and mechanical irritation of a renal calculus. Many persons have been frequently assailed by paroxysms such as were described under that head, without ever becoming cognizant of the passage of any concretion or gravel, and without ever observing any undue or morbid deposit in the urine. We do not know clearly the efficient causes which give rise to it, but believe it to be connected with some vice of assimilation likely to result in renal disorder and irritation. I do not think we can assert that the only irritating or morbid urines are necessarily such as contain insoluble constituents or materials which they uniformly deposit in solid form. Nay, I know not why the most soluble and best dissolved constituents may not impart highly irritating qualities to this fluid. Why may not such morbid and irritating urine excite in the organs, primarily and sympathetically, all the spasm, disturbance and pain occasioned by the presence and progress downward of a renal calcu-

lus? We must not imagine that all the annoyance and mischief brought about by the latter is simply mechanical or the consequence of mere distention. I have known very small concretions which passed out of the urethra so readily with the stream of urine, as not to be felt at all, or detected except by the light, and of course could not have filled the distensible ureter, give protracted and intensely severe tortures in their passage from the kidney to the bladder; these sufferings being relieved entirely on their reaching that cavity, of which fact the patient himself was in one instance clearly conscious.

The explanation which I suggest here is in close analogy with what sometimes happens in apparent spasm of the bile-ducts, no gall stone having been passed by the patient or found after death in the gall bladder, the duct or the intestine. It seems reasonable, as I fomerly contended, to ascribe the symptoms in such cases to the irritation of morbidly acrid bile passing through the ducts.

Besides the superabundance of lithic acid, of which I have spoken, and its combination with certain of the earths and alkalies enumerated, as entering into the composition of urine, we have phosphoric and oxalic acid also combining and forming bi-salts and triple salts—oxalate of lime—phospate of lime and the triple or ammoniaco-magnesian phosphate, resulting from the play of chemical affinities. It is out of my power to enter into minute detail on these subjects, but must refer you for all requisite information concerning them, to Prout, Willis and Rayer. Lithic acid and the lithates, it is said, constitute two-thirds of all the deposites that are likely to occur. And you will avoid error by the careful employment of the proper chemical tests.

Albumen is another of the constituents of urine, which is occasionally found morbidly abundant. Its undue proportion is the characteristic of the albuminous urine, so much talked of, in its relation to, or coincidence with certain dropsical affections. When present in any notable quantity, it will coagulate upon exposure to heat, or on the addition of nitric acid; at 120° Fahrenheit, the fluid begins to grow turbid, and as the heat increases deposites a flaky or cloudy sediment; the acid producing a similar precipitate. The connection of this change in the urine with the hydropic diathesis, on the one hand, and on the other, with

the presence of renal inflammation, are doctrines warmly disputed. The general truth of the latter proposition, if so qualified, I am not disposed to deny; the exceptions, however, are very numerous. It has been shown that the urine becomes transiently albuminous, during the course of many diseases, in which we have no reason to suppose the kidneys to be inflamed; among them, intermittent fever and pleurisy, as well as the doubtful examples of small pox and scarlatina. Similar observation has removed all foundation for the first of the above assumptions. Bostock noticed the proportional quantity of albumen in the urine to be considerably increased, by very slight contingencies. Graves regards it as "depending on mere functional derangement of the secreting organ." It has been frequently seen to follow the use of certain medicines. I cannot help looking upon it as a contingency of undefined or irregular relations; its persistence may lead to a reasonable suspicion of a present inflammation of the kidney; but it does not certainly prove nor betoken absolutely such inflammation.

Of the alterations of urine, from the addition of new ingredients, there are not many necessary to be here considered. I have already spoken of the appearance of sugar in this fluid, a matter of far less consequence by its own nature, than by its essential connection with the wasting and exhausting superabundance of the quantity of the excretion.

Purpuric urine deserves a moment's attention, from its frequent coincidence with the lithic, and its occurrence in a large class of familiar diseases. It forms the "lateritious sediment," so often met with in our autumnal fevers and in hepatic affections. Prout attributes "all the shades of color observed in the deposites, from reddish brown to pink and purple," to the new substance discovered and named by him "purpuric acid," in its mixture with the lithic acid, and with the phosphates of lime and magnesia. Bostock affirms, that it is frequently present and liable to be produced by very slight derangements of the system.

Blood is found mingled with the urine, not very rarely. It flows from the kidney and ureter, not only when mechanically hurt by a calculus in passing, but is effused from the vessels in engorgement of the organs, from any irritation which produces determination to them, and local hyperæmia. Bloody urine

sometimes precedes, and sometimes follows the paroxysms of nephralgia, above described. A stone in the bladder will give rise to sanguine effusion from the inner surface of that viscus, from which, indeed, it takes place also, under mere engorgement or hyperæmia. Purulent urine may attend inflammations, both of the bladder and kidneys; and we must carefully endeavor to draw a correct diagnosis, from a consideration of all the symptoms which go to show the locality of previously existing disease. If, for example, there have been pains or aching in the loins, with tenderness on pressure, we will suspect renal suppuration; if the uneasiness have been confined to the pubic region, the bladder is probably affected.

But the organic diseases of these viscera demand a more special examination, to which we now proceed. It is proper that I should remark in passing, that nephritic disorders, for whatever reason, are specially rare in this immediate vicinity. Calculous affections are as seldom met with here as any where in the world; I have seen, in my own practice, not more than three cases of stone in the bladder, and the surgical history of Charleston records less than a dozen operations of lithotomy, including those coming hither from a distance. Our experience in regard to the various renal calculi, concretions, gravel, etc., is also comparatively limited, so that I do not pretend to go into any full or precise detail on these subjects; my purpose is merely to lay before you an outline, which you may so fill up for yourselves, that you will be prepared to examine properly and apprehend clearly, such cases as may hereafter fall into your hands.

The kidneys do not seem to be liable to any very great diversity of maladies. Anemia and hyperæmia, atrophy and hypertrophy, are enumerated by authors. Tuberculation within their substance sometimes occurs, and hydatids form within them, or are attached to their investing membrane. There is no practical importance in dwelling on these conditions.

We must, however, pay a more particular attention to ne phritis, nephralgia, and granular degeneration or Bright's disease of the kidneys. Nephritis, or true inflammation of the organ, may be either acute or chronic. The first, you will not often meet with. Rayer is disposed, however, to regard it as of more frequent occurrence than is generally imagined, and recognizes

four varieties of it—nephritis proper, the gland itself being inflamed; pyelitis—inflammation of the pelvis and calices of the renal structure; peri-nephritis—inflammation of the investing membrane; and pyelo-nephritis—inflammation of both pelvis and granular structure.

The Causes of idiopathic nephritis are obscure. It is more common in men than in women, and in cold than warm climates. It has resulted from a blow on the loins; from violent, rough exercise, as in dancing, riding in a carriage over bad roads, or on a hard-going horse; from certain medicines injudiciously taken, such as turpentine and cantharides; and from metastases of gout, rheumatism, or any of the exanthemata.

Symptoms. There is pain in one side of the back or loin, increased on pressure, at first a dull, heavy aching, but rapidly augmenting, becoming acute and lancinating, accompanied with a feeling of heat, and extending itself down the ureter into the bladder. The testicle of the affected side is uneasy, and sometimes retracted, with wide spread aching of the hip and thigh. The urine is scanty and high-colored; and if both kidneys are inflamed, may be suppressed entirely. These viscera you must remember, are of dull sensibility, and you will not therefore lay much stress upon the degree of pain complained of; there are instances of vehement inflammation proceeding to the worst results, in which there was no pain in the back or loins; all the suffering being that which was sympathetically aroused in the bladder or along the course of the ureter. There are early tokens of constitutional disturbance. A chill often occurs, followed by violent febrile reaction, with intense thirst, a hot, dry, harsh skin, and very distressing nausea.

Treatment. If there be no decided contra-indication, the lancet must be used promptly and freely, and cups or leeches applied to the lumbar region. The warm bath is serviceable. Mercurial and oily purgatives are to be administered forthwith, in efficient amount and with some perseverance, both as depletory and revulsive; the saline, we are advised to avoid. Some inculcate abstinence from fluids, but this seems unnecessary and cruel. Pure water and thin mucilages can do no injury.

Chronic nephritis may either succeed to the acute form or develope itself spontaneously. In the latter instance, its access is

slow and obscure. It is to be suspected, when motion or pressure produces uneasiness in the loin, deep seated and somewhat tenacious—we must not anticipate sharp pain; or when a sense of great fatigue, with aching of the back over the kidneys follows standing or walking, or rough horse-back exercise. There is often aching, too, in the hip, the groin, the thigh, and the testicle, with or without retraction. Owing to the torpid sensibility of the organ really affected, the patient will sometimes refer all his uneasiness to the bladder, and many are examined for the stone, and treated for cystitis.

Fever of a low, irritative type supervenes, with emaciation, great languor, and despondency. The urine varies much in condition and appearance, being high-colored, turbid, mucous, bloody, sometimes purulent. The whole kidney has, in some examples, become a mere abscess, or undergone induration or tuberculation. The treatment must be similar to that advised in the acute form, with the requisite modifications. Cups and leeches to the loins, must be followed by fomentations and counter-irritants. The warm bath must be frequently employed. We have long since learned from the statistics of experimenters—Lining among them, in our own climate—the contrasted amounts of excretion under opposite circumstances, through the skin and the kidney. The function of this latter organ seems to be carried on with an increased energy whenever that of the former is by any contingency, such as change of atmospheric temperature, impaired in a notable degree, and vice versa. Hence we are led to the obvious inference, that to relieve the irritated kidney, it will always be useful to create as steady and forcible a revulsive determination as may be, to the cutaneous surface. Purgatives must be administered from time to time, and are the more necessary as the alimentary tube is always disordered and uneasy; constipation is present, with nausea and flatulence. As before, we avoid the saline cathartics. I agree with Stokes, in his preference for the mercurial, which if too slow, may be aided by proper combination, and addition with castor oil and rhubarb or magnesia. In both forms of nephritis, after properly reducing the force of local vascular action and febrile excitement, opium becomes one of our most available remedies. If there be too much irritability of stomach to allow of its retention in full dose,

it may be given with great advantage mingled in enemata. Its sudorific action may be sought for, if there be no gastric disturbance, by uniting it with tart: antimon:, which will often be well tolerated when exhibited thus; or by prescribing the Dover's powder.

Nephralgia may be perhaps correctly defined—the irritation of the kidney and its appendages, from the presence of renal calculi, of whatever variety. The symptoms, locally considered, resemble those of nephritis, but the diagnosis between them does not seem to be attended with any great degree of difficulty. The latter is essentially and from its origin, a pyrectic affection, often commencing with a chill, and always exhibiting in its progress vehement febrile excitement of the general system, the pulse being full, hard and frequent, the skin hot, dry and harsh. In nephralgia, with far greater intensity of pain, for the most part, there is seldom or never any perceptible degree of fever; nay, the pulse beats languidly and slowly. I have found it for days together, at fifty and sixty—the skin remaining cool, pale and soft. There is also less nausea, though the bowels are uneasy, costive and flatulent. Nothing can exceed the extremity of anguish experienced by the unhappy patient. Sometimes it is seated in the kidney itself, and he cannot bear the slightest pressure upon the loin, or the least motion of the trunk; vomiting and coughing are torture to him. Again, it is often deep seated in the abdomen, but in front, between the ileum and the navel, at a point which he can cover with his thumb. Or the bladder is the seat of startling, sharp, lancinating pangs, just above the pubes or across the whole pelvis; the testicle is drawn forcibly perhaps to the ring, by sympathetic involuntary contraction of the cremaster, with a sickening, depressing, overpowering agony. The penis is subjected to shooting pangs of intolerable severity, which resemble the electric flashes of tic douleureux—neuralgia of the face. The whole side becomes painful, from the diaphragm to the hip, and reaching down to the mid thigh, or affecting with harsh cramp the calf of the leg.

This irritation of the kidney from a mechanical cause, may give rise to consecutive nephritis; and it is difficult to conjecture, indeed, why this result is not uniform, or at least, vastly more frequent than we find it to be. I cannot say that I have

ever seen it definitely developed in this way. But on the other hand, I have known vehement nephralgia, such as I have described, last for six, eight and fifteen days, without lighting up any pyrectic disturbance in the system, or, as far as could be noted, any degree of local inflammation. There is another striking circumstance in the history of nephralgia, which marks strongly the distinction which separates it from nephritis. The symptoms of this latter disease are continuous, proceeding to the highest point of danger and intensity, and thence declining with a steady progress, while nephralgia, which I hold to consist in a train of phenomena essentially and characteristically neuralgic, has its exacerbations and intermissions, or strongly pronounced remissions, falling readily under some law of regular periodicity; the patient soon learning at what periods of the day he is most liable to recurrence or aggravation of his tormentor. The paroxysms differ much in duration. The longest I have known, lasted about thirteen hours, and although in a calculous subject, was not followed either then or for months after, by the discharge of any concretion, nor by any tokens of the presence of stone in the bladder.

It is of much consequence to ascertain exactly, the nature of the case, and to know the cause to which we are to attribute the symptoms. Assurance is made doubly sure, of course, when after some one of these attacks, a calculus passes out of the urethra, or we find in the turbid or bloody urine, the grey sand or gravel, or any of the undue deposites formerly spoken of. When we have thus obtained a certainty, or from carefully collecting all the symptoms, have decided that there is a strong probability of the formation of renal calculi, we must do all that is in our power to promote their discharge or their solution, and to prevent the repetition of such deposites within the body.

During the paroxysm, we must in every way endeavor to relieve pain and subdue irritation. The lancet is occasionally required or admissible as a relaxant, and cannot be dispensed with when we become aware of the transition, which, however, I have never witnessed, from nephralgia to nephritis. Cupping is frequently beneficial, as a revulsive, I suppose, and I would always employ it, if the pain in the loins continued urgent more than three or four hours. Granville's counter-irritating lotion

often does prompt service, and the ordinary mustard poultice gives great relief. But upon opium and the warm bath, we are to place our chief reliance. John Hunter used often, in the course of his illustrious, laborious and painful life, to exclaim "thank God for opium!" Willis says forcibly, that in no disease are the virtues of this valuable drug so strikingly beneficial and available. The sufferers from this terrible morbid condition, myself among them, will accord fully with the judgment of the latter, and join heartily in the gratitude of the former. We need not delay a moment the exhibition of opiates, in the case before us; nay, it is best to commence as early as possible, and arrest at once the incipient movements of the attack, for fear that nausea, not so common or so urgent a symptom here as in nephritis, but yet frequently troublesome, may surpervene and interfere with the retention of our best and admirable remedy. Use it in large doses; I prefer the muriate of morphine to all other preparations, and prescribe from half a grain to one or even two grains, according to the intensity of apparent suffering. In a very severe case, we may repeat the dose in from half an hour to an hour. The anodyne influence expected from it, will be exhibited more or less promptly, according to circumstances. I have watched this point attentively. The shortest period in which I have been satisfied of its beneficent effect, in the notable subdual of pain, was forty-five minutes; it will not usually show itself in less than an hour and a quarter, or from an hour to two hours; if the pain has had time to fix itself and extend from one point to another, it will be removed with the greater difficulty, and our narcotic must be repeated often, and assiduously persevered in. If rejected by the stomach, give it largely in enemata, after having emptied the bowels by relaxing injections, which if warm, will act well, too, as fomentations. Employ the hot bath again and again, and keep the patient immersed until he becomes faint and prostrate. When the paroxysm has gone off and ease is restored, rest must be enjoined, the diet reduced for a few days, and poultices or other counter-irritants occasionally applied about the loins.

The urine should be inspected carefully, and its appearance and qualities accurately noted from time to time. Any deposite which it may let fall, ought to be submitted to a minute chemi-

cal analysis, from which we may often learn the proper course to be followed. We must keep in view always, the probability that a concretion has been formed in the kidney, and found its way into the bladder, and that the most serious evils impend, if it be not soon expelled from that cavity. Remaining there, it can hardly fail to serve as a nucleus upon which deposites of various composition will take place, augmenting in size until it will require for its removal one of the most formidable operations in surgery, to say nothing of the distress and injury to the constitution occasioned by its presence and incessant irritation.

The patient should be made to drink largely of diluents, and should be desired to retain his urine until the bladder is pretty well distended. Then let him discharge it with as much force and rapidity as he can, leaning himself forward and in a stooping posture. If not too large for the urethra, he will thus get rid of it. Generally speaking, the morbid urines contain an undue proportion of acid, and it is advised that the alkalies shall be taken largely—the bi-carbonates of soda and potash being preferred.

I have already more than once adverted to the fact, that it is not every paroxysm of nephralgia that is followed by the escape of a renal calculus; nor does every nephralgic become the subject of lithotrity or lithotomy. We do not know what may have become of the calculus that has passed into the bladder in such case—taking for granted that the symptoms always indicate the actual occurrence of this event. Willis believes that they are sometimes spontaneously re-dissolved, and that the use of alkalies in the fluids drank, will thus dissolve them—for which purpose the patient must perseveringly take alkali enough to change the chemical condition of his urine and more than neutralize its acid, as is easily perceived through the test papers. There seems indeed, to be abundant proof of the solution of stone in the bladder, under the employment of artificial and natural alkaline waters, the latter especially. The fountains of Vichy, in France, and in our own country of Ballston and Saratoga, have attained the highest reputation in this regard, but perhaps any pure waters taken in great abundance may affect the same purpose, and thus even Preissneitz's absurd system, as has been asserted, may avail.

In the intervals, and with a view to the eradication of the lithic diathesis, not the mere prevention of paroxysms through the chemical action of medicine and drinks, in dissolving concretions or correcting the morbid qualities of the urine secreted, the nephralgic patient will require another course of management. I have already endeavored to impress upon you the opinion that all this class of disorders of excretion—or at any rate a vast majority of them, have their root in some vice of assimilation; that digestion is imperfectly performed, that the conversion of food into nutriment is morbidly defective; and that there is extensive general impairment of the constitution, coincident and connected with this renal derangement. The disease is rarely met with before the middle term of life is reached, and decline has begun—say from forty to sixty years of age. In great numbers it is obviously connected with a gouty state of system, the lithic diathesis, whether inherited or newly built up, being common to both. In very many too, it is as obviously connected with long protracted indigestion or dyspepsia. It is said to be met with most frequently in those who use most animal food, especially after the growth of the body is fully completed—the system being thus unduly azotized; and in those who take habitually but little exercise, thus failing to incorporate the azote in their imperfectly developed muscles, and rendering its prompt and ceaseless elimination a matter of somewhat urgent necessity. I need not then surely dwell upon the importance of a due regulation of the diet, regimen, and whole habits of the patient. All excess must be shunned, whether moral, intellectual or physical. Animal food must be taken in moderation, and the food light and easily digestible; a preference being given generally to the farinaceous preparations and rice. The discussions concerning wines, cider and malt liquors prepare us to forbid the use of them all. Alcoholic drinks can do nothing but injury by their ordinary use as beverages. As far as possible care and anxiety must be lessened, by the avoidance of such engagements and occupations as disturb the mind. Occasional journeys are of great benefit, and the citizen may derive advantage from a temporary residence in the country, and an entire change of his mode of living A visit to some of the fashionable watering places often improves the health decidedly; I have

already indicated the preferable qualities of the mineral waters employed, and the likelihood of being benefitted by any one among them.

The only remaining affection of the kidney which I shall notice, is that which is known, from the name of the pathologists who first drew the attention of the profession especially to it, "Bright's disease;" from its nature as "the granular degeneration of the kidney;" and from its prominent symptom as "albuminuria." I shall not take up your time with the discussion of the disputed question, whether or not it should be regarded as a mode of chronic inflammation. Its whole history is so peculiar, that it deserves to be considered apart from nephritis; and indeed from its associations and results, we may fairly infer that certain morbid derangements are going on throughout its whole duration, absolutely independent of the quasi-inflammatory condition coincident with it.

Its connection with the exanthemata—scarlet fever especially, on the one hand, and on the other, with some forms of dropsy, and the invariable presence of an undue proportion of albumen in the urine, constitute its pathognomonic signs. Its causes are not clearly made out. Bright speaks impressively of intemperance as producing it. Christison ascribes it to varied constitutional circumstances, among which he notes "mercurial deterioration," and "a scrofulous habit." Osborne attributes it to suppressed perspiration, and to excessive use of diuretics. It is most frequently met with in men, and in middle life. It arises from, is coincident with, and gives origin to many modes of disorder of the general health, of which the ultimate results are almost uniformly ascites and anasarca, and the proportional mortality that attends is very great. The principal diagnostic is drawn from the albuminous quality of the urine discharged; the quantity of this fluid is often increased too, and it is sometimes tinged with blood. Micturition annoys the patient with diarrhœa frequently; and he dies dropsical and exhausted, or may suddenly perish with asphyxia, or coma, or convulsions. The coloring matter of the blood meanwhile is singularly deficient; the heart very often in a morbid state; Osborne found bronchitis associated with full half his cases, and Christison remarks the same thing of pulmonary œdema. Arachnitis has several

times concurred with it, attended by serous infiltration, and from the fluid thus effused Dr. Barlow obtained urea.

Autopsy shows "the whole cortical part of the kidney converted into a granulated texture, with copious morbid interstitial deposit of an opaque white substance. Externally the organ is rough and scabrous to the touch; it feels hard and of semi-cartilaginous firmness." Bright says its size is generally increased. Martin Solon says it is almost always hypertrophied. Rayer describes different forms, varying in this regard; and Holland gives us a case in which the kidney was much smaller than natural.

Of the treatment of this very serious and unpromising malady I can say little from experience. Venæsection is generally recommended in the early stage, and the blood drawn is affirmed to be remarkably buffy. Christison, however, offers a caution against carrying this mode of depletion too far, "on account of the impoverished state of the blood." Next to the lancet, the employment of purgatives is confided in. Bright prefers elaterium and jalap, with bi-tartrate of potass. Stokes eulogizes the mercurial. All avoid the neutral salts. Diaphoretics stand next in order, and our last named authority enumerates the antimonials, sulphur and guiac:, the acetate of ammonia and Dover's powder, as well adapted. Practitioners differ widely as to the administration of diuretics. Digitalis and colchicum seem, however, to be liable to little objection. Rayer uses the acetate of potass: with decoction of wild horse radish.

Tonics become absolutely necessary in the progress of the case. Iron, cinchona, and buchu, are particularly extolled. The diet should be mild and nutritious. Milk and other light animal food often agree very well. Flannel should be worn next the skin; and if the patient can choose, he should fix his residence in a climate of warm and equable temperature.

I spoke formerly of the deficiency and superabundance of urine, anuria and diabetes, without stopping to make any remarks concerning their treatment, because I regard them both as symptomatic either of some general and constitutional affection, or of disease of the kidney itself. When suppression of urine occurs, it is requisite to ascertain clearly, if we can, the condition of the organ. When congested or inflamed, cups or

leeches should be applied to the loins, with subsequent fomentations continued assiduously. The hip bath and the hot bath should be repeatedly used. Laxatives and large, relaxing enemata, should be administered. If the pulse did not forbid it, I would bleed freely. The acetate or super-tartrate of potass: may be prescribed as diuretic with colchicum or digitalis and opium given to relieve pain. If the strength were much impaired, I would, perhaps, select the more stimulant diuretics, prescribing, though with caution, the spts: terebinth: or tinct: cantharides with opium, determining to the bowels with the mercurial and resinous cathartics, immersing the patient, from time to time, in the hot bath, and fomenting and poulticing his loins, or applying over the back Granville's ammoniated liniment.

The Treatment of diabetes is, in every point, warmly disputed. The Pathology of the disease is so exceedingly obscure, that it is matter of absolute conjecture where it begins. Rollo, and the majority of writers, fix its primary locality in the stomach, asserting that the saccharine substance characteristic of it is formed there, and that the kidneys and general system are affected secondarily. "McGregor demonstrated," says Willis, "that the sugar was formed in the stomach. The fæces of one of the patients being allowed to dry, became colored with crystals of sugar." McGregor found sugar also in the blood and in the saliva. Watt and others contend, that the blood is in a highly morbid state, presenting often no separation of serum and crassamentum, and forming, on exposure, a soft black mass almost devoid of cohesion and tenacity. Nevertheless, venæsection has been employed in the early stages, and, Craigie tells us, with great advantage. Rollo's views, as stated above, led to a dietetic management carefully adapted to the supposed exigencies; and an absolute confinement to animal food was expected to prevent the formation of sugar and afford the deficient azote. Much testimony has been accumulated in favor of this course, but Craigie decides, positively, that "although it had the effect of disguising the sugar by increasing the azote in the urine, it did not alleviate all the symptoms, much less did it cure the disease."

It has been found very difficult to control the patient's appe-

tite in many cases, and I am inclined to think that a mixed diet, avoiding acescent vegetables and articles of saccharine qualities, will best answer our purposes. The thirst, which is also extremely annoying, is advised to be quenched with fluids that "require some digestion, and do not run off at once by the kidneys," such as beef-tea, veal-broth, etc. Wines, and all liquors, must be abstained from. The bowels must be kept soluble by oily and resinous laxatives. If the strength permit such depletion, cups and leeches should be applied over the kidneys; and, at any rate, counter-irritants along the lower part of the spine and about the loins. The warm bath must be used occasionally, flannel worn next the skin, and the flesh-brush often employed to the whole surface. Of all internal remedies, opium has acquired most of the confidence of the profession, and its free and persevering administration is believed to have done more to benefit these intractable cases, than any or all other medicines given for their relief. Diabetes is a chronic malady, running its course sometimes in a few weeks, but often enduring for months or even years. The changes found in the dead body, are none of them characteristic or instructive. Willis agrees with Rollo in regarding it as a merely functional affection of the stomach, and says, emphatically, "could we discover any means of preventing the stomach from forming sugar, we should, I believe, succeed in curing the disease." He recommends an occasional emetic, and advises the union of tartarized antimony with opium, both of them being well adapted "to subdue the inordinate craving, and to determine to the skin."

Before we conclude, it is incumbent on me to say a word or two of the diseases of the urinary bladder. This organ, like every other, is liable to inflammation, both acute and chronic. In the former, a very painful affection, there is a sense of fulness, weight and heat above the pubes, with micturition and dysuria, or perhaps complete retention of urine. When it comes away, it is scanty, high colored, and seems to scald the passages, while the bladder, in expelling it, suffers intense agony. Fever comes on with hard pulse, hot skin, restlessness, and delirium. I have seen a promptly fatal case, in which acute supervened upon chronic cystitis, the patient dying in torture. We found the

bladder as thick in its substance throughout as the palm of one's hand, and its cavity very much lessened.

The same sufferings, inferior in degree and protracted for a great length, attend upon the chronic form of the disease, known generally under the term cytherismus, and spoken of as irritability of the bladder. Our treatment of the case must be guided by the same principles that apply to the management of the phlegmasiæ generally. If the pulse and strength permit, the lancet must be used, and with a freedom proportioned to the urgency of circumstances. Leeches should be applied to the perineum and over the pubes; the hip-bath and general warm-bath resorted to from time to time, and fomentations assiduously kept upon the lower part of the abdomen and between the thighs. The bowels must be well evacuated, and as promptly as may be, by the oily and resinous cathartics, and large relaxant enemata repeatedly thrown up, which act also as fomentations. Opium must afterwards be administered in full doses, both by the mouth and per anum, as in the glyster of starch with laudanum.

When the attacks run on into a chronic protraction, the uva ursi and buchu (diosma crenata) are highly recommended; and Willis advises, under such contingencies, the injection into the bladder of some one of the bland mucilaginous solutions, the quantity of which may be gradually increased, and the time of retaining it lengthened. Rest, and a low diet, with a careful avoidance of all such ingesta as are likely to excite or irritate the kidneys, or impart any morbid qualities to the urine, must be strictly enjoined.

INDEX TO VOLS. I. AND II.


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