

A treatise on pyrosis idiopathica, or water-brash : as contrasted with certain forms of indigestion and of organic lesions of the abdominal organs, together with the remedies dietetic and medicinal / by Thomas West.

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A TREATISE

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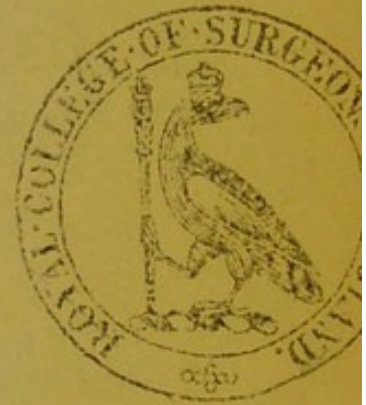
ON

PYROSIS IDIOPATHICA,

OR

WATER-BRASH,

AS CONTRASTED WITH



CERTAIN FORMS OF INDIGESTION AND OF ORGANIC
LESIONS OF THE ABDOMINAL ORGANS;

TOGETHER WITH

THE REMEDIES DIETETIC AND MEDICINAL.

— BY THOMAS WEST, M.D. (?)

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS, AND OF THE ROYAL
COLLEGE OF SURGEONS, OF LONDON; FELLOW OF THE ROYAL
MEDICO-CHIRURGICAL SOCIETY, ETC. ETC.

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TO THE
PRESIDENT AND FELLOWS
OF
THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY
OF LONDON.

GENTLEMEN,

The custom of dedication not only affords me the honor of inscribing to you my Treatise, but at the same time enables me to express my gratitude to several Members of the Society for the many personal kindnesses I have received from them.

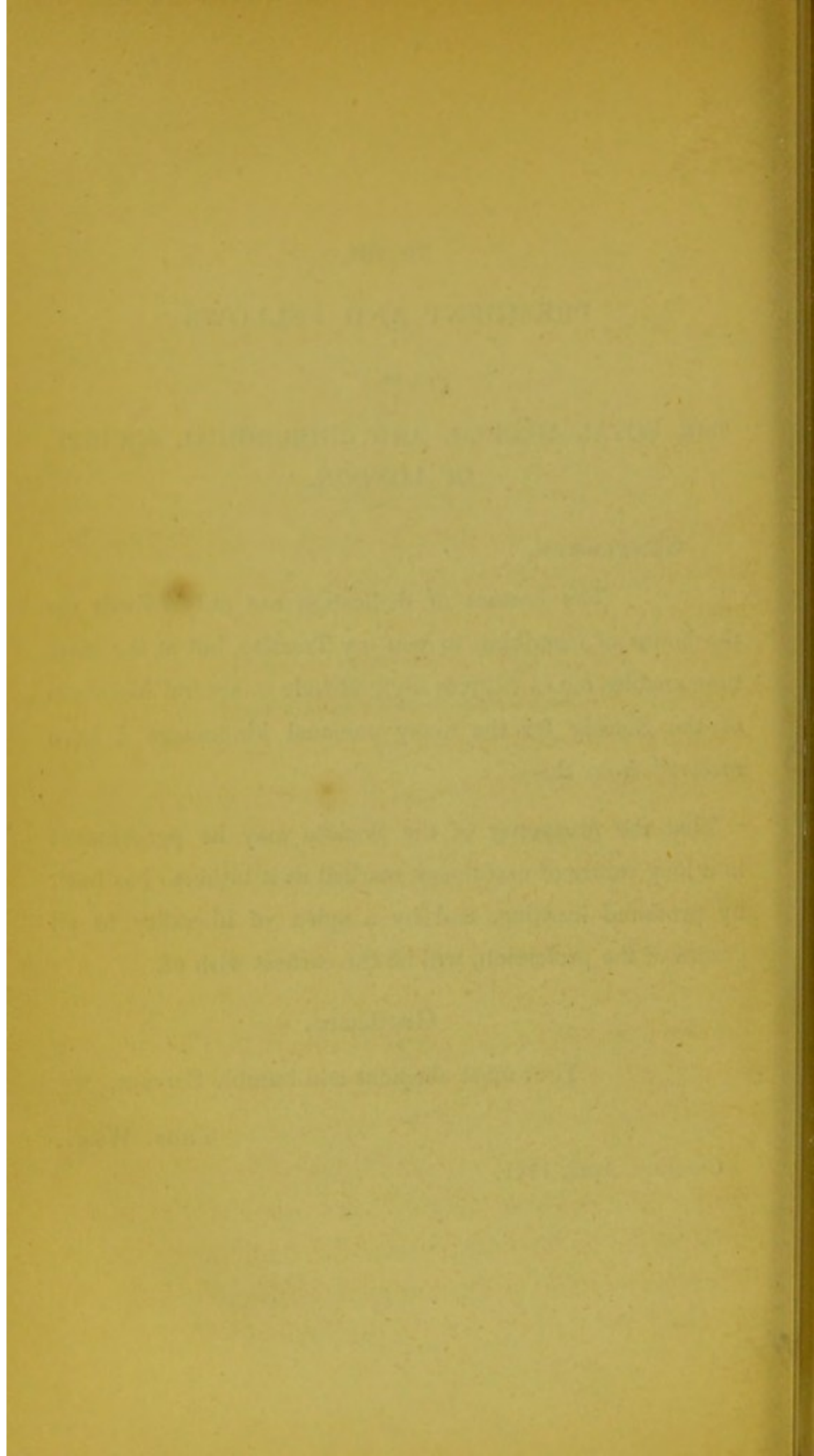
That the prosperity of the Society may be perpetuated in a long career of usefulness, marked as it hitherto has been by profound learning, and by a spirit of liberality to all grades of the profession, will be the earnest wish of,

Gentlemen,

Your most obedient and humble Servant,

THOS. WEST.

Coventry, April, 1841.



ON PYROSIS, OR WATER-BRASH OF THE STOMACH, &c.

PYROSIS is, in a minor degree, a very common attendant on various forms of dyspepsia ; but in some instances it is itself so urgent and distressing, presenting itself as so prominent a feature of gastric malady, that it throws most of the other well-known symptoms into the shade, so as to claim the painful attention of the sufferer and the special observation of the practitioner. Hence it has acquired a distinct place in Nosology ; and hence it is, that in common parlance it is distinguished by the term water-brash or water-qualm. Perhaps this explanation equally applies to almost every more urgent and frequent symptom in almost all diseases ; for it is thus that we are led by nature to mark the devastations of disease, according as our fears, or our belief of the paramount importance of some one morbid phenomenon or action, may have worked on the imagination or on the judgment. The term pyrosis (burning redness) is derived from the Greek, and among the earlier writers was used to express the flush of the cheeks and ex-

citement induced by rapid exertion or a hurried march. It was by the nosologists of the latter part of the last century that it was transferred to medical pages as significative of a diseased condition of the serous exhalants of the stomach, in which they pour out a hot, and sometimes acrid, watery fluid, usually thrown upwards into the mouth by a sort of ruminating action of the stomach and œsophagus. The secretion is sometimes periodic and paroxysmal, and at other times irregular. As in dyspepsia, certain characteristic symptoms occur in the intervals of digestion only, *e. g.* pain of the head, giddiness, and a copious saliva in the mouth; so also, the paroxysms of water-brash recur in the vacation of the digestive function of the stomach. The rumination of the liquor is preceded by anxiety, a sense of uneasiness, cardialgia, pain, or burning heat in the epigastric region, which mark the period of secretion; and the ejection of the fluid is always followed by a temporary relief. The fluid ejected is usually copious, transparent, and hot. Sometimes it is acrid and corrosive, leaving the tongue rough, as if an acid had passed over it; at other times it is insipid or slightly brackish; in rarer instances, of various shades of colour. In inveterate cases, the rumination runs into vomiting, and sometimes into true erythematic gastritis. In these cases, after the inflammation of the stomach has been subdued, the pyrosis still remains to be dealt with, and is for the most part more unmanageable. In the more trivial and temporary derangement of the stomach, as well in

children as in adults, from occasional offences in diet, the acute observer may notice the rudiment (so to say) of a pyrosis; for although in these cases the fluid is sensibly secreted and collected in the mouth only, yet there can be no doubt that a similar action is going on by sympathy in the terminal vessels of the stomach. Physiologists have referred the secretion of the proper gastric juice to the stomach only, (and even this is a disputed point;) but an abundance of facts will serve to show, that the whole surface, from the mouth to the pylorus, secretes a liquor which assists and is subservient to digestion. Pyrosis then, in this our view, is only an aggravation of one of the common symptoms of derangement of the stomach. The pathological condition of the organ is one of great debility. For what is the affection but a dropsy of an open cavity? What is its proximate cause but an exhausted and disturbed state of nervous energy? The older writers distinguished the worse forms of dyspepsia by the term 'resolution of the stomach,' or (as we should say) a languid, palsied condition of the pneumo-gastric and sympathetic nerves; and the very terms thus selected would show that they considered the containing cause to be, want of energy of the nerves and fibre of the stomach itself. In asserting that it is a dropsy of an open cavity, I am aware that it is a secretion of a mucous membrane, and duly bear in mind all the differences of the two tissues. Nevertheless, for practical purposes, I consider the analogy to be sufficiently strong; and I will go further and

add, that they who are in years, and pyrotic, will not be long without dropsy, unless the condition of stomach be improved.

Dr. Macbride, in his Practice of Physic, has observed two conditions of the fluid rejected in this complaint, to the extent of a pint or more,—the insipid and the acid or austere,—and that each is frequently thrown up to the extent of a pint or more ; but if it may be permitted to travel out of the limits of this particular disease of the organ, what a great variety of secretions do we see from it, according to the state of its energies, and according to the state of the blood ! John Hunter was, I believe, the first to notice, that what had been incorrectly deemed a bleeding condition of the stomach, and denominated by most writers hæmatemesis or blood-vomiting, was in fact no more than a bloody secretion in an impaired state of that organ. It would be tedious to go into his cases ; they are known to all of us. I refer to this, as to another condition of the same vessels, which in a pyrosis secrete a transparent fluid. Suffice it to quote one case. He was called into a nobleman, already attended by two of the first physicians in London. The patient was in bed, and enjoined to rest with as much composure as possible ; a sheet or counterpane was all his covering ; the windows were open : he had ice on his stomach : iced lemonade, with the most powerful internal styptics, were exhibited. The seeming but fallacious blood-vomiting still continued. Hunter showed the physicians their error : he convinced them, that although

a clot or two of blood might be seen here and there in the egesta, that yet the mass was only a secretion, abounding in red particles ; but not truly hæmorrhagic : that they might as well consider the morning vomit of a drunkard blood-vomit, merely because, from overstraining, lines or clots of blood are oftentimes visible ; or infer that the menstrua constitute uterine hæmorrhage, because here and there a clot escapes with them. He it was who first showed the material to be a morbid secretion, and that the way to stop it was first to tranquillize the organ, and then to strengthen it. Accordingly, he succeeded where the physicians had failed ; for by warm drinks, external warmth, and by a restoration of circulation to the surface, he checked the further secretion, which was subsequently prevented by a course of tonic aperients.

Furthermore, these same vessels will secrete gaseous, elastic, aerial fluids,* in enormous quantities. Let us instance the cases of hysteric belching. The experienced practitioner will recollect his own surprise at the first case he may have seen of this nature. Successive and repeated explosions of hundreds and

* Il serait intéressant de connaître d'une manière précise quelle est la nature des gaz qui se dégagent en si grande quantité de l'estomac dans un grand nombre de cas de gastrites chroniques. On sait que tantôt ils sont sans odeur et sans saveur, et sont indépendants du travail de la digestion, et que tantôt ils accompagnent plus spécialement ce travail ; ils acquièrent alors une odeur d'hydrogène sulfuré, et leur saveur est souvent extrêmement âcre, au point d'être la cause d'une sensation très pénible, et même douloureuse pour les parties qu'ils traversent.—*Clinique Médicale d'Andral*, tom. ii. p. 141. Ed. 4^{me}.

thousands of cubic inches of gas from a stomach in a state of vacation from food, is a matter well worthy of our reflection; and that I do not over-rate the quantity, any one may satisfy himself who shall have considered that the explosions, with slight intervals, will last from one to three hours. We here behold another secretion, another morbid condition of these same serous terminal vessels; and how far that secretion is influenced by the state of the nerves, and even of the thoughts, is matter of common observation. Nor are these the only morbid secretions of the same serous vessels. In some instances they secrete an acid liquor sufficiently corrosive to excoriate the tongue as it passes over it. I suspect that those cases of ventricular perforation which have in the north of England been made subjects of jurisperit controversy, are of this nature. We all recollect how warm was the dispute of certain eminent physiologists on this matter. The discrepant evidence given by them before a judge and jury was reiterated in pamphlets and rejoinders. In my humble opinion it was a mere waste of words, and I deferentially assign these my reasons. 1st. Healthy gastric juice (that is, healthy in death, as in case of accidents, &c.) will not corrode the stomach.* Proof: if it had this

* I am aware of Dr. Philip's experiments on rabbits whose stomachs were burst by distension after death, and afterwards partially dissolved, and of various cases of solution of this organ, from that cited by John Hunter down to the many recorded in our own time, and I have one answer for all,—Let us retreat upon our own

property, ulceration after death ought to be the rule, and non-ulceration the exception. 2ndly. Unhealthy secretion from the serous exhalants of the stomach may perforate the stomach in and after death. Proof: because, as above proved, these vessels secrete a caustic fluid which corrodes even living matter, whose power of resisting corrosion is greater than that of dead. Such and so great is the variety of secretion from serous vessels, whether from open or close cavities, that I would rather ask what is it they cannot pour out, than what it is they can? Take, for example, the following cases: Richard Jackson, æt. 60, and William Jackson, his son, æt. 29, both occupied as journeymen weavers, were both respectively under my care with pyrosis, which seems to have been (so far as predisposition goes) the inheritance of the latter. Their symptoms presented at first nothing unusual; but as the disease advanced and the paroxysms recurred, the rejected fluid became more and more brackish and dark, and at length literally nearly as black as ink.* I think I have said enough to show that the vessels whose pathological condition I have undertaken to expound, are liable to strange alterations, under which they acquire the power at one time of eliminating fluids of various properties and highly concentrated, but more frequently a fluid

experience, and to that of the dissecting-rooms, as well for the rule as for the exception.

* In some parts of England to this day the disease is called by the vulgar "black-water."

like that of dropsy, slightly charged with albumen. In this variety of appearance, of condition, of chemical composition, and of natural properties, I confess I see nothing but what agrees with our observations as surgeons. Look at an ulcer, at a wound from an accident, or at any open granulating surface. Does not the discharge reflect the qualities of the blood, and the condition of the nervous energies? If the blood abounds in fibrine, red particles, or serum, will not the discharge manifest it? If the brain be in a state of irritation, or even the mind distressed, will not the surface show to the practised eye of the surgeon that mischief has accrued? Are there not discharges which indicate an exhausted constitution; others significative of the most complete cachexy, and in females, even from an ulcer in the leg, some which indicate uterine disease? I have said that a pyrosis is a dropsy of an open cavity. With the same latitude I would say that a peritoneal tympany (and this commences in an open cavity almost always) is a windy dropsy of a shut cavity; for in the worst and most fatal cases of this last disease, the exhalants of the peritoneum secrete both gas and water. This is a fact not unobserved by the ancients; for the Greeks, and after them the Roman physicians, divided dropsy of the belly into tympanitis and ascites; and Celsus thus divides and defines both these and anasarca. “*Atque ejus tres species sunt. Nam modò ventre vehementer intento, creber intus ex motu spiritûs sonus est; modo corpus inæquale est tumoribus aliter*

aliterque per totum id orientibus : modò intus uterum aqua contrahitur ; et moto corpore ita movetur ut impetus ejus conspici potest. Primum *τυμπανίτην*, secundum *λευκοφλεγματίαν*, vel *ὑπὸ σάρκα*, tertium *ἀσκίτην* Græci nominârunt.”—CELSUS, lib. III. cap. xxi.

Dr. Heberden, in his judicious Commentaries (which have been under-rated by his critics, since they have declared them to be remarkable for their terseness and elegance rather than for their practical information), notices with much surprise the sudden tumours which appear and as suddenly disappear in various parts of the body. He asks, “ May not these swellings owe their formation to some secret power of the nerves, a power like that which they exert when disturbed by the introduction of some venomous fluid ? ”

My answer would be,—they are most unquestionably gaseous or aerial depositions from the serous exhalants in the cellular tissue, due “ to some secret power of the nerves.” A state of œdema occurring in weak leucophlegmatic habits is a middle condition between the gaseous and the fluid secretion ; and as the formation of wind (as it is commonly called) in the mucous tract, or in close cavities, or in the uterus, shows debility, so an aggravation of this debility, or a further diminution of the vital energies, leads to a frequent form of dropsy. I find additional proof of this position from the observation that where the weakness is limited to the serous structure of the stomach itself, we have pyrosis only ; but in protracted and inveterate cases,

as the debility extends to the rest of the serous system, we have dropsy of cavities, or general dropsy.

Having thus described my views of the pathological condition of pyrosis, I shall proceed to the etiology of the disease, remarking by the way that it is much more common in our time in this country, than it appears to have been in the two last centuries.

Various old English physicians speak of it as very common in certain northern parts of Europe, and in the north of Scotland, but as by no means of frequent occurrence in their own practice. I fear that this is a strong proof of the diminution of comforts among the lower classes, as contrasted with those formerly enjoyed by the inhabitants of this country. Although in some instances I have seen it prevail in the parents and the children, yet when I regard the effect of community of habits and diet, I pause before I admit hereditary tendency to any considerable extent. Among the most frequent causes are, deficiency of clothing in a damp and cold atmosphere, error in diet, coarse barley-bread, salt fat pork and bacon, with an undue admixture of coarse vegetable matter, such as greens and potatoes, &c.; the habitual ingestion of ardent spirits of bad quality, or in undue quantity; smoking, snuffing; habitually depraved positions of the body, as in the cases of shoemakers, tailors, ribbon-weavers, &c.; a poor and scanty diet, with irregularity of the meals; hot tea-drinking in excess. In other cases I find none of these or such like causes, but rather that the malady

may be referred to the vires vitæ having been shattered by long and incessant labour in approaching old age, or in women by rapid and frequent breeding; and in some I have been disposed to refer it to excessive dosing with empirical remedies, to frequent mercurialism, to the abuse of purgatives, to a depraved habit of voraciously eating or rather bolting of food, &c. In other cases I have satisfactorily referred the mischief to excessive constipation of the lower bowels, and found it to yield to the ordinary remedies for such torpor. Such is the result of my own experience. I will now briefly notice some of the causes enumerated by authors and practitioners of acknowledged celebrity.

Before I glance at their opinions I would have it understood, that although in the majority of cases of pyrosis, the function of the liver is more or less languid or disturbed, yet in very few instances does its depraved condition appear to be the root of the evil. Nevertheless, the prime suffering organ is the stomach, and although it is difficult, from the close sympathy existing between all the chylopoietic and assistant chylopoietic organs, to say with any certainty that such and such viscera are intact, yet the nature of the paroxysms, and the remedies which are found most effective in pyrosis, while they are least, or much less so, in hepatic derangement, will justify the practical view we have taken, and the practical application of that view in the cure of the disease. Individual experience would lead me to believe that the sanguineous

and nervous temperaments are more prone to the affection, than the atrabiliary or the phlegmatic ; while in these last, disease of the glandular structure of the stomach, ulceration, schirrus of the cardia and pylorus, dry gastrodynia, and cardialgia, are more frequent and dangerous forms of disease. Pyrotic patients usually have indeed the paleness, emaciation, and muddy complexion of dyspeptics, and so far the sanguine temperament is obscured ; but it will be more frequently found that such patients in earlier life, or before the ravages of disease, had the usual characteristics of the sanguine or nervous constitution, which, under the influence of disease, has gradually passed into the leucophlegmatic diathesis. Although pyrosis is more frequently met with in persons of middle age, yet it also attacks the aged,* and in a very great proportion, more frequently females than males. Climate, season, and soil exert a manifest influence. It is uncommon in warm latitudes, frequent in humid cold climates ; and aggravated (like dropsy) by damp rainy seasons.

Macbride, in his *Methodical Introduction to the Theory and Practice of Physic*, limits the term pyrosis to a burning heat in the stomach from acidity, from bile, or from ulceration, while he briefly notices the malady of which I am now treating, under the term “*Cardialgia Sputatoria*.” “The symptoms,” he says,

* Dr. Cullen speaks of the aged being exempt from this complaint.

“ peculiar to this cardialgia are attended with a plentiful discharge of clear lymph like saliva ; sometimes insipid, at others acrid. It comes up at intervals to the quantity of a pint or more from the stomach. This is described by Linnæus as a frequent disease among the inhabitants of the northern parts of Sweden. It is also known in these countries and in Scotland, and the northern parts of Ireland : the common people call this complaint the water-brash.”

The same author proceeds very ably to distinguish the other species of cardialgia and gastrodynia. He contrasts our humoral cardialgia, now called pyrosis, with that of paralytic dyspepsia, in which the defect consists in a want of power in the muscular fibre of the stomach and bowels, constituting slow digestion. He mentions cardialgia arthritica, or our gout of the stomach, and cardialgia verminosa from worms. He also powerfully contrasts cardialgia with gastrodynia or acute pain of the stomach, which he attributes, 1, to surfeit ; 2, to wind ; 3, to acrid bile ; 4, to poison ; 5, to depression of the ensiform cartilage, as in tight lacing ; and, 6, to the ingestion of hard indissoluble substances.

Dr. Cullen has been criticised for not placing this malady with dyspepsia. I think his account of the malady a very fair defence for having separated the two, although the location he has given it seems to make against his own principles of nosological arrangement as laid down in his preface. “ It ap-

pears most commonly," says he, "in persons under middle age, but seldom in any persons before the age of puberty. When it has once taken place, it is ready to recur occasionally for a long time after; but it seldom appears in persons considerably advanced in life. It affects both sexes, but more frequently the female. The fits of this disease usually come on in the morning and forenoon, when the stomach is empty. The first symptom is a pain at the pit of the stomach, with a sense of constriction, as if the stomach were drawn towards the back; the pain is increased by raising the body into an erect posture, and therefore the body is bended forward. This pain is often severe; and, after continuing for some time, brings on an eructation of a thin watery fluid in considerable quantity. This fluid has sometimes an acid taste, but is very often absolutely insipid. The eructation is for some time frequently repeated; and does not immediately give relief to the pain which preceded it, but does so at length, and puts an end to the fit."

I can only account for his not having commonly seen it in elderly persons, to the piety of the Scots towards their parents or grandparents; for however hardly the rest of the family live, if there is any thing good and nutritious in the cot, the poor old body is sure to get it.

Dr. Cullen rightly considers our species as the species unica vera, *i. e.* pyrosis Suecica Suavagesii, sp. 5. Cardialgia sputatoria, species 5. Macbride,

p. 515. He adds, "*Cæteræ species Suavag. sunt pyrosis a conceptione,—biliosa,—a phlogosi,—et species ulcerosa,*" all symptomatic merely.

Dr. Thomas, in his *Practice of Physic*, has committed the same error as Dr. Todd in confounding pyrosis with stomach-gleet. He notices that the disease is common in females most afflicted with fluor albus, which we know to be a common occurrence in the serous and pituitous diatheses.

Dr. Heberden, although he has not written methodically on the subject, furnishes me with some reflections of which I will avail myself. He notices the alternation of cutaneous eruptions with watery and acid heartburn; the fallacy of reasoning upon chemical principles in the treatment of the acidity of the stomach by alkalies or absorbents merely, "since the animating principle makes so much difference between a living stomach and an inanimate vessel, that this, which appears easy in theory, has been found very difficult in practice." He exposes the fallacy by quoting cases in which the elixir of vitriol had relieved the patient where testaceous powders had failed. He indicates the great proclivity of pregnant women to this malady, and observes that a disposition to it seems to be born with some persons, who have been teased with this uneasy sensation for the greatest part of their lives. But it is in his remarks on sudden effusions that I find the best corollarium of my opinions of the true nature of pyrosis. I shall, therefore, cite the

entire paragraph on this subject, observing by the way that the fallacy of reasoning upon chemical principles in neutralizing acidity of stomach (by no means an uniform attendant on pyrosis, for the secretion is frequently alkalescent) is equally common in the treatment of gravel, and would be best avoided by our bearing in mind that both the gastric juice and the urine, when healthy, contain naturally some excess of acid, to neutralize which is to encourage disease; that it is the morbid excess only which we are to endeavour to diminish.

“ The abdomen has been observed to swell from various other causes besides the more common ones of a dropsy, either in the belly or ovaries, of pregnancy, or scirrhi of some of the viscera, or flatulence. The hard swelled bellies of children continue too long to be owing to flatulence, and they yield too soon to purging medicines to be occasioned by scirrhi. Upon the total ceasing of the menstrua, or upon a temporary obstruction of them, the abdomen will often be swelled, and continue so for some months. Women not uncommonly complain of such tumours after miscarriages, or after being brought to bed. Many of these swellings are probably owing to some secret power of the nerves, which they frequently exert when disturbed by several poisons. They have in some persons been known to continue for two or three years; and, after a violent head-ach, the whole body has swelled, and subsided within an hour. Very large swellings, continuing for

two or three days, have been known to attend the attacks of the *essera*, or nettle-rash. It has often happened to the same person to have a tumour of the abdomen disappear upon the sudden gushing of about a pint of water from the uterus. In one person, whose abdomen had been swelled for two or three years, a sudden swelling would often rise up in other parts, as on the thighs, back, and thorax, quite up to the neck. A tumour half as big as a child's head would suddenly rise up in the same patient's neck; and though the swelling of the belly never totally disappeared, yet it would sometimes in a morning be hardly perceivable, and in an instant the whole abdomen would become so distended that the skin seemed ready to break. She often felt something move from the stomach to the limbs, which were immediately convulsed."

Dr. Seymour, in his paper on *Pyrosis* in the *London Medical Gazette*, vol. i. p. 783, speaks of it as an occasional symptom of organic disease of the liver, stomach, and pancreas. In the first and last case a slight affection of this kind is merely symptomatic, and in *scirrhus* the means of diagnosis have been already inculcated. Dr. Seymour premises that "his remarks apply only to cases of watery fluid from the stomach, as they are presented to the observation of the physician in large towns, and among persons from whose manner of living it is manifest that the exclusive use of vegetables cannot be considered as a remote cause of the disease." I do not see why

his observations should not apply to those cases which occur from the depraved diet alluded to in his paper. It matters not whether the innervation of the stomach have been effected by coarse farinaceous diet combined with the effects of damp, cold, and the depressing powers of poverty, or whether induced by other errors in diet in the middle, and more rarely among the higher classes, together with the wear and tear of the human mind, from which no class of society is exempt. The question will be, to what extent has the disorder been produced, and is it simply an affection limited to the serous vessels? For when it is symptomatic of dyspepsia, or of organic disease, and the secretion is only to the extent of an ounce or two, the pathological condition is more complicated, and the disease can hardly be called pyrosis, since the effusion is not the leading symptom, but exists subaltern to other signs of dyspepsia. Dr. Seymour observes, "that the cases he relates appear to arise from increased sensibility of the nerves supplying the secretory surface of the stomach. The best theories of secretion attribute to the nerves the principal part in the performance of this function; and the fact of the frequent occurrence of the disease in persons whose nervous system is unusually deranged throughout, would lead us to this conjecture, even were such theories not in existence." Dr. Seymour's experience coincides with mine, in so far as he has met with the affection chiefly in the middle-aged and the elderly.

Such of his cases as were not complicated with organic disease were all slight. Case 1, for example, was attended with no pain, and readily referred to the use of malt liquor. Case 2 was connected with uterine derangement, and was cured by a bread and milk diet. Case 3 was obstinate, as might be expected, for here the patient was in distressed circumstances, which are the most unfavourable for the recovery of the healthy innervation of the stomach. In this case the affection was connected with urticaria. It gave way in three months to the usual tonics and antacids, aided by a bread and milk diet, and supported by the external comforts and regularity of the asylum in which she was treated. Case 4 is not a case of pyrosis, except as a symptom of organic disease; for the inconvenience was so slight that the patient does not appear to have complied with the prescription. Dr. Parry's case, which he cites upon this, would only show that pyrosis may be followed by ulceration of the stomach.

Dr. Seymour quotes other cases to prove that pyrosis occasionally arises where there is disorganization of neighbouring viscera, the stomach itself remaining healthy in structure; but all these cases are exceptions to the rule, since in a great majority of organic diseases of stomach, liver, pancreas, and of other viscera, no pyrosis is observed; and with regard to the stomach remaining healthy in structure, it must ever be borne in mind that its innervation may so far be impaired, as well in pyrosis as in incessant vomiting, that death may ensue without any morbid changes

of the mucous membrane, and without any manifest organic change in any part of the body.

All that can be inferred then from Dr. Seymour's cases (Nos. 4 and 5) is, that pyrosis does occasionally precede organic disease ; and it is quite plausible to suppose that if an organ be disturbed, in its innervation, poisoned (so to say) by an injurious habit of diet, and the energies of the whole body be impaired by external causes, that such a condition may be more favourable to the formation of malignant tumours of internal viscera ; but it is not yet proved by facts. The most marked case of pyrosis published by Dr. Seymour is Case 3, which may be thus summed up : Poverty of diet in a serous habit—slight pyrosis—dyspepsia—leucorrhœa—received into a comfortable asylum—errors of diet corrected under an able physician—innervation improved—and the patient recovers in three months. But even this case is rather one of dyspepsia than of pyrosis. Let us refer to Dr. Cullen's or to Dr. Macbride's faithful description of the disease, and we shall see what is, and what is not pyrosis. " I have known," says Andral, " a case in which a female was tormented with painful digestion, together with an almost daily vomiting of a whitish mucous matter, which she called *des glaires*." Here again we have paroxysmal secretion with pain, and the secreted matter daily thrown up, but no pyrosis ; for it is a disease of a different set of vessels, a leucorrhœa of the stomach. It may acknowledge the same causes, it may

occur in the same temperament, it may be cured by the same medicines and by the same regimen, but it is not the same disease. Dr. Seymour's cases arise from local irritation, or, as he says, from an increased sensibility. In well-developed cases of pyrosis we have protracted causes gradually affecting the innervation, and the whole surface of the stomach is in a dropsical condition, the skin and kidneys being deficient in their action, as in other dropsies. "The serous fluid which under the form of vapour is incessantly exhaled at the surface of mucous membranes, as it is at all surfaces (serous, cellular, vascular, and cutaneous), becomes exhaled in excess." The mucous membrane sweats like the skin: "*Elle sue comme la peau.*"—(Andral.) Is it any objection to my view that this stomach sweat is paroxysmal? Is it not so in a serous diarrhœa? What proof have we that it is not so in close cavities? "Such infiltrations," says Andral, "may exist in a high degree without being accompanied with any remarkable organic disorder of the mucous membrane itself." Recurring to Dr. Seymour's views, that his cases arise from increased sensibility of the nerves, surely this is part of the pathological condition, part of the *causa continens*, but not the whole of it. You have an increased sensibility in a serous diarrhœa, but you do not forget revulsion from the skin, and in obstinate cases you cannot cure until you have increased the sensible perspiration. A man takes arsenic, and recovers with a miserably weak condition of sto-

mach: the innervation is affected by the poison. There may be increased sensibility without pyrosis, but will your opiates be any thing but palliative? Will he not require time and regimen in diet to bring about convalescence? Depraved diet, and external damp and cold, and wear and tear of mind, are all slow poisons. When these depressing agents have materially affected the innervation, the removal of the nocent causes, and the substitution of more favourable circumstances, will be essential to convalescence. We may palliate, but we cannot cure. We may suspend disease, but it will surely recur, unless the curative and dietetic measures are continued till the conservative power shall have accumulated to the standard of vigour.

Drs. Gregory, Pemberton, Baillie, and others, have mentioned an incessant vomiting of a fluid like cocoa, of a fluid like milk, of a fluid like coffee-grounds, and have severally attributed the malady either to faulty conditions of the mucous membrane of the stomach, or to a sympathy of this membrane, in one case with the kidney, and in another with the ovary.

Dr. Abercrombie, in his *Pathological and Practical Researches on the Diseases of the Stomach, the Intestinal Canal, and the Liver*, briefly notices the complaint in the following paragraph:

“ *Obstinate and untractable pyrosis*, often accompanied with discharge of quantities of thin acrid mucus by eructation, or with a feeling of constant and intense

acidity, produced by articles which are not likely to become acid. These symptoms are probably connected with a diseased condition of the mucous membrane of the stomach. In some of the cases formerly described, we have seen them connected with actual ulceration ; in others, the membrane appears thickened, pale, and spongy, with an increased and unhealthy secretion. A woman mentioned by Andral, vomited every day about four pints of white glairy mucus like the white of eggs ; and she never vomited either food or drink. On dissection, no other morbid appearance could be discovered than a general thickened state of the mucous membrane of the stomach, which was of a brownish colour, and the follicles were remarkably developed. When the fluid discharged is tinged of a brown or chocolate colour, ulceration is to be suspected : in other cases, only a thickened state of the mucous membrane is met with, combined with an appearance of melanosis. The fluid in these cases has been found to contain a large proportion of albumen, and the colour appears to arise from the colouring matter of the blood. The affection is very untractable ; it is often benefited by lime water, bismuth, the stimulants, as garlic and benzoin, and frequently by the acids, particularly the nitric ; likewise by blistering and mild farinaceous diet."

In his remarks on a different affection (tympanitis) he gives a variety of cases which will serve to support the views I have taken of the pathological condition

tending to the formation of various elastic effusions from the serous vessels of the alimentary canal, under an impaired state of constitutional or conservative power.

Dr. Mason Good observes, “ that when the watery discharge is altogether insipid, there is merely an increased secretion of the fluids poured into the stomach, apparently in a thinner and more dilute condition ; and that when this discharge is of an acrid taste, the gastric and other juices which exist simply and without food or intermixture in the stomach at the time, possess an acidity in themselves ; a fact which closely connects pyrosis with cardialgia as a species, and readily reduces it to the rank of a variety under its banner.”

Andral's notions of the nature of pyrosis are strongly confirmatory of my own. By reference to his *Précis Anatomique et Pathologique*, tom. i. page 312 to 334, the reader may observe, not only that he uses the term dropsy of the stomach as applicable to those cases of internal deposit, which accumulate to an unusual extent before vomiting, but he likewise, in another passage of the same work, (tom. i. p. 343,) briefly gives his own enlightened and comprehensive view of this and similar morbid conditions of mucous membranes. He observes, that “ produced in lax and lymphatic temperaments, prevailing chiefly in cold and humid climates, they are especially characterized by an excessive secretion ;” that they so far partake of the nature of dropsy, *that they may suddenly exchange*

*their character for deposition in close cavities ; that the reverse may happen naturally ; that hydrothorax may terminate by a sudden serous discharge from the air passages ; hydrocephalus by inordinate discharge either from the skin, kidneys, or bowels ; and that anasarca still more frequently so shapes itself. It is thus that a copious secretion takes place in the course of the mucous canal from the sudden suppression of a sweat : it is thus that an ascites has been suddenly exchanged for a serous diarrhœa ; and it is thus that we imitate these occasional revulsions by the exhibition of elaterium or of other hydragogues. Who doubts that in all these cases the discharge is the same liquid which would have gone off by sweat, or would have otherwise remained shut up in the close cavities ? The introduction of various poisons, as for example that of the rattle-snake, produces dropsy, first by affecting the innervation, and secondarily the secretions. Cold and damp *ab externo* induce dropsy. The continued application of various badly selected articles of food to the surface of the stomach slowly poisons the surface, affects the innervation, and induces pyrosis. Cold and damp *ab externo* favour pyrosis. Bury a man in salt to his neck for a few hours, and you will have dropsy. Keep him on salt fat pork, in a cold humid atmosphere, without that methodical alternation of diet which is adopted in our navy, and you will poison the gastric surface, impair the innervation of the organ, and so create either a pyrosis, or a dropsy,*

or land scurvy, just as collateral and external circumstances, influencing the habits of individual constitutions, may chance to direct the course of the symptoms ; for, as Johnson has justly observed, (I quote from memory,) “ One and the same poisonous impression, as in malaria, is capable of producing various diseases in various individuals ;” or as Andral, who cites the same passage in a tone of strong approbation, expresses it, “ the speciality of the cause does not necessarily entail a manifest speciality in the affection ;”—a principle which can be recognised as plainly in chronic as in acute diseases.

While citing authorities for the purpose of illustrating my views of this disease, I am induced to refer to certain opinions of Dr. Wilson Philip, not because he furnishes us with any remarks on the malady which is now the subject-matter of our inquiry,—for he, in common with other popular writers on indigestion, does not even notice it,—but because, like Andral and other authors, he entertains a notion of the stomach being a point of nervous centralization. Speaking of indigestion, he says, “ It is an affection of the central part of a most complicated structure, capable of influencing even its remotest parts, and each through many channels, and in various ways.” There is in this remark a something which every man in his observation and experience will recognise to be true, but that something is far from being defined. Hippocrates,

and after him his elegant Roman commentator, have said the same in language equally forcible ;* still the idea is indefinite. But what is more to my present purpose, the half-dozen words quoted below indicate a reciprocity of influence which Dr. W. Philip seems to have lost sight of in his attempt to define the essence of the pathological condition of dyspepsia. With the greatest deference to this author, whose laborious researches claim for him the respect not only of his professional brethren, but of all mankind, I would say that to understand the pathology of stomach-disease, and to treat it with any chance of success, we must first read his sentence as it stands, and then partially convert it so as to include the many morbid impressions conveyed from the circumference to the centre ; for sure I am that pyrosis, for example, *is an affection of the central part of a most complicated structure, capable of being influenced by parts most remote, &c. &c.* At first sight this seems to be a simple truth needing no commentary. Reflection leads us to an idea more complicated. We can readily understand how an irritating matter (copaiba, for example) may produce a rash on the skin, both surfaces being previously healthy, or how one surface being in a state of disease may by sympathy produce irritation in another surface otherwise healthy ; but let nocent impressions be simultaneously made upon two opposite surfaces for a length of time, as in water-brash, and you at length have

* “ —— vel afficitur hæc, vel corpus afficit.”

what Abernethy used to call "a morbid correspondence set up," becoming afterwards independent of the causes which had produced it, and not to be interrupted merely by removing such causes. So in tetanus from a wound. Intestinal disorder irritates the brain from one surface, that irritation travels to the brain and to the wounded nerve, and is reflected back upon the organs of digestion; thus the morbid correspondence becomes complete, so that even amputation of the limb fails to interrupt it. This reciprocity of action from nocent impressions continually made on two surfaces prevails in pyrosis; *ab externo* cold with damp, *ab interno* unwholesome food. Dr. W. Philip illustrates his views of centralization by instancing the effects of an emetic,—effects which gradually spread from the centre to every other part of the system. The same channels are open to the transit of impressions produced on the circumference, and travelling to the gastric centre, whether through the skin, or through the lungs, or through the influence of the mind. But these inferences seem to me to be so clear, and, in reference to functional disease of the stomach, so obvious, that I will no longer weary my reader with a repetition of them. Show me a man with a delicate, smooth, thin skin, and I know his digestion cannot be strong. Is his skin vigorous, rough, abounding in papillæ or small eminences, marking the larger excretories? I know his digestion can scarcely be weak. When the skin becomes dry

and shrivelled, observes Dr. W. Philip, the quantity (both of liquid and solid) which passes from the bowels is often astonishing. The same author quotes the case of an individual who could eat daily from twelve to fifteen pounds of raw meat, in whom the superfluous quantity of food ran off by profuse night-sweats. Indeed, persons who know nothing of the science of medicine are aware of the ancillary power of the skin to digestion; for it is by an extra blanket or two, and by remaining in bed some hours beyond their usual time, that most persons get rid of surfeit, as well of liquids as of solids. Before I quit this part of my work, in which I take occasion to cite the opinions of the eminent of various ages and countries, it may be allowed to me to express my astonishment at the dearth of information, and, with few exceptions, at the silence observed in the medical periodic annals of the country, with regard to this malady. Indeed, the entire series of publications of the last and up to the present period of our own century, scarcely afford half-a-dozen pages, and these for the most part reports of single cases, or of two or three cured by some vegetable or mineral tonic, without reference to the pathological character of the disease.

I know not whether the evidence and authorities I have adduced may be considered as destructive of my own views of the nature of this malady. So far as I can collect such evidence, it cannot be said that these authors entertained views of pyrosis different from

mine, but rather that they were content to form no notions about the matter, content to consider the secretion as one among many of the signs of a weak stomach. For myself, I am satisfied that it is a serous disease ; and although to talk about a dropsy of an open cavity is, I admit, an anomaly, yet I commend the subject, and the evidence adduced, to the notice of my readers, reminding them that of dropsies of close cavities no two can be precisely alike, since each and every effusion has something special in it, or, as Alibert has so much better expressed himself, “ Chaque hydropisie a, pour ainsi dire, des phénomènes qui lui sont propres, et qui méritent qu’on en fasse une étude à part.” — *Nosologie Naturelle D’Alibert*.

I shall now pass to the diagnosis of pyrosis.

Pyrosis may be confounded with Anorexia pituitosa. A writer has manifestly committed this error in his article in the Cyclopædia of Medicine. Andral denominates this species “ follicular gastric dyspepsia.” It is the catarrhal dyspepsy of older authors. It might be emphatically called stomach-gleet ; for it consists in an inordinate secretion of a glairy transparent matter from the glands of the stomach. This affection is preceded by an aching, gnawing pain in the epigastric region, with a sense of weight, cramp, uneasiness, or soreness felt chiefly in the morning, when the stomach is empty. The appetite is impaired, and the patient seeks food only because he knows it affords a transient

relief to his sufferings. The matter ruminated is frequently a complete rob, or ropy, tasteless fluid. I have seen a patient amuse himself in withdrawing it from his mouth in large bubbles inflated by the air as it has slowly passed over the epiglottis, in consequence of the convulsive efforts to breathe during its discharge. Stomach-gleet occurs in damp situations, and in the rheumatic diathesis of persons naturally abounding in phlegm. It has been ascribed to errors in diet, and to the use of rich, indigestible, and incongruous food; but the cases I have seen have occurred among the poorest of the poor. The matter is sometimes thrown off along with half-digested food; but, as Andral justly observes, it is most freely secreted in the vacation of digestion, and thrown up unmixed. The pulse in this affection is usually soft, slow, and languid; the tongue loaded, the nervous power depressed; thirst is scarcely ever felt; the uneasiness or pain is not increased by pressure. In this malady, as in pyrosis, not only do we observe excessive saliva, but also a copious tenacious secretion from the pharynx. The symptoms seem to be connected with, and aggravated by, common catarrh, and are frequently complicated with humoral asthma and dyspnœa, at the accessions of which slight fever and thirst are observed. In the progress of the malady the patient becomes much emaciated. Digestion becomes more and more laborious, and the interspaces of relief are shorter. The stomach gradually becomes more susceptible to

the irritating effects of its own secretion. The sufferer complains of sinking, dragging towards the spine, nausea, faintness, gnawing, erosions, which he vainly tries to relieve by taking some small portion of food. In the asphyxia resulting from this debility he dies ; and he is said to have died either of a decline or a scirrhus, when in truth his disease has been neither the one nor the other. After death the stomach will present the common appearances of chronic inflammation of the bladder, *e. g.* thickening, contractions, and erosions, but no cancer, no obliteration of either orifices. I would infer, therefore, that pyrosis may be readily distinguished from stomach-gleet by the burning pain, by the hot serous secretion, and by its not being complicated with catarrh, nor with humoral asthma, nor with rheumatism. How far stomach-gleet may be confounded with scirrhus I will presently show, when establishing the diagnosis between pyrosis and scirrhus of the cardia and pylorus. Suffice it now to observe, that pyrosis is a disease of terminal exhalants, stomach-gleet is one of follicular glands. Pyrosis is a disease of serous temperaments ; stomach-gleet, of the pituitous. That pyrosis may become stomach-gleet, and stomach-gleet may pass into scirrhus, is possible, but not very evident ; but that the third disease may retrograde into the second, or the second into the first, is still more unlikely. I believe pyrosis to be a disease of serous vessels destined to secrete a fluid, which, when healthily acted upon by the other fluids, viz. the salivary, the

oral, the pharyngeal, and the glandular muco-acid juices of the stomach, becomes gastric juice ; and I believe in the existence of healthy gastric juice in no other sense but this.

Pyrosis may be confounded with scirrhus of the cardia, and of the pylorus in the first stage of these maladies only. It is much more difficult to distinguish scirrhus from stomach-bleet* than to distinguish pyrosis from scirrhus. Both pyrosis and scirrhus are preceded by the usual signs of a decay in the digestive function ; but in the latter we have a loathing of food, and a rejection of it, or the greater part of it, in about two hours after ingestion. The pain may indeed be attended with a sense of heat also, but it is fixed either over the cardiac or pyloric extremity. In scirrhus of the cardia the vomiting occurs during the meal, and in the course of a month the excruciating nature of the pains betrays cancer beyond all doubt.

Pyrosis may be merely symptomatic of pregnancy. Cases of this kind are very frequent, and extremely difficult to be relieved. It should seem to me that nature in these, as in all cases, is making a demand for more aliment than the stomach can digest, and that the secretion is the result of constitutional irritation. In such females I have noticed a short cough, and a scorbutic eruption of the hands and arms, which simultaneously appear and disappear with the pyrosis.

Pyrosis may be confounded with functional or organic

* Anorexia pituitosa.

disease of the pancreas. Dr. Percival has put the question, "Does pyrosis ever arise from an affection of the pancreas?" Dr. Mason Good has answered in the affirmative, arguing from the structure and function of this organ, and from cases which have presented manifest disease of the gland after death. This, if admitted, would render any diagnosis exceedingly difficult, and, in complicated cases, impossible. But on what evidence Dr. Good has founded the assertion he nowhere tells us. Out of twenty-seven cases of disease of pancreas, we are told, by Abercromby, that six were fatal, with gradual wasting and obscure dyspeptic symptoms without any urgent symptom. Here, then, was no pyrosis. In eight "there was frequent vomiting, with more or less pain in the epigastrium," but no pyrosis. In several there were dropsical symptoms; in three or four, jaundice. Looseness of bowels was a frequent and characteristic symptom. So again, in Dr. Baillie's case there was sickness, distension of the stomach, diarrhœa, and dropsy, but *no pyrosis*. I think, therefore, that the evidence is against the opinion of Dr. Good. The diagnosis may be readily founded on these remarks. By the process of abstraction of all other symptoms of abdominal disease, if we find wasting, diarrhœa, nausea, vomiting two or three hours after meals, capricious and sometimes inordinate appetite as in mesenteric disease, but *no vomiting of a transparent thin liquor*, we may suspect pancreatic disease. It is not improbable that

the two diseases may, in some rare instances, proceed *simul et semel*; for as Dr. Abercromby justly remarks, “there is also ground for believing that a diseased state of the pancreas has a most important influence on the functions of assimilation, and that it may produce, in this manner, many serious effects upon the system, while the local symptoms are so obscure as not to indicate what organ is the seat of the disease.”

“A gentleman, aged 35, died after an illness of about eighteen months’ duration, in which it was to the last impossible to say what organ was the seat of the disease. His complaints began with a febrile attack, which left him weak; and from that time he was liable to dyspeptic symptoms, with variable appetite, and undefined uneasiness in the epigastric region. He gradually lost flesh and strength, and when he consulted Mr. Newbigging in January, 1822, he was found thin and weak; but Mr. N. was particularly struck with his remarkable paleness,—even his lips and the inner surface of his mouth being entirely without colour. About this time he had some vomiting, and was feverish for a day or two; but these symptoms soon subsided and left him in his former state; appetite variable and capricious; bowels sometimes costive and sometimes rather loose; he had frequently perspirations in the night time, and appeared at all times languid and faint, but his pulse was natural; he took a good deal of food, and there was no symptom that accounted for his emaciated

appearance. In February he became rather worse, with some diarrhoea and scanty urine; but these symptoms soon subsided, and he afterwards complained chiefly of throbbing in the head, and a constant noise in the left ear. When I saw him in the middle of April, he was reduced to the last degree of paleness and debility, but his pulse was full, strong, and regular. He took a good deal of food, and complained of nothing except the painful pulsation in his left ear. The action of the heart was rather strong, and he felt a sensation of throbbing over his whole body. He died in the end of April without any change of the symptoms, except that his pulse became frequent a few days before death.

“*Inspection.*—All the internal parts were found remarkably pale and void of blood; the heart was sound but remarkably empty. The pylorus was thickened and firmer than natural, and had contracted an adhesion to the pancreas. The pancreas was considerably enlarged, and of nearly cartilaginous hardness, except some spots, which were soft, with the appearance of the medullary sarcoma. No other disease could be detected in any part of the body.”

Even this case, however, would not make for Dr. Percival's conjecture, or for Dr. Good's assertion, for the health appears to have been destroyed and the constitution shaken to its very centre before the vomiting set in. Dr. Seymour's cases have been already noticed.

Vicarious or perverted actions of the stomach.—

When any organ in the human body is extensively diseased or embarrassed, we notice that certain other organs, whose functions are somewhat analogous, take upon themselves a double duty, to make up for the default of their associates. Thus it is with the lungs, the skin, and the kidneys, all engaged in the purification of the blood ; and even the liver itself, where the lungs have been extensively disorganized, makes extraordinary and unusual efforts for the depuration of the same fluid. But no organ so readily involves itself in the embarrassment of other functions as the stomach, not simply by dry sympathy, but by a secretory effort, whether to compensate for languid or suppressed secretions of other organs or surfaces, or whether to attempt to throw off noxious matter introduced into its own cavity, or into any part of the body however remote. Thus we sometimes see that its action is vice-uterine, monthly, bimestral, or trimestral. In hepatic obstruction, as in jaundice, it attempts to extricate the bile from the circulating system. In the morbid excess of serosity of the blood, it is frequently seen to be the channel by which nature gets rid of that excess. It has been known to digest and excrete. Children affected from the birth with diaphragmatic hernia have thus lived for months without a passage through the bowels, the feculent or surplus material being vomited after digestion, as in the Bubonic tribe of Birds. In the disease denominated melæna, the sur-

face of this organ is engaged in a sort of depuration of the blood. It has been known to secrete a matter very similar to urine, in certain cases of ischuria from palsy of the renal plexus, or from organic disease, or from obstruction. I have known general anasarca to have been induced by a sudden impression made upon the stomach by the quaffing of a large quantity of cold water by a person overheated and in a state of perspiration. An ignorant mechanic took half a pint of his own urine daily on a fasting stomach, to cure him of a humour in the skin, and brought on very general dropsy of the flesh. We frequently see persons with nettle-rash, who one-while have much heat and itching of skin, which suddenly disappears and leaves sickness, horripilation, and slight water-brash, again and again alternating with the eruption. I am much mistaken if I have not seen persons who have inhaled the efflu-
vium of typhoid patients, distressed for some two or three days from its influence upon the blood, and at last relieved by the spontaneous vomiting of a matter too small in quantity to enable us to account for the immediate relief in any other way than by supposing it to have been the means of depuration; and I apprehend that it is a law of the human economy that poisonous substances introduced into the blood shall be drawn towards this viscus to be percolated and expelled. I do not think it unreasonable to suppose that the mucous membrane of the stomach (and this applies to the upper intestines likewise)

has a sort of complexion like the skin, becoming ruddy from excitement and excessive secretion when that secretion is energetic, but pale under simple infiltration, just as the skin is pale in cold sweats. There is yet another analogy between the skin and mucous canal: they are both liable to œdema, and the stomach of dropsical patients is frequently found in that condition. It would be tedious to allude to all the vicarious actions of mucous membrane occurring in disease. Such actions are sometimes performed by extraordinary efforts, inducing the destruction of the mucous tissue. Thus when the fabric of the lungs becomes extensively destroyed, and the advantage of exhalation by the respiratory system is all but lost, we notice the skin compensating for the failure of the lungs by sweats, first developed near the respiratory apparatus, on the neck and shoulders, and afterwards becoming universal and colliquative. But when the skin has become exhausted by this onerous duty, and temporarily fails in the performance of it, diarrhœa is substituted, an internal sweat or infiltration occurs from the mucous membrane, which after some days appears to be arrested by astringents, antacids, and opiates, at the certainty of restoring the copious sweats. These last will again and again alternate with diarrhœa, till the mucous membrane is destroyed by the excessive excretion. So it is also in typhus: the skin having long remained arid and constricted, the internal surface of the digestive tube becomes loaded,

and we have watery stools, inflammation of the glandular follicles, and fatal ulceration as the consequence. In scarlatina, however slight, the suspension of the cutaneous exhalation leads to internal effusion. Nature conducts it into close serous cavities ; we re-conduct it by purgatives from these cavities, and filter it out of mucous membrane.

Hippocrates noticed the vicarious action of the stomach with respect to the skin, and founded upon that observation his celebrated aphorism :—

“ Vomitus utilior est hieme quam æstate : nam tùm et pituitæ plus, et capitis gravitas major subest.”

He observes that such revulsion occurs under the change of season, and that, as in summer the skin is more active than mucous membranes, so in winter the determination of the fluids is greater from the circumference to the centre ; and when he, and his commentator after him, come to inculcate the means of treating the maladies arising out of such revulsion, we find their faith to be by no means pinned to any medicine, for their views were much too enlarged and too correct to admit such an absurdity, but, on the contrary, we find them confidently and as a matter of daily experience reciting the remedial measures as consisting in a suitable diet for winter, and an increase of all those habits tending to promote the regular and equable determination of the fluids from the centre to the periphery.

If this observation applied to a climate like Greece

or Italy, how much more will it obtain in a humid climate like our own? Ask any practitioner in the various provinces where this malady abounds,—what is the influence of summer and winter upon his cases of pyrosis? He will tell you that, as the damp and cold of autumn and winter approach, his cases become more frequent and more unmanageable; but that, as the summer approaches, he gets the credit of curing them with tolerable facility, and by the coming of the summer solstice such cases are comparatively rare. Among the rural population the facility with which they get milk in the summer, of which they are deprived in winter, has a remarkable influence on the affection. Why is this vicarious action so much more common in females than in males, seeing that it is an undisputed fact that women of all ranks are more temperate in their habits than ourselves? I think this is readily accounted for: they are not so well clothed—they are more exposed to the changes of the weather. It is a curious anomaly to see the male population of this country with shoes of half an inch or an inch thick at the soles, while the women in most parts wear shoes that will not keep out the weather, and, in some provinces, none whatever. Another reason is obvious: their diathesis generally is more serous, more juicy, than that of men, and revulsions take place with greater facility. Again, their habits do not tend from their infancy to give that vigour to the surface which is acquired by ruder and more manly

exercises. We may add another reason,—that in a paucity of means the scantier diet falls to the lot of females.

Sydenham gives a curious and somewhat amusing case of a vicarious action of mucous membrane, which had become chronic, had lasted, I think, for more than a year, and settled into a confirmed and apparently incurable bilious colic. Narcotics and tonics, alteratives and absorbents, clysters and demulcents, had all benefited for a time, and had all failed to effect a permanent cure. Our author shall tell his singular mode of cure in his own words, and it will be manifest that he had in his mind's eye no other plan in view than to counter-derivate the fluids from the mucous tube back to their more natural and numerous outlets, the exhalants of the skin.

“ Pauper quidam mihi vicinus, qui et adhuc est superstes, *colica biliosa* vehementissima per hos annos laboravit, quam *catharticis, clysteribus, globulisque * plumbeis* devoratis, expugnare diu, sed frustra, erat conatus: hîc *ego* ad frequentem narcoticorum usum confugi, neque pœnitenda opera; quamdiu enim ista repeterentur, satis recte habuit; sed cum his palliaretur tantum malum, non exstirparetur, (revertebatur enim, ut primum erat exhausta narcoticorum vis,) ego hominis misertus, et gravi morbo, et re angusta adflictiissimi, equum ex meis commodabam, quo iter dicto jam modo peragendum adgrederetur; eoque ad dies pauculos continuato, viscera eas vires recepere, ut

* This remedy is still retained among farriers and horse-jockeys.

morbi reliquiis excutiendis paria jam essent, et sine anodynorum præsidio omnino convalesceret."

John Hunter, in treating of vicarious actions in the human body, remarks, "It is not to my present purpose to go into the different effects of this principle; although I must own it might be as useful a part of the healing art as any; and even more, for it is probably the least known, as being the least intelligible, and therefore the more use may be derived from its investigation." *

In the very next page he notices that cold, especially when combined with damp, will, when applied to the surface, bring on complaints in the stomach and bowels, for "we find that local applications derange also other parts which have no visible effect upon the part of application, nor any visible connexion with the parts which assume the action." If not the language, at least the modern theories of innervation were anticipated by this great philosopher of nature; and although the Crawford theory of heat and the influence of the brain and nervous system upon temperature have been more fully explained since his time, the modern physiologist will still find matter for deep reflection and future investigation in the hint afforded him in the following paragraph. "It has not yet been considered whether an animal has the power of producing heat equally in every part of the body; although, from what

* Hunter on the Blood, Inflammation, and Gun-shot Wounds, vol. ii. p. 134.

Hunter
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is generally advanced on this subject, we are led to suppose that every part has this power ; or whether it is carried from some one source of heat by the blood to every part ; this may probably not be easily determined ; but I am apt to suspect there is a principal source of heat, although it may not be in the blood itself, the blood being only affected by having its source near the source of heat.

“ That this principle resides in the stomach is probable, or at least I am certain that affections of the stomach will produce either heat or cold.”

And again, in page 43 of the same work, Hunter remarks, “ That weakness, or a feel of weakness, produces cold is evident ; and that universal or constitutional cold arises from the stomach is also evident ; for whenever we are made sick an universal coldness takes place ; and this is best proved by producing sickness on animals that we can kill, or that die while they are under these affections of the stomach.”

Notwithstanding the beautiful chemic theory of Dr. Crawford, and the experiments of modern physiologists, there is yet room to admit of a third means of the elimination of heat in the body by the process of digestion and innutrition, for it is quite certain that any long-continued innervation of the stomach is sure to be accompanied with an universal reduction of temperature, as it is in pyrosis. I think it may readily be proved that the power of resisting intense cold does not depend upon any extraordinary energy in the pul-

monary system so much as it does on gastric vigour. It is for this last that the constitution of the Esquimaux is so remarkable, and it is this which enables their females to expose their breasts to the suckling infants in the open air when the thermometer is standing many degrees below zero. Can any one reasonably doubt that the extensive use of a vegetable diet, if substituted for their gross diet of flesh and blubber oil, would in these inhabitants of the Arctic region diminish their temperative power and induce disease? I hold it worth while to reflect that the vigour of the stomach is found to be greater in the human race as we recede from the tropics, and that it is comparatively a languid organ in hot latitudes. Although I am led to suppose that every part exerts some power in producing *its own heat*, I cannot but believe that the principle of producing heat not only in itself but for diffusion in distant parts, resides in an eminent degree in the stomach,—a property which in pyrosis, as in most dyspepsies, is impaired in a very marked degree, so as to be manifest to the sensations of every patient.

Post-Mortem Degenerations.

This must be rather matter of conjecture than of history. Little can be said touching the alterations induced by this disease, because it is rarely if ever fatal, and where other affections intervene between this and death, it is difficult to appreciate the patho-

logical phenomena. In the few cases which have been offered to our notice, the mucous surface was found to be unusually pale. In a case of serous filtration described by Andral, where the fluid had accumulated extensively, the dimensions of the stomach were much enlarged, its larger curvature descending to within two inches of the symphysis pubis. The peculiarity of this case was that the serous fluid was not evomited. Such a case will be rare, but it may occur to some extent without mechanical obstruction of either end of the stomach. I have known instances of persons who never vomited in the course of their lives, so far as they could recollect. One gentleman told me, that although he had been, unfortunately for himself, very intemperate in early life, yet he did not know what it was to vomit. He had been attended by a medical gentleman who gave him emetics for a sore throat, which, however, operated only by freely purging him. The appearances of the stomach in true water-brash would only indicate a state of adynamic dropsy of that organ, just as a pale skin in cold sweats indicates a similar condition of the cutaneous tissue. I see no good ground for suspecting rupture of the fabric itself.

If the disease lasts until a confirmed hydropical diathesis is established, the pyrotic symptoms are obscured by the more dangerous signs of dropsy of close cavities or of the cellular tissue. The tissue of the stomach itself may then be affected with anasarca, and

ulceration, which happens in other dropsies, may at length be the sequel of pyrosis from the like causes ; to wit, low vitality and distension. So long as the disease is functional only, and the *vires vitæ* are, although diminished, yet far from being exhausted, neither in an anasarca, nor least of all in a pyrosis, can you expect to find ulceration. In the inveterate or extreme stage of this malady, as in that of all dropsical maladies, such solution of continuity may not unreasonably be expected.

Analysis of the Secretion.

The material in true water-brash is commonly insipid, and nearly resembles that of hydropic fluid of serous cavities. It is composed of water, albumen, and a trace of sodaic salt with an excess of soda. Sometimes, however, it is acrid and acid. The acids present are muriatic and acetic, and may be presumed to be secreted from the follicular glands when given off in the vacation of the digestive process. It will be of importance to notice the nature of the fluid, because, while in the acid eructation the metallic oxide of bismuth rarely fails to afford relief, the disease marked by the insipid rumination is seldom benefited by this remedy. The putrid eructation is rarely seen in pyrosis ; it is accompanied with a taste in the mouth as of rotten eggs or of sulphuretted hydrogen. This latter condition of stomach is more usually induced after exhaustion of the energies of the organ by an

excessive quantity of rich food and drink, an error seldom committed by pyrotic patients. The writer of an article on pyrosis in the Cyclopædia of Practical Medicine, vol. iii. p. 581, observes, " We are indeed without any evidence that the latter (the watery fluid) is actually secreted by the stomach, and it has been surmised, from the resemblance between the natural secretion of the pancreas and the ejected fluid, that it may be derived from this source. The writer, however, is not aware that the latter has been submitted to chemical analysis, but the result of this process promises means of comparison whereby the supposition would be further confirmed or invalidated." Now, in the first place, the pyrotic fluid has been repeatedly analysed, and differs very considerably, if not altogether, from the pancreatic ; and, in the next, it should be borne in mind that where a mechanical stoppage has occurred at the pylorus, and the patient has lost the power of vomiting and of ruminating, so as entirely to cut off all chance of regurgitation and of ejection, the stomach has been found to contain several quarts of the fluid, and its larger curvature has descended to within two inches of the pubis. The same author goes on to say, "*A priori* it appears improbable that a fluid so uncongenial to the sensibility of the stomach should be admitted into it by an inversion of the natural action of the duodenum without more violent efforts than are manifested, or that the fluid itself proceeding from this source should appear entirely free from any

admixture of bile." This mode of reasoning, I confess, is to me quite unsatisfactory. I know no reason why pancreatic fluid might not be regurgitated without bile, just as easily as bile may be regurgitated without pancreatic fluid; but I take it for granted that the pylorus is always shut during the paroxysm of a pyrosis. If it were not completely and strictly closed, I apprehend the fluid would take a different direction, as at once more natural and more in accordance with its own gravitation. I purposely avoid giving any analysis of the mixed or acid fluid, because such fluid is not strictly pyrotic, but originates from a mixed disease, in which dyspepsia, or organic malady, is exerting its influence. Even in common cases of pyrosis, the ejected fluid is occasionally acid, but not uniformly so.

Chemical and chemico-vital remarks on the non-azotic or not sufficiently azotic constitution of the aliment usually consumed by the population in districts where Pyrosis is frequent.—I have stated my belief that the steadily and constantly depressing influence of a humid cold atmosphere on the periphery of the circulation, and slight but successive and daily repeated poisonous impressions made upon the internal digestive tube, are the joint agents which induce this malady; and I may add, that although many other causes may co-operate, these seem essential to the frequent development of the affection in any population. Hence its frequency in humid climates, while in serene warm latitudes it is almost unknown. I shall now approach

a part of my task which I feel to be surrounded with difficulties, but which I cannot bring myself to pass over in silence. To this end I shall first presume that the following fundamental laws have been admitted by physiologists, who have proved their accuracy by frequent and careful experiments.

1. The greatest quantity of insensible perspiration, inclusive of the pulmonary, is 25·6 grains per minute ; consequently 3 ounces, 1 drachm, 36 grains, per hour ; or 6 pounds, 4 ounces, 6 drachms, 24 grains, in twenty-four hours.

2. *During digestion this loss of weight is at its minimum.*

3. The sweat does not appear to have every where the same composition ; it varies in odour, in acidity, in acridity in various parts of the same body, at the same time.

4. That notwithstanding the assertion that the greater part of populous nations in warm latitudes live on rice and maize, or, as among the Negroes, for a long time exclusively on sugar, it is by no means proved that men can live a long time on non-azotised food ; since, with regard to the former, it is well known that they add milk or cheese containing *casein*, which is the most azotised of all the nutritive proximate principles ; and with regard to the latter, the impure sugar consumed by them abounds with azote.

5. That diversity and multiplicity of aliments is an important rule of the hygiene, which is moreover

indicated by our instincts, and by the variation induced by the seasons over all nature, particularly in the species of alimentary substances.—Majendie.

From these fundamental laws I deduce inferences and explanations which appear to me very satisfactory, as throwing light upon the nature of the malady. I find that wherever it occurs in a marked degree, and as a familiar type of disease, in whatever part of Europe, the climate is humid and cold, the diet coarse and farinaceous, and not sufficiently diversified. I find, too, that it occurs mostly in serous lax temperaments, remarkable for feebleness of circulation and a feeble condition of the cutaneous function. Moreover, I find the disease disappearing under a change of diet, as before mentioned with regard to rustics, who are benefited by a milk diet, and at the approach of warmer weather, and that the power of the body in preserving its own steady temperature returns *pari passu*.

The heat of the body, modified by the quantity of azotic food, has an indirect effect in promoting digestion. Spallanzani himself admitted that the comparative temperature of animals exerts a considerable influence on the powers of digestion. Cuvier, in more recent times, confirmed this statement by noticing that the most rapid digestion occurs in birds, which are the warmest class of animals. The same observation is to be found in the works of Averrhoes. Colliget, v. 3. The modern discovery of the acidity of the gastric

juice was anticipated by the same author, who, however, very sensibly repudiated the idea of its being the sole solvent juice of digestion, since he refers that property, very correctly as I think, to the mixed secretion from the mouth to the pylorus. So also Haly Abbas, "*Immutantur cibi in ore, retinenturque, et flegmati admiscetur quod digestum est, calorque ei datur,*" &c., &c. Theor. iv. 3. The same observation applies to the human race, upon whom the comparative powers of sustaining temperature exert a marked influence on the process of digestion.

My readers may be astonished at my citing cases of Asiatic cholera in illustration of my views of pyrosis; but to my conviction the analogy is as strong as any analogy possibly can be. I see, indeed, a remarkable difference in degree only. In pyrosis the skin and stomach are gradually affected, the innervation impaired, the circulation rendered languid and defective, the digestion feeble and imperfect, the animal spirits gradually depressed, the temperature and temperative principle manifestly at fault, the containing power of the blood-vessels loosened, the serous portion of the blood infiltrated, and considerable portions of the more watery part of it discharged by paroxysms. And what do we see in cholera? All these effects suddenly and extensively induced to a fatal extent. Inject your saline fluid, and after you have filled the venous system, how does the surplus escape? Refer to Dr. Mackintosh's experience, and

you will find that, *as you persist in throwing in quart after quart into the veins, it will be separated from the mucous membranes by infiltration, and it will, as in a pyrosis, flow through the stomach and œsophagus mechanically, as it were, through the mouth.* What further proof is wanted that the vessels of the stomach secrete the fluid commonly discharged in pyrosis? What need of conjecturing that it is a secretion from the pancreas regurgitated by an inverse action of the duodenum? Again, in cholera, as in all fluxes, the diathesis predisposing to the malady is one of diminished conservative power. It attacked not the rich, the well-fed, and the well-clothed, but the poor and destitute, or those whose systems had been reduced by hard labour, poor living, or those holding a precarious existence by means of spirituous stimulation. In many instances it was clearly traced to the innervation having been impaired by the shock the system had received by accidents, by blows or other injuries, and in some cases to the depression of grief from some previous calamities. So general was this observation, that it was matter of public conversation, and is now a matter of history, that the cases occurring among persons who were well clothed and properly supplied with regular meals containing a due admixture of azotised nutriment, were comparatively rare. Mental depression contributed largely to the developement of this disease, as likewise it does to that of pyrosis among a rural population, who chiefly suffer from it when the wages of labour are low,

and azotised food hardly within the reach of the poor. To cite the diet of the lower classes of the Irish husbandmen is a mere fallacy, for these potato feeders are generally supplied with milk, which abounds with azote.

I scarcely know of any writer, foreign or domestic, who has not attributed the prevalence of the malady to a poverty of diet, although most of them have overlooked the fact that a mere farinaceous diet in a tropical climate is not sufficient to produce the disease to any considerable extent.

Dr. Cullen attributed it in part to the oatmeal commonly employed as the chief article of food among his countrymen, but strangely erred in supposing that the skim-milk diet combined with it contributed to the disease. This is opposed to the fact previously recorded of the visible decline of this malady in spring and the early part of summer among the rural population who have been deprived of milk throughout the winter, and obtain a good supply of it at the return of these genial seasons; and it is opposed to the experience of the physician, who is aware that a bread and milk diet, with warm clothing, will sometimes suffice for the cure of the disease. That it is a malady somewhat like sea-scurvy, depending in some degree upon a vitiated condition of the material of the body, nobody can doubt. The blood shows it. The complexion shows it. The faltering condition of the vital principle shows it. The depression of the animal spirits is observed in both maladies. Supply the deficient ele-

mentary principles to the blood, and promote the circulation by friction, by exercise, and by proper clothing, and you cure scurvy. Do the same in pyrosis, and you will gradually cure this disease also. But the elementary principles required are not the same in both cases. Lemon-juice will not cure pyrosis. Azotic food will not of itself cure scurvy. There is something common to all serous fluxes, whether acute or chronic, whether suddenly fatal or only slowly destroying the health. The blood is defective in some of its principles, while the fabric of the body is either visibly dissolved, or its containing power (*i. e.* its power of holding together) much impaired. And here I wish to observe, that I believe that the integrity of a structure, the compages or fabric, may be bordering on a state of dissolution without presenting to the eye any appearance by which such a condition could be suspected. The same remark applies to bones, whether exhumated after many years' sepulture or vitiated by disease. They may retain their form or mould, and appear indeed only somewhat rougher than natural; but immerse them in dilute muriatic acid, and they leave no fabric, for the compages has been long destroyed. I apprehend, then, that the same observation applies to soft parts, and especially to mucous membrane; and when the stomach is in this condition *before death*, I see nothing wonderful in its sudden solution by the gastric juice *after death*. The modern pathology

of simple fluxes of mucous tissues is a near approach to that of the Greeks and Romans. Two thousand years have intervened only to bring mankind back to the simple idea of an infiltration from vessels not healthily continent.

Let my readers compare Andral on the serous flux of mucous tissues with Hippocrates or with Celsus (in Preface) on the same subjects, and they will find the idea of infiltration as ancient as either of these authors. They will find, moreover, that it was inculcated that certain injurious foods (*mali succi*) tended to lower the *vis corporis* (innervation?), to relax the tissues, to diminish the containing power of mucous surfaces, and to dispose them to allow their contents to escape.

So again, an opposite extreme condition or bound state of the tissues may also constitute disease; and that a medium healthy state may be induced by diet and by exercise is as well known to the modern trainer, or to the professor of gymnastics, as it was to the *jatralipt* of old.

After the enumeration of foods and drinks which are calculated to relax or to brace up the various tissues, and indicating a due selection of the material according to the nature of the malady, both the above authors proceed to consider the effects of climate and temperature, and justly remark that a cold humid atmosphere co-operates with food of a bad juice in inducing internal fluxes, and diminishing the energy of the external surface of the body.

I perhaps ought to qualify my use of the term infiltration, by observing that I do not consider the percolation through mucous membrane to be merely mechanical either in pyrosis or in any of the fluxes, but that as a secretion it is performed under a great reduction of the natural energies of the vessels from which it is separated, and agreeably with the general law that in the ratio of the diminution of the vital power the influence of laws mechanical or chemical will necessarily be increased. However difficult it may be to trace the malady to a deficiency of azotic food as one of the causes, I think we have strong evidence in favour of such a supposition. That non-azotic food will not eliminate the same quantity of heat in the human body as aliment of a more generous quality is a fact admitted and implied in establishing our indications for the treatment of disease. We avoid strongly azotised materials in fevers, we interdict them in active hæmorrhage, and especially in that of the lungs. Individually we all feel the heating quality of such aliment in hot weather, and instinctively we demand a greater supply of vegetables. Those who are better versed in animal chemistry will of course come more prepared than I can be to examine this part of my subject. I can only take a familiar and perhaps a not very profound view of it. When, however, I see the powers of the body, the pneumo-gastric energies especially, giving way, as in pyrotic patients, under the use of an aliment noto-

riously deficient in azote, and when I see such patients gradually becoming lower in their temperature, pallid, cold of surface, slow-breathing, and as deficient in circulation as in spirits, I seriously ask myself whether this deficiency of natural heat may not become an additional cause, another link in the chain, further aggravating the mischief and disturbing the system. In an opposite condition the excess of heat evolved in a scarlatina or in a phlegmasia dolens, though an effect of the malady, becomes the most fatal cause of further disturbance. We do not consider it irrational to lower the temperature in these maladies by tepid lavation in the former, and by tepid poultices in the latter.

Few of my readers who have seen much of scarlet fever will doubt that the judicious abstraction of the surplus caloric has saved the lives of hundreds. Let it not then be deemed whimsical on my part when I reiterate that the coldness in this malady is one of the important conditions to be obviated, and, if possible, to be removed. That certain articles of diet produce heat, and that others refrigerate the body, will, I presume, not be disputed; and this admitted, when we find certain of our fellow-creatures persisting daily and habitually in the exclusive use of two or three of the latter class of aliments, I cannot think it surprising that the malady should be marked by a symptom characteristic of the diet which has been one cause of the derangement.

By the experiments of Mr. Spalding, the celebrated diver in the latter part of the last century, the comparative effects of the farinaceous and the azotic or carbazotic diet were tolerably well illustrated. But in our own time, when the diving bell is no longer an instrument for curious experiment, but a machine in daily use, every mechanic who works in it can testify by his personal experience the comparative consumption of oxygen, and consequent developement of heat, from descending after a meal of vegetable, and after one of animal matter. The stimulating or cordial quality of a rump-steak may be advantageously contrasted with that of a meal of coarse barley bread, in an individual recovering from a fever, and in a fit state for refection. The former I have repeatedly known to produce a degree of intoxication, flushed face, rapid full pulse, and all the temporary hilarity of a diffusible stimulus. The latter would, in any considerable quantity, load the stomach without any such marked alteration in the pulse and temperature. I am not inculcating that either diet would be proper for such a patient, but I am desirous of contrasting the marked effect of a single meal upon a stomach in the highest susceptible condition for exhibiting the contrast. It is not wonderful that a repetition of such impressions should on the one plan of diet (other causes concurring) induce inflammatory disease marked by high temperature and plethora, and on the other plan a malady like py-

rosis, marked by deficient temperative energy, and by adynamy.

It happens unfortunately for patients suffering from pyrosis, that, like those afflicted with sea-scurvy, they are oppressed with an insuperable lassitude. Except under the stimulus of necessity, as when they are compelled to resume their work, they will be found moping and languid, reclining on their bed, or sitting in a contracted position near the fire, with the limbs gathered up instinctively to avoid the escape of heat,—a position which modern physiology has well explained to us. The surgeon on board ship knows the necessity of exciting his patient to exercise, and when other means fail, has recourse to the sentinel to use compulsion. Not so the medical civilian. It would be in vain to recommend exercise to one who has already worked beyond his strength, or, as in the case of females in agricultural districts, to those who being out of work have no inducement in severe weather to pass the threshold of their cottages. That any exercise which at once employs the body and excites the mind is well calculated to arrest the progress of scurvy, is known to all our naval officers, and judiciously practised in cold humid latitudes. The crew under the depressing circumstances of tedious navigation, as in late expeditions, are called on deck, cheered up by their commander, and indulged in dancing, broad-sword exercise, wrestling, and other amusements; but the mechanic or the rustic suffering under depressing causes

equally great is thrown upon his own resources, and yields at once to inactivity and gloomy forebodings of the future ; at least so I have uniformly found patients of that class, whether the younger, the middle-aged, or the old,—sad, melancholy, and dull.

In all the ancient systems of dietetics which I have perused, the authors have recommended a careful observance of individual temperament with regard to heat, and a judicious adaptation of food accordingly. “ *Calidus refrigerare, frigidus calefacere,*” is the motto upon which all their remarks on the temperative principle seem to be based. They were well aware that the exclusive use of two or three articles of aliment, coarse and but moderately nutritive, was, when conjoined with cold, especially adapted to produce cold humours in the body, and the diseases which arise therefrom. Galen, in his remarks on respiration, satisfies me as well as the most modern and accomplished physiologist, so far as concerns the effects of a judicious modification of food for the promotion of a more genial temperature, and for the increasing the energy of the temperative principle. “ The animal frame is a circle without beginning or end—the brain and heart are reciprocally indebted to each other, this for muscular energy, and that for its vital heat—the heart fanned by the lungs is a lamp, the blood the oil which feeds the flame, and the quality of the oil, as a means of developing heat, will depend on the quality of the food.” Such are the simple, and, as I believe,

the sound views both of Hippocrates and of Galen. With them, as with their disciples, heat and cold were uniformly inserted in the catalogue of remedies, as formally and regularly as any article of the *Materia Medica*. The late Sir Gilbert Blane, in his *Medical Logic*, has two or three remarks on the temperative principle, which I am here tempted to quote.

“ This being a fundamental and highly important principle in the economy of life, the deviation from it must naturally constitute some of the chief elements of disease ; and as the powers of art have considerable control over temperature, some of the principal resources of medicine will consist in the management of it. It is manifest that this salutary and grateful warmth consists in such a temperature as excites the generating power in maintaining its genial standard, and that the exertion of this power is in such circumstances invigorating and refreshing ; but when the external heat is such as to repress this degree of exertion, it becomes oppressive and debilitating.”

And again, “ It is by rules founded on this principle, that the regulation of heat and cold, as remedies, is to be studied.”

And again, “ By this, the temperative principle, is meant that steady degree of heat with which all animals are endowed, and which, in the *mammalia* and birds, is higher than that of the atmosphere in any climate or season in the ordinary course of nature. It is extremely uniform in the same species, and in

man it is found at 98° of Fahrenheit, with less deviation in different individuals, than in most other points of the animal economy. There is a considerable latitude in the variety of the stature, features, and form of individual men, and in the natural frequency of their pulse; and though there is a great variety in individuals with regard to their sensibility to heat and cold, there is hardly any in the healthy standard of their temperature. This seems a presumption of its being an essential constituent of life, and combined with the conservative energy, may be deemed the main basis, or *stamina* of simple vital existence."

When, however, this author speaks of the uniformity of the healthy standard of human temperature, he cannot have intended to convey the idea of uniformity of the temperative principle, any more than he would have advocated a uniformity of the conservative. The power of resisting high and low degrees of heat manifestly varies in entire races of men and in individuals. It varies at various periods of life, and under various conditions of the frame in the same man. In two persons of the same age, the temperature which shall uniformly distress and chill the one, shall in the other serve only to give additional vigour to the circulation; and, if any thing sound be in our present doctrine, it may be added that in the same person under one plan of diet (even to satiety) the temperative principle shall be rendered languid, and under another more energetic. Now if it were to be asked which of

the two former persons enjoys the more vigorous digestion, the answer would not be difficult. I should invariably expect to find a ratio between the pneumatic and pneumo-gastric energies, and notwithstanding all the recent experiments in favour of the chemical or Crawfordian theory of animal heat, there is still room to admit the force of the remarks contained in the following paragraph.

“ Beside the main purpose of the assimilating process, that of creating and maintaining a due quantity and quality of the several fluids necessary for growth and repair, there are some secondary purposes of these fluids too important to be overlooked. By their specific stimulus in the various cavities in which they are prepared, they serve as a stimulus to the healthy action of these organs, namely, the stomach, intestines, and blood-vessels. The mechanical distension also which they give by their bulk, is not less necessary in supporting their action, and even life itself, as will be more fully explained in another part of this work. The importance of these is nowhere more conspicuous than in the stomach, the first stage of assimilation; and, as it is the only organ which converts foreign and dead matter into living animal matter, its energy must be regarded as peculiar and eminently powerful. By its universal sympathy, it exercises a strong influence over every other order and function. A blow upon it is more certainly fatal than upon any other part of the body. Its aberrations, therefore, form some of the

most copious sources of disease ; and for this reason, as well as from its situation, it is the first stage for all internal appliances, to whatever quarter they may be directed. There seems, therefore, to be rational grounds for the present fashionable pathological doctrine of referring all diseases to the stomach, and of curing them all through it. To this doctrine there is only that objection to which all matters of fashion are liable—that of pushing it to an extreme, by following it out to the exclusion of every thing else.”

I will not take upon myself to say whether azotised food owes its superior digestibility, as one author will have it, to its possessing “ a composition analogous to that of the structure which it is designed to supply, and consequently requiring little more than division and depuration instead of complicated series of decompositions and recompositions, which must be effected before vegetable matter can be animalized or assimilated to the body.”

I know it is usual for all writers on this subject to refer to Beaumont’s case of St. Martin and the Dietetic Tables founded on observations of this remarkable case, in which the process of digestion could be partially watched through a valvular aperture left by a wound in the stomach. Had there been two such cases, it is not unlikely that the results would have been of a contradictory nature. I shall say nothing of those Tables except that if they show the superior digestibility of certain articles of animal food, they also serve to show

the still more rapid digestibility of certain less nutrient articles from the vegetable kingdom.

I hold it to be sufficient for the purposes of my investigation that I find all writers acknowledging that the energies of the stomach are impaired by coarse indigestible food not sufficiently cordial in its nature; and whether I refer to Beaumont's Tables or to those of any other dietetic physician, I find that the articles of food commonly consumed by pyrotic patients are remarkable for slow digestibility. I shall, however, quote one part of Dr. Beaumont's* work embracing his experiments on the increase of the temperature of the stomach during digestion, and on the alterations of it under a humid and under a moist atmosphere.

I request my reader's best attention to the following paragraph, because it will (as I think) conduct him to a due consideration of the all-powerful effect of a humid cold climate in the developement of pyrosis, and serve to confirm my notions both of its etiology and of its pathological conditions.

“ By introducing a thermometer with a long stem at the external opening into St. Martin's stomach, both before and during chymification, he succeeded in obtaining very accurate information on this point. In two or three of the experiments the heat of the stomach seemed to be increased after taking food, but in by far the greater number the temperature remained the same.

* I quote from Dr. Combe on Beaumont; *Physiology of Digestion*, p. 146,—not having Beaumont's work in my possession.

It appears, however, that the variations of the atmosphere produce a sensible change on the heat of the stomach—a dry air increasing and a moist air diminishing it. The ordinary temperature may be estimated at 100° Fahr., and in several instances it was higher at the pyloric than at the cardiac end. On one cloudy, damp, and rainy day, the thermometer rose only to 94° , and on another to 96° ; whereas next day, when the weather was clear and dry, it rose to 99° , and on that following, when the weather was both clear and cold, to 100° . On several occasions it rose as high as 102° , and once to 103° ; but these were after exercise, which was always observed to cause an increase of two or three degrees. We have already seen that *artificial* digestion is entirely arrested by cold, and is resumed on raising the temperature to ordinary blood heat.”

That animal food affords a more highly animalized chyle than that yielded by vegetable matter, an author in his ‘Treatise on Diet’ proposes, not as his own individual opinion, but as an admitted fact. This writer explains that by the term “highly animalized,” he means aliment which affords a greater proportion of that principle which is essentially nutritive, or of that property of stimulation through which it is destined by contact to impart its influence upon the alimentary nerves. I feel satisfied that we cannot render this language compatible with the results of analytical experiments upon chyle, because as under an ex-

clusive diet of animal, so also under that of vegetable aliment, the chemical composition of the chyle appears to be the same; but to this discrepancy I do not attach the slightest importance, nor does it appear to me in any degree to damage the soundness of the above observation.

Chyle, if I recollect aright, has been asserted to consist of water, albumen incipient and perfect, colouring matter, fibrine, oily matter, saccharine matter, and salts. Let us admit that in the gross the chemical composition appears to be the same. I say let us admit it for the sake of argument, although doubting the propriety of receiving chemical data which are at direct variance with the facts observed in vital functions. Yet let us go farther, and ask, is the constitution of the blood the same in the two exclusive systems of diet?—In the human body certainly not; it may remain so for a few days, but not for any length of time. If, therefore, it be admitted by converse that a slightly animalized diet yields a material ill adapted to afford healthy stimulation to the alimentary nerves with which it comes in contact, this is all I require to be conceded.

When physicians paid more attention to the effects of climate, atmosphere, weather, and soil, and less to the intimate composition of the solids and fluids of the body, nobody doubted that in moist, cold, low countries, both the vegetable and animal productions more abounded with watery matter; and a fact which is recognised by the poet, the painter, and the novelist,

—a fact which stamps the phlegmatic character of the Flemish Lowlander, seems to have escaped the notice of modern medical writers, as if it were one of no practical utility. I have referred with some labour to the earliest records of disease which this country affords, and I find that humidity, external cold, and a cold crude diet, were not lost sight of in the enumeration of causes as they are in modern treatment.

In some parts of Norway, where this malady is more frequent, the bread of the rural population is made of three parts of oatmeal and one of saw-dust of fir. Dr. Paris, in noticing this diet of the Norwegians, strangely asserts that he understands that this bread constitutes a very wholesome and nutritious diet.* No doubt, if the poor inhabitants had a proper commixture of good fresh meat, and were well housed and clothed, such an aliment might be wholesome, since it would tend, as does our own coarser brown bread, to keep the bowels in a salutary degree of laxity, an effect arising out of the mechanical irritation produced by the coarser particles of the material. But on reference to the medical statistics of Norway, we shall find that this coarse diet, together with cold and damp, produces pyrosis more largely there than in any part of Great Britain. The same serous or pituitous diathesis which is

* The bread of the Norwegians, which they call flad-brad, is commonly prepared of various farinæ—of oat-meal, rye-meal, and barley-meal, mixed together. This is poor enough without the saw-dust.

established by such a diet occasions the prevalency of leucorrhœa among females affected with pyrosis. In the younger and middle-aged the two affections are almost inseparable. In the *Dictionnaire de Médecine*, tom. xxviii. p. 107, I find this observation supported by the writer of an article on pyrosis: “J’ai eu occasion d’observer plusieurs fois cette maladie chez des femmes qui avaient des fleurs blanches.” The same writer very prudently observes how vain it is to expect any thing but palliation from medicinal agents, and establishes the treatment as consisting in the regimen of the body, so as to alter and ameliorate the condition of the blood, upon the non-sufficiently animalized condition of which, and upon humidity with cold, the impaired innervation chiefly, if not altogether, depends. When the health by other diseases has been broken down, and the patient is in the last degree of weakness of stomach and of skin, we shall occasionally see the same percolation from that organ and the gullet. The insipid water which sometimes flows from the bladder before death (no longer urine, although so called) is of the same character. Such percolations, in whatever disease and wherever occurring, denote extreme debility or extreme constitutional irritation. For in most inveterate chronic diseases gradually tending towards dissolution, the same weakness, the same pallor, languor, depression, and defect of red particles, are common and daily occurrences; and in such a condition single or repeated paroxysms of the brash

before breaking up of the constitution may be noticed by the careful observer of disease. It has been seen in gall-stones, in anæmia from a wound, in anæmia and irritation from tænia, in inveterate itch, in long-continued atonic gout, and even as the result of intense emotions of the mind. In all these cases, however, it is a symptom. I think I have said enough to convince my readers that this disease is as distinctively a general affection as is anasarca, or cholera, or fever, and not one of a single organ;—that so far as the stomach and gullet are concerned, it is a dropsy of an open cavity. It may be objected that it is a solecism to name any collection of fluid a dropsy if not occurring in a serous or close cavity. The objection is plausible only at first sight; it will not bear reflection. Make your close cavity an open one by paracentesis, and does your dropsy cease? Have you not dropsy of the womb recognised by the older nosologists? Open a hydrocele, and is it not yet a dropsy, until you have altered the action on the surface of the tunic so as to obviate further effusion? But it may be said that the effused fluid in a pyrosis is sure to be discharged by vomiting or by rumination. This also is doubtful. In some cases the effusion collects till it has produced a sudden and visible distension of the stomach itself, and gradually passes off (as may be inferred) through the pylorus into the intestines. A learned friend of mine suggested to me that it would be more plausible to call it a diarrhoea than to desig-

nate it as a dropsy, forgetting that in this last malady the excretion is usually feculent, unless where the serous deposit is discharged unmixed, as in cholera, or under the influence of elaterium; by which latter agent I doubt not that a similar disease might gradually be induced, if the body were exposed to humidity and cold, and the alimentary canal were supplied only with coarse vegetable aliment.

I care very little for the name or designation of the malady: what I want to arrive at is the essence or pathological condition; and if the low power which leads to the percolation be not similar to that which leads to atonic dropsy, then I am quite content to acknowledge that my whole theory must fall to the ground.

ON THE TREATMENT OF PYROSIS.

Is Pyrosis idiopathic or symptomatic? I answer confidently, the disease of which I am treating is decidedly idiopathic, and that it has been long so considered by the best medical historians, notwithstanding it has never secured to itself the distinct consideration of medical writers in the form of treatise. If this be not an idiopathic malady, neither is cholera, nor dropsy, nor flux, nor scurvy. Of symptomatic pyrosis the species are numerous. The idiopathic stands insulated from all others. It is the *Suessica* of Sauvages, the *Sputatoria* of Linnæus, Macbride, and Cullen,—one species of the *Soda brennen* of the Germans, a variety of the *Fer chaud* of the French, among whom it is sporadic only,—the *Water-brash* or *Black-water* of our own countrymen.

It has rarely been observed as an epidemic, but it is notoriously endemic.* I have said that it has never been made the subject of a distinct treatise: Trnka

* Linnæus reports that one-half of the entire population, men and women, living near the mountains of Lapland, were in his time the subjects of this disease, and that in some it endured through their entire lives. Kerr, in his article on Pyrosis, says, "in England it is strictly sporadic." That it is endemic to North Wales cannot be doubted.

indeed notices it in his *Historia Cardialgiæ* published in 1785, but he alludes to it only as to one variety, and neither in the etiology nor in the treatment does he make any distinction between this and the symptomatic species. Its distinctive character is *often endemic,* never solitary; a sense of burning extending upwards from the stomach through the whole gullet to the mouth, followed by the rejection of a copious hot liquor, &c. &c., together with other signs and symptoms already related.*

In establishing our indication of cure, it will be absolutely necessary first to limit our measures to those cases which are genuine idiopathic affections of the stomach and gullet, accruing, as I have endeavoured to prove, from an impaired innervation as well of these organs as of the skin itself; and to premise that the remedial method to be proposed may not be sufficiently comprehensive to include the endless varieties of symptomatic pyrosis, connected as these last often are with diseases of other organs, or merely the results of constitutional irritation, as in pregnancy, in long-standing nephritic or in vesical calculus, in which two last diseases it is usually the forerunner of dissolution.

Whether this malady was known to our ancestors before the introduction and extension of agriculture and horticulture it is difficult now to say, but it is not improbable that as land-scurvy gradually disappeared,

* “Sensus ardoris in ventriculo et œsophago sine febre acuta.”—Sauvages.

and was in fact put to flight by the extension of these noble arts, so by the same change of diet pyrosis was either then introduced, or at least subsequently rendered more frequent. Our first orthodox medical authorities of the sixteenth and seventeenth centuries are altogether silent on the matter. But one of the popular heterodox physicians of the latter siecle, "of never-dying fame," as his widow described him, has two passages in his "School of Physic," which I will match for sound sense and practical utility against any thing pertinent that has been written (in the same space) by any or all of the modern physicians of Europe. "The air the patient breathes should incline to heat, as he ought to be kept warm; his diet must be easy of digestion and moderate, neither must he receive any other meat till the former be digested; he may drink good wine, his head laid high, and his sleep not to be disturbed; he ought to be moderately merry, and to avoid all perturbations of mind." And again, in another passage, though not treating specially of a weak stomach, he notices that "a moist and cold atmosphere increases the tendency to the watery phlegm of the stomach." Let it be lawful to me to speak the truth without presumption. What assistance does the medical literature of Greece and Rome furnish to me in my investigation of this distressing malady? Absolutely none; and manifestly because such genial climates were not calculated to produce it. Let me claim the indulgence of my contemporaries,

while I ask what light has been thrown upon the treatment of it by the entire literature of Europe. I hesitate not to say that, so far as this malady has been treated of, our knowledge by tradition is merely empirical. Trace the various series of medical journals throughout Europe, and all that you will find will be cases treated with this or with that vegetable or mineral tonic; as if the malady were a species of dyspepsia and nothing else. Thus one foreign physician recommends a composition of rue and other bitters, which he calls a specific. Dr. Marcet suggested oxide of bismuth; Dr. Baillie, a mixture of benzoin suspended as an emulsion. A third suggests opium; a fourth, antacids or absorbents; a fifth, acids. Another vindicates the influence of a milk diet; another that of lime-water, which is now the provincial remedy of the rural population of North Wales, who say that it produces a new coat on their stomachs. Another lauds cinchona. But of all authors none suggests so many remedies as Trnka, and if it be only as a matter of curiosity I will subjoin his list.

Pharmaca.

Emetica.

Cathartica.

Anthelmintica.

Demulcentia.

1. Aqua pura.

2. Jus Pulli.

3. Hydrogola.

4. Amygdala.

5. Mucilagines.

6. Vaniglia.

7. Siliqua dulcis.

Absorbentia.

Opium.

Nervina.

1. Anti-emeticum.

2. Vinum.

- | | |
|-----------------------------|-----------------------|
| 3. Sassafras (decoctum). | 2. Mixturæ. |
| 4. Cicuta. | 3. Elixir (Vitriol.). |
| 5. Chamæmelum. | 4. Boli. |
| 6. Assafoetida. | 5. Pulveres. |
| 7. Moschus. | Chirurgia. |
| 8. Cajeput. oleum. | Sanguinis missio. |
| 9. Aurant. cortices. | Enemata. |
| 10. Calamus aromat. | Cucurbitulæ. |
| 11. Centaur. minus. | Topica, scilicet, |
| 12. Antiscorbutica. | 1. Fetus. |
| <i>a.</i> Nasturtium aquat. | 2. Cataplasmata. |
| <i>b.</i> Raphanus. | 3. Sacculi. |
| <i>c.</i> Allium, cepa. | 4. Linimenta. |
| Adstringentia. | 5. Emplastra. |
| 1. Omphacium. | 6. Magnes.* |
| 2. Glandium decoct. | Balnea. |
| 3. Martialia. | Rubefacientia, &c. |
| Cortex Peruv., Geum. | Diæta. |
| Composita varia. | Alimenta, &c. &c. |
| 1. Decocta. | |

If there be one author to whom rather than to any other we might look with confidence for some help in the treatment of disease, it is to the English Hippocrates, our far-famed Sydenham. But we shall look in vain. Not one word has he placed on record concerning this malady. And why? He lived in our metropolis. He never practised any where else; and, like many of our modern great ones, he delighted in narrating cases commencing with "Vir nobilis," "Comes," "Mulier magni nominis," &c., &c., shewing that in the

* M. Hele the astronomer, and Harsu after him, give several cases of painful spasmodic cardialgia rapidly cured by means of the artificial magnet, 'appensi ad epigastrium.'

sphere of his practice he had but little chance of seeing an affection which exclusively belongs to the badly fed and miserably paid rustic, or to the provincial labourer. Hence it is that the poor man's physician, the industrious although heterodox Culpepper, was the only celebrated man of his time who at all glanced at the nature of the disease. And here I cannot resist quoting an opinion of a distinguished physician of the present era with regard to the wretched policy of under-paying the daily labourer. "There is a visible connexion between the goodness of the diet and the quantity of the work done," and all task-masters from Pharaoh downwards have learnt, or sooner or later will learn this to their cost or to their benefit. Having directed my reader's attention to the dearth of information on the subject before us, by way of an apology for any imperfection that may occur in the execution of my task, I shall proceed to consider our remedial indications. Our primary objects of cure will be to improve the innervation of the stomach and skin, to remove all offending causes, whether internal as regards diet, or external as regards humidity and cold from inadequate clothing,—in a word, to supply suitable materials from which the digestive apparatus may eliminate a healthily animalized chyle, destined after sanguification to repair the waste of the body. One cannot apply oneself to this subject without feelings of melancholy; for no one who has expended much of his time in watching and palliating the effects of

grinding poverty on the lower classes can fail to appreciate the difficulty of the position. “*Oh dura ilia messorum!*” was the apostrophe of the Roman poet, when reflecting on a diet ill suited to a stomach which had attached itself to the school of Epicurus. Who doubts that if his countrymen had breathed an atmosphere fickle as ours, a climate chilled with rain or withered by a frost, that in the brief annals of disease still extant some notice would have been found of this offspring of poverty, cold, and wretchedness? We may try to rectify secretions, to brace up and fortify the stomach, but unless we can supply good wholesome food, animal and vegetable, together with warm clothing, a dry habitation, and the peace of mind which is the attendant upon a cheerful confidence, or at least a good hope, of a continuance of a comfortable “daily bread,” all our measures will fall short of relief, and our pills and potions, our chemicals and our galenicals, will be a miserable mockery, a wretched satire upon that half science and half art which Cicero denominated “God’s second cause of health.” Now as a deficiency of wholesome food, of fuel, and of good clothing, is a common cause of pyrosis, so is it also occasionally of anasarca. To what and whither shall we retreat for substitutes for these necessities of life in a variable and fickle climate? Do our patients find these comforts in our provincial dispensaries? We bind their stomachs with bismuth or with bark, and send them back to beggary. Of what use to them are the

elegant peptic precepts of a Celsus, or the diffuse commentaries of modern writers upon diet and digestion? It is not to authors (however great their talent) who have avowedly written for the rich and lazy, that we can look with any well-grounded expectation of suitable admonitions to lessen the miseries of patients suffering under this species of malady, for with some few exceptions, as an idiopathic disease it belongs exclusively to the poor. Celsus commences his chapter on self-regimen by telling us he writes for those who can afford to do as they like, and nearly all his precepts shew that he wrote for that favoured class of society. Most of our popular writers, and we have many distinguished as well for erudition as for sound practical knowledge, have pursued the same course. A living and recent author speaks of the awful responsibility of treating individuals of rank and legislative celebrity upon whose lives may hinge the prosperity and security of our realm;* and if we refer to our highest dietetic authorities, we find them all patriotically engrossed in framing precepts exclusively adapted to the relief of the pampered valetudinarian.

Let us examine some of the leading rules for the restoration of the health of the dyspeptic, as embodied in the treatises of modern authors on this subject.

“ To appropriate some considerable portion of the

* This distinction was never made in the *Jusjurandum Coacum*, nor is it to be met with in the doctorial oath or engagement prescribed by any Academy in Europe.

day to the cultivation of health by walking, field sports, tennis-ball, the exercise of weapons," &c. &c.

"To preserve a serenity of mind, so that one may suffer in body only and not in mind."

"To keep up a steady action on the skin by proper clothing, moderate exercise, baths, gestation, friction, and anointing."

"To change the air; to vary the diet by an extensive and curiously selected series of aliments."

These, and some such as these, are Celsian precepts embodied and diffused through every modern work with which I am acquainted, so far as regards this subject. One modern author touches upon all these rules (*Celsus aliusque idem*), and he adds that if he were required to lay down three as the leading precepts for the dyspeptic, they should be the following:—

1st. Not to eat to repletion or distension.

2nd. To take time for the mastication of the food.

3rd. To preserve tranquillity as well of mind as of body after a full meal, "*ut in corpore tantum, non in animo quoque laboret.*"

This last is the bell which physicians of all ages have proposed to tie round the cat's neck. "*Hic labor, hoc opus est.*" For who does not know what ravages anxiety will make on the digestive organs even in a few days? Let us proceed to examine how far these precepts will apply to the treatment of pyrosis. To tell men who can scarcely procure even a scanty meal not to eat to repletion would hardly be "germane to

the matter." One of the most common causes, *inter alia*, (for there is no such thing as a one cause of disease,) is, as we have repeatedly said, the use of coarse, badly prepared food. In many parts of this kingdom the poorer rustics live almost exclusively on bake-stone barley cakes, fat salt-pork (if they get meat), and potatoes. They return from the field or the factory hungry, and often exhausted; nature makes a huge demand, and like the clay-stuffing Otomaquees on the banks of the Oronoco, they cram their stomachs with coarse material to relieve the pains of hunger. When they have pork or bacon, these are generally of the worst quality, half putrid or rancid. The pork is usually salted from October or November, and serves them through the winter, spring, and following harvest. Nextly, with regard to the second precept, to take time for the mastication of the food, and the settling down thereof. A modern court physician quotes an old English author, who says, "a good chawinge and swallowinge of food is the better half of digestion;" and, according to the same antiquated authority, some half hour or more should be devoted after the meal to rest and merry conversation. Now this is a capital rule for the free agent, but is not available for the poor rustic or artisan.

How are men of this condition to comply with the precept? The first frequently devours rather than eats his rude meal, resting on the bank of some hedge or the nearest headland, while his task-master (like

another chancellor of the exchequer) is ever and anon casting a jealous eye at 'the spring of productive industry.' The mass of coarse tough bread is quickly cut up by means of a rude pocket-knife into angular masses, almost too large even for *his* capacious mouth, and their tough obstinacy is subdued by the indefatigable motions of jaws, which in their effort now protrude an angle of the crust as if it would force its way through one cheek, and now transfer it to that opposite. But little interval is afforded for a few words of rude endearment with the half-fed urchin, the welcome messenger of some miserable slop, with which he swills the dry morsel down his hungry throat, and, in the poorer agricultural districts, the nearest spring answers the same purpose. The second is hurried to the factory by the imperious bell, which tells him, that if but a few minutes too late it will create an alteration in the figure for the forthcoming Saturday night. Even in large towns, where artisans are said to be better remunerated, a practice prevails of closing the entrance to public works or buildings within five minutes of the time allowed for a meal, and hence are seen groups of workmen hastily running through our streets to avoid exclusion. The same may be said of market-garden and other jobbing labourers, who, living within a mile of their homes, prefer returning home for their meals. What a revolting spectacle!—like pigs let out of the sty to devour a meal!—like these also lashed back again,

not by the whip, but by the fear of losing half their daily wages. Tell such men to take time for the 'chawinge and swallowinge of foode;' tell them to eat gradually so as to produce no sudden distension; tell them to be moderately merry, and promote digestion by an hour's chat after dinner, and, above all, not to move too soon after a meal. And, if they dare reply, they will show you that they are hurried *to* their meals by the stimulus of hunger, and *from* their meals by the stimulus of apprehension.

On the subject of the third precept* mentioned above, little therefore can be prudently said by the medical practitioner. Those who reflect upon it, and are acquainted with the condition of the poorer classes, will readily acknowledge the difficulty of its practical application. It is a wise dispensation of divine providence that the susceptibility of uncultivated minds is not so acute as that of the more highly civilized, or else it is not unreasonable to suppose that gastric maladies would not unfrequently gradate into incurable insanity. The same writer above alluded to seems to advocate a preponderance of farinaceous diet, and has some decidedly severe remarks upon the animal diet exclusively imposed by certain practitioners upon the haut ton, reprobating at the same time the uncompromising tyranny exerted by certain medical at-

* The third precept, like the former two, is strictly Celsian: "Quumque omnibus inutilis sit post cibum, aut contentio, aut agitatio animi," &c.

tendants, who presume to restrict their patients to some simple and single dish even of this last. Here also we have another striking proof that the dyspeptic maladies of the poor are not considered, since the coarseness of the exclusive farinaceous diet is one of the fruitful causes of the disease for which it is now our business to propose a method of prevention and of cure. With regard to the objection offered to a great variety of viands, the admonition has been given by most writers of every age. Celsus justly remarked, that a succession of many dishes provokes the appetite, and induces the patient to take more than he can digest; while it has been as commonly remarked, that persons who habitually dine from a single dish are generally most free from dyspeptic ailments. With regard to a marked preponderance of vegetable diet in a climate like ours, I am disposed to think it is unsound, inapplicable to the British constitution throughout eight months of the twelve, and generally disadvantageous in the treatment of idiopathic pyrosis.

An exclusive animal diet is, except in certain cases, no doubt bad. I can only call to mind at the present time one disease for which it is commonly recommended, and that is diabetes. He who feeds on meat and stale bread or biscuit cannot be said to have adopted a diet exclusively animal, but rather a mixed plan, in which the animal nutriment may be judiciously made to predominate. This *quæstio vexata* of the superiority of either diet unmixed has been a

thousand times raised, and as often settled by an appeal to human organization and to human propensities; and if it be again to be mooted, we may be sure that practitioners will find the antipathies of aristocratic patients as unconquerable to the habits of the rice-eating millions of the East, as to those of the anthropophagists of old. Let us then rather admit, that in those in whom vegetable matter, as in pyrotic patients, produces a pale cold stomach and marked debility, the substitution of a larger portion of fresh animal matter will be of great benefit, while in diseases partaking of the nature of gastro-enteritis, with a hot, irritable, and morbidly vascular stomach, the weakest and most bland farinaceous materials will be the most appropriate, allowances always being made for peculiarities of constitution and for previous habits not admitting of sudden change.

Another peptic rule inculcated by the same author is partly within and partly beyond the reach of the poorer valetudinarians. "So also it may be very desirable that the dyspeptic should dine at regular hours and from a simple and discreet table; but if this rule brings him to a solitary meal set apart for his express condition, more of ill than of good is the result. It is rarely expedient that he should feed alone. His mind needs to be solicited away from attention to the functions and feelings of the stomach, and this can only be done effectively by society at the time of eating." Here again how obvious is it that

the case of the rich man is exclusively contemplated by this elegant though somewhat diffuse commentator upon the Roman Hippocrates,* whose authority, however, in this one particular is decidedly against him. 'Interdùm in convictu esse, interdùm ab eo se retrahere,' is an aphorism with which the former advice can scarcely be reconciled. If I have dwelt on the diffuse commentaries of this modern author, it is only to show how little of information is to be derived that can be rendered of useful application to the maladies of the poor.

All modern authors on dietetics are alike. 'Ex uno disce omnes:' elegant, more or less learned, full of research, generally sound in their maxims, but writing only (like the man they copy from) for the lords of creation, the free and independent, or at least for those whose hours are not exclusively devoted to laborious employment, whose bodies are not distorted by unnatural postures, and whose food and clothing may be varied at pleasure. Respectfully taking leave of them, therefore, as having their attention directed far above the sphere of the individuals whose cases I am investigating, I may be allowed to propose the diet

* What value has been placed on the Celsian precepts may be inferred from the fact, that Dr. Wilson Philip, Dr. Holland, with most other modern writers, have made them the basis of their works. The latter, Dr. H., in his 'Notes and Reflections' (Section on Diet), has modelled every page after them, and Dr. W. Philip has adopted the same author, embodying nearly every dietetic rule, both evidently with the pages unfolded as they wrote.

which I have found most effective in this particular malady. Any innovation must be gradual, and to be efficacious the patients must be well clothed, their cottages should be free from damp, and the temperature of their dwellings should be moderately warm. The diet should be warm, nutritious, and cordial in its nature, and abounding in azote.

I enter upon the *materia dietetica* prior to noticing the *materia medica* best adapted to the malady, because I believe that the former is truly remedial, while from the latter we can only expect temporary assistance. Warm air, good clothing, fit exercises, and suitable diet, may cure a pyrosis without the aid of medicines; but these last only afford temporary relief unless the former advantages can be secured. Indeed, as it appears to me, the remedial agents commonly employed (and I speak of all which have gained any repute) are merely excitants upon the residuary nervous power of the system, which they call into action at the risk of further exhaustion; or, to speak more plainly, the remedies seem to be adapted only artificially to stimulate organs which have long wanted the proper stimulus of a more congenial diet. The spur plied with more energy than humanity will give new impulse to the jaded horse, but the renovation of his animal powers can only be accomplished by rest and by aliment.

It has been frequently observed that the same hearty meal of flesh-meat and strong drinks, which may be

digested without inconvenience by one travelling on the outside of a coach, would, without such exposure to a free circulation of air, as for example in the confinement of a close vehicle, induce a sense of fulness, heaviness, and flushed face, indicative of slow digestion. I believe all this. I believe, further, that an opposite condition may exist;—that the air may be too dense, and the circulation of it too rapid, or at all events the exposure to it too considerable for a crude and poor, coarse, farinaceous diet. This opposite condition requires, therefore, more clothing, a warmer atmosphere, a more cordial and animal diet, and less exposure to the weather. Writers on other ailments of stomach have usually laid much stress on the advantages of exercise, and have suggested the various modes in which it ought to be employed. Here again, as regards the malady of which I am treating, it is my duty to follow a very different course, for the pathological condition of the digestive organs in a pyrosis is just the reverse of what it is in the various forms of common indigestion. To exercise always before a meal, to bring the muscles in free action, to ride, to walk, to rub the body vehemently with the flesh-brush and the hands,—these and many such precepts are invariably suggested to the dyspeptic; and with reason, for ordinarily the central vessels are gorged, and to determine blood and humours to the circumference is half the task of cure, taking due care, however, that the energies of

vital organs be not too much exhausted. In pyrosis, on the other hand, as the condition is different, so must be the management. In the body which is hard-worked and badly fed, an undue demand is made on the muscles of the limbs, so that the nervous power which ought to exist in vital organs is unequally and injuriously transferred to the limbs. This leaves the stomach pale, deficient in red particles, languid, and defective. Now as smart exercise, daily rendered more vehement, will benefit a plethoric and over-feeding patient, so perfect rest, alternated with gentle exercise, and a fuller and more cordial diet, will restore the pyrotic. They are in the same condition as machine horses reported to be below their work; rest, with gentle exercise, and good diet, will (if the organs are sound) invariably improve their condition.

If the horse proprietor or the veterinary surgeon were to persist in treating his quadruped patients by means of tonics, &c. without rest, the very coachmen and ostlers would deride such practice; and yet it is to be feared that the error, however absurd, is by no means an uncommon one in the treatment of our fellow creatures. The energy of vital organs in labourers is much improved by rest, which of itself serves to cure many of their maladies. Nor need this observation be limited to the lower classes. I apprehend that most medical men who have been exhausted by laborious practice, and thrown out of health by an excess of it, must have experienced the

all-powerful effect of perfect rest and tranquillity, when at last they have been compelled to suspend their labours. The irritable cough, the threatened consumption, the gastric debility, the torpor of bowels, the depression of mind,—all, under such a favourable change of circumstances, will in a few days vanish and disappear. Happy is he who sees the evil in time, and takes refuge from his troubles.

It should seem to me that the poor diet which induces water-brash gradually creates a poverty of blood, (weakly animalized blood?) deficiency of red particles, and low nervous power. Now, as much exposure to cold air is injurious to infants just in the ratio of their possessing more or less vitality, and as the young of all animals require less of air at the birth, and gradually more as the vitality increases, so it is with persons affected with pyrosis, in whom, the more the innervation is lowered, the less can they resist atmospheric exposure.

Let us consider what galenicals and chemicals have been proposed to remedy the grievance, and how far they can be permanently effective in accomplishing a cure. I shall subjoin a brief sketch of those commonly recommended, and notice the authors from whom they have emanated.

I presume that one and all have reasoned with a modern author that it is the business of a physician to take society as he finds it, and not to trouble himself to rectify or equalize its conditions, or other-

wise it is difficult to conjecture what reasonable hope they could have entertained of curing a popular disease depending upon popular errors of diet without amending the condition of the people.

Thus Dr. Cullen sees a great portion of his fellow countrymen suffering under this malady, and recognizes it as accruing from the deficiencies already noticed. He records his regret, and recommends his countrymen to take bark, which is ten times as dear as the animal food for which their bowels are yearning.

Linnaeus, another physician, and no less a philosopher, visits and personally converses with a population in Lapland, of which the majority were thus afflicted, and he tells them to take *nux vomica*, or crow-fig, for their relief. *Nux vomica* as a substitute for flesh-meat! and this, the legacy of Linnaeus, is their popular remedy to this day. The majority of a population chewing *nux vomica* because they have no animal food (in whatever state such a condition may occur) is a circumstance that may well demand the consideration of statesmen. In our own more favoured country, indeed, no such extent of the evil need to be apprehended. Nevertheless, sporadically in some parts of England, and very generally in the mountainous districts of North Wales, the proportion of cases is very large.

If such luminaries of their day and generation as the two great men just named have contributed so little to the removal of this troublesome affection,

while I am content that the fact should stand as a lesson of humility to writers on this subject, it should at least teach a lesson of forbearance to readers and critics.

The nature of the dietary most common in North Wales will, as before stated, sufficiently account for the prevalence of the malady in cold and damp seasons. The present coarse farinaceous food consumed by the inhabitants of this part of our kingdom may be strongly contrasted with the animal diet almost exclusively employed by their primitive ancestors. The hardy hunters who lived on the produce of the chase, and were indebted to their spears for a precarious subsistence, may have occasionally suffered the pangs of hunger, and must, in that rude condition of society, have been exposed to various disorders, from which their descendants are now comparatively free; but the cordial quality of their diet, and the healthy excitement of the daily chase, must at least have preserved them from pyrosis.

Dr. Odier, a popular physician of Geneva in the latter part of the last century, extended the use of the magistery of bismuth as an antispasmodic remedy in a species of dyspepsia extremely frequent in that city, and characterized by severe spasms *proceeding from irritability of the stomach*, and recurring under any kind of aliment. He published his first paper in the "Journal de Médecine" and in the "Journal Encyclopédique" of Paris for the year 1796, and a

second on the same subject, sent to the Royal Society of Gottingen, appeared in a German journal, from whence Dr. Murray, in his "*Apparatus Medicaminum*," has drawn a very detailed extract. The remedy had already been used by a few foreign physicians, but experimentally only; nor did they appear to be acquainted with its specific effects. Dr. Murray notices that it had been employed by Pott at Berlin, who, in the year 1739, gave an unfavourable account of it. Now by reference either to Odier's papers, or to the *Apparatus Medicaminum*, we shall not find the least authority for employing it in pyrosis: "*Iis precipue qui a nimiâ fibrarum ejus carnosarum irritabilitate pendent;*" and the author goes on to specify hysteric belchings, colic, diarrhoea, palpitation of the heart, and, above all, gastrodynia, which last symptom is in nowise connected with water-brash; for instead of it the patient experiences a cardialgia, coursing from the left extremity of the stomach up to the fauces.

Upon Odier's authority Dr. Marcet, returning from a visit to Geneva in 1804, introduced it in the Borough Hospitals; and on the appearance of his paper in the sixth volume of the *Memoirs of the Medical Society*, the medicine came into vogue for all manner of opposite conditions of stomach. He used it in doses of five grains, with fifteen grains of tragacanth, repeating the dose three times a day.

Dr. Marcet's cases are selected agreeably with the experience of Dr. Odier. By reference to them it will

be seen that he does not adduce a single instance of pyrosis, neither does he afford the most distant allusion to that malady. It would be difficult to ascertain upon whose authority it came to be generally used for a malady so distinct in its pathological condition from that of stomach-spasm; yet we find it commonly enumerated among the remedies for brash in most works on the practice of physic, and the name of that disease usually coupled with its medicinal use in most works of *Materia Medica*. Dr. Bardsley, following in the wake of Dr. Marcet, a year or two afterwards published certain cases in his "Medical Reports," of pyrosis cured by oxide of bismuth, the same remedy, and now called trisnitrate of bismuth. Of these cases I will only say, that not one of them was properly so entitled. Regan's case, page 228, was deficient in the pathognomonic symptom of the sense of burning from the stomach to the gullet. It was simply one of gastric derangement from dram-drinking. Dr. Bardsley closes his account by saying, "Since the above reports were sent to the press, I have treated five cases of pyrosis accompanied more or less with spasmodic pains of the stomach, with an uniform success." By his detailed account of Regan's case, and by his notice of the spasmodic pains which seem to be cited by him as the chief characteristic of the malady, it is clear even to demonstration that his cases were not identical with the true "*Cardialgia sputatoria*." His authority therefore is quite alien to our purpose. Dr.

A. T. Thomson speaks of the benefit to be derived from the oxide of bismuth in combination with extract of hops ; but his cases were probably like those of Dr. Seymour, referred to in the early part of my tract.

Dr. Baillie's experience led him to believe that a drachm of compound tincture of benzoin rendered miscible with water by trituration with mucilage, would be found to be the most efficacious of all remedies. It is manifest that Dr. Baillie speaks of it only as a troublesome symptom, and not as an idiopathic disorder ; not as accruing from a faulty dietary among the people, but as manifesting itself as an occasional symptom of dyspepsia, or of organic lesion of abdominal viscera.

It may be mentioned as a curious example of the mode in which authorities are used in dictionaries and cyclopædiæ, that an author upon this article in the *Dictionnaire des Sciences Médicales*, quotes our Heberden in company with Linnæus, to show that water-brash may be persistent throughout life. Heberden, in fact, barely speaks of it as a symptom, or rather as a sign ; for in the passage referred to he notices that as a diarrhœa becomes natural to some persons, so also may certain percolations and excessive secretions. He is merely noticing that what may be morbid in one man may be essential to health in another. It has been noticed that persons naturally having a fæcal breath get out of health so soon as

the lungs cease to evolve the usual quantity of foetid material. This is mere idiosyncrasy, just as a foetid and excessive sweat is natural to some individuals, whether in the feet or elsewhere. Of these, as of labourers who notoriously sweat more than their fellows, it may be predicted that whenever, by change in their constitutions, the skin shall become dry and comparatively non-secreting, they will be attacked with pulmonary or with renal disease. Heberden's remark is curious and no doubt correct. It would merely serve to remind us that, as pyrosis may be idiopathic (according to Grasser, either epidemic or endemic) and symptomatic, so also sometimes, though rarely, it may be part and parcel of, and essential to, a condition of health. He who rests on the same bases for the treatment of the idiopathic affection as for the management of the symptomatic will surely be disappointed ; while, with regard to the habitual affection noticed by Dr. Heberden, it is as impertinent to meddle with it as it would be to attempt to alter any other idiosyncrasy. Unless we have a distinct understanding of the meaning of terms as of things, any attempt at treatment will be a mere jumbling of remedies without any rational method.

Niemann, observing upon the above passages in Heberden (*ad Heberden Commentarien*, etc.), proposes assafoetida with ox-gall as a most effective remedy. The same medicines, with the addition of soap, are recommended in Most's *Encyklopädie*. In an

article located under the term "*Ardor Stomachi*," several other formulæ are suggested for temporary relief, the writer, however, insisting upon the necessity of meat, cordial wine, gentle exercise, and good clothing. He recommends magnesia, bitter almonds, liquor of ammonia, angelica root, &c. He introduces a formula for pills of soap, dried carbonate of soda, and extract of trefoil, and another for a mixture which he designates as being almost a specific. It will be seen that the use made of the bitter almonds among the Germans for allaying irritability of the stomach was an anticipation, by at least a century, of the employment of hydrocyanic acid for the same condition of that organ.

Meier (vide "*Dissertatio de varia sodæ indole, et nova eidem medendi methodo*," Erf. 1792,) proposed alkaline baths as his grand means of relief, having his mind chiefly directed to the arthritic and nephritic, for whom within the last few years the same remedy has been unsuccessfully attempted to be revived.

Duval published a small essay on pyrosis at Paris in 1809, consisting of 44 pages in quarto. He insists upon the necessity of dividing it into idiopathic and symptomatic, remarking very correctly, that for the first species medicines can be only palliative, while the radical cure must be found in the removal of the causes. "Inasmuch," says this author, "as the affection emanates from some troubled condition of the digestive functions, all the attention of the physician ought to be directed to the means for preventing fresh disturbances,

and to restore to the gastric organs their pristine energies. The patient's diet ought to be watched with the strictest attention ; his food should be rendered bland and cordial ; he should remove all causes that may derange digestion. Gaiety should be encouraged ; vapours and melancholy should be expelled ; change of air, travelling, mild exercise alternated by repose ; in one word, every thing which can contribute to establish in the patient a physical and moral calm should be assiduously enjoined, and by reason of the great tendency of this affection to recur, we must carefully persist in the use of our remedial measures long after the apparent cure."

I respond heartily to all these remarks, and above all to the advantage of establishing ' a physical and moral calm ;' but at a period when medical men have so little influence in regulating the dietary of the poor, except by occasional appeals to richer patients, the ' physical and moral calm ' must flow from a higher source than any from which a medical attendant can presume to draw his aids. I know of no period in the annals of civilized Britain at which medical men have merited to enjoy so much of the confidence of the State, none at which they were entrusted by the Legislature with so little, none in which they were capable of using it to such extensive advantage to the community, not excepting even the feudal ages, when medicine could hardly be termed a science. In the best days of Greece and Rome (not to speak of modern rival nations), the dietary of the people was

chiefly directed by the physicians and sacred officers of health,* and boards of some sort or other were assiduously engaged in counteracting or in preventing disease.

In our time, guardians, committee-men, or overseers claim to decide on the laws of dietetics, although their knowledge of the human frame barely extends beyond a vague idea that man is a tube of some sort open at both extremities. It has been argued by the friends of such a system that the medical officer has the privilege of presenting to a board of guardians his recommendations for the occasional introduction of such articles of nutriment as may to him seem best suited to meet the occasional exigencies of disease. It is not quite so evident that he has the moral certainty of seeing his recommendation carried into effect. It would be no small improvement to such boards, and to the Poor Law Amendment Act itself, if a public officer of health constituted one of their body. To fill such an office, which should be one rather of honour than of emolument, I imagine it would not be difficult to find independent and retired members of our profession who would be proud of rendering themselves useful to their fellow-creatures; nor would it be unreasonable to make the selection from the most eminent and influential of physicians or surgeons actually practising. It might be made, and would gradually become, a post of honour like that of magistrate. If

* At Rome they also had their *Ædiles Cereales*, at Athens their *Ἀγοράνομοι*.

it be true, as regards crime, that prevention is better than cure, the same may be said of disease; but, according to the present system, we are to wait for the hatching and appearance of frightful maladies, and the sympathies of human nature are only to be secondary to the developement of misery.

Opium in various forms, and chiefly in that of laudanum combined with alkalies, is suggested in systems of physic as a palliative for the paroxysms of pyrosis. A like recommendation is to be found in Elliotson's Lectures. For the affection erroneously so called, characterized by gnawing pain followed by a limited discharge of fluid from the stomach, it may be used with good effect; but for true pyrosis as defined and explained in our account of it, it is decidedly injurious, rarely palliative, and never capable of effecting a cure.

Bloodletting is sometimes useful in the same species, as also in that which is symptomatic of affections of the gastric orifices, of the liver, the spleen, and the pancreas, and in that which is notoriously symptomatic of pregnancy; but in the popular affection of which we treat it is especially mischievous. The uneducated Laplander seems to be aware of the defective energy of the vital fluid in this malady, and he tries to impart new energies to the stream of life by mixing a portion of fish, squirrel flesh, or even blood, with his bread, and this he calls *blod brad*.

Nux vomica, which was used by Linnæus in the enormous dose of one scruple, is a remedy which I

will not take the responsibility of recommending even in small doses. Unless aided by diet it never effects a cure, while, under a proper regimen, it is unnecessary.

The preparations of iron are useful in developing the red particles of the blood so long as a nutritious diet can be ensured for the patient.

Oxide of bismuth exerts no remarkable efficacy in this malady. In the spasmodic affection of the stomach described by Odier and Marcet, it is unequalled as a remedy. Dr. Barlow, of Bath, exhibited it in doses of five grains with one of aloes.

Lime water is a useful and ready means of palliating this affection. It is one of the oldest remedies among the poor, convenient, easily to be procured, innocent, cheap, and an alterative well suited to the chronic nature of an affection requiring a long continuance of prophylactic agents to guard against a relapse. It is also beneficially combined with a milk diet.

Bark may be beneficially employed in many cases, or the salt of quina. To this end a scruple of the disulphate may be dissolved in a bottle of good sherry or old orange wine, and a dram-glass full, or about half an ounce of such wine, may be given for a dose thrice a day. A bottle of wine supplied by charity, and thus medicated, will form a convenient cordial to last on this plan sixteen days, and in this form there is no danger of the charity being abused.

The 'fast specifisch' of the Germans is a cheap and efficient form for an alkaline tonic. It is annexed in the Appendix of Formularies.

Spiced warm port wine, where it can be procured, is a desirable cordial, and recommended as a daily stimulus by Most in his *Encyklopädie*.

Oleaginous* medicines have in their turn been extolled for the relief of water-brash, but they do not seem calculated to alter an adynamic condition of mucous membrane. When the ruminated or vomited fluid is acid, soap would seem to be the most eligible form, and even by this remedy we can only grapple with one effect of the malady, and not with the essential condition of disease.

Warm balsams and aromatics may be all used advantageously as auxiliaries, and terebinthinate frictions are well suited to this malady, as they are to cholera. Cubeb-pepper has also been suggested, but the more palatable are to be preferred.

Baths of a calefacient nature are not within the reach of the class of individuals usually the subjects of pyrosis, but they might be rendered useful. The caloric of the body should at all events be judiciously preserved, and its too ready escape from the lower extremities in cold cottages should be prevented by the patient clothing the entire trunk of his body in flannel, and by his using a warm feet-mat.

Dr. Mason Good, although he offers an opinion that brash may be owing "to an inactivity of the proper absorbents of the stomach," an idea nearly allied to the view taken of it in this work, yet, as it appears

* Good noyeau as an oleaginous cordial will commonly relieve a paroxysm.

to me, errs egregiously in limiting the seat of the disease to that organ, establishing his indications, 1st, to relieve the paroxysm; and, 2ndly, to prevent a recurrence by restoring the energies of the stomach. Agreeably with this view all his means are modelled after the usual treatment of dyspepsia, and he leans chiefly to the use of *nux vomica*, after the example of Linnæus. But it is hardly necessary to repeat that the brash fluid is not part of the liquids recently ingested: and therefore the experiment of Majendie, although it proves that a ligature tied round the pylorus in nowise retards the disappearance of the fluid portion of our nutriment in healthy digestion, would rather serve to show that the fluid of water-brash is thrown out of the constitution to which it is offensive, the stomach merely being made the channel or organ of depuration, agreeably with the views of Sydenham, and such frequent depurations at length bringing this viscus to a state of debility resembling that of serous membranes in chronic dropsies of close cavities.

The method of treatment found in our experience to be most efficacious is based on the following indications, already partly recited:—

1st. To provide azotic food in order that the blood of the patient may be more highly animalized.

2nd. To increase steadily the vigour and heat of the circulating system, especially in the capillaries of the surface.

3rd. To give new tone and fresh impulse to the absorbent system.

Any new panacea or modern heal-all, such as we can publish to the world as superior to all the remedies of by-gone centuries, acting with uniform certainty, curing like a charm, and of which we can be empowered to say that it has been tried largely and successfully, so as rarely to disappoint expectation, is not within the author's knowledge. The first indication has been amply explained, and the means of fulfilling it have been detailed. The like may be said of the second, and for the third the formulæ in the Appendix have best merited recommendation.

The regulation of the bowels will in this, as in all disorders of the digestive organs, be indispensable to the gradual cure. For the most part they will be more beneficially emptied by purgatives calculated to give tone to the fibre of the canal, as well as to that of the diaphragm and abdominal muscles; but medicines of this class will not be uniformly found to be applicable, however specious may seem the indication. This class of aperients has been recently indicated, and elegant appeals obviously written, to attract the notice of the higher orders of readers extra-professional, and certainly not addressed to, or calculated for, the medical peruser of such valuable records. He who reflects that constipation may depend on undue tonicity, on atony, on plethoric torpor, on defective bile, on weakness of diaphragm and of abdominal muscle, on deficient secretion of the intestines them-

selves, on mere infarction, on viscid accumulations, on indurated fæces, on the patient's own neglect of the call of nature, on improper food, on inversion of peristaltic action, on debility from the habitual use of drastic purgatives, on mental disorder, on morbid conditions of brain, on organic disease of the rectum, and on many other causes, will know how to appreciate the revival of such a sweeping precept for practical purposes.

It is easier to lay down an indication than to carry it into operation. It will be seen throughout this work that it is contended that the evil which produces the malady, whether agrarian or local, requires the sympathizing hand of the rich and influential. How vast is the misery which originates from a badly regulated body reflecting its irritation on a badly regulated mind! But I feel that I am treading on dangerous ground, and will content myself by requesting my readers duly to consider that, although it is the duty of the State to watch over and protect the interests of the industrious millions, the majority, whose happiness is the aim of good government, it is no less our fault than it is our disgrace if we calmly look on at the defective condition of their dietary, the occasional depressing effects of impaired crops, deficient aliment, or the unequal operation of laws intended for their benefit, without respectfully presenting our opinions and suggestions to the authorized servants of the State; and should we, in the performance of this duty, be accused of vain ambition or of sinister

love of popularity, let us remind our accusers that, as regards matters which are regulated by the dictum of the *medical man alone* in the gilded chambers of a palace, it cannot be very unreasonable to suppose that in the cottage the like influence might be exerted with advantage for the promotion of health and the prevention of disease. I shall be treading upon ground still more dangerous if I do more than barely record that, although the want of azotic food is the chief among the causes of the malady, the daily consumption of coarse barley or oatmeal, or inferior wheaten bread, is characteristic of the habits of the population wherever the malady is seen to be prevalent. This is merely a matter of statistics, and not of opinion. Gainsay it who can.

APPENDIX MEDICAMINUM.

FORMULÆ.—No. 1.

℞ Quinæ Disulphatis, ℥j.
Vini Aurantii, Oiss.
Solve.

Sit dosis cochleare largum ter quaterve de die.

No. 2.

℞ Ext. Rutæ.
—— Gentianæ.
—— Cardui Benedicti, āā ʒij.
Liquor. Potassæ, ʒj.
Aquæ Anthemidis,
—— Menthæ crispatæ, āā fʒiij.
Tinct. Rhei, fʒss.
Tinct. Cinnamomi, fʒij.
Aquæ Lauro-cerasi, ʒj.
M. fiat Mistura.

Capiat cochleare largum quater in die.

No. 3.

R Saponis Castil.

Sodæ Carb. exsiccatae, āā ʒij.

Ext. Trefolii, ʒij.

Pulv. Glycyrrhizæ q. s. ut fiat massa.

Divide in pilulas mediocres, et capt. ij. ter quotidie.

No. 4.

R Mist. Amygdalæ amaræ, fʒviij.

Liquoris Ammoniae, ʒj.

M.

Sumatur cochleare unum vel alterum paulò ante accensionem.

No. 5.

R Magnesiae, gr. xv.

Mist. Amygd. amaræ, ʒx.

ft. Haustus.

No. 6.

R Pulv. Rhei, ʒj.

—— Seminum Fœniculi,

—— Radicis Angelicæ, āā gr. x.

ft. Pulvis aperiens

Ex paululo Vini Xerici calidi exhibendus pro re nata.

No. 7.

R Pil. Galbani Comp.

Pil. Aloës cum Myrrha, āā ʒj.

Contunde et divide massam in pilulas xxiv.

Capt. ij. singulis noctibus, alvo astricta.

No. 8.

R Potassæ Tartrat.

Rhei Pulv.

Flavedinis Cort.

Aurantii, āā ʒss.

Ol. Cajaput. gtt. iij.

M.

Ft. pulvis pro una dosi.