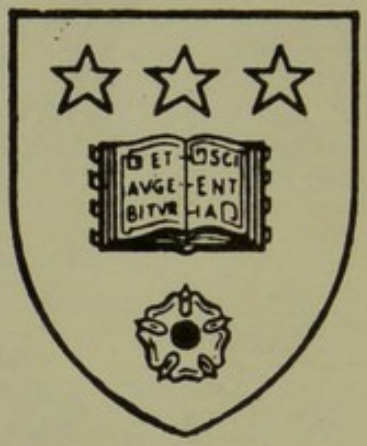
A treatise on derangements of the liver, internal organs, and nervous system : pathological and therapeutical.



A

TREATISE

ON

DERANGEMENTS

OF THE

LIVER, INTERNAL ORGANS,

AND

Nervous System.

By JAMES JOHNSON, M. D.

Author of the "Influence of Tropical Climates on European Constitutions."

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PREFACE

TO THE

THIRD EDITION.

THREE large Editions of this Work having issued from the Press, in the space of about two years and a half, I do not deem it necessary to trouble the Reader here with many Prefatory Remarks. The Work has neither sought nor obtained any other Patronage than the approbation of the Profession. I have not aimed at enlarging, but improving each successive Edition; and in each, I have narrowed the limits and lowered the Price of the Work. Nevertheless, I think I may say, with truth, that I have, in this Edition, greatly increased the value and importance of the matter, by concentration, substitution, and correction. What I mean by *substitution* is, the throwing out several chapters, which were either touched upon in my work on Tropical Climates, or deemed of inferior importance in this; and replacing them by other matter, more immediately connected with the subject of the present Work.

The flattering reception which this Treatise has received from the Profession, is a presumptive proof that a work on the important topics which it embraces, was wanting. It is well known that

Dr. Saunders's Essay on the Liver is principally composed of Elementary Anatomy and Physiology of that organ; and it is equally well known that he had not opportunies of observing the extensive ravages which tropical climates commit on the structure and functions of the biliary and digestive apparatus. His work, therefore, is quite imperfect in Therapeutics, Pathology, and Etiology. This statement cannot be dictated by any jealous or envious feeling towards the illustrious dead! The progress of Science and the revolution of Time must soon render the same statement applicable to the present, and to every other medical publication.

It may not, I presume, be improper to remark, that my attention to the class of diseases, treated of in the present work, was originally directed by painful personal sufferings, experienced twenty years ago; and if the Essay shall be found useful to the Profession and to the Public, I shall be satisfied.

58, *Spring Gardens*,
August 1820.

☞ It may be right to observe, that the first Edition of this Work bore the title of "The Influence of the Atmosphere, &c. on the Health and Functions of the Human Frame;" but that title often led the work to be confounded with the Author's other Work on—"The Influence of Tropical Climates, &c." and was therefore changed in the second and in this Edition.

ON

DERANGEMENTS

OF THE

LIVER, INTERNAL ORGANS,

AND

Nervous System,

&c. &c. &c.

PRELIMINARY OBSERVATIONS.

THE ATMOSPHERE which surrounds the globe we inhabit, for many miles in height, is the most heterogeneous fluid in nature. Every species of substance, whether animal, vegetable, or mineral, dispersed over the surface of the earth, and which is capable of being dissolved by water, consumed by fire, or volatilized by heat, is diffused in endless variety and proportion through the different strata of air. When, therefore, we consider that at every inspiration this fluid is applied to an expanded tissue of the most delicate blood-vessels in the lungs,* we cannot but conclude, that its ever varying properties, temperature, density, and impregnations, must have a predominant influence on the health of the human race.

The omniscient Creator, however, has not left us exposed to such a train of incidents without enduing the constitution of man with a pliancy, and power of resistance, which render the majority of atmospherical impressions comparatively innocuous. Hence, from the Æronaut, who soars above the clouds, to the miner in the bowels of the earth; from the Alpine peasant to the submarine Hollander; from the sirocco-breathing African to the half-frozen Laplander, we find the different tribes of mankind inhaling every possible modification of atmosphere, with a wonderful, though not an entire

* Keill estimates the internal surface of the lungs at 21,906 square inches.

similarity of result! By habit, the most potent poison may be taken in doses that otherwise would destroy life at once: so it is to *sudden* changes in the temperature, and occasional deleterious impregnations in the composition of the atmosphere, that nine-tenths of its injurious effects on the human constitution are to be attributed. It is true, that the degrees of rarity and density have considerable effect on the generality of constitutions, and that drought and moisture are still more important circumstances; but these may be fairly merged in one head.

ATMOSPHERICAL VICISSITUDES.

The sudden transitions from heat to cold, and *vice versa*, which we so frequently experience in this uncertain climate, though doubtless occasioned, principally, by the absence or presence, or rather the variations of solar heat, and electrical changes in the atmosphere, have not been satisfactorily accounted for by natural philosophers. It is our business, however, to trace their operations on the human constitution, and point out the most practicable means of obviating their effects.

The mean temperature of England being about 52 degrees of Fahrenheit, it is reasonable to suppose, that when the mercury rises to above 70 in summer, or sinks below 30 in winter, the functions of those organs which are more immediately exposed to atmospherical impressions, must be considerably influenced. Observation confirms this reasoning. In summer we find the functions of the skin, or the process of perspiration, conspicuously increased, and the urinary secretion diminished. In winter it is just the reverse; the functions of the skin are then confined, and a vicarious augmentation of urine keeps up the equilibrium of the fluids.

The lungs, which are ever in immediate contact with atmospheric air, experience the most unequivocal impressions from the change of the seasons. In summer, when the air is mild and warm, the skin in a perspirable state, and the fluids determined to the surface of the body, the lungs are free, and the chest expansive. In winter and spring the fluids are determined from the surface of the body towards the internal organs, and then the lungs become oppressed, (particularly in delicate people) and the extensive catalogue of pulmonic complaints attains its zenith.

These, however, are only the first links in the chain of cause and effect. With the surface of the body some of the most considerable interior organs sympathize, particularly the

lungs, the alimentary canal, and the liver. The sympathy between the skin and this last-mentioned organ, (which performs so important an office in the animal economy) or in other words, between the functions of perspiration and biliary secretion, has not been noticed, as far as I know, by any author, till I traced it in my work on the "Influence of Tropical Climates on European Constitutions;" though I trust that it will not be overlooked by future observers.

But the effects thus produced by the rotation of the seasons would occasion little inconvenience, were they regularly progressive, as the constitution adapts itself to the gradual revolution. It is the sudden *diurnal* rather than the slow *annual* vicissitude that induces such disturbance in the movements of the living machine, and renders the climate of England so disagreeable to foreigners, and deleterious to health.

By a wonderful innate power, implanted by the hand of our Creator, the human frame can preserve its mean temperature, (about 98° of Fahrenheit) although that of the external air may range from Zero to 150. But rapid transitions, as I have before observed, derange the functions of the body to a great extent. Another point to be observed is, that the operation of heat or cold, predisposes the human frame to be more easily affected by the opposite state. Thus a cold winter succeeding a hot autumn, or a hot summer succeeding a cold spring, will render the usual diseases of the season infinitely more severe; and when, in addition to these, we have rapid transitions within the twenty-four, or indeed within a few hours, then the effects will be conspicuous enough.

To take a nearer view of this important subject. The heat of the blood is generally far above the highest range of the thermometer in this country; but when in summer the mercury rises to 70 or 80 degrees Fahr. it is evident that the heat perpetually generated in the system, [supposed to be in the lungs] cannot be so rapidly abstracted from the surface of the body by the surrounding air, as when the temperature of that air is low. The sluices of the skin, however, being opened, the superabundant heat is carried off by the process of perspiration, and the temperature of the body is maintained at its usual standard. But in proportion as the range of the mercury is above the mean level [52°] and also in proportion to the time it continues there, so will the functions of the skin be preternaturally increased; and, when a transition to cold takes place, the exhalents on the surface are the more easily struck torpid, so as to fail in performing the important office in the animal economy, for which they were

designed. On the other hand, when from exposure to cold, the vessels of the skin are rendered torpid, quiescent, or collasped, a sudden application of heat excites them, on the principle of accumulated susceptibility, to inordinate action, or at least dilatation, which will be in all degrees, even to the destruction of organization, as is exemplified in frost-bitten fingers incautiously applied to the fire.

These effects, especially those arising in consequence of transitions from heat to cold, will be greatly increased by the following circumstances. First, by the presence of *humidity* in the air. The human frame, and particularly the English constitution, can sustain considerable atmospherical vicissitudes with a great degree of impunity, when the air is dry, clear, and elastic. But if these changes are accompanied by humidity or rain, every valetudinary, and many in health, are sure to feel the effects. The reason appears to be this; that moisture is a forcible conductor, and, consequently, at the moment of transition, the animal heat is most rapidly abstracted by such a medium, and all the injurious effects proportionally increased; as is exemplified every day, when people catch colds and other complaints, from not changing their clothes when wet with rain.

The second circumstance is *exhaustion or fatigue,* which, by rendering the circulation languid over the surface of the body, predisposes to the impressions of cold, which then more readily suppresses the perspiratory process, and disturbs the functions of the internal organs.

The third circumstance is *nocturnal exposure.* It would indeed appear, that the two preceding circumstances are here combined; for not only is the air more humid in the night, from the condensation and fall of dews or vapours, as well as the absence of the solar beams, but a universal lassitude and torpor seem then to pervade the animal and vegetable creation; so that, at this period, atmospherical impressions are doubly injurious.

1. *Sympathy between the Skin and Lungs.* Let us now trace more minutely the chain of associations, whereby these external impressions of the atmosphere are connected with derangement of the most important functions in the animal economy. We have shewn, that their first effects are on the skin and lungs; but were the mischief limited to a mere suppression of perspiration it would be comparatively trifling, for in such cases, a vicarious discharge of urine and pulmonary halitus, as we before observed, makes up for the deficiency. But in valetudinary, and where the transitions are vio-

lent, in the firmest constitutions, a morbid effect is extended by *sympathy* to the interior organs. In what manner this sympathetic association takes place, we are unable to explain; but the fact is certain, and, therefore, we shall not waste time in exploring the rationale. In this climate, one of the best marked sympathies is, that between the skin and the lungs, which is familiarly exemplified by the cold bath. On immersing the body in water, many degrees below the temperature of the skin, the vessels on the surface are struck torpid, and the blood is determined to the interior. At this moment, a sympathetic torpor takes place in the capillary vessels of the lungs, so that the blood is with difficulty transmitted through them, occasioning that panting for breath, which we observe in all, but more particularly in delicate people at the instant of immersion.

But here reaction soon takes place; the balance of the circulation is restored; the functions of the skin are renewed with increased activity, (on the principle of accumulated excitability) and this temporary oscillation of the vital fluid is succeeded by an exhilaration of spirits and renovated energy. On the other hand, if, previously to immersion, there has been exercise to produce fatigue; or excess of perspiration by atmospherical heat, to weaken the extreme vessels on the surface, then the torpor of the vessels of the skin cannot be properly overcome by reaction; the balance of the circulation is not completely restored, and the lungs or some internal organ are injured, with more or less of fever, according to the state of the constitution, and the force of the operating causes.

Here, then, we have a true picture of the effects perpetually produced by sudden atmospherical transitions in this most changeable climate. The consent of parts between the skin and lungs, which we may denominate the "CUTANEO-PULMONIC SYMPATHY," explains the origin of the grand class of climatorial diseases in this country, on the same principle that the "*cutaneo-hepatic* sympathy" is applicable to the diseases of tropical regions, particularly the climate of India. For, as in the torrid zone, the biliary organ is weakened by excessive secretion of bile, the consequence of a high range of atmospherical heat, and of course the *liver* predisposed to disease; so, in cold and variable climates like this, the *lungs* are the organs which bear the onus of disease, as evinced by the prodigious havoc which pulmonary consumption annually makes among the inhabitants of Great Britain. For these atmospherical transitions, by occasioning repeated determinations to the respiratory organs, excite

scrophulous tubercles there into a state of inflammation, and finally suppuration or confirmed phthisis.

And as in the fevers of India, where the heat is excessive, the liver has been found almost invariably affected; so, in this country, where cold and moisture prevail, a greater or less degree of pulmonic inflammation or congestion accompanies almost every febrile attack.

This principle, [Cutaneo-pulmonic Sympathy] explains the enormous waste of life occasioned by aërial vicissitudes operating on the lungs of delicate females through the medium of the skin, in consequence of the lightness of their dress, and their frequent exposure to the chilling damps of night, after the perspiratory vessels have been over-excited in crowded rooms, or fatigue has been induced by the seductive exertions of the dance.

2. *Sympathy between the Skin and Stomach.* The next association, or consent of parts, between the exterior and interior, is that subsisting between the skin and stomach; which, in uniformity with the former, we may designate the CUTANEO-GASTRIC Sympathy. This has long been observed and acknowledged by physicians; but its important influence on health has not been sufficiently attended to by practitioners. One of the most familiar and frequent instances illustrative of this consent, is, where cold or wet is applied to the *feet*, exciting pain or indigestion in the *stomach*; an occurrence which almost every individual, whether valetudinary or not, must have personally experienced. Now, when we consider the influence which the state of the stomach, [the primary organ of digestion sympathising extensively with the whole nervous system] must have on the health; and when we contemplate the frequency of the abovementioned occurrence in a climate for ever varying from heat to cold; from drought to moisture; we cannot but conclude, that this contributes materially to swell the long catalogue of stomach complaints.

In this, as in the former instance, delicate females, with a languid circulation, light dress, and thin shoes, become the most common sufferers; and hence, although they are infinitely more temperate in food and drink than the other sex; yet are they considerably more subject to the whole tribe of dyspeptic complaints, particularly heart-burn, flatulence, pain in the stomach, and want of appetite.

3. *Sympathy between the Skin and Bowels.* The third medium of influence between the surface of the body and the

internal organs, is intimately combined with, and seems a continuation of the preceding. It may be denominated the CUTANEO-INTESTINAL Sympathy, and is generally evinced in the same manner as the cutaneo-gastric, when cold or wet is applied to the lower extremities. But the intestinal canal sympathises readily with every part of the skin, and the most common origin of bowel complaints is checked perspiration, as all valetudinarians can affirm, especially those whose digestive organs have been weakened by residence in hot climates, where fluxes are of frequent occurrence.

4. *Sympathy between the Skin and Kidnies.* The fourth, or CUTANEO-RENAL Sympathy has already been glanced at; and occurs in health, where it appears as a *vicarious* increase of urine when cold weather, or the cold bath, contracts the pores of the skin, and diminishes perspiration. It is, however, the medium of disease also; for frequent determinations of this kind to the urinary organs, where there are any calculous or nephritic affections, considerably increase irritation, and induce inflammatory tendencies in the bladder and kidneys.

5. *Sympathy between the Skin and Liver.* The fifth and last, though not least, is the CUTANEO-HEPATIC Sympathy, which I have traced minutely in my Essay on Tropical Climates, as elucidating more clearly the influence of a high range of atmospherical heat on the European constitution, and shewing in what manner the biliary system is, under such circumstances, so peculiarly liable to derangement.

It may, at first sight, appear strange, that if a sympathy existed between the skin and liver, it should have been overlooked, while a consent between the surface and the lungs, the stomach, the intestines, and kidnies, was observed and acknowledged by the most eminent physiologists. And yet it appears equally strange, that such an organ as that for the secretion of bile; occupying so large a space, and performing so important an office in the animal economy, should be almost the only viscus exempted from a sympathetic communication with the surface.

Several causes have conspired to prevent the discovery of this sympathy. In the first place it is well known, that the biliary organ is peculiarly insensible, and that even structural derangement may go on to a vast extent, without exciting much pain or apprehension. In the second place, derangements in the *functions* of this organ are still more obscure, and require the minutest attention to symptoms and feelings,

which hardly any but the patient himself can comprehend, and that too, when his attention is excited to the subject, and when he is himself acquainted with the structure of the human frame. For instance, unless the consistence, colour, &c. &c. of the motions are assiduously attended to, (which, of course, is rarely the case) the state of the biliary secretion cannot be ascertained.

In the third place, the symptoms attending derangements of the biliary system are so easily mistaken for, and so generally accompanied by, derangements in the other digestive organs, as to mislead the patient himself, and too often his medical adviser.

Fourthly, it is only in tropical regions, where hepatic diseases force themselves upon the most inert observation, that the sympathetic connection between the functions of the skin and liver would be likely to arrest attention, particularly where the personal sufferings of the observer might be the means of exciting a more than usual degree of accuracy in the investigation. Such was the case, when I traced the sympathy in question; and by which I have been enabled to delineate the nature, the causes, and the treatment of diseases in hot climates. I shall here only give a mere outline of the *result* of my observations on this interesting subject, referring to the various parts of my Essay for a more extended elucidation.

It is admitted, that in summer and autumn, when atmospheric heat has attained its maximum, the secretion of bile is more copious than in winter and spring. It is also known to those, who have lived or practised in hot climates, that among the Europeans who migrate thither, the redundant secretion of bile is a prominent feature in the animal economy, whether in sickness or health, during the first years of residence there, and while the constitution is becoming assimillated to the new climate. The most superficial observer will acknowledge, that in summer and autumn *here*, and during the period alluded to, in hot climates, the perspiration is greatly increased. Here then are two effects steadily produced by the same cause, viz. perspiration and biliary secretion augmented by a high range of atmospherical temperature. Now it is admitted, by the most accurate physiologists, that *cotemporary action* in any two organs, will, in time, produce such an association that when the impulse is given to *one*, the other will act by what is termed sympathy. Allowing then, that there is no original consent between the functions of the skin and liver, surely this simultaneous state of excitement, produced by the same

general cause, in all climates and ages, must form one; and this is all that is contended for; as it is of little consequence to know *how* the sympathy has been produced, provided we know that it really exists; and of this fact, I trust, I have adduced sufficient proof in my other Essay.* By the sympathy in question, the whole range of effects, resulting from the influence of tropical climates on European constitutions, becomes easily explicable, and, what is of more consequence, it points directly to those means of prevention and cure which experience has proved to be most effectual; a circumstance that adds no inconsiderable weight to the evidence of its truth.

I have shewn in the Essay alluded to, that the increased secretion of bile, though a matter of considerable inconvenience, would be of comparatively trifling consequence, did it not predispose to a much more serious event, a *check* to the secretion; in the same manner, that after a profuse perspiration the salutary discharge from the skin is more easily suppressed, than if the perspiratory vessels had not been thus inordinately excited. So in this country, the augmented secretion of bile and also of perspiration, during the heat of summer, is attended with few bad effects till the *autumnal vicissitudes* commence, when frequent checks to both secretions derange the functions of the digestive organs, and render the biliary and gastric secretions both *irregular* and vitiated, for a considerable time afterwards. Here then, we see, that *our own climate* has considerable effect on the biliary system, by means of the sympathy in question, though such a circumstance has been little suspected; and if the influence of climate is not so powerful as to frequently drive the liver into a state of inflammation or suppuration, as between the tropics, it is quite sufficient, in conjunction with certain causes, which I shall hereafter trace, to occasion or increase that extensive class of *chronic* and *functional* derangements of the hepatic system, which have so long been falsely designated by the vague epithets—nervous, dyspeptic, and hypochondriacal.

6. *Internal Sympathies.* Besides these sympathies between

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* This subject will be again taken up in the Section on the "Nervous System," but I may here state it as my belief, that all sympathies are produced primarily through the medium of the *nervous* system—not from *connection* of nerves, but through the *brain*. The *vascular* phenomena in sympathies are *secondary* of the nervous, as indeed they are in most other actions or movements in the body, whether salutary or morbid.

the surface of the body and various internal organs, there is another train of sympathies, not less remarkable, between the organs themselves. That between the stomach and brain (gastro-cerebral) has been long observed by physicians, a familiar instance of which occurs in what is not inaptly termed the sick head-ache.

The stomach, indeed, seems the centre of sympathies; for besides the above-mentioned, it sympathises with the liver; (gastro-hepatic sympathy) on which account the diseases of the latter organ are often referred to the former. With the kidnies it sympathises very evidently, since irritability of the stomach is a very common symptom of calculous affections of the kidney or ureter; this may be termed the *gastro-renal* sympathy. The consent between the stomach and womb, (utero-gastric sympathy) is evinced during pregnancy by morning sickness in the earlier stages, and the whimsical appetites or longings which, in particular constitutions, appear at more advanced periods of gestation. The latter symptoms have been ridiculed by modern physiologists, as imaginary or knavish, (as was indeed the whole doctrine of sympathy) but—

"Naturam expellas furca, tamen usque recurrit."

The foregoing considerations will induce the medical sceptic to pause before he pronounces those cravings to be *unnatural* or fictitious, because they are sometimes assumed for selfish purposes. We see then, that the insalutary impressions of the atmosphere, transmitted from the surface to the central parts of our bodies, may be there reproduced and transmitted from organ to organ, by means of the sympathies above-mentioned, till various and complicated maladies, accompanied by a tribe of obscure and anomalous symptoms have arisen, that are as embarrassing to the physician as they are distressing to the patient!

Recapitulation. Let us now briefly recapitulate the leading features of the foregoing preliminary observations.

1. The climate of England is remarkably variable; the mean temperature being about 52° Fahrenheit.

2. Sudden atmospherical vicissitudes are very prejudicial to health.

3. The transitions are injurious to the constitution in proportion as the temperature has previously been much above or much below the medium heat of the time and place, and also in proportion to the length of time it continued at the

opposite extreme; because the operation of heat predisposes the human frame to be more easily injured by sudden transitions to cold, and *vice versa*.

4. Atmospherical impressions are primarily made on the skin and lungs.

5. There is an intimate sympathy between the skin and lungs, which becomes the medium whereby atmospherical transitions occasion or increase the extensive class of *pulmonic* complaints, from a common catarrh to a confirmed consumption. This class may be termed the national or climatorial disease, in the same manner as derangements of the *biliary* system form the most numerous class in tropical climes.

6. The sympathy between the skin and stomach (cutaneo-gastric) leads to the production or aggravation of many complaints in the functions of the latter organ, from aerial vicissitudes acting on the surface.

7. The *cutaneo-intestinal* sympathy, or consent between the skin and intestines, tends to occasion derangements of the bowels in the same way.

8. The "*cutaneo-renal* sympathy," or consent between the surface and kidnies, accounts for the vicarious increase of urine, when the pores of the skin are constricted, and perspiration diminished.

9. The "*cutaneo-hepatic* sympathy," or consent between the functions of the skin and liver, accounts for the mode in which atmospherical impressions on the surface occasion or aggravate hepatic derangements, which have too often been mistaken for, and misnomered---nervous, dyspeptic, and hypochondriacal.

10. The interior organs themselves when once affected through sympathy with the surface, sympathise unequivocally with one another, producing various anomalous and complicated symptoms.

11. It may be observed, that if the various organs above-mentioned, sympathise so sensibly with the surface, so also do the skin and its functions sympathise in turn with them. Rarely, if ever, are the skin and perspiration natural, when any derangement is going forward in the structure or functions of the aforesaid viscera.

I have shewn, that atmospherical vicissitudes acting on the surface produce, by a chain of sympathies, considerable derangement in the functions or even structure of internal organs. Now, although the identity of cause leads to a considerable similarity in the means of *prevention*; yet, the impressions having once produced their morbid effects, a variety

in the means of *removal* is essentially necessary. We shall, therefore, examine the effects in the order of their causes.

Sect. I. *Cutaneo-Pulmonic Sympathy, as elucidating the Cause and Nature of certain Diseases of the Respiratory Organs.*

If we survey the whole tribe of pulmonic complaints, from a common catarrh to a confirmed phthisis, we shall be constrained to acknowledge that, of all organs, the lungs are the most frequently affected, independently of their participating in the effects of fevers, in common with other viscera.

Pulmonary consumption alone is computed to carry off fifty-five thousand British subjects annually, or cause one-fifth or sixth of the whole mortality. If to this we add the deaths from inflammation of the lungs, asthma, water in the chest, &c. the catalogue becomes frightful; though, as I remarked before, a consideration of the texture and office of the organ in question, and the climate we inhabit, will sufficiently account for the peculiar prevalence and mortality of pulmonic complaints in this country.

It is not meant by this to attribute *genuine phthisis*, or turbercular consumption to the *direct* influence of the climate. I believe the remote, predisponent, or as some term it, the hereditary cause to be a scrofulous taint in the constitution, or nascent turbercles in the lungs; but I believe also, that in four cases out of five, this taint is excited into action, or these turbercles into inflammation and suppuration, by the effects of climate, and principally by often repeated and neglected colds, together with the higher degrees of pulmonic inflammation. If, therefore, it has been proved, that scrofula itself is produced by climate, the whole class of pulmonary complaints may then be referred, directly or indirectly, primarily or secondarily, to atmospherical transitions.

If we narrowly observe the operation of these, we shall, in most cases, find the functions of the skin first deranged. That insensible perspiration which just keeps the skin soft and of a natural temperature and feel, is checked. The balance of the circulation is slightly disturbed. It vibrates from the surface to the centre and back again, as is manifested by the slight chills and flushings that succeed each other. But that the balance is chiefly broken by a determination to the interior or larger vessels, with a torpor of the capillaries on the surface, is proved by the almost constant sense of chilliness and

inclination to keep near the fire, which we feel in catarrhal and other pulmonic complaints. The capillaries in the lungs sympathising with those on the surface, the blood is not transmitted through them with the same facility as before; and hence a plethora is kept up in that organ, till the complaint is removed. Nature seems to effect this by an increase of action in the exhalent vessels and glands spread over the mucous membrane of the bronchial tubes, where an effusion or secretion takes place in the form of an expectoration, which gradually relieves the turgescence in the lungs, as it is brought off by coughing, till the functions of the skin and respiratory organs at length resume their healthy standard.

It is easy to conceive, that from this lowest grade of pulmonic disorder, denominated catarrh, up to the highest state of inflammation or pneumonia, the effects will be in proportion to the violence and duration of the atmospherical causes already pourtrayed, and also according as the constitution, and particularly the lungs, have suffered deterioration by previous attacks.

The explanation here attempted, points directly to the measures of relief; viz. to determine to the surface, restore the functions of the skin, and relieve the respiratory organs.

Thus, in the milder degrees of pulmonic disorder, resulting from atmospherical vicissitudes, tepid, diluent drinks, moderately warm clothing, and a certain degree of abstemiousness, effect the two first objects. But, whenever the balance of the circulation is so far broken, as to cause any considerable degree of pulmonic inflammation, marked by pain in the chest, cough, and want of freedom in respiration, accompanied, of course, by febrile symptoms, then the lungs are to be relieved by more active measures; otherwise the most serious consequences may ensue, directly by the inflammation itself, or indirectly by exciting scrofulous tubercles into a state that may ultimately give rise to pulmonary consumption.

In all inflammatory affections of the lungs, it appears, that Nature attempts the cure by *expectoration;* but in the severer cases she is seldom successful; for, besides that the discharge is inefficient, the cough and fever attending this process are harrassing and dangerous to the patient, who seldom escapes without consequences resulting from this natural attempt at a cure, which lay the foundation for future illness.

The most obvious, and what is more essential, the most certain plan of relieving the organ of respiration in these cases, consists in a rapid diminution of the circulating mass

of fluids; first, by bleeding from a large orifice till the inflammatory action is interrupted by fainting, or at least a sense of faintness, which will often render a repetition of this evacuation unnecessary. Secondly, by purgatives, which, by acting on the intestinal canal, abstract from the general circulation a very considerable proportion of fluid, besides clearing the bowels, and thereby allowing a freer course to the blood through the great vessels distributed to the various abdominal viscera, as well as to the lower extremities. The pernicious doctrines of debility, rather than any popular *prejudices* against these *decisive* measures at the commencement, have too often rendered the surest means of relief comparatively inert, if not actually prejudicial. It appears to be the aim of practitioners rather to moderate, than subdue the inflammatory action, trusting to the *natural* process of expectoration for the completion of cure, instead of exterminating, as it were, the inflammation, and rendering the tedious, uncertain, and sometimes dangerous process of expectoration unnecessary.

That the most violent pulmonic inflammation may be subdued in the manner above-mentioned, without a particle of expectoration, many practitioners of eminence could bear witness; but it requires discrimination to hit the mark in safety; for, if we go blindly beyond a certain point, an *effusion* will take place in the lungs from too *copious*, as well as too *scanty* depletion.

In whatever manner we proceed, at first, it is certain, that after expectoration has commenced, evacuations, both by bleeding and purging, are to be cautiously employed. They are the more safe in proportion as the expectoration is scanty, the cough dry and troublesome, and the surface fevered. On the contrary, when the expectoration begins to come more copious, and the surface relaxes, although considerable pain accompanies the cough, the lancet and purgatives are seldom necessary to conduct to a safe termination. Antimonials at first, and gradually increased expectorants, as the febrile stricture goes off, will, in general, succeed, with blisters to relieve local uneasiness. But the common mode of applying a blister, almost as soon as evacuants are prescribed, produces great mischief. The stimulus of a blister generally proves hurtful during the first thirty-six or forty-eight hours of pulmonic inflammation, unless the most prompt and decisive evacuations are early had recourse to; a mode of practice that I would strongly recommend from undoubted evidence of its utility.

In recovering from most acute diseases, but particularly

from one where so important an organ as the lungs has suffered; the greatest presence of mind is necessary to restrain the patient's appetite, which almost invariably exceeds the power of digestion, and produces a tendency to return of the febrile state. But this is not all; blood is formed in such abundance by the new supply of food, that the excretions are not adequate to keep a proper equilibrium in the circulation; hence, the slightest degree of plethora is apt to oppress the weakened organ, and relapse is the consequence. This caution cannot be too strongly impressed on the practitioner's mind, since any sanction which he may give to the solicitations of the patient or friends, will certainly be remembered when the sinister occurrence takes place, and all the bad consequences will be laid to his charge.

Subsect. 2. *Asthma.* This disease has been very uselessly divided into almost as many species as there are exciting causes or morbid complications. There is but one species of convulsive, or periodical asthma, although it may be combined with various diseases which obstruct the free function of the lungs, occasioning more or less of permanent difficulty of breathing, which difficulty is always greatly aggravated during the proper asthmatic paroxysm. Thus there may be, and too often is, organic disease of the heart combined with asthma, and then we have angina pectoris. The lungs of an asthmatic individual may become, as the weak point, the seat of irregular gouty irritation; then we have gouty asthma. There may be dropsy of some of the pectoral cavities, forming a dangerous complication; or there may be tubercular disease of the lungs themselves; for there is nothing in asthma to forbid consumption, or *vice versa*.

There is no disease which presents a finer specimen, or a more decisive illustration of atmospheric influence over the human functions; or of that broken balance in the excitement and circulation, which thence results, than asthma.

The whole of the symptoms, predisposition, and consecutive phenomena give evidence to this statement.

Symptoms. Preceding sense of fulness, tightness, flatulence in the *epigastric region;* with yawning, and discharge of pale urine. These symptoms are followed in the night by the above sensations in the *chest*, thus shewing the incipient oscillations of the vital power or excitement, accompanied, of course, by vascular derangement. It is remarkable, that the first *warning* symptom is often a sudden *inclination to stool*, or intestinal irritation, which as quickly shifts its seat to the stomach, and then flies to its favourite station, the chest.

Now come on convulsive dry cough; difficulty of inspiration; heaving of the chest and shoulders; wheezing; pallor or livor of the countenance; inability to lie down; coldness of the extremities; gasping for fresh air; great perturbation in the pulse, which is weak or throbbing; intermitting or redoubling. Head-ache next succeeds in most people; feverishness; belching of wind, and discharge of the same downwards, especially when the paroxysms are taking the turn. All this time, the patient's mind is greatly agitated; often there is horror or apprehension of death. The unhappy sufferer indeed is the picture of distress, and experiences the agonies; worse than the agonies of death. The fit gradually declines with deposition in the urine; and a slight or copious secretion from the mucous membrane of the lungs, which depositions and secretions appear to be either the cause or the effect of a returning equality of balance in the excitement and circulation. The duration of the paroxysm is very various; and so are the returns of the fit. The *latter* often seem to tally with the phases of the moon; but this, in all probability, is owing to the atmospherical perturbations and vicissitudes which so generally happen at these epochs. It is more frequently immediately *prior* to the aerial change, that the asthmatic patient feels himself menaced or attacked. Thus approaching falls of snow, or rain, changes of wind, thick fogs, electrical phenomena, &c. exert a powerful influence on this complaint.

Termination. Here, as in many other instances, *effects* have been mistaken for *causes*. Asthma may harrass the patient to a very old age, and produce no organic lesion. At other times, however, when inveterate, it may terminate in pneumonic inflammation, phthisis, hydrothorax, or apoplexy.

Pathology. In uncomplicated asthma, death discovers no trace of organic disease. In respect to the proximate cause therefore, it must be *functional*, and not *structural*. Some people deny that there can be any lesion of the one without lesion of the other. But to those derangements of organization, which offer no visible trace, we may say---

De non apparentibus et non existentibus eadem est ratio.

Every phenomenon, however, of the disease evinces the great breach which is made in the balance of the excitement, and consequently of the circulation. We see the whole vital energy concentrated, as it were, about the lungs, the grand seat of irritation and temporary engorgement of the vascular system. Whether spasm may, or may not exist in the respiratory organ at this time, I shall not attempt to ascertain;

but no person, who has attentively observed the phenomena of an asthmatic paroxysm, can fail to perceive, that the vessels of the lungs are overpowered with blood, as well as the seat of inordinate irritation, while the skin, the extremities, and various other parts of the body are deprived of their share, both of the excitement and circulation.

Causes. Hereditary conformation, atmospherical influence; certain *irritations*, as from dust, smoke, offensive odours, &c. Wandering gout, irritation in the stomach and bowels, profuse evacuations, intense study, retrocession of cutaneous eruption, strong mental emotions, &c. are among the principal predisposing and exciting causes of asthma.

Treatment. In the paroxysm, perpendicular posture in a spacious apartment; free, but not too cool air. Feet to be immersed in warm water. If, at this time, an emollient injection, with a large portion of tincture of castor, and tincture of assafœtida, were thrown up, it would be of great service; but it should be done with as little motion or inconvenience to the patient as possible. But our grand dependence is on laudanum, æther, camphor, assafœtida, valerian; and antimonials or ipecacuanha to encourage expectoration. I can speak from observation, however, that opium is given, in general, with too sparing a hand, as well as æther, camphor, &c. The abdominal viscera are in a state of *torpor* proportioned to the intensity of orgasm that exists in the lungs. The antispasmodics then, as in tetanus, may be given in doses which would produce serious mischief, if the balance of excitement and the circulation were justly poised. In such cases, I have given 60, 80, or 100 *minims* of laudanum before any sensible effect could be produced.

Where there is suspicion of organic disease accompanying asthma, still we must use the same remedies, though when the lungs are threatened with suffocation from the engorgement of their vascular structure, we must occasionally endeavour to restore the balance by local, or even general bleeding; sinapisms, blisters, &c.; in short, by every kind of *counter-irritation*, both internal and external.

In the intervals, the great object is to avoid the various exciting causes; to keep the digestive functions in a proper state; to guard against atmospherical vicissitudes, and to keep up a regular and uniform excretion from the pores of the skin by flannels; lastly, to maintain as even a state of mind as possible; remembering that asthma is more alarming than dangerous, and that it rarely proves fatal unless when complicated with, or in very inveterate cases, terminating in, some organic disease of a vital organ.

Subsect. 3. *Pulmonary Consumption.* We shall now take a very cursory survey of that singularly melancholy species of pulmonic disease, denominated *phthisis* or pulmonary consumption. It is certain, that notwithstanding the extensive prevalence of genuine phthisis, yet a great many diseases, accompanied by wasting of the body, hectic fever, and cough have been classed with pulmonary consumption, both by the medical attendants and friends; hence, a number of pretended cures have been performed, and nostrums have been extolled, when the complaint was only long protracted catarrh, or abscess in the lungs from inflammation, where no scrofulous taint lurked in the constitution. The numerous cases that have been published of pulmonary consumption cured by digitalis, also, were probably abscesses in the lungs from pneumonia, which will frequently heal under common treatment, where no scrofulous tendency existed previously. It will be found, that where the disease approaches insidiously on young people with "*light hair, fair skins, blue eyes, florid complexions, contracted chest, and high shoulders,*" especially if any of their progenitors have fallen victims to the same malady, a cure will rarely be effected, though the progress of the disease may be long protracted, where the patient's circumstances will admit of unremitted attention to regimen. In such cases, the slightest determination to the lungs should excite anxiety and claim our attention; for, often when the cough is so trifling as to be only a slight heck, as if occasioned by mucus or phlegm in the throat, we shall find the circulation deranged and considerably accelerated after meals, especially of animal food. There will not be the same degree of ease in lying on one side as on the other;* and in females about the age of puberty the catamenia, (menses) will not come on. Hæmorrhage from the lungs, under such circumstances, is always suspicious, for, although it often appears to be an effort of nature to relieve the local congestion, yet the ulcer which succeeds does not always heal, and too frequently terminates in confirmed phthisis. The wandering pains and anomalous symptoms, which so often accompany the incipient stage of pulmonary consumption are embarrassing to the practitioner, nor can any thing decisive be prognosticated from the expectoration, for pus does not appear till the disease is far advanced; too far alas for cure! When phthisis is regularly

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* Dr. Parr asserts, that if the patient can lie on the side where the pain is felt, the disease is *not* phthisis.

established, it forms one of the most distressing pictures which the human frame exhibits in its progress to corruption! The hectic flush on the cheeks, the vermillion lips, the burning heat in the palms of the hands and soles of the feet, with evening fever, are periodically changed for cold colliquative sweats, hollow, pale, languid countenance, sharpening features, augmented expectoration, and progressive emaciation! Such is the series of heart-rending symptoms which are daily presented to the agonized friends, whose distress is heightened by the never-dying hopes which perpetually spring in the hectic breast! Whether it is that the delicate organization which predisposes to this destructive disease contributes to amiability of temper and sweetness of disposition, is doubtful; but certain it is, that the malady in question falls in general on the best, as well as the loveliest part of the creation.

The following condensed outline of what the experience of ages has found the most efficacious means of resisting the progress (who can say effecting the cure?) of this remorseless enemy to the British constitution, in particular, may not be undeserving of the *professional* as well as the general reader's attentive consideration.

As the predisponent, or what may be termed the hereditary causes of consumption are beyond our control, we can only look to those which usually excite the disposition into action; and as the state of the *atmosphere* has been shewn to influence scrofula, and, in general, to produce catarrhal complaints, so our principal object must be directed to the regulation of this important agent.

We must take care, however, in sedulously guarding against cold, not to render ourselves enervated exotics by heat. The only effectual means of resisting any injurious impression to which we are unavoidably exposed at times, is by careful, gradual exposure to its operation. By attention to dress, however, we can defend ourselves, in a great measure, from sudden vicissitudes, particularly from heat to cold; and, where circumstances will admit, a removal to a mild and warm climate, will obviate the necessity of being ever on the watch. A tropical climate is not the safest asylum for the pulmonary invalid. There, the transitions of temperature are often rapid, and the lungs are apt to participate in diseases to which other organs, particularly the liver, are peculiarly prone beneath the torrid zone. In the warmer countries of Europe, though the houses are, in general, well adapted towards obviating atmospherical heat; yet, from their construction, the pulmonic invalid is there peculiarly

liable to catch cold; so that, perhaps less advantage is gained, on the whole, by emigration abroad, than could be wished. Mr. Mansford has lately drawn a favourable picture of the climate round Axbridge, in Somersetshire, as peculiarly favourable to consumptive invalids. The anxiety to evade the attack, or arrest the progress of this terrible malady, is well known in the profession; but to the question, "Whither shall I fly?" Who can give a decided answer! An opinion, whether true or false, very generally obtains, that England is not the place for the pulmonary invalid, especially in winter and spring; and it therefore becomes a desideratum to know in what spot of Europe we may find the greatest combination of favourable circumstances for the phthisically-disposed patient. VILLA FRANCA, near Nice, is pointed out by an intelligent writer in a very respectable Journal,* as a situation of this kind. It was found that, during the winter months, it averaged six degrees of superiority over the climate of Nice, which is an immense difference, but only in correspondence with the natural advantages of the place. Here, indeed, every thing is in miniature; the amphitheatre is small and steep. The last tier of mountains is especially precipitous; springing abruptly from the shore, they rise on an angle of 45 degrees. The houses are built wherever a little flat ledge is left. When elevated one or two hundred feet above the level of the sea, you may not be farther from it in horizontal distance. The hills continue to rise above the houses in the same sudden manner. On the west, north, and north-east, they attain an elevation of from four to six hundred feet. On the east, the amphitheatre is somewhat less complete, and the recess, on this side, is a little exposed; but there is abundant shelter in other directions. The bay lies directly north and south, and the *campagne* is freely exposed to the sun. The wind is never felt, except from the south and south-east; the bay is always smooth and unruffled. Hanging gardens adorn the lower ranges of hills with a rich cloathing, being covered with the olive and carrubea, the fig, the almond, and the orange tree. The soil is remarkably luxuriant. Though the ascent be so precipitous, there is no want of free space for exercise. The inhabitants have cut mule paths in every direction, at different elevations, extending round the amphitheatre. The invalid may skirt along the sea shore, and listen to its murmurs, or make his round at an elevation of one

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* Journal of Foreign Medicine and Surgery, No. 3.

hundred feet, and feast his eye with the varied and enchanting prospect. He may mount still higher, and, under the shelter of the olive, lose himself in ever new and ever varying paths; or he may spend many a pleasing and health-renewing hour on the calm lake beneath, where the breeze is never felt, and no wave is ever seen. This romantic spot is not unknown on the continent, as a very superior residence. A celebrated physician at Montpellier pointed it out to the writer, as the first situation in Europe for the pulmonary invalid.

It is certain, however, that *pure* air and elevated situations are prejudicial, and that those who live in the vicinity of marshes, where hydrogen abounds, are not so subject to pulmonary consumption; and it has even been suspected that *hectics* have increased as intermittents have disappeared. The more equable temperature of the sea has long been known as favourable to phthisical patients. The southern and western counties of England and Wales afford secluded vallies where the bleak north-east can hardly penetrate, and where the surface of the earth is not long bound in frost. There a limited indulgence in gentle horse exercise, by visiting the neighbouring shores in fine weather; guarding against every stimulus in diet, and yet admitting a small proportion of light animal food, with *moderately* warm dress, will often prevent the predisposition from coming into action for a long time, perhaps till the phthisical period has elapsed altogether.

In what may be termed *incipient* phthisis, and especially where local affection is evinced by pain in some part of the thorax, the permanent drain of a series of blisters, perpetually travelling round the chest, a number of issues, or a seton, in conjunction with the foregoing measures, will be productive of excellent effects. A strong prejudice exists against bleeding in phthisis, principally, perhaps because it has been used at too late a period, when every remedy would have failed; and where, of course, it has exhausted the strength without subduing the disease. But for the purpose of checking those determinations to the lungs in catarrhal and hæmorrhagic affections of the respiratory organs, the abstraction of blood, at proper periods, especially by leeches, will be found an invaluable prophylactic against phthisis.

Occasional emetics, by determining to the surface and keeping up an action in the extreme vessels, are also useful; though they must be so managed as not to pass into the

bowels and occasion purging, which always renders expectoration difficult.

As for the various remedies which have acquired an ephemeral reputation, only to disappear like "wave succeeding wave," it is needless even to name them. Digitalis and hydrogen gas are recent examples. Prussic acid and the vapour of tar have evaporated into "air, thin air."

In respect to diet, the extremes of Sangrado and Brown are to be equally avoided. Early hours in rising, a light breakfast, with whey or asses' milk; gentle exercise, particularly gestation, till one o'clock, when a single dish of light animal food should constitute the dinner, are to be succeeded by an hour or two's repose. Water is undoubtedly the best drink at dinner, and tea in the afternoon. It is needless to say that supper should be of the lightest nature imaginable.

Phthisical invalids, in general, err by covering themselves with too much flannel and warm clothing. They certainly should defend themselves carefully from sudden applications of cold; but in doing so, they should not elicit too much perspiration from the skin by warmth; for they are thereby not only enfeebled, but rendered doubly liable to suppression of the cutaneous discharge. As the weather gets warm, calico may fairly supply the place of flannel, but the feet should be sedulously kept dry and warm.

In the advanced stages, opiates judiciously managed, may *soothe* the sufferings of those whom we vainly endeavour to save from the ravages of this insatiable disease. The superacetate of lead also, when joined with an opiate, restrains, in a very powerful manner, the morning perspiration, which wastes and harrasses the patient. I have seen very good effects from it in this complaint; and some have gone so far as to say it has *cured* phthisis.* It has also been proposed, and, it is said, tried with success, to send phthisical patients to the fenny counties, as Essex and Lincoln, where an attack of ague has suspended phthisis. In these ulterior stages, a more generous diet, and even some wine may be allowed. These, instead of increasing the fever and expectoration, will often check both. The compound powder of ipecacuan at night will often restrain the morning perspiration, if given in doses of 12 or 15 grains. The sulphuric acid will also be useful.

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* Transactions of the College of Physicians, Vol. V.

Before taking leave of this melancholy subject, it may not be uninteresting to hint at a preventive check to phthisis, which I believe has never been acted on in this country.

It is well known that the pathology of hæmorrhoids (piles) has met with infinitely more attention on the Continent than in England; and it has been well observed by Sir T. Morgan, that "the extreme irregularity of our insular habits of life, and the mutability of our climate, are by no means favourable to the observation of those great movements in the system, which the continental pathologists describe. We are not therefore to accuse them of exaggeration." In fact, I think there is no doubt but that the hæmorrhoidal flux or movement is of *more frequent* occurrence on the continent than in this country, and that phthisis, on the contrary, is *less frequent* there. Now, without going the length of coupling these as cause and effect, I conceive there is much foundation for the German and French doctrine of hæmorrhoids being, when moderate, a salutary operation of nature, and a *preventive of phthisis*. This idea is strongly countenanced by the well known fact that a particular disease of the rectum, attended with a discharge (fistula in ano) almost uniformly suspends pulmonary consumption for a time; and that, on the other hand, when a fistula is suddenly cured by an operation, or spontaneously, in unsound constitutions, a determination to the lungs is often the result. The father of physic, indeed, plainly speaks of the anti-phthisical effects of the hæmorrhoidal discharge. "Qui sanguinem per ora venarum quæ sunt in ano, perfundere solent ii neque lateris dolore, neque pulmonis inflammatione, corripiuntur."— *De Humor.*

Montegre, the latest and the best writer on hæmorrhoidal affections, is of opinion that this sanguineous movement preserves thousands annually from the ravages of pulmonary consumption. The two following cases are quoted from the French of Larroque and Montegre, in support of the foregoing observations.

Case 1. A young lady, prior to the age of puberty, had all the symptoms of pulmonary consumption; but as soon as the menses were established, these symptoms disappeared, although several distinguished physicians had pronounced the case incurable. From this time till the cessation of the menstrual evacuation, at the age of 45, no complaint of the chest was manifest; but at the turn of life, the symptoms of phthisis were again renewed. Fortunately at this epoch, the hæmorrhoidal flux appeared, and the thoracic affection

instantly gave way. Between the age of sixty and seventy the hæmorrhoidal discharge ceased, and again returned the cough and expectoration, of which she died. The following case was communicated to Dr. Montegre by Dr. Bodson.

Case 2. A man, 25 years of age, married two years, tall and thin, became affected with constant and severe pain between the shoulders, accompanied by cough and copious expectoration, emaciation, and progressively increasing debility. Notwithstanding various means, these symptoms got worse and worse, and the young man was considered to be in a confirmed consumption. The attending physician happening to recollect that the father of the patient had been hæmorrhoidinary, conceived that the establishment of such an affection might be serviceable to the son, and consequently applied six leeches to the fundament. The effect was so rapid and decisive that it appeared as though the pulmonary disease was destroyed by a single blow. The hæmorrhoidal movement became irregularly established, he recovered flesh and strength, and continued in good health.

From these considerations it would appear desirable, in the incipient stages especially, of pulmonary consumption, to induce piles by aloetic medicines, or the periodical application of leeches to the verge of the anus. This hint may be more useful to the patient than to the physician; for unfortunately the latter is seldom consulted till the disease is too fast seated for any remedy to remove.

Dr. Armstrong, in a recent work, has called the attention of the faculty towards the use of the Harrowgate and Dinsdale sulphureous springs in pulmonary consumption. He states that he lately saw two most remarkable cases of confirmed phthisis cured by these waters. This proposition from such an authority is well worthy of serious consideration and trial.

Sect. II. *Gastric Complaints; or, those Affections of the Stomach originating in, or through Sympathy with the Skin; Cutaneo-gastric Sympathy.*

Next to the lungs, the stomach, in this country, appears to be the organ whose functions, at least, experience the greatest variety of deviations from a healthy state. This cannot excite surprise, if we consider how extensively it sympathises not only with the surface of the body, but with the brain, the liver, the kidnies, &c.; and also how frequently

its natural digestive functions are deranged by the variety of "dishes tortured from their native taste," and inebriating materials in our drink. To these must be added the wide range of mental emotions, which invariably disturb the digestive operations of the stomach, whether they be of a joyful or a sorrowful nature, unless restrained within philosophic bounds, which few are able to effect in these times of anxiety and conflicting interests.

When we again consider that a due action in this important organ is essentially necessary to the support of the human frame, and that its derangements must, of course, affect the whole system, which depends on it for immediate and hourly support, we may conceive some idea of the influence which stomach affections must exert both on the mental and corporeal functions. In fact, it is quite certain that every organ, (particularly the brain, liver, and skin, with their functions,) participates in, and is influenced by derangements of the stomach.

The effects which external, or atmospherical impressions make upon the organ in question, through the medium of the skin, are not very analogous to those on the respiratory organs, inasmuch as inflammation of the stomach from this cause more rarely takes place. I have seen three distinct cases, however, where inflammation of the stomach was induced by sudden cold applied to the surface of the body, and several where cold drinks have produced the same inflammation. The sympathy between the skin and the stomach is equally remarkable in a high as in a low temperature; but still more so in sudden transitions of temperature, as well thermometrical as barometrical and hygrometrical. In a high range of atmospherical heat, the vessels of the skin are unusually excited, and the process of perspiration is greatly increased. In consequence of this, if it be continued for any time, a subsequent debility of the perspiratory vessels ensues, as has been explained and proved by the ingenious Dr. Currie; and we then clearly observe the consent between the skin and stomach, as evinced by the want of appetite, and desire for the stimulus of fermented or distilled liquors. These effects are greatly increased, if to the external stimulus of high temperature we add fatiguing exercises, whereby the perspiration is morbidly excited, and the indirect debility of the subcutaneous vessels, and stomach (by sympathy) induced. Hence, after pedestrian exercise in the forenoon, during the heat of summer, and after the perspiratory vessels have become relaxed, we find a sense of fainting at the stomach, accompanied by want of appetite, and desire for some

gently cordial and diluting drink, which, by giving a temporary spur to the organ of digestion, brings on the ability to take solid food. The insalutary effects of these proceedings are almost obvious, and they will be noticed hereafter, in a subsequent section of the work. The circumstance is so familiar to general observation, that it cannot fail to elucidate the present subject.

In a mild temperature with gentle exercise, we find the skin and perspiration in a natural healthy state, and the stomach not appearing to have any connexion with the surface. But as the weather becomes cool, constringing and bracing the vessels of the skin, we perceive the sympathy in question immediately, for a stimulus or tone is quickly communicated to the stomach, and the appetite is keen.

When the air becomes still colder, uneasy sensations are produced on the surface from the too rapid abstraction of heat, and we are prompted to motion and exercise to counteract them, which by keeping up a due action in the vessels of the skin and stomach, conduce to the same effects as are produced by *moderate* cold; an increase of appetite.

When, however, the degree of cold is so great as to induce any torpor in the vessels of the surface, and this is not immediately counteracted by exercise or clothing, the stomach, as well as other organs, inevitably sympathises, and the important process of digestion is interrupted.

These morbid effects will be increased and rendered more dangerous, in proportion as the cold is suddenly applied, after the vessels have been excited by much previous heat or exercise; and particularly if the cold be *partially* applied, and accompanied with wet. The reason of this is plain, from the foregoing observations. Much previous heat or exercise will have excited the vessels of the skin, (and by consent of the stomach) beyond the medium and healthy standard, and of course will have rendered them the more predisposed to torpor and sudden collapse, whereby the functions of the surface and stomach are more easily disturbed. If the previous heat and exercise have contined so long that a subsequent debility is now taking place, independently of a sudden transition, then the application of the latter will operate with double force; whereas, if the heat and exercise had not produced any disposition to fatigue or weakness, then the constitution will resist a very considerable shock from the application, as is evinced by men and animals plunging into cold water, while heated, (but not fatigued) by exercise, without any bad consequences; and hence the propriety of recommending a certain degree of exercise previous

to the application of the cold bath, in delicate and debilitated people, which enables them to sustain the shock with impunity; whereas, if the exertions of the muscles have been continued to fatigue, and the pores have been much relaxed by perspiration, the consequences will, in all probability, be dangerous.

In a most extensive class of diseases, whose treatment has been hitherto very puzzling, the stomach, in company with the liver and intestines, sympathises to an extent that is little imagined. I mean the variety of cutaneous and eruptive complaints. From the mildest to the most inveterate of these, there is scarcely one which is not more or less connected with derangements of the above-mentioned organs, but particularly the liver, and consequently under the control or influence of remedies directed to them. It is entirely through the medium of this sympathy that the practice of Abernethy and some other ingenious physicians has been so successful, where the local or external affection has been considered as only symptomatic of a more general and internal disorder. If we observe the effects which a single glass of a warm stimulating liquid has upon the surface of the body, when taken into the stomach, we cannot wonder at the various and complicated affections of the skin produced by error in food and drink. Indeed, the connexion or sympathy in question has not escaped even vulgar observation, since rashes and eruptions on the skin, are (with great truth too) every day ascribed to peculiar kinds of food and drink disagreeing with the stomach. Familiar examples are hourly exhibited, in what are called surfeits; and if we examine those who have delicate skins, the day subsequent to a debauch, when the functions of the stomach, liver, and bowels, are all out of order, we shall find the most marked corresponding alteration in the feeling, appearance, and function of the surface of the body; an alteration which cannot easily be described by words, but may be readily detected by an observant eye. By this mark alone, I have often been able to trace the origin of febrile illness to debauches, where it was the object of the patient to deny any such cause. This subject will be resumed again when we come to the *Cutaneo-Hepatic Sympathy*, as it is one of the utmost importance; but it may be here remarked, that the sympathy in question (cutaneo-gastric) helps to explain the success of certain remedies in syphilitic and pseudo-syphilitic diseases affecting the skin; for instance, the celebrated Lisbon diet drink of old, and the modern decoction of sarsaparilla, with antimo-

nials;* which, by acting on the stomach, and, through sympathy, on the skin, have contributed so much to the removal of cutaneous defœdations.

This sympathy between the surface of the body and the three important organs above mentioned, illustrates more clearly the operation of cold water and cold air, as well as of the tepid and vapour baths, on the skin in fever. When the external surface is constricted by febrile heat, the perspiration is checked; the internal surface of the alimentary canal is in an analogous state; the gastric, intestinal, and hepatic secretions are all suspended or deranged. Cold water and cold air (independently of their effects on the senses) by reducing the febrile heat, bring the skin to a perspirable state, when an instantaneous and corresponding effect is produced on the secreting surfaces and organs internally. The tepid and vapour baths, by relaxing the sub-cutaneous vessels, have a similar power in ameliorating the state of the external and internal secretions, through the sympathy in question; a sympathy that is proved by the well known facts, that in the above operations, the moment the healthy perspiration breaks forth, the *ardent* thirst is assuaged, and the discharges from the bowels become more natural. These circumstances, which are evidently of more importance than any effects produced on the *senses*,† have not attracted the notice of former authors, though I hope the subject will in future excite some interest in the minds of medical men. When the above-mentioned agents are applied to the stomach, the external surface exhibits analogous appearances, demonstrative of the association in question. Hence the propriety of cold drink in fevers; and as solutions of neutral salts are found to increase the effects of gelid potations, the common effervescing draughts, with nitre, while they excite the contempt of the young medical sceptic, are evidently salutary upon the principle investigated; a coincidence of reasoning and experience that must prove gratifying to the inquisitive mind.

But to return. I have remarked, that those disordered states of the stomach resulting from atmospherical impressions on the surface, do not often partake of an inflammatory nature, as is the case in the organ of respiration; and indeed this observation may apply pretty generally, when the causes are traced to other sources than the climate, as in-

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* *Vide*, Carmichael on Pseudo-Syphilitic Diseases.

† *Vide* Currie, Jackson, &c.

temperance, depressing passions, &c. The primary symptoms, in short, are those of derangement of *function* rather than of *structure*, for when the *latter* takes place in any of the digestive organs in particular, it is, in most instances, from a long continuance of the *former*; for instance, scirrhous pylorus, induration of the liver, &c.

This derangement of function in the stomach appears principally to consist in either a suspension of digestion, or imperfection in that important process. We shall not stop here to theorise respecting the *modus operandi* of gastric digestion, or inquire whether it is performed by "solution," "fermentation," or "trituration;" it is sufficient to be assured that whenever this living machine ceases for an instant to perform its proper office, its contents suffer chemical combinations and decompositions which are both troublesome and injurious to the individual. The extrication of air, and the generation of acid, are among the first symptoms of deranged gastric digestion; and hence flatulence and heart-burn result. But these are trifling evils. The aliment, instead of being formed into a bland chyme preparatory to a second digestion in the duodenum, passes from the first to the second stomach in an unfit state for the important change which is to be operated upon it when mixed with the bile and pancreatic juice. Hence proper chyle is not formed in the intestines, nor conveyed into the circulation; of course, the whole tract of the alimentary canal becomes disturbed, and the frame itself languishes. The mind will now feel the influence of corporeal derangement (for all parts of the system will sympathise with the digestive organs) and consequently despondency, irritability, vapours, and the whole train of hypochondriacal infirmities will gradually advance.

The features of these complaints, originating in disturbed digestion of the stomach, will be those of debility; and the routine practitioner, in his attempts to obviate *this* by tonics, bitters, &c. will give temporary rather than permanent relief. To obviate or remove the *cause* will be both more easy and more effectual than to combat the *effect*, but it requires a nicer discrimination and minuter investigation than the other plan.

A very general and extensive cause I have here traced to atmospherical impressions on the surface, communicated, through sympathy, to the organ of digestion; the others will be duly pointed out in succeeding sections, as will also the means of counteracting them. At present, a few observations on the *medical* treatment of these effects may be properly introduced here. When the occasional causes are

removed, little remains for the physician, since Nature will, in general, restore the functions of organs when the impediments are taken away. But the disorders of the stomach produce such lesion of function in the other digestive organs, particularly the liver and intestines, that some remedial as well as preventive measures are necessary.

These chiefly consist in evacuations and tonics, alternated or combined. The stomach and bowels are generally oppressed with mucus or indigested matters; and therefore an occasional emetic, though an old fashioned, is a useful remedy. It not only clears the stomach, but agitates the whole of the abdominal viscera, increasing the secretion of bile, pancreatic juice, and succus intestinalis, which are almost invariably deficient and inert, or acid and ill formed. On this account, the warm bath, and warm water drank in the morning, are beneficial. They both promote the healthy secretions and improve the digestion. As costiveness and irregularity of bowels are generally present, the warmer purgatives are essentially necessary, and they may be combined with tonics, as the pil. aloes. comp. or laxative pills and bitter infusions may be taken at the same time. But as the complaints in question are seldom unaccompanied by chronic obstructions, or at least a torpid secretion in the liver, a slight mercurial added to those aperient medicines which are designed to act slowly on the bowels, becomes a necessary measure; for this purpose, pills composed of pil. hyd. pil. aloes. c̄ myrrha. and ex col. comp. taken in such doses as to keep up a regular peristaltic motion in the bowels will, in conjunction with bitter infusions, prove more serviceable than all the catalogue of boasted stomachics. But this subject will be more clearly elucidated when we come to the section on cutaneo-hepatic sympathy. An attention to dress, and particularly to the warmth and dryness of the feet, need scarcely be insisted upon, and the observations on atmospherical impressions will point out the necessity of avoiding the night air. In a subsequent section will be noticed the sedative effect of late hours on the digestive organs, and these are to be avoided. A small blister on the back, or at the pit of the stomach, continued for a considerable time, will, from the sympathy here traced out, prove a stimulus to the digestive organs. Acidity will be best counteracted by improving the state of the digestion generally; but a temporary remedy must be sought in absorbents and alkalis, warmed with some aromatic as the pulvis cinnam. comp. Magnesia, with ginger or cinnamon, is perhaps the best antacid, as it subsequently proves laxative, and a small piece of rhubarb chewed an hour before dinner,

will excite the salivary and gastric secretions, so as to prove very beneficial to the subsequent digestive process. Indeed, too much attention can scarcely be paid to the complete mastication of food, for a torpor seems to prevail through the whole secreting surface of the alimentary canal; and where any part of the tube is excited, the impulse is communicated to the whole.

For that painful affection of the stomach termed gastrodynia, the oxyd of bismuth, taken in doses of four grains three or four times a day in any aromatic mixture, is certainly very efficacious.

Sect. III. *Cutaneo-Intestinal Sympathy; or, Observations on those Derangements of the Intestines occasioned or aggravated by atmospherical Impressions on the Surface.*

There is certainly no cause of functional disorder in the bowels so general and frequent as that resulting from external impressions on the skin, whether operating by direct sympathy, or as producing lesion of function in the stomach and liver, and thereby affecting the intestines secondarily. Suppressed perspiration, and cold or wet applied to the feet, producing diarrhœa and colic, afford familiar but convincing proofs of the intimate sympathy subsisting between the organs in question. We shall therefore proceed to notice the principal diseases produced in this way.

I. *Enteritis, or Inflammation of the Intestines.* This dangerous complaint is generally brought on by atmospherical vicissitudes, or cold applied to some part of the skin, during, or subsequent to, a state of perspiration; it is also occasionally produced by cold drink, taken when the body is heated, in the same way as inflammation of the stomach.

It is not so much my object to minutely describe the symptoms of diseases, as to illustrate their causes, and add some observations on the means of cure. When we find a fixed pain in any part of the abdomen, especially near the navel, attended with fever, quick, but small pulse, gastric irritability, obstinate costiveness, and pain on external pressure, we may be pretty certain that there is inflammation in the *external* coat of the intestines; for when it is situated in the villous coat or mucous membrane, then it is generally attended with dysenteric symptoms. The danger need not be pointed out; the distress which is painted in the countenance of the patient is sufficiently alarming. While the warm bath, or,

if this cannot be procured, warm fomentations are preparing, blood should be taken, in a full stream, from the arm, regardless of the *apparent* debility in the patient and pulse. If fainting occur, a relaxation in the intestinal canal will probably ensue, so as to favour the operation of *cathartics;* for on these our principal dependance must be placed after bleeding. Calomel and cathartic extract, followed by castor oil or salts, are the best; but the gastric irritability which soon comes on, causes all cathartic medicines too often to be rejected. On this account, a considerable dose of laudanum, combined with the cathartic, has an admirable effect; especially if the warm bath, or warm fomentations, are applied at the time, so as to produce a determination to the surface, with an approach to fainting. If the bowels can be opened and kept free, with a large blister to the abdomen, the patient is safe; but till real stools are procured, the prognostic is doubtful, if not unfavourable.

It is perhaps of more importance in this than in any other inflammation, that the great object of venesection should be attained by the *first* bleeding; for if the inflammation is not quickly subdued, mortification rapidly advances, and the abstraction of blood only hastens the catastrophe. After a decisive bleeding, and the use of the bath, with fomentations, great numbers of leeches, and blisters, our chief, I might say only reliance, must be placed on purgatives. Emollient injections are of course highly useful, as they not only act as an internal fomentation, but promote the operation of the purgative medicines.

The experiment of dashing cold water on the thighs and legs, or of ordering the patient to walk barefooted on a cold pavement, cannot well apply to regular inflammation of the peritoneal coat of the intestines. It is more applicable to spasmodic constriction of the colon producing violent colic and costiveness. In this case, the consent between the lower extremities in particular, and the intestinal canal leads occasionally to an immediate relaxation of the muscular fibres of the colon, by what Darwin terms a reversed sympathy, and is productive of instantaneous relief.

II. *Dysentery.* Dysentery is defined by Cullen, "a CONTAGIOUS fever, with frequent mucous or bloody stools; the natural fæces being, for the most part, retained, with griping and tenesmus." This erroneous definition, as well as the false and unsuccessful treatment growing out of it, has been transmitted from teacher to teacher, down to the present moment; and those who have not had opportunity for correcting these doc-

trines, and improving the practice by extensive views of the disease, have shut their eyes against the light of truth, and wilfully perpetuated the most absurd and dangerous errors.

Neither dysentery itself, nor its attendant, symptomatic fever, is contagious. Not one of those academic teachers, who confidently state its contagious nature, could adduce a single proof, from their own experience, of its being so. I have witnessed the disease, on a large scale, in the east and in the west—in the north and in the south—in fleets and camps—in private and in public practice—and not a single instance, or even indication of contagion, have I ever seen. Real typhus fever may have dysentery in combination. The fever is then, of course, contagious; but not the dysentery. This I have often seen. The fever will be transferred from one patient to another; but the dysenteric symptoms will only occur where the proper causes are applied. In private practice, the belief in contagion or non-contagion in this disease, is not of much consequence; but in the public service it is another thing. An erroneous opinion, delivered on this subject, might influence the fate of a great naval or military movement; and the dread of an ideal contagion might prove more disastrous to a campaign than the ravages of the disease itself. It is therefore proper for all young medical men to entertain correct notions of dysentery.

I think this disease may be very usefully and practically divided into three species, or rather grades; not indeed that there is any essential difference in the nature of these three grades, but because they require a modified treatment. These are the acute, the sub-acute, and the chronic form.

The acute form of dysentery is ushered in with considerable fever, which has generally a cold stage or chill, anterior to the heat and reaction. I have known the fever run high for several hours; nay, for a whole day, before there is any local demonstration of dysentery, clearly shewing that, in such cases, the whole system is first affected, and the local disease is determined by the accidental predisposition of some particular organ, as the intestines, liver, lungs, &c. Hence the same causes which, in one person, will induce dysentery, may, in a second, cause hepatitis; in a third, enteritis; in a fourth, pneumonia, according to the previous weakness of this or that viscus.

When the determination is to the bowels, in this acute form, the dysenteric symptoms generally usher themselves in with violence and rapidity. The griping will be severe; the urgency to stool frequent; the tenesmus distressing; all in the course of a few hours after the attack. Nothing, how-

ever, is evacuated, by all this straining, but mucus, tinged or not with blood, according to circumstances, unless the bowels happen to be previously loaded; in which case, there will generally be fæculent matters passed with the first two or three motions. After this, you will find more or less blood, from a few streaks in the mucus, up to quantities the most alarming. The patient has now no rest, by day or by night. After sitting straining a long time on the commode, he has scarcely left it, and returned to his bed, before a rumbling sensation, or an acute pain is felt in the abdomen, immediately followed by the most irresistible inclination to stool. The patient is convinced that he is ready to evacuate vast quantities of burning fæces, each time that he sits down, and is quite astonished at finding that all his efforts have only produced a trifling quantity of bloody mucus, or pure blood. In this form, the urine is high-coloured, scanty, and passed occasionally, both with pain and difficulty. The symptoms are all exasperated at night, and delirium is not uncommon, where the fever runs high, as was my own case, the first time I experienced an attack of dysentery. If this violent or acute form of dysentery be not checked before the third day, especially in hot climates, where the disease is principally met with, there will be great danger of some disorganization of the intestines, or other abdominal viscus, from the effects of inflammation. These structural derangements are abscess, ulceration, or mortification; all of which terminations I have but too often witnessed.

Of the glandular organs in the abdomen, the *liver* is the most subject to SUPPURATION, since it is generally deranged in function from the influence of climate anterior to the accession of dysentery. The formation of abscess is known by the rigors and cold chills, alternated with flushings and hectic perspirations, which accompany all abscesses of an internal organ. MORTIFICATION may be suspected when the patient, after great pain and fever, expresses himself suddenly relieved, and thanks God that he will now soon recover; while, at the same time, the countenance sinks, the pulse falls, and becomes weak, irregular, or intermitting, and the extremities and forehead are covered with cold clammy sweats.

Ulceration of the intestines may be the result of this acute form of the disease; and then, although the more violent symptoms, and particularly the pyrexia may subside, the local or dysenteric phenomena continue in a chronic form of great severity and obduracy, which seldom admits of cure.

Another termination, more favourable than the last, is

chronic dysentery, without ulceration of the intestines; but merely with impaired functions of the abdominal viscera in general, and of the intestinal canal in particular. This form will be described presently.

The sub-acute variety of dysentery differs in no essential point from the preceding form, except in degree. The pyrexial symptoms will be so mild, as sometimes to pass unnoticed by the medical attendant; though there will always be found more or less of febrile movements in the system, if the patient be minutely examined. There may be no preternatural heat on the skin, and the pulse may not be much accelerated; yet, it will be easily seen that the balance of the circulation and excitability is disturbed; that several of the functions, especially those of the skin, are impaired, and that the animal powers are diminished. It will also be observed, that towards evening there is a feverish state of the system, as well as an aggravation of the local symptoms. In this variety of dysentery, the stools will not be near so frequent as in the acute form, nor will the tormina and tenesmus be so distressing; the flow of blood also will be nothing compared to what it is in the other case. The number of stools will vary from six or eight to fifteen or twenty in the twenty-four hours; whereas, in the acute dysentery, there will often be from thirty to forty stools in the same time.

In the acute form, there will generally be pain on pressure of the region of the belly, and if the inflammation reach the peritoneal covering of the intestines, there will be *constant* pain in the abdomen, greatly increased, of course, during the straining and tormina at stool. In the sub-acute form, there is very little tenderness of the abdomen when pressed, and after each stool there is a clear interval of ease. In both forms of dysentery, it may be said that the natural fæces are retained, except when purgative medicines are exhibited; and then they are mixed with mucus and other morbid secretions.

Chronic Dysentery is generally a sequela of the acute or sub-acute forms; but I have very frequently seen it come on spontaneously, without any acute symptoms, from derangement of function or structure in the liver; though this is denied by one of the latest writers on the subject of dysentery.

In this form of the disease, the stools are not so firmly retained as in either of the two preceding forms; but they are either accompanied by a quantity of mucus, or they are passed in a liquid state, mixed with morbid intestinal secretions, and not possessing the natural odour of healthy fæces.

The stools, which vary in number from three or four to eight or ten in the twenty-four hours, are always preceded by an uneasy sensation and rumbling noise in the track of the intestines; they are then passed with some griping pain, and followed by some degree of tenesmus, or inclination to sit on the gardrobe. After this the patient has generally an immunity from complaint, till the period of the next evacuation. In such cases, however, and even where there is only functional disorder of the digestive organs, an attentive observer may perceive an unhealthy aspect of countenance in the patient, indicative of visceral obstruction. Although the appetite may be pretty good, the digestion will be found imperfect; evinced not only by the sense of oppression at the stomach after meals, but by the uneasy sensations produced in the track of intestines by the passage of fæcal remains along their course. Even in the stools, the undigested portions of food will frequently be visible. The functional disorder of the liver will be easily recognized by the appearance of the stools and urine; the bile will be deficient in the former, and also vitiated; it will be seen where it ought not to be seen, in the urine; and very sensibly felt in its passage along the urethra.

Under these circumstances, the patient may waste in flesh, more or less, according to the degree of violence in the complaint, and to the injury which the chylo-poietic functions are sustaining.

When ulceration or other organic change has been effected in the track of the intestines, or where the *structure* of the liver has suffered during the continuance of the disease, then the pain, griping, and tenesmus, will be very much worse, the patient will emaciate, and the excretions from the intestines contain admixtures of blood, or even pus. These are most deplorable cases, and very few of them ever recover perfectly.

The occasional or exciting causes of dysentery have been very well understood in all ages, leaving out contagion, which ought to have no place on the list. These causes are all such as are capable of suddenly suppressing the cutaneous transpiration, especially after that secretion has been in excess. Hence the disease is most prevalent in the autumnal months, after a hot summer, when the nights are beginning to get cold and raw, with copious precipitations of dew, while the middle of the days are still as hot as in the midst of summer. For the very same reasons, we find dysentery, the constant scourge of tropical and other hot climates, where

the perspiratory function is so generally excessive, that even a trifling atmospherical vicissitude checks it completely, and the result is too commonly a determination to the bowels. Atmospherical vicissitudes, unaccompanied by moisture in the air, are not near so prejudicial to the constitution, or productive of dysentery, as when accompanied by dews or rains. Hence the wet seasons in sultry latitudes are well known to be the seasons of bowel complaints—and the vicinity of marshes or woods, or jungles, from whence there is a great extrication of vapour and miasmata during the day, occasioning correspondent fall of dew in the night, has, in all climates, conduced materially to the production of this complaint.

The predisposing causes of this, as of most other diseases, are all such as disturb the general health, and particularly the functions of the digestive organs. Hence intemperance; improper or too much food; mental anxiety; and, in short, whatever weakens the tone of the chylo-poietic viscera, renders them predisposed to dysenteric affections whenever the functions of the skin are suppressed by the application of wet or cold to the surface, especially after considerable perspiration.

Pathology of Dysentery. This has been a fruitful source of dissention among medical writers; and the reason, I think, is, that most of them have confounded causes with consequences; in other words, the effects of the disease have been erroneously set down as the proximate cause. Thus the appearances in the intestines, on dissection, of those who have died of dysentery, not unfrequently led practitioners to conclude, that inflammation of the mucous membrane of the intestinal tube, was the original link, or proximate cause of the disease. This idea I long ago combated in my work on tropical climates; and I find, that Dr. Armstrong, in his late admirable work on typhus, supports my opinion.

"This pathological view (says Dr. Armstrong) makes the concomitant inflammation rather a symptom or an EFFECT of the general excitement, than the original cause of the dysentery, and a strict survey of facts will verify this opinion; for in the first stage of oppression, when the surface is cool, so far from there being any unquestionable sign of inflammation, a diminution of arterial tone exists every where; and the substantial evidences of inflammation only emerge with the excitement of the heart and arteries, which succeeds the first stage of oppression."

It is in dysentery as in fever, inflammation is not the ori-

ginal cause; but undoubtedly, it is the principal *effect* which we are to dread, and to endeavour to obviate. As I conceive that there is no such thing as a proximate cause of any disease, but, in fact, a series of causes and effects, the effects themselves becoming causes in their turn, the great object is to observe accurately the succession of phenomena, in this, and in every other disease; for on this accuracy of observation, much of our success in practice will ultimately depend.

After a long attention to dysentery then, as it affected great numbers under my care, and also as it affected myself in person, I can confidently assert, that two functions appeared to be constantly disordered from the beginning, and which either soon produced, or were accompanied by, other derangements. These were the functions of the skin and of the liver, or perspiration and biliary secretion. Let a dysenteric patient be accurately examined; and if these two functions be found in a natural state, at any period of the disease, unless from the effect of medicines, or when the symptoms are giving way, then I am much mistaken. Partial sweats are sometimes seen on the surface, and occasionally an admixture of bile in the stools; but these are transitory, and morbid; for otherwise, the regular perspiration is suppressed, and the healthy secretion of bile stopped.

These are the two first links of that morbid change which connects the remote cause with the ostensible form of the disease; and if this chain be severed, by an early restoration of the two functions in question, the disease will be checked. The next link in the chain of dysenteric phenomena is the disturbance in the balance of the excitability, and of the circulation. A torpor appears to seize the secretory vessels of the liver, from sympathy with those of the skin; in consequence of which, a venous plethora obtains throughout the whole of the portal circle, and the mucous membrane of the intestines becomes the seat of irritation and vascular turgescence.

The perspiration being now suppressed, a vicarious discharge of mucus and acrid serum is thrown from the extremities of the turgid mesenteric vessels upon the internal surface of the intestines, and dysenteric symptoms are now unequivocally developed. We may now plainly perceive how all those *consequences* which have so often passed for *causes*, can arise. If the plethora be great, blood itself will be poured from the mouths of the mesenteric vessels; hence inflammation, and even ulceration, may ensue. If any hardened fæces lurk in the cells of the colon, they will be grasp-

ed by the irritable circular fibres of the intestine, and rings or strictures will augment the tormina and griping in the bowels.

In this situation, Nature evidently attempts to restore, by reaction, the balance of the circulation and excitability, together with a healthy state of the functions of the skin and liver; but she is less successful in this disease than in most others. Where she ultimately gains her end, it is where the local plethora or inflammation is reduced by the discharge from the mesenteric vessels, without occasioning much organic derangement in the bowels, or in the glandular organs of the body. This being effected, the general balance of the circulation is often restored in consequence.

But in a great majority of cases, when the disease is violent, the natural exertions of the constitution either hasten the fatal catastrophe, or produce such lesion of structure and function in the chylo-poietic viscera as induces a tedious chronic state of the complaint, which is very difficult to manage. The febrile symptoms have always appeared to me, to be at first in proportion to the *general* disturbance in the balance of the circulation and excitement; but afterwards, they may be kept up or modified by the extent of the organic derangement sustained by the viscera during the general feverish state of the system, The discharge of blood by stool, appears to be proportioned to the local congestion in the vessels of the portal and mesenteric circles. Hence we see that, in tropical climates, where the biliary organs are so generally deranged, either in function or structure, dysentery is frequently accompanied by great discharges of blood from the bowels, in consequence of the check which the portal circulation meets in the liver; and hence also, the liver itself, from a state of congestion and torpid secretion, runs suddenly, and with very few premonitory symptoms, into a state of suppuration, or irrecoverable disorganization.

In this, as in every other disease, various theories have led to various modes of practice. Thus, those who set down *inflammation* as the proximate cause of dysentery, consider blood-letting as the grand indication of cure, prescribing sudorifics, laxatives, mercury, &c. as subordinate agents, or merely auxiliaries. And in this way they will generally succeed in common cases. Others, considering with Sydenham, Mosely, and many writers on dysentery, that the disease is a fever turned in on the bowels, from suppressed perspiration, have recourse to sudorifics, to turn it out again; and truly, in this way they will often succeed:---for if they are suc-

cessful in raising and keeping up a general diaphoresis, the determination is taken off the bowels, the balance of the circulation is restored, and recovery is the result.

But I know that practitioners are often foiled in this attempt, and that in fleets and camps, where the disease is always most violent and dangerous, the sweating plan cannot be put conveniently into practice. In sporadic cases, in private life, it could be more easily put in execution, but it is now seldom resorted to, as the principal indication of cure, though certainly a very valuable auxiliary.

A third class of practitioners, especially those who have practised in hot climates, finding that the excitement of mercurial ptyalism, very generally produced, or at least was followed by a cessation of the dysenteric symptoms, became impressed with an opinion, that either mercury had some specific power over the disease, or that the disease was connected with derangement in the liver. But the empirical use of mercury is objectionable, inasmuch as a blind reliance on this medicine induces young men to neglect other and valuable means, till that period of time is elapsed, in which inflammation and ulceration may be obviated.

Thus we see that any *one* of the above methods, if set up as a PRINCIPAL, to the exclusion of others, is attended with inconvenience, or rather with danger; because the failures will be frequent, and the duration of the disease very generally lengthened, especially in tropical climates. A wild and unskilful succession of these remedies is also to be deprecated; and I do maintain, that it is only by a judicious combination of them, that the disease is to be effectually resisted and overcome.

I am also of opinion, that neither in this nor in any other disease, can a precise rule of treatment be laid down, since in one case, one set of symptoms will predominate; and in another, another; each, of course, requiring a corresponding modification of treatment. The great object then, is to point out the proper *indications*, that enable us how to know and appreciate the relative importance of the means of cure. This I shall endeavour to do.

The first, or fundamental indication, is to take off that evident *determination* of blood to the intestinal canal, together with the unnatural state of *irritation* which exists there. And this is principally, if not solely effected by a restoration of those functions which observation shews to be deranged in dysentery, particularly the functions of the skin and liver. But in fulfilling these indications, we are under the necessity of keeping a strict watch on the operations of Nature, and

the ravages of the disease, lest serious injury be done by either in the mean time. Thus the symptomatic fever in dysentery, and indeed, in all other diseases, is, I am fully convinced, a sanative effort of the constitution to overcome some morbid impression; to restore some impeded function; or to relieve some labouring organ. But Nature is neither Omnipotent nor Omniscient. Her efforts are sometimes too weak, and they are sometimes too violent; in one case requiring the spur, and in the other, the bridle. In assisting or restraining the operations of Nature, lies the whole skill, and the whole success of the physician; and he who studies her ways and means most attentively, will be the most fortunate practitioner.

The principle, then, which I would propose to govern us, is, the restoration of the equilibrium of the circulation and excitability, with the healthy functions of perspiration and biliary secretion. To effect these desirable purposes, we must combine medicines of different kinds. For instance, mercurials to act on the secretions of the liver; antimony or ipecacuan to act on the functions of the skin, and opium to allay inordinate irritability in the intestinal canal. This I conceive to be the fundamental or radical plan of treatment; but while this is pursuing, the efforts of Nature must often be assisted or restrained. Thus, suppose you are called to a case of dysentery,* where, besides the local symptoms of purging, griping, and tenesmus, you have very high fever; or considerable discharges of blood from the bowels, or fixed pain in some part of the abdomen, or all three combined, then you must first guard against the danger of inflammation and disorganization, by general and local blood-letting, proportioned to the urgency of the case; by fomentations to the abdomen externally, and by emollient glysters internally.

By these means you will lessen the general excitement, and the local inflammation, after which you are to proceed with the cure in the following manner. In this climate, where the disease assumes not that character of violence and rapidity which it puts on in the hotter regions of the earth, the remedial measures need not be used with the same degree of urgency as in the torrid zone. You may, therefore, under ordinary circumstances, give a grain of calomel, half a grain of opium, and a couple of grains of the pulvis antimonialis every six hours; ordering the patient to confine himself to a warm room, or, if in the winter time, to bed;

* This Section is printed from the text of an intended *lecture*, which will account for certain modes of expression therein.

to keep himself as quiet and tranquil as possible; and to resist the propensity to stool as much as he can. Flannel is, of course, to be put on next the skin, and the lightest food, as rice, gruel, sago, tapioca, panada, or the like, to be prescribed. Most practitioners begin with a purgative of neutral salts, as the preliminary step, giving an anodyne afterwards at bed-time; but this alternation of cathartics, I can say, from much experience, is a very tedious, painful, and unsuccessful plan of practice. I would venture to affirm, that the plan which I am recommending, will, on an average, cure your patients in one-third the time which will be necessary in the common routine mode just alluded to.

Every day, after the *first*, and during the exhibition of the above-mentioned remedies, I would exhibit a laxative; especially a dose of castor oil, or the neutral salts with manna. These will carry off any scybala, or hardened fæcal accumulations from the cells or flexures of the colon, if there should be any there, though this is not so often the case, as authors and teachers will tell you. But the principal use of laxatives, in my opinion, is to facilitate the expulsion of the morbid secretions from the liver and mucous membrane of the intestinal canal; and not the removal of scybala, for scybala very seldom exist. The daily use of the laxative should never interrupt the progress or the exhibition of the principal medicines, since it is to be considered as only an auxiliary, though by many the purgative plan is held as the paramount remedial measure in dysentery; a plan which I cannot sufficiently condemn from ocular proofs of its mischievous tendency.

In the course of two, three, or four days, you will, in a majority of cases, perceive a mitigation of the symptoms; though this mitigation may not be very signal or conspicuous till the mouth becomes affected with the mercury.

Whenever this takes place, you will find, in nineteen cases out of twenty, and I am speaking far within bounds, a total revolution in the phenomena of the disease. The skin will feel soft and moist; the tormina and tenesmus be greatly abated, if not removed; the stools will now appear feculent; more copious; impregnated with natural-looking bile; less mixed with mucus or blood; more easily passed, and having more of the common fæcal smell. In short, a considerable proportion of your patients will now make little or no complaint of any thing but their mouths, the soreness of which prevents their taking food, just at the time their appetite has returned for it.

You will now have very little to do but guard your patient against cold and imprudence in respect to food. The

whole of the dysenteric symptoms will vanish; your patient will have a rapid convalescence, and a certain degree of corpulence will succeed the disease and the mercurial action on the system. If, however, the disease had been of some standing prior to your being called in, or if, which is sometimes the case, the liver has been much in fault, then it will be prudent to keep up a gentle mercurial action in the system for a fortnight after the principal dysenteric symptoms have subsided, in order that the biliary secretion may be completely restored to a healthy state.

There is a vulgar antipathy to a mercurial sore mouth, and an illiberal clamour has been raised against mercury by a certain party in the profession. But I would always disregard these things; the credit which you will obtain by firm and successful practice, will, eventually, overcome any temporary irritation which the exhibition of mercury may produce in your patient; and the dread of this medicsne will assuredly disarm you of a powerful weapon in the cure of diseases; a weapon which others may employ, if you will not; and thus deprive you of many a patient, and perhaps of reputation.

In laying down the above simple plan of treating dysentery, I would by no means wish to bind you to its universal adoption. Dysentery is a disease which, though more steady and uniform in its character than almost any other, is yet occasionally so modified by climate, idiosyncrasy, and various circumstances, that you will require all the light which experience has thrown on it, and all the remedies which authors have recommened for it, in bad cases, in unhealthy climates, and during particular epidemics.

There are epidemic dysenteries, as well as epidemic fevers, epidemic catarrhs, or epidemic measles; and each epidemic generally requires some modification of treatment peculiar to itself, which must be discovered by the practitioner himself, during the prevalence of the disease. It is from a narrow and confined view of the complaint, as seen in a particular epidemic, climate, or other locality, that so much discrepancy of opinion respecting its treatment has arisen; and that so many nostrums have been lauded as the only effectual remedies in dysentery.

Yet, if you examine carefully this disease under all circumstances, you will find its pathology fundamentally the same; though some of its external features vary, requiring a corresponding variety in the means of treatment. Thus in one epidemic, or in one individual, the inflammatory symptoms will so far predominate, that bleeding must be carried to a great extent; and indeed, in such cases, every other

consideration must, for a time, give way, and all your efforts must be concentrated on the means of guarding the intestines from disorganization by the process of inflammation. It was from observing the benefits of depletion in a dysentery of this kind, among the troops in Portugal, that Dr. Somers, an army physician, drew the bold and sweeping conclusion, that dysentery was to be cured, almost entirely, by bleeding from the arm *ad syncope;* but this is a dangerous rule to be adhered to, and one which will by no means even generally apply. Mr. Bampfield, too, in a late valuable work on Dysentery, appears to regard the disease as little else than inflammation of the bowels, producing strictures in different portions of the canal, and relies principally on venesection and purgatives for the cure. To the venesection, in inflammatory forms of dysentery, I have no objection; and indeed, the practice has been recommended and pursued for centuries past; but to the purgative plan, in dysentery, I most decidedly object, as it is founded on a false hypothesis. A dose of castor oil, or neutral salts, as I have said before, is quite sufficient every day, *during* the exhibition of the mercurial, the opiate, and the diaphoretic.

Ipecacuanha has been held up by some people as a specific in this disease; but I do not conceive that it has any peculiar effect different from that of antimony. It is diaphoretic and laxative, the same as the last mentioned remedy; but it is not so apt to ruffle the stomach, and, on that account, it may be preferable in certain constitutions. It is best combined with opium and calomel, the same as antimony, and ought never to be trusted to alone.

There is a measure, which I would recommend to those who may practise in warm climates, where the disease is so very prevalent; and that is, mercurial friction along the spine, with camphor and volatile alkali. I have seen excellent effects from the same liniment applied to the abdomen, but from some late investigations, I should be inclined, were I again to visit a tropical climate, to prefer the spine, as coming more immediately to the source of the nervous power distributed to the intestines. Dr. Sanders, of Edinburgh, has clearly proved the intimate connection which subsists between the nervous and vascular systems in all inflammatory as well as functional derangements of the internal organs. And as inflammatory action and functional disturbance are but too evident in the intestines, while dysentery exists, there is every reason to believe, that cupping along the spine, succeeded by mercurial and stimulating frictions, would be of essential service.

I cannot speak much in favour of glysters in dysentery,

None but the most bland and unirritating can be borne, and therefore I was much surprised to see, in Mr. Bampfield's late work on Dysentery, an infusion of tobacco recommended. If any are used, I always prefer starch, or mutton broth and laudanum. These, if they can be retained, will at least not irritate, and they may soothe the tenesmus. I would advise the practitioner also, not to neglect the flannel roller round the abdomen, which gives a very comfortable support and warmth to the viscera underneath.

On the same principle, I would recommend the warm bath, or warm fomentations, after the inflammatory symptoms have somewhat subsided; but while there is high febrile excitement, I would avoid the bath at least, and endeavour to reduce the inflammatory action by the proper antiphlogistic means, especially general and local bleeding.

There is a form of dysentery which is not unfrequently met with, in hot climates, among European troops, during the first two years of their sojourn there; and which, in India, has obtained the name of Colonitis, from the colon being found generally inflamed in the disease. This form of flux commences with the usual symptoms of a common diarrhœa, frequent calls to stool, with a great propensity to sit and strain over the commode. The evacuations at this period are pretty copious and fluid, without any particular fœtor. Sometimes, however, they are streaked with blood. In the early stage of the complaint, there does not appear to be any constitutional pyrexia; but there is always a considerable prostration of strength, and depression of spirits, with loss of appetite, and some thirst. To these symptoms succeeds a fixed pain in the hypogastrium, sometimes shooting to one or both of the iliac regions, and, at other times, to be distinctly traced along the whole course of the colon, with a sense of fulness, tension, and tenderness upon pressure. The desire to evacuate now becomes more urgent; the stools less copious, and consisting chiefly of blood and mucus, very often of a kind of bloody serum, like the washings of beef, lotura carnium. A suppression of urine and painful tenesmus now generally take place, with total inappetency for solid food, and incessant craving for liquids, especially cold water, which the patient prefers to all other drink. The skin is now either parching hot, or covered with a profuse perspiration. Even now the pulse is infinitely less affected than might be expected; but sometimes it is full and bounding, with a peculiar thrilling sensation under the finger; this is always a very dangerous symptom. In the last, or advanced stage of the disease, the lassitude and dejection are converted into the utmost de-

gree of anxiety and apprehension of death, the patient appearing highly reluctant to part with his medical attendant, though fully sensible of the unavailing efforts of medicine. The discharges by stool, which are now frequently involuntary, are accompanied by the most intolerable fetor, and mixed occasionally with shreds of membrane, and quantities of purulent matter. There is also a protrusion of gut, forming a complete procidentia ani. When things come to this pass, death, of course, soon closes the scene. The duration of the complaint varies from a week to three or four weeks.

On dissection, the colon is found inflamed, with accumulations of serum and coagulable lymph in the abdomen, and adhesions between the convolutions of the intestines. The small intestines are generally sound, though sometimes exhibiting slight inflammatory patches adhering to the omentum. The colon exhibits traces of the principal ravages of disease, from a slight external blush to a deep livid hue, or even erosion of the coats, and escape of fæces or air into the abdominal cavity. The calibre of this gut is found much diminished by the thickening of its coats; the liver sometimes apparently sound; at others, preternaturally small and indurated, or enlarged and scirrhous; the bile always unhealthy-looking.

This disease is almost invariably preceded, indeed caused, by a previously disordered state of the liver or its functions; and if this preceding disorder were ascertained in time, the colonitis might be prevented. When the latter, however, has actually taken place, we must, for a time, forget, as it were, the original cause, and by very active measures, endeavour to check the ravages of the local inflammation. It is needless to say here, that general and local blood-letting must be employed, together with blisters to the abdomen, mercurial frictions on the spine, laxatives, and calomel; in short, all those means which are found useful in peritoneal and enteritic inflammation.

Subsect. 3. *Diarrhœa* is a complaint of very frequent occurrence in this, and, indeed, in almost every climate. It is, in truth, the first grade of dysentery; for when it runs on for any length of time, or becomes aggravated in degree, it cannot be distinguished from that disease. The usual line of demarcation, however, which is laid down by authors, between diarrhœa and dysentery, is the fæcal nature of the stools in the former, whereas they consist chiefly of mucus or blood in the latter. Whenever, therefore, the dejections in diarrhœa lose the fœtor of natural evacuations, and become

mucous or bloody, with griping and tenesmus, you may pronounce the disease to have assumed the dysenteric form. Nor is the exact distinction between the two diseases of the least practical importance, because we must prescribe for symptoms, and not for names.

Diarrhœa, then, as it usually presents itself in these climates, is a real catarrh of the mucous membrane of the intestines, and produced, very frequently, by the same causes, and in the same way, as catarrh of the mucous membrane of the lungs. Thus, of two people, exposed to wet or cold, when the body has been heated or perspiring, one will have a catarrh, and the other a diarrhœa, both from a suppression or interruption of the perspiratory process. The different effects, produced by the same cause, are entirely owing to the local weakness or predisposition to disease, in the lungs of the one, and digestive organs of the other.

The two complaints resemble each other also in their natural termination. An increased discharge of mucus, from both surfaces, carries off the super-irritation, and relieves the turgescence of the blood-vessels. The parallel runs pretty far, too, into the artificial cure of the two diseases. If the two patients above alluded to be put to bed, and take a basin of warm water gruel, with a dose of antimonial wine and paregoric elixir, [tinct. camp. compos.] so as to bring on a perspiration in the night, they, in all probability, will find themselves free from their respective complaints in the morning. The tide of the circulation is turned, by the means described, from the lungs and the intestines to the skin; in consequence of which, the turgescence of the vessels, and the irritation of the nerves, disappear. Diarrhœa, however, is a much more manageable disease than catarrh. From the nature and position of the organs affected, we can apply remedies with much more freedom and power to the mucous membrane of the intestines than to that of the lungs.

At all seasons of the year we meet with a considerable number of sporadic cases of diarrhœa in this country; but towards the autumn, when the days are still hot, and the nights beginning to get raw and cold, with copious precipitations of dew, then we have quite an epidemic prevalence of the disease. And I may here state that the generality of practitioners, in this country, are extremely unsuccessful in the treatment of bowel complaints; and that from a hypothetical notion that the cause of them must be traced to some irritating matters in the primæ viæ, and consequently, that a constant or daily purgation must be kept up, alternated with opiates at night. Now this practice, I am satisfied, from

abundant observation, tends rather to keep up the disease, and the intestinal irritation, than to remove them. In fact, I think the complaint is thus prolonged till the morbid excitability of the mucous membrane is worn out, and then Nature cures the disease, in despite of the Doctor. But you may rest assured, that, in nineteen cases out of twenty, this alternation of purgatives and opiates is totally unnecessary; and that, if you will only try the following plan, and open your eyes to the conviction of your own experience, you will cure your patients in one-fourth, or rather in one-tenth part of the time which is required in the ordinary mode of treatment.

Suppose, then, a man applies to you with the usual symptoms of diarrhœa. If you find that the complaint has not been of long duration, that he has no febrile symptoms about him, and that he does not labour under any organic disease, you may order him to confine himself to the house for a day or two; to clothe himself well, to eat few vegetables, and to take the following medicine:

℞. Confect. Aromaticæ, ʒj.
Misturæ Cretaceæ ℥iv.
Tinct. Opii..... fl. ʒj.
—— Card. compos. ʒij. M. ft. mistura, cujus cap.
Cochlearia duo magna post singulam sedem liquidam.

After two or three doses of this medicine, the diarrhœa will stop; and, if no purgative medicine be given, it is a great chance if the complaint again returns. In this way I have cured hundreds of bowel complaints, and that in a few hours, while the very same description of diarrhœas were kept protracted under cure for two or three weeks, by the routine practice of opiates and purgatives, combined or alternated.

When, however, you have reason to believe that the secretions, especially the biliary, are considerably disordered, which may be known by the fœtor and colour of the stools; or when the patient complains of an uncomfortable sense of fulness in the bowels, then you may give five grains of the blue pill, or a grain or two of calomel, at night, with a dose of castor oil, or neutral salts, the next morning; after which, you are to have recourse to the cretaceous opiate mixture, as before. It will very seldom be necessary to often repeat the blue pill and purgative, unless there be a considerable epidemic tendency of season, to aggravate the nature of the

bowel complaint. But whenever the symptoms assume the dysenteric character, you must immediately adopt the means which I have already pointed out, in the Section on Dysentery.

I would here impress on your memory, the necessity of accurately examining the constitution, the organs, and the functions of every patient who applies to you with a bowel complaint; for very frequently this last is only symptomatic of some organic or functional derangement in the abdomen or thorax; in which case, it would be highly injudicious to arrest or confine your attention to the diarrhœa. You must investigate the original or primary link of the morbid chain, and remove it, when the secondary effects will, of course, cease. In four cases out of five, you will find the structure or function of the liver in fault, wherever the bowel complaint is of long standing, or resists the usual modes of treatment, as will be shewn when we come to the Section on Hepatic Derangements. It is needless to say, that nothing but a mild mercurial course will effectually remove diarrhœa in these cases, during which the greatest attention must be paid to the diet and drink of the patient.

Subsect. 4. *Cholera Morbus.* The idea is fast gaining ground, that most diseases may be referred to two primary classes; those of function and those of structure. The more attentively you observe the phenomena of diseases, the more you will be convinced that every case of diseased *structure* in the human body, is preceded by a derangement in the *function* of the organ or part. And this is well worthy of being borne in mind; since it is proved, that functional will end in structural disease, if long continued; and over organic, or structural disease, we have very little power or control.

We shall here proceed to the consideration of a functional derangement, which is of very common occurrence in this country, particularly in the autumnal months, the pathology of which, in my opinion, and in the opinion of a few others, has, till lately, been completely misunderstood—It is *Cholera Morbus.* From the days of Hippocrates, down to those of Saunders, cholera has been considered as dependent on a *redundant* secretion of bile. To this conclusion they have evidently been led, by keeping an eye rather on effects than on causes. They have totally passed over the several links in the morbid chain preceding the discharge of bile, and thereby confounded a salutary effect with a proximate cause. Now, I conceive, that a close examination of the phenomena or

symptomatology of the disease, will not bear out this generally received doctrine.

Sydenham, that accurate observer of Nature, has drawn a faithful portrait of cholera morbus, which may serve as a standard description. It is adopted in Rees's Cyclopœdia.

The attack of this complaint, say they, is generally sudden. The bowels are seized with griping pains, and the stools, which are, at first, *thin and watry*, as in common diarrhœa, are passed frequently. The stomach is seized with sickness; discharges its contents, and rejects what is swallowed. In the *course of a few hours*, the matter vomited, as well as that which is discharged by stool, appears to be *pure bile*, and passes off, both ways, in considerable quantities. The griping pains of the intestines *now* become more severe, in consequence of the extraordinary irritation of the passing bile, which excites them to partial and irregular spasmodic contractions. These spasms are often communicated to the abdominal muscles, and to the muscles of the lower extremities. The stomach is also affected with considerable pain, and a sense of great heat, in consequence of the same irritation. There is usually great thirst, and sometimes a severe head-ache, from the sympathy of the head with the stomach. The pulse becomes small and frequent, and the heat of the skin is increased. A great degree of languor, debility, and faintness, amounting sometimes to syncope, speedily comes on; sometimes attended with colliquative sweats, coldness of the extremities, and other symptoms, which often destroy the patient in twenty-four hours.

Now, when we reflect on this description of cholera morbus, which is a very correct one, we cannot but wonder why an increased secretion of bile should have been so universally set down as the cause of the disease, when it is allowed that we see nothing of it, till after the complaint has made some progress. Where is this redundancy of bile, all this time? It is not in the stomach, for it discharges its contents, and rejects what is swallowed, long before. It is not in the intestines; for, as Sydenham, well observed, the stools are, at first, thin and watry. At length, however, pure bile appears, and it is accused of being the cause of all the mischief.

It is agreed upon by all, that cholera morbus is most frequent, in this country, during the months of August and September, a season of the year when the evenings begin to get cool, although the days are still hot. It is also worthy of notice, and it did not escape the observation of Sydenham, that both in hot climates, and in the hot seasons of mild climates, occasional falls of rain have been particularly

followed by an epidemic cholera. This circumstance is surely very little explanatory of super-abundance of bile; but it tends to elucidate and confirm the pathology of the disease, which we shall presently have occasion to enter upon. It tends to the same point too, that heat has been allowed by many to be the *predisposing* cause of the disease, while certain ingesta, and *sudden changes* of *temperature*, are proved to have excited the predisposition into action. Indeed, the late Dr. Saunders, who supports the doctrine of increased secretion of bile being the original cause of cholera, expressly acknowledges, that the disease is often brought on by drinking cold liquors, or by any thing else that suddenly chills the body, especially when overheated by exercise or labour. Finally I may add, that in the East Indies, where this disease prevails in such an aggravated form, as to have acquired the appellation of *mort de chien*, or the death of a dog, the most accurate dissections, performed where the patient had been cut off in an early stage of the disease, could not detect any accumulation of bile in the bowels; on the contrary, no bile at all was to be seen. I may also add, that Dr. Armstrong and Dr. Ayre have come to the same conclusions which I have come to; namely, that the excessive secretion of bile in cholera morbus, only takes place in the second stage of the disease, or period of reaction, and that its appearance *then*, is a sanative effort of the constitution. Dr. Watt, of Glasgow, too, has come to nearly the same pathological opinion.*

I may state then, that in every case of cholera morbus which I have seen, there could always be traced a first stage of what may be termed a *collapse* of the system, evinced by some creeping sensations of cold, or chilliness, attended by yawning, oppression about the præcordia, and cold feet. During this state, the pulse is smaller than usual, and somewhat quicker, the skin cool and not in a perspirable state; all shewing that a breach had been made in the balance of the circulation and excitement; and that the venous system of the abdominal viscera, in particular, was oppressed with blood.

It is now that reaction comes on, in the shape of violent vomiting and purging; and this reaction is clearly a sanative effort of the constitution, to restore the lost balance of the circulation, and bring the equilibrium between the surface

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* In the late epidemic cholera which ravaged India, the foregoing doctrine was completely confirmed, as is now well known.

and the interior into a proper state. It is very true, indeed, that in this reaction, Nature often oversteps the due boundary, and even death is induced in the violent struggle; but this is the case in more diseases than cholera morbus.

I am also convinced, that in those cases where the complaint is apparently excited by acrid ingesta, as fruit, &c. the previous state of congestion in the portal circle existed; and the ingesta only accelerated the attack. The great flow of bile which bursts forth after reaction has well commenced, may be easily accounted for by the previous accumulation of blood in the vessels of the vena portæ; and this increased secretion of bile is, in fact, a powerful mean of reducing the said accumulation, and of restoring the broken balance of the circulation. This doctrine bears fundamentally on the treatment, and tends to check a most pernicious and absurd practice, that of exhibiting emetics, chamomile tea, or even warm water, in the stage of reaction or vomiting, when, in fact, there is every necessity for restraining, both the inordinate secretion of bile, and the violent orgasm of vomiting. The spasms which generally take place in all severe cases of cholera morbus, can only be accounted for by the pressure which some parts of the nervous system experience from the unequal distribution of the blood; for it has now been proved, almost to a demonstration, that the origins of those nerves leading to spasmed muscles, have invariably the vessels of their neurilema in a turgid or congested state. In hot climates, these spasms of the voluntary muscles are universal, shewing the congestion along the whole spinal marrow; in this country, the spasms are generally confined to the gastrocnemii and solei muscles, and therefore the spinal congestion is most probably confined to the lumbar and sacral regions.

Treatment. Most authors, on the authority of Sydenham and Cullen, recommend the exhibition of warm water or chamomile tea, at the beginning, till the offending bile is all cleared away, and then opiates to allay the spasm and commotion in the system. Now I know, by experience, that the first part of this treatment is not only erroneous, but injurious; for the ingurgitation of warm fluids promotes the inordinate secretion of bile, instead of checking it.

If the patient be seen, [which, however, is rarely the case] during the first stage of the disease, that is in the collapse, and before vomiting takes place, the feet should be immersed in warm water, and a cordial draught exhibited, composed of confectio aromat. æther, laudanum, and cinnamon water,

Say a scruple of confect. aromat. forty minims of æther, and thirty of tinct. opii. He should then be ordered to bed, and kept remarkably quiet. In nine cases out of ten, this would equalize the circulation and excitability of the system, restore the functions of perspiration and biliary secretion, which, at this time, are invariably checked, and prevent that violent orgasm which generally results when nature is left to her own resources. But, unfortunately, it rarely happens, that we know any thing of the case, till the second stage arrives, when the vomiting, purging, and spasms, call imperiously for the Doctor.

On arriving, at this period, no time should be lost in exhibiting a couple of grains of solid opium, combined with five grains of calomel; and half a grain of opium, with one grain of calomel, should be given every hour afterwards, till the vomiting and purging have ceased, which will generally be the case in an hour or two, very often in half an hour after the first dose.

If the patient have been much exhausted before medical advice is obtained, or before medicine has taken effect, then cordials must be exhibited, as was directed in the first stage, before the vomiting and purging commenced. If the spasms and cramps continue violent, the warm bath will be necessary, to restore the lost balance of the circulation and nervous energy.*

It is proper for me here to mention, that Dr. Ayre, of Hull, who has adopted the pathology of the complaint which I long ago described in my work on Tropical Climates, states, from great experience in cholera morbus, that he has found half or a third of a grain of calomel alone, exhibited every half hour, in either stage of the disease, prove almost a specific in arresting its progress. He contends, that calomel has the power, or property, of restraining *inordinate* secretion of bile, and of augmenting it when *deficient;* and consequently, that the medicine is equally beneficial when administered during the first stage of suppressed action in the liver, or in the second stage, when there is an orgasm in the system of the vena portæ; and when the redundancy and vitiation of the bile are irritating the whole line of the primæ viæ. Dr. Ayre's plan is worthy of attention; but I confess that I am unwilling to relinquish the one before described, from the almost uniform success which I have experienced from its

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* Injections, with ʒj. of tinct. opii, are often useful in violent cases of Cholera Morbus.

employment. Dr. Ayre recommends cordials, &c. in the stage of exhaustion succeeding the violent commotion in the system.

I shall now conclude with a few observations on the pathology of this disease; which, though different from all preceding writers, is now beginning to be adopted by some of the ablest men in the profession.

The autumnal season of the year, in which cholera most commonly appears, is not merely remarkable for a high range of atmospherical heat, but for sudden transitions from heat to cold, especially in the evenings. If, therefore, we consider that the functions of the skin and liver are inordinately increased during the heat, and, of course, rendered more liable to a check on the application of cold, we shall easily conceive how a sudden atmospherical vicissitude, at this period, by inducing a torpor of the perspiratory vessels on the surface, and of the secretory vessels of the liver sympathetically, will unhinge the balance of the circulation and excitability; and that, while a great plethora is induced throughout the portal and mesenteric circles, the torpor in the liver and surface is succeeded by an increased irritability of the stomach and intestines; and that this increase of excitability in one organ, or set of organs, while the excitability of others is decreased, is the mean by which Nature effects the restoration of the balance. In short, the very action of vomiting determines the blood to the surface, and restores the suspended functions of perspiration and biliary secretion. It is at this time that a deluge of bile naturally bursts forth, as the *consequence* of the previous suspension of secretion in the liver, and turgescence of the mesenteric vessels; and thus we see that the very last link in the chain of *effects*, and that too a *salutary* one, has, for ages, been set down as the cause of cholera—namely, "an increased secretion of bile."

HEPATIC DISEASES;

OR,

AFFECTIONS OF THE BILIARY SYSTEM.

The Liver is the largest gland, or organ of any kind, in the human fabric, being infinitely more voluminous, and more weighty, than the lungs, when in a state of collapse. Now, as the organ exists in almost every class of animals, even where other important viscera are very imperfectly developed, we may fairly conclude, that it answers some great purpose in the animal economy. The immense size—the number and magnitude of the parts which compose its complicated vascular machinery—its early and relative developement in the stage of fœtal existence—all tend to impress us with a conviction that the liver performs other functions and offices in the body, than the mere secretion, daily, of a few ounces of bile.

The liver serves as the point of termination for the abdominal system of black blood, in the same way as the lungs do for the general system of the same description—a peculiarity which does not appertain to any other organ in the body. The size of the gland too, is quite disproportionate to its secretion. Compare its excretory tubes and reservoir with the analogous parts in the kidney, the salivary glands, or the pancreas, and you will find them far inferior to the first, and hardly superior in size to the others. Yet the mass of parenchymatous structure in the liver, at least equals all the other glands in the body put together. The quantum of bile secreted in the twenty-four hours, under ordinary circum stances, does not probably exceed six or eight ounces, which is not more than a fourth part of the urine secreted by the kidney, in the same space of time.

In health, it is well known that this organ is greatly under the influence of the passions. A fit of anger will frequently jaundice completely the skin; while grief, and the other depressing passions, will change, deteriorate, or entirely check the biliary secretion. On the other hand, it is a matter of common observation, that this organ has a powerful influence

on the temperament, on the functions, on the passions themselves, and consequently, on the very character of the individual. This was remarked by the ancients, and its truth is confirmed by the moderns. Nothing like this can be said of any of the other glands.

The liver is discerned in the embryo before any of the other viscera. Walter says, that it may be seen at the expiration of twenty-two days after conception, when it is not much less than half the weight of the whole body. After the fourth month of utero-gestation, however, this organ does not proceed so rapidly in its growth, although it maintains a remarkable predominance over the other viscera till the time of birth; in short, it may be observed generally, that the liver is larger in proportion as the animal is nearer the epoch of its first formation. As, during utero-gestation, the whole of the blood, returning from the mother by the umbilical vein, circulates through the liver, so this organ, at the time, not only fills both hypochondria and the epigastric region, but descends below the ribs, as far as the umbilicus, and fills half the abdomen. Now, although we cannot demonstrate any peculiar office which the liver performs in the stage of fœtal existence, yet the above considerations render it at least probable, that since its subsequent function of biliary secretion can scarcely be said to commence anterior to birth, it may operate some change on the blood, in conjunction with the placenta, vicarious of the lungs, which, in the period above mentioned, lie collapsed and functionless.

The sudden revolution that occurs in the circulating system, at birth, produces a remarkable change in the liver. The size is diminished, its structure becomes more dense, and its colour more pale.

Much dispute has arisen, whether the bile be exclusively secreted from the blood brought to the liver by the vena portæ; but as the blood from that set of vessels, and also the blood of the hepatic artery, mingle together in the glandular or secretory structure of the organ, it is evident that the question can never be satisfactorily decided. Arguing from analogy, we should be inclined to think that the portal current, or venous blood, was destined for the secretion of bile, while the hepatic artery was merely the nutrient vessel of the liver.

In respect to the bile itself, we can discover, in health, two kinds, distinguished by the names of hepatic and cystic. The *former*, which is contained in the pori biliarii, and hepatic duct, approaches in fluidity to water, is of a bright orange colour, and not bitter. So far is it, indeed, from

containing any qualities offensive to the taste, that the livers of animals, which must always contain much bile, are commonly employed for food. The bile of the gall-bladder, however, is a thick, ropy fluid—of a deep orange, brown, or even greenish tint, and most intensely bitter. Both kinds are originally the same, when secreted; but the hepatic bile having passed into the gall-bladder, by way of the cystic duct, acquires the above-mentioned distinctions, during its stay in that receptacle. The internal tissue of the gall-bladder is a secreting surface, and must, of course, pour forth the principle which gives to the newly received hepatic bile its bitter taste and deeper colour. The absorbents, too, of the gall-bladder, may take up the thinner parts of the bile, and thereby reduce it to a more concentrated state.

The secretion of bile is constantly going on in the liver, but much more actively at certain periods than at others. The bile furnished, when the function of the duodenum and upper intestines is *not* in action, is divided between the duodenum, which is always tinged by it, and the gall-badder, which is its reservoir. In this period the cystic bile acquires its acrid character, deep tint, and properties necessary for the purposes of that digestion which is to ensue. But when the stomach has finished its peculiar function, and the chyme begins to enter the duodenum, not only is the secretion of bile *increased* in the liver, but it flows both from the gall-bladder and hepatic ducts with augmented velocity into the duodenum. When this second digestion is concluded, the biliary secretion again diminishes, and again accumulates in the gall-bladder.

Bichat was of opinion, that the stomach always contained a certain quantity of bile, which entered by the pyloris, and Morgagni was of the same way of thinking; but it is very doubtful whether, in the ordinary state of health, any of this fluid enters the stomach. When the chyme has entered the duodenum, it consists of a half liquid pultaceous mass, with a considerable admixture of matter foreign to the purpose of nutrition, the gross residue of its decomposition in the stomach. We may, indeed, conclude, that the chief end of digestion consists in the separation thus effected. Hence this intestine has been justly styled a second stomach, since it is here that the chyme comes in contact with the biliary and pancreatic fluids. These fluids, when poured on the chymous mass, penetrate, dilute, and animalize it. They, in all probability, are the principal agents in separating the chyle from the excrementitious matter—that is, in precipitating from it, whatever is not nutritious. In this process, the bile

itself seems to divide into two portions. Its oily, bitter, and colouring matter, combines with the excrement, and possibly imparts to it those stimulating properties, by means of which it excites the peristaltic action of the alimentary tube; while the other constituents combine with the chyle, and re-enter the circulation. The contents of the duodenum, in fact, exhibit two very distinct substances, after the admixture of the bile and pancreatic fluid—the one a whitish milky matter, found at the surface, and adhering to the intestine; the other more abundant, yellow, and, when digestion is well performed, exhibiting no traces of the nature of the food eaten.

Before entering on any pathological considerations, it may be proper to notice the sympathies which exist between the liver and other organs or structures in the body.

1st. The consent between the stomach and liver, which we may denominate the *gastro-hepatic* sympathy, has been long known, and is demonstrated daily, when one or other of these organs becomes troubled in function or deranged in structure. Thus any indigestion in the stomach will frequently so disorder the biliary secretion, that the stools will appear of various colours, or perhaps like clay, evincing a deficiency of bile; while the right hypochondrium will feel tender on pressure, as though there were actual disease going on in the liver. On the other hand, it is a matter of common observation, that hepatic disorder will produce all the symptoms of dyspepsia and indigestion, and that too, while the original disease is so little obtrusive in its features or annoyances, as to escape the notice both of patient and practitioner.

2d. The sympathy between the liver and the brain, which we may denominate *cephalo-hepatic*, has also been long familiar to the attentive observer. In all derangements of function or structure in the biliary organ, there is hardly a more constant symptom than head-ache, or vertigo, or disturbance of the mental functions. On the other hand, it has long ago been remarked, that intense thought, or any strong intellectual emotion will derange the biliary secretion. Blows on the head will frequently occasion abscesses in the liver, of which we find some remarkable instances in surgical works. Thus M. Biot, in his late work on Military Surgery, relates that of seven soldiers, who died in the Military Hospital at Strasburgh, in the months of January and February 1794, from wounds of the head, six shewed abscess in the liver.

3d. Diseases of the liver will frequently assume the appearance of pulmonic affections, and, indeed, will often end

in real disorder of the lungs. There does not appear, however, to be much sympathy or consent between the liver and lungs, otherwise than as the *former* may encroach mechanically on the *latter*, when morbidly enlarged, and thus disturb the respiratory function; or, as is often the case, the irritation may be transferred from the abdominal to the thoracic viscus, by a kind of metastasis, and there ape all the symptoms of an original idiopathic affection, while the FONS ET ORIGO MALI lies completely concealed. It must be recollected, however, that as, in hepatic diseases, the stomach is very generally disordered, and as the par vagum is the great nerve of both stomach and lungs, so an intimate connection of nerves exists between the lungs and the abdominal viscera, through the medium of the stomach, as is evinced by the common phenomenon of *stomach cough*.

We now come to a sympathy or associated action, which is of great importance in the animal economy, but which has hitherto been entirely overlooked. It has long been acknowledged, that a vast chain of sympathies subsists between the skin, or external surface of our bodies, and the various internal viscera. Every one remarked the consent between the skin and the lungs, between the skin and the stomach, and between the skin and intestines; but no one suspected an intimate consent between the skin and the liver.

It is in tropical climates, however, where the extreme vessels on the surface of the body, and of the vena portarum, are inordinately excited, that we can more easily and distinctly trace this sympathy. Bichat has fallen into an error on this subject, which any common observer beneath the torrid Zone could correct. " A cold atmosphere (says he) confines the functions of the skin, and occasions those of the mucous system to be proportionally extended. The internal secretions are then more abundant. In warm seasons and weather, on the contrary, the skin acts more powerfully, and the internal secretions are diminished." With the secretions of the mucous system, Bichat has included the biliary secretion, which observes a law just the reverse of the above —since universal experience has proved, that as we approach a hot latitude, the perspiration and biliary secretion are both increased; and as we become habituated to the climate, or return to a northern one, they both decrease, *pari passu*. Any one who examines the phenomena of an intermittent fever, will find, that in the cold, hot, and sweating stages, the two processes of perspiration and biliary secretion are exactly simultaneous and proportionate. The partial sweats that break out towards the termination of the hot fit, are ac-

companied, as Dr. Fordyce long ago remarked, with "partial secretion and irradiations of heat arising from the præcordia."

It is extremely curious to observe, that in those diarrhœas which attack the crew of a ship sailing towards the equator, the motions will be of a bright yellow colour, and highly bilious; while, on the contrary, if the ship be entering a northern from a southern climate, the stools, in diarrhœa, will consist principally of mucus, and be quite pale or white. In the former case, the diarrhœa results from an increased secretion of bile, corresponding with the increased biliary secretion. In the latter case, it is owing to a confinement of the vessels of the skin, from the impression of cold, while an increased or vicarious afflux of fluids takes place to the intestinal canal, at the same time that the biliary secretion is rather diminished than increased. In our own climate, the gentle diapnoe, or insensible perspiration of mild weather, coincides with the regular biliary secretion; while it is in August and September, when the perspiration is most in excess, that we see bilious complaints, and greatly increased secretion of bile.

Bichat ascertained by direct experiments, that, during the time of digestion in the *stomach*, the pyloris is closed, and the biliary secretion *diminished*; we all know that a corresponding heat, dryness, and constriction of the surface, are observable at this period. On the other hand, he found that whenever the chyme began to pass into the duodenum, the biliary secretion was rapidly augmented. We know that, at this very time, the surface relaxes and the perspiration is increased. Every one knows the effects of emetics and nauseating medicines on the skin and perspiration; similar effects are produced on the biliary secretion. "In all cases (says Dr. Saunders) where bile is secreted in too large a quantity, the use of emetics is improper; indeed, the actions of nausea and vomiting *increase* its secretion." p. 176. In all these cases, the parallel between perspiration and biliary secretion holds good, and the sympathy is equally visible where the secretion is deficient.

If we examine those emaciated invalids returning from the East and West Indies, with torpid and indurated livers, sallow complexions, constipated bowels, and paucity of biliary secretion, we invariably find the skin dry, constricted, and harsh, or unnatural to the feel, without any thing like the softness and moisture of health, thus evincing the correspondence between the state of the perspiratory and biliary functions.

In diabetes, where the functions of the skin are notoriously defective, there is the most indubitable evidence of diminished and deranged action of the liver. Dr. Watt, of Glasgow, an accurate observer of Nature, has particularly noticed this circumstance, and has sometimes found the biliary secretion so defective in diabetic patients, that the alvine excretions were quite white.

In Chlorosis, Dr. Hamilton observes, that the perspiration appears to be suppressed; and Dr. Saunders remarks, that, in the same complaint, the bile is insipid, is secreted in less quantity, and is of a paler colour than in health. Every one knows the rigidity of the skin and defective state of the perspiratory function in maniacs. Dr. Saunders distinctly avers that, in these subjects, "there is generally a defect in the secretion of bile."

The effect of sea-sickness is very remarkable in augmenting perspiration on the surface of the body, and increasing biliary secretion, in a similar ratio. The torpid state of the skin in melancholia, hypochondriasis, and most of what are termed nervous disorders, exactly coincides with that of the liver and bowels in the same. Hypochondriacal complaints and dyspepsia, too, are almost invariably relieved by those means which determine to, and keep up a regularity of function in the skin; particularly a sea voyage, and a gentle degree of sea-sickness. The sedentary habits of certain classes of society powerfully conduce to diminished action of the liver; and in these, it is well-known, that the functions of the skin are imperfectly performed. Exercise powerfully promotes the secretion of bile, as well as of perspiration. There is a curious instance of this related in the second Volume of the Edinburgh Medical and Surgical Journal, where an obstinate dyspepsia, with deficiency of bile, could not be removed till a strong degree of broad-sword exercise brought on a copious flow of perspiration. In deranged function, and even structure of the liver, with paucity and deterioration of the biliary secretion, the tepid bath and small doses of mercury are the best remedies; and these probably act on the functions of the skin in the first instance, and, *through sympathy*, on the liver afterwards.

The operation of the passions on the corporeal fabric, corroborates this doctrine. Fear, grief, and the other depressing passions, when in moderation, lessen the secretion of bile; render the skin pale or sallow, and check the perspiration. On the other hand, anger and rage, it is well known, increase the biliary secretion; and their corresponding effects, on the surface of the body, are visible to every eye. Joy,

hope, and what may be termed the elating passions, when moderate, determine to the surface, and keep up a salutary flow of bile and insensible perspiration, so congenial to the functions of the body.

I shall not here adduce any more examples illustrative of the sympathy between the skin and the liver; a sympathy which, while it fully accounts for the increase of action in the hepatic system, from the influence of a hot climate on the surface, will be found to elucidate many of the phenomena attending the great class of diseases, on which we are now entering; and, perhaps, remove the stigma of empiricism, so commonly attached to their treatment.

Before entering on the wide field of *functional* diseases of the biliary system, it will be proper to first consider those in which the structure is affected; beginning with the more simple and obvious, and proceeding gradually to the more complicated and occult forms.

ACUTE HEPATITIS.

The liver, like the lungs, or any other internal organ, is liable to active or acute inflammation, though in this country, such form of the disease, compared with the chronic species, is comparatively rare. Like other inflammations, it is generally ushered in with some degree of shivering, evincing a cold stage of venous congestion, attended by a paleness of the countenance, shrinking of external parts, and small, quick, concentrated pulse.

In proportion to the intensity of this cold or chilly stage will be the subsequent re-action. Increased heat, and the other symptoms of pyrexia ensue, with pain in the region of the liver. From the great size of the organ, however, and its contiguity of surface with so many other important parts, the seat and kind of pain vary so considerably, as often to occasion some doubts as to the real viscus affected. Sometimes the least degree of pressure under the margins of the ribs will cause exquisite pain, while, at others, (as was once my own case) the seat of the pain, and also of the enlargement, will be in the centre, or even to the left of the epigastrium. When that part of the liver is inflamed, which lies in contact with the diaphragm, the concomitant cough, and pain on inspiration, may lead to a suspicion that the pleura or lungs, may be the seat of the disease. The pain in the right shoulder, and the difficulty of lying on the opposite side, are extremely fallacious diagnostic symptoms;

inasmuch as, in some very violent hepatic inflammations, there is no pain in the shoulder, and the easiest posture is on the back, as was also my own case, when suffering under a severe attack.

A pretty general attendant on Hepatitis, both acute and chronic, is a heat or scalding in making water, which appears to be occasioned by the passage of bile along the urinary organs, and has not, I believe, been noticed by authors. Although a yellow suffusion on the skin or eyes, indicates obstruction in the liver, its absence is no proof that inflammation of that organ does not exist. In fact, where the investing membranes of the liver are the principal seat of the inflammation, it cannot be expected that the secretory office will be nearly so much disturbed, as when the parenchymatous structure is affected.

At the very commencement of the disease, the diagnosis of hepatitis from inflammation of any contiguous part, is not of very material consequence, since the speedy reduction of vascular excitement, by copious venesection, is the main spring to be acted on, in either case. But in the choice of purgatives, some discrimination is necessary; for, however the modern scholastic physiologist, or routine physician, may laugh at the idea of cholagogues, hydragogues, &c. those who personally examine the effects of purgative medicines on the fæcal discharges, will entertain no doubt of the power which particular medicines possess of causing the evacuation of particular fluids, apparently from their disposition to act on certain sets of secreting or excreting vessels. On this account, it is very desirable to ascertain inflammation of the liver, especially of its glandular structure, and distinguish it from that of surrounding organs. I have generally observed that a *gradual inspiration* will not augment the pain of hepatic, as it does of pulmonic inflammation; while, in hepatitis, the tenderness on pressure, under the margin of the floating ribs, will be much more sensibly felt; and it may also be remarked that, whereas the cough is at least coeval with the pain in pneumonia, it generally succeeds it in hepatitis. From inflammation of the stomach, this disease may, in most instances, be distinguished by the absence of that gastric irritability and sensibility which render gastritis so dangerous and distressing a complaint. The febrile symptoms, too, in hepatitis, having nothing of that low or typhoid type, attending gastric inflammation.

From spasm of the biliary ducts, occasioned by impacted calculi, hepatic inflammation may be readily distinguished by the strong febrile excitement, and many other circum-

stances, especially at the beginning; but, as I have often observed, spasm will often terminate in, or rather occasion inflammation, when the treatment must be the same as in original hepatitis.

The state of the bowels enables us to judge of the presence of hepatitis; for, in almost all inflammatory states of the liver, and particularly of its glandular structure, the bowels are either constipated, or in a state of dysenteric irritation; while the appearance of the fæces and urine will always indicate a greater derangement of the biliary secretion, than inflammation of any contiguous viscus. The lateritious deposit in the urine, though common to many internal inflammations, is particularly conspicuous in that of the liver. Another circumstance unnoticed by authors, is the state of the mind in hepatic inflammation, both acute and chronic, which is much more perturbed than in any other species of inflammation, excepting the brain itself. This probably results partly from the sympathy which we observe between the head and liver, but principally from the suspension or derangement of the biliary secretion, which will hereafter be shewn to exert a peculiar influence on the mental functions.

In this country, as I have said before, acute inflammation of the glandular structure of the liver is comparatively rare, though, in inflammation of its coverings, the parenchymatous portion of the organ must always suffer, more or less. The peculiarity of the circulation in the hepatic system, indeed, causes the inflammatory and other diseases of the biliary organ to assume a character and require a treatment, in some measure specific; for, however rapidly the tone of the whole system be lowered by large and repeated bleedings, both general and local, yet, till the healthy and regular secretion of bile be restored, there is no safety for the patient from present danger, or future sufferings. In all very high degrees of excitement in the system at large, or of inflammation in the liver itself, the biliary secretion is suspended, or very much impeded; and even when the function is restored, the fluid secreted is far from healthy at the beginning.

On this account, and to prevent chronic indurations, or the chance of present suppuration, I always make a point of endeavouring, by every possible means, to reinstate the biliary secretion as soon as possible. This is partly effected by powerful general and local bleeding, and by such medicines as at once act on the biliary organs, and on the whole line of the intestines.

The practitioner, then, who, in conformity with the rules laid down by authors, prescribes saline cathartics, in hepatic

inflammation, with the view of their producing many liquid discharges by stool, without irritating, will err most egregiously. The liver, in these cases, is like the female breast gorged with blood and with stagnant milk. We may leech as much as we please, but unless we have the lactiferous ducts evacuated of their contents, suppuration will be the result. It is just the same in hepatitis: unless we empty the biliary ducts of their viscid and depraved secretions, which are locked up by the general inflammatory state of the organ, we run the risk of abscess or chronic disorganization of the viscus. Now saline cathartics have very little effect on the mouths of the excretory ducts leading from the liver; they act chiefly on the glands of the mucous membrane of the stomach and intestines. On the other hand, that mercurial preparations, especially the submuriate and the pil. hydrargyri, have a powerful effect in exciting the secretory vessels of the liver, as well as the excretory, is as well ascertained as that they increase the flow of saliva from the glands of the mouth; and this peculiar power is totally independent of their cathartic qualities. Indeed, the action of mercurials on the biliary gland is a good deal weakened or diverted, when they produce a sudden and full cathartic effect themselves, or are conjoined with other purgatives that hurry them quickly through the bowels. In order, therefore, to successfully combat this disease, we are first to check the general excitement of the system, and the local inflammation of the organ, as much as possible, by copious venesection at the arm, and cupping or leeching the region of the liver. The general and local depletion should be carried to the extent of relieving the pain, or at least of enabling the patient to bear pressure over the liver with less inconvenience. Cupping is better than leeching, as we can command a more copious abstraction, and that in a shorter period, by the one than by the other. Blisters are to succeed the local bleeding; while five grains of calomel, and the same quantity of extract. colocynthidis compositi, should be administered, followed by senna and salts, so as completely to clear the intestinal canal.

When this is effected, and the vascular excitement reduced to a certain level, then a restoration of the natural and healthy secretion of the organ will be the surest safeguard against future lesion either of function or structure in this important viscus. Here it is, that the practitioners of these countries err most egregiously. It is very true, that if we attend merely to present relief, without bearing in mind the ultimate health of our patient, we may subdue acute hepatitis in this climate, in the same way as we subdue pneumonia;

but to restore the biliary organ to its integrity of function, a certain period of the inflammatory attack is to be chosen, when the judicious administration of mercurials, conjoined with antimonials, or even opium, will have a most important and salutary effect.

As the stomach, and sometimes the bowels, are in a state of morbid irritability, calomel or hydro-calomel, taken in two, three, or four grain doses, combined with a quarter of a grain of extract of opium, or half a grain of extract of the white poppy every three or four hours, according to the urgency of the symptoms, will be a judicious plan. If, by these means, a mild diaphoresis is brought out on the surface, and bile is brought down in the stools, every thing is in a favourable progress. But where the surface remains constricted, if the stomach will bear an antimonial, then a grain of pulvis antimonialis should be added to each dose of the calomel. When a brassy taste is perceived in the mouth, a mercurial fœtor on the breath, or a spongy redness of the gums, then the medicine should be discontinued, or given in small quantities every night, or every second night, to prevent ptyalism, which, in this climate at least, is unnecessary.

That a hurried secretion of ill-conditioned bile occasionally takes place in acute hepatitis, I have often had occasion to observe; but in by far the greater number of acute inflammatory attacks, the secretion is suspended or greatly diminished, the thinner parts of the fluid being probably taken up by the absorbents, during this condition of the organ, while the more viscid portions remain gorged in the pori biliarii, and excretory ducts. Hence the object of purging is two-fold; first, to reduce the plethora of the portal circulation; and, secondly, to free the tubes of the liver, and restore its secretory function.

From these considerations, the propriety of keeping up a due action in the liver and digestive organs, for some time after any degree of active inflammation, will be sufficiently obvious; and for this purpose, small doses of calomel, antimony, and some cathartic substance; for instance, the extractum colocynthidis compositum, will be exceedingly useful. Their operation should be limited to one or two copious motions daily, which, when effective, will be succeeded by peculiarly agreeable sensations and freedom of spirits, a sure criterion of their salutary influence on the hepatic system in particular. To these admonitions may be added, the strict necessity of avoiding the remote and exciting causes of the disease, which are now to be noticed.

Many of the predisposing and exciting causes of acute he-

patitis are the same as those which lead to pneumonia, and other visceral inflammations; for instance, a plethoric habit, and the application of cold to the surface of the body, when heated or fatigued. But there are some which are more peculiarly connected with hepatic than with other inflammations. Of the predisposing, may be mentioned the male sex, especially those who are of choleric or irritable dispositions, as was observed by the ancients. This affords another corroborative proof of the close sympathy which exists between the mental and hepatic functions, as will be more particularly traced hereafter.

The exciting causes may be divided into external and internal. It is well known that a high range of atmospheric temperature acts as a strong stimulus on the hepatic system, through the medium of the skin, deranging its functions, and thereby predisposing the organ to inflammation. Dr. Saunders and some others have set down heat as a cause, an exciting cause of inflammation; but this was merely hypothesis: for, from attentive observation, I am persuaded that, even in tropical climates, nine cases out of ten, of acute hepatitis, owe their immediate existence to the application of cold. We may very easily imagine how this happens. A high range of temperature, by augmenting beyond the natural standard, the cutaneous and the biliary secretions, debilitates the vessels by which these secretions are carried on, and renders them more easily struck torpid, on the application of cold; the consequence of which is, a temporary obstruction to the free transmission of blood from the portal to the general circulation, the frequent repetition of which is the paramount source of hepatic inflammation, especially in hot climates.

In this country, among the *internal* exciting causes of hepatic inflammation, the ingurgitation of inebriating liquors, and particularly ardent spirits, has been always ranked foremost; yet I am convinced that the *acute* species of the disease, now under consideration, is seldom induced in this way, though *chronic* derangements, especially of *function*, are, in a great measure, occasioned by those injurious potations, as will be explained hereafter.

Partial applications of cold or wet, then, when the body is heated, or over-fatigued by violent, or unaccustomed exercise, will be found, in five cases out of six, to be the exciting causes of acute hepatitis, excepting, of course, those instances where the disease is brought on by blows or external violence, a case of which lately came under my own observation.

A gentleman fell from a height of ten or twelve feet, and struck his right side against the end of a ladder; but no attention was paid to the accident for some months, though there was more or less pain in the region of the liver during that period. At length, violent hepatitis came on, accompanied by the usual symptoms, and was apparently subdued by blood-letting and other evacuations. Six months after this attack, and twelve from the original accident, another attack of inflammation came on, which terminated in abscess that burst through the diaphragm into the lungs, destroying the patient in nine or ten days, from the appearance of matter in the expectoration. It is worthy of notice, that in the first attack, the disease was mistaken for inflammation of the right kidney, the seat of the pain being so low down in the back. No mercury, in an alterative form, was exhibited after the subsidence of the inflammatory symptoms; and some months afterwards, when he first came under my care, he was evidently labouring under chronic hepatitis. By a slow course of mercury he nearly got quite well; but by intemperance and exposure to cold, he brought on the acute form of the disease, which ran suddenly into suppuration, and terminated his existence. I have seen several fatal cases of abscess, from neglect, after the more prominent symptoms of active inflammation had subsided.

Suppuration. Abscess in the liver is not a very uncommon termination of acute, and even of chronic inflammation, especially in hot climates. When it supervenes on the acute form, the symptoms are pretty clearly marked, by remission of pain, rigors, hectic flushes, and evening fever, together with a very irregular, and generally dysenteric state of the bowels. If the abscess point towards the diaphragm, there will be cough and other symptoms of pulmonic irritation; if towards the stomach, there will be great gastric irritability, and when the matter escapes into that cavity, vomiting, till death closes the scene. The bursting of the abscess into the thorax is not necessarily fatal, as some have recovered, under such unfavourable circumstances; but the prognosis is very bad in general. Bajon, in his History of Cayenne, relates a case of hepatic abscess penetrating first through the diaphragm into the lungs, and causing all the symptoms of pulmonary phthisis; but soon afterwards, the matter found another route by the intestinal canal, and the patient entirely recovered. It very rarely happens, that an abscess of the liver bursts into the general cavity of the abdomen. An adhesion between the suppurating portion of the organ, and

the contiguous portion of intestine [generally the transverse arch of the colon, or the duodenum] usually forms, and through this adhesion, the matter bursts into the cavity of the gut, and is discharged by stool. Next to pointing externally, this is the least dangerous route for the matter, and the instances of recovery are numerous. An abscess of this kind happened in my own person, and though it reduced me almost to a skeleton, it ultimately did well. I am quite confident, that many hepatic abscesses burst into, or have the matter carried off by, the hepatic ducts, into the bowels, since I have seen matter passed by stool for days and weeks, where there was no symptom to warrant the conclusion that an adhesion had formed between the liver and any portion of the intestinal canal. When the abscess points externally, whether that be under the edges of the false ribs, or lower down in the abdomen, it must be opened; for, in most cases, if left to the spontaneous efforts of Nature, the constitution would be ruined before the discharge could be effected. In all cases of hepatic abscess, the patient requires mild nutritious diet, with milk, and country air, if they can possibly be commanded. The cinchona and mineral acids are also frequently necessary, where the discharge is profuse, thin, or fœtid, with emaciation, colliquative perspirations, &c. In all cases of suppurated liver, mercury is inadmissible, while the discharge continues; but, as the function of the organ is greatly deranged by such an event as this, small alterative doses of this medicine, with or without the nitro-muriatic acid bath, will ultimately be necessary, together with all those remedial measures which will be pointed out, when treating of chronic hepatitis, and derangement of the biliary secretion.

Tubercular Derangements.

Before entering on the wide field of chronic diseases of structure and function in the liver and digestive organs, it will be proper to take some cursory notice of a class of organic affections which, though fortunately extremely rare, comparatively speaking, do yet cross our path of practice occasionally, and are, of all hepatic disorders, the most dreadful, because they are, in fact, incurable. These are tumours of the organ, which are designated by various appellations, as tuberculous, scrofulous, fungous, &c. An attempt has lately been made by Dr. Farre, to class, arrange, and name these tuberculous diseases; but as four years have elapsed since the last fasciculus was published, we may conclude that the design is abandoned. I shall here present

the reader with a condensed view of what Drs. Baillie and Farre have advanced on this point of visceral pathology.

Dr. Baillie considers the yellow or white tubercle to be, by far, the most common disease of this class. It is rarely met with in very young people, but is more frequently found in middle or advanced age, and especially in men addicted to ardent spirits. These tubercles are of a round shape; occupying generally the whole mass of the liver, and giving to its surface an appearance of irregularity. They vary in size, from a pin's head to that of a hazel-nut, or larger. The liver, when thus tuberculated, feels harder to the touch than natural, and not uncommonly its lower edge is bent a little forward; but the general volume of the organ is not increased; on the contrary, it is often diminished.

In a section of the liver, in this state, the vessels will appear small, and the substance frequently tinged yellow, from the accumulation or delay of the bile. There is generally a yellowish serum in the abdomen, an empty state of the gall-bladder; the pressure of the indurations on the pori biliarii preventing the bile from reaching either the hepatic or cystic ducts. The skin of the patient is, of course, permanently jaundiced. This is what has been termed *scirrhous* liver, though quite different from scirrhus, as it shews itself in other parts of the body. Dr. Baillie is disposed to consider it as a disease peculiar to the liver.

Symptoms. There is, unfortunately no symptom, during life, by which we can positively ascertain that tubercles are forming in the liver. The concomitant circumstances of pain in the region of the liver, yellow colour of the skin, and effusion of water in the cavity of the abdomen, Dr. Baillie thinks, can leave little doubt of a tuberculated state of the biliary organ. But I have seen all these symptoms without tubercles, and tubercles without any one of these symptoms.

Dr. Farre, who has given us some beautiful plates of the tubera circumscripta, observes, that, although there is pain in the hepatic region, languor, cough, and anorexy; yet until the liver, from increase of the tubera, descends below the false ribs, no correct diagnosis can be formed. Dr. Farre's Tubera Circumscripta correspond with Dr. Baillie's "*large white tubercles,*" which vary from the size of a chesnut to that of an egg. They are generally seated near the surface of the organ, elevating its peritoneal tunic, slightly variegated with red vessels, and deviating from a regular swell, by a peculiar indentation, at or near their centres, where they are white or opake. When they arrive at a state

of enlargement that renders them and the liver tangible below the ribs, then the functions of the digestive organs become seriously deranged. Emaciation advances; the respiration is oppressed; bowel complaints become harrassing, and dropsy with jaundice, generally ends the scene.

Dr. Baillie considers this kind of tubercle to be of a scrofulous nature, from having observed a scrofulous looking pus in its centre; while Dr. Farre is of a contrary opinion, classing it with tumours of a fungous nature, though he acknowledges, that it often exists in combination with scrofulous tubercles. The fact is, that we know nothing at all of their pathology or growth. To this class of tubera, belongs that dreadful disease, *fungus hæmatodes*, which attacks the liver in common with every other organ and structure of the human body. In almost every instance, however, the disease is propagated from some external or less vital part to the interior; and this observation should be borne in mind, as it affords us a clue to the diagnosis. Thus if, in a few months, or even years, after the removal of a fungous tumour from any member, or exterior part of the body, the patient begins to complain of pain in the region of the liver, with an unhealthy aspect, and derangement of the chylopoietic organs, we may have strong reason to fear that an operation only transferred the morbid action from one part to another.

Hydatids are still less frequently found in the liver than tubercles. They are inclosed in cysts, of considerable size sometimes; and formed of very firm, almost cartilaginous, and laminated textures. In the cavity of this cyst, the hydatid swims loose, surrounded by a fluid. The hydatid itself contains a coagulable liquid. They are either embedded in the substance of the liver, or attached to the margin of the organ, and hanging loose in the abdomen. From analogy, they have been supposed to be animalculæ; but this is mere conjecture, as they have never been seen to move when put into warm water. By Dr. Baron they are attributed to morbid states of the absorbent system, and looked upon as the original form of tubercles.

Now in respect to the treatment of these tubercular disorganizations of the liver, what are we to say? Dr. Baillie asserts, and every man of experience will agree with him, that these tubercles cannot be distinguished, till their size reveals them to the touch. Are we then to abstain from the use of mercury in all obscure cases, lest they should turn out to be tubercular affections, where mercury, carried to any extent, certainly appears to do no good, but probably harm? Let us remember, however, that it is next to impos-

sible for any disorganizing process to go forward in a viscus, without inflammation, acute or chronic, and irritation, for its support. In all doubtful cases then, the way, to my mind, is clear. It is to lessen the inflammation and irritation of the part, by local blood-letting and counter-irritation, repeated at longer or shorter intervals, while the stimulus of food and drink should be lowered, as far as possible, and all disordered secretions and fæcal accumulations daily removed by mild aperients, alternated or combined with a little of the blue pill, so as to correct the secretions without entering the system or producing any constitutional irritation. This is the only plan which experience has proved to be useful in retarding the progress of tuberculated liver, whether these tubercles be of the fungous, scrofulous, or encysted kind. As for their discrimination or distinction by means of plates, or *post mortem* delineations, it is rather a matter of curiosity, than of practical utility.

But the *possibility* of their existence in obscure or doubtful cases, renders it a matter of prudence to be cautious in the use, or rather the abuse of mercury, which, if carried to the extent of producing much constitutional irritation may, of course, increase the progress of the local disease.

Among the diseases of structure which the biliary organ undergoes, there are few more common than what may be, and is generally termed, an "*enlargement of the liver*," without any material change in the structure thereof. The most remarkable instance of this kind, on record, occurred to Dr. Powel, where the liver weighed forty pounds. I have seen it of all sizes, and extending from the margin of the ribs, to various depths in the abdomen, as far down as the pubes. This increase of volume arises, generally, from a deposit of interstitial matter between the glandular or parenchymatous structure of the organ, which interstitial deposit being of a paler colour than the proper substance of the liver, gives the whole viscus an appearance which very much resembles *granite*. At other times, the morbid growth is disposed round the great vessels and ducts of the liver, resembling sheaths or scabbards, when these vessels are cut across. The exact nature of this adventitious and morbid deposition is not ascertained, but is believed by many to be steatomatous. The organ, in these cases, acquires an infinitely greater volume than in scirrhous or tuberculated lesions. Chronic inflammation, resulting from intemperance, residence in hot climates, and other causes, is the principal source of this affection.

A very considerable enlargement of the biliary organ often takes place, from preternatural fulness of its own vessels,

vascular and secretory. This may be termed CHRONIC CONGESTION of the liver, and is frequently produced by organic affections of the heart, preventing a free return of blood by the venæ cavæ hepaticæ. In such cases, the blood has even been found extravasated, as it were, through the parenchymatous structure of the organ, so as to ooze out from all points, at each cut of the scalpel.

It is probably under such circumstances, that the stagnant blood occasionally finds its way into the intestines, producing the disease or phenomenon termed MELENA. It is needless to observe, that such an event is, at those periods, a very desirable one. The treatment of this affection must be founded on local evacuations of blood from the region of the liver; low diet; rest; and laxatives, combined or alternated with gentle mercurial preparations.

Another form of the structural affections of the liver, consists in a diminution of volume, and preternatural induration of substance in this organ. One way in which this takes place, appears to be, as it were, by a concentration of the parenchymatous structure, without any other visible or discoverable alteration. To this form has been given the vague terms scirrhous, and obstructed livers. It often happens, in these cases, that the organ is unequally condensed and contracted, giving it a puckered mis-shapen appearance, whence, probably, originated the appellation, *scirrhus*.

This condition of the liver can only be suspected in the living body, from a train of symptoms accompanying it, which often indeed accompany other and very different affections, functional and structural, of the same organ. The principal are, deficiency of bile in the stools; costiveness, or irregularity of the bowels; sedimentous urine, and a variety of hypochondriacal and what are called *nervous* symptoms. The disease is, in itself, incurable; but many of its morbid effects on the system may be greatly mitigated by attention to the state of the skin, the bowels, and the diet. Mercury, in any other shape than as a gentle alterative, may prove injurious; and, at all events, is unnecessary. If the nitro-muriatic acid bath be tried, it should be cautiously applied at first, lest it should prove too actively stimulant to an indolent and indurated organ, which is incapable of relieving itself by a copious flow of its own proper secretion.

I may here repeat, what I have said before, that it is extremely difficult, if not impossible, to recognize, with any degree of certainty, these various organic changes in the liver, while the patient is alive; yet it is necessary to bear in mind that such diseases exist, and that we cannot therefore expect

to cure, or even relieve "*bilious diseases*," as they are all sweepingly denominated, by any one routine of treatment, and especially by an indiscriminate administration of MERCURY.

JAUNDICE.

Before entering on Chronic Hepatitis, it will be proper to take in our way a disease of pretty frequent occurrence, namely, Jaundice.

This affection of the biliary organ is characterized by a yellow tinge of the skin, beginning generally in the tunica conjunctiva; deep yellow brown colour of the urine, which stains linen of the same hue; very pale, or clay-like appearance of the stools, together with an absence of the common fæculent smell; a sense of lassitude and languor; disinclination to exertion; depression of spirits; a sense of uneasiness, weight, or oppression about the præcordia; itching over the skin; bitter taste in the mouth; flatulence, and indigestion; anorexy; and, in general, torpid bowels. The vascular system is not much affected in common cases, though the pain is sometimes exceedingly acute at the pit of the stomach.

The causes of this complaint have been always considered to be obstructions of one kind or other to the free egress of bile from the excretory ducts of the liver; and, although such is the case, in general, it would appear that, in many instances, there is a copious absorption or return of bile into the general circulation, producing jaundice, while at the very same time there is a redundant flow of it into the bowels, causing great irritation throughout the primæ viæ. However, the more general causes of jaundice may certainly be referred to mechanical obstruction of the gall or biliary ducts, resulting from calculous concretions; inspissation of the bile itself; or spasmodic constriction of the calibres of the biliferous tubes. Compression of these ducts also takes place, and produces permanent jaundice, by the vicinity of tumours in the liver itself, or in some neighbouring organ. It is evidently of the greatest consequence here, as elsewhere, to ascertain, if possible, the cause of the disease, for on this hinges the treatment.

Calculous Concretions. With the causes of biliary crystallizations, we are entirely unacquainted. While they remain quiet in the gall-bladder, they occasion little or no inconvenience; but when they get jammed in any of the ducts, cystic or hepatic, they produce sometimes the most insup-

portable pain to which the human fabric is liable. Indeed, it appears, that when once those parts which have naturally only an organic sensibility [that is a sensibility to their own peculiar stimuli, but which exhibit no sensation to the touch,] become irritated into a state of disease, their then acquired sensibility is more acute than in the most delicate structures of the body. Thus the gall-ducts, the joints, the aponeurotic tissues, &c. when inflamed, are more painful than the tunica conjunctiva of the eye; though in health, they are insensible to the touch.

The pain in biliary colic, or impacted calculi, is generally referred to the pit of the stomach, corresponding to the opening of the common duct into the duodenum, and darting from thence towards the spine, preceded and accompanied, at intervals, by rigors, or nausea. But notwithstanding the violence of the pain, the pulse keeps tranquil. This and the direction of the pain itself, are the two principal diagnostic distinctions between this disease and inflammation. During the paroxysm, the breathing becomes short and hurried, with general anxiety and restlessness, occasionally delirium, followed by exhaustion and faintness, with retching and vomiting, sometimes spasmodic twitchings in different parts of the body. Profuse sweats now and then break out, not as crises to the shiverings, but apparently from the pain. In the intervals of the paroxysms, there is a dull sense of soreness and fullness in the epigastric region, and right hypochondrium. The patient experiences most ease when bent forward. These paroxysms, and intervals of comparative ease, alternate, with more or less violence, and for a longer or shorter duration, till the calculus has escaped into the duodenum. It is generally during these paroxysms, that the suffusion of bile on the surface of the body makes its appearance, constituting jaundice; and this will continue for a considerable time after the cause has ceased to act. In some cases, the transit of the concretion is so rapid, that jaundice has not time to occur; in others, it will be two or three weeks in passing along the duct, and then the jaundice will be very intense. Gall-stones of such a large size have sometimes passed, as to leave a doubt whether they did not make their way by suppuration from the gall-bladder to the duodenum, or other portion of intestine. The ducts themselves, however, are capable of dilatation to a great extent, since they have been found an inch in diameter, after the passage of a concretion. Dr. Armstrong lately attended a case of ileus, which proved fatal, in spite of every measure. On dissection, a gall-stone was found impacted in the ileum, the

coats of which were inflamed, thickened, and firmly embracing the concretion, so as completely to stop the passage along the gut.

The principal causes which give origin to biliary concretions, are indolence of body and anxiety of mind. Hence the complaint is more common among women in the upper walks of life, and among men addicted to sedentary occupations, whether mental or corporeal. Haller noticed the frequency of biliary calculi among criminals whose death had been preceded by long confinement. He attributes the phenomenon to corporeal inactivity; but I am convinced, that the mental anxiety contributed materially to the event.

A question has been agitated, by what power the concretion is propelled along the gall-ducts? It may be easily answered. These ducts, like many other parts of the system, have an *organic*, though not a common *muscular* contractility. When irritated by an offending substance, the duct contracts, and the foreign body will be gradually moved in the direction where least resistance is offered. This must, of course, be towards the mouths of the excretory ducts; not only because their calibre enlarges in that direction, but because the accumulated secretion behind is constantly lending an impulse forward.

There can be no doubt but that a mere inspissation of the bile itself, from remora in the passages, or torpor of the secreting organ, becomes a frequent cause of jaundice, especially where mechanical compression of the ducts is produced by particular positions of the body, as in young people confined much to stooping and writing; in pregnancy, from the extension of the uterus; in tubercular states of the liver, where a tumour bears on the line of the common duct. Nay, vascular turgescence of the biliary organ may actually so compress the parietes of the ducts, as to cause a return of bile into the general circulation, through the medium of the venæ cavæ hepaticæ.

It has been questioned, whether jaundice is produced by mere spasmodic contractions of the ducts themselves. I have not the smallest doubt on the subject. The passions have a most remarkable effect on the secretion; and also on the ducts of the liver. A fit of anger will so derange the state of the bile, as to tinge the skin yellow in a few hours. A sudden and unnatural acrimony of a secretion may very readily excite the organic contractility of a tissue composing a canal, and thus occasion a stricture of its calibre for the time being. In this way, I have no doubt that jaundice is often induced by mental emotions, as anger, jealousy, grief,

&c. It may be observed here, that the symptoms attending these spasmodic constrictions of the biliary ducts are sometimes as violent as those where calculi are impacted. Indeed, it appears to be the spasm, in both cases, that causes the intense pain.

In confirmed drunkards, where an unnatural stimulus has long been applied to the mouths of the excretory ducts, and where a morbid thickening of their coats ensues, a kind of permanent jaundice is kept up for months and years, in consequence of the difficult transmission of bile from the liver to the intestine. It is also highly probable, that in certain cases of redundant biliary secretion, without any mechanical impediment to the egress of bile from the liver, there may be such an absorption of this fluid into the circulation as may cause a yellow suffusion on the skin. This appears to be the case in *icterus infantum*, which vanishes as soon as the bowels are cleared. It is probable that this is also the case in many of those fevers termed bilious, in sultry climates, where the secretion of bile is sometimes excessively redundant.

From this slight sketch of the *causes* of jaundice, it will be evident, that to apply the remedy with effect, we must diligently search for the particular source of obstruction in the hepatic ducts. As a short rule, we must ever bear in mind, that where gall-stones or spasm are the cause of the jaundice, the pain at the pit of the stomach is most acute—attacks sudden, recurring in paroxysms, and often accompanied by vomiting—the pulse, at the same time, continuing in a natural state, both in respect to slowness and softness.

When shiverings occur, they come on after the pain has continued some time; and do not *precede* the pain, as is the case with those shiverings which attend inflammation.

Where the jaundice arises from compression of the biliary ducts by tumours of the neighbouring organs, the pain does *not* come on suddenly—it is less acute, and varies less in degree—the general health is deteriorated previously—there is emaciation—and the disease is accompanied by soreness or obvious hardness in the hepatic or epigastric region. When, to these symptoms, a disposition to dropsy is superadded, there can be little doubt of the existence of some organic derangement in one or more of the contiguous viscera, and that most likely of an incurable nature.

The chlorosis of young women assumes, on a superficial glance, the appearance of jaundice; but in these cases, the eye remains untinctured, and the urine retains its natural colour, assuring us that the circulating fluids hold no bile in solution.

In the cure of jaundice, the great and fundamental principle is undoubtedly the removal of obstruction to the free egress of bile from the liver to the duodenum; but the measures to be adopted for this purpose, must vary according to the nature of the obstructing cause. Suppose there is every reason to believe that a gall-stone is impacted in the hepatic duct. We know of no medicine which has any specific power of dislodging the obstructing cause, by accelerating its march along the said canal. Yet that process may be facilitated by such means as lessen irritability and vascular plethora of the parts concerned: for instance, opium and the warm bath. The opium must be given in large doses, as two or three grains, at first, followed up by smaller doses, till the pain is relieved. The warm bath should also be taken at a pretty high temperature, as 98, 100, or 110 degrees, and the patient kept in it till some faintness or sickness is induced. As a powerful antispasmodic, and relaxer of the ducts, blood-letting should be employed, in cases where the patient is young, or plethoric, and especially if the pulse be full, or much heat on the surface of the body; in short, where there are any symptoms that indicate a disposition towards inflammatory action, or even without that disposition, where there is no particular contra-indication to bleeding. Warm fomentations to the epigastrium are also serviceable, together with warm diluent drinks, and the tobacco enema.

Vomiting is an operation of doubtful utility, and, under ordinary circumstances, I would not recommend it. I believe, however, that the fears which have been entertained relative to its injurious effects in rupturing or straining the ducts, are very chimerical. From *a priori* reasoning, we would be led to suspect that full vomiting would be apt to injure the tender structure of the eye, while affected with intense inflammation; yet experience has proved, that in the primary and most acute stage of Egyptian ophthalmia, severe vomiting, and that continued for several hours, at one time, has not only *not* increased the inflammation, but proved the most effectual mean of checking it altogether.

No objection, however, lies against *purgatives* in this case of jaundice. In the earliest stage, and while there is much irritation, the neutral salts, or castor oil, are the most proper; but afterwards, calomel, soap, and cathartic extract—(extr. col. comp.) are much more powerful. They not only clear the bowels, but excite the biliary ducts, and thus assist in the expulsion of the obstructing cause. With the same view, I have seen the best effects from a combination of calomel, opium, and antimonial powder, carried even the

length of gently affecting the mouth. Where the obstruction arises from inspissated bile, the consequence of a torpid state of the liver, the mercurial treatment is by far the most successful; but care should be taken to distinguish obstruction of the ducts by substances *within* them, from tumours or other organic diseases compressing them from *without*, since, in the latter case, we may do injury by pushing the mercurial treatment too far.

The nitro-muriatic acid bath promises to be very serviceable in jaundice. In the case of a child of my friend Mr. Webster, Surgeon of the 51st Regiment, afflicted with obstinate jaundice, the great effusion of bile into the intestines, which almost immediately supervened on the employment of the bath, afforded a fine specimen of the strong sympathy which subsists between the skin and the biliary organ.

Where the obstruction arises from inspissated bile, or very small biliary calculi, the disease is soon over; but where the calculus is large, and consequently the irritation and spasm considerable, the disorder becomes not only more tedious, but more formidable.

Such pain, irritation, spasm, and obstruction to the natural course of the bile, cannot continue long, without inducing much mischief, especially inflammation and thickening of the ducts themselves, increasing still farther the obstruction. Here we must act vigorously in keeping down inflammation, and allaying pain, by local and general blood-letting, the tepid bath, laxatives, and blisters to the region of the liver. This last remedy is strangely neglected by medical practitioners, though it powerfully derives from an internal to an external tissue. Indeed, in several obstinate cases, I have seen decided advantage from their employment.

Some particular medicines, from their power in dissolving biliary calculi, out of the body, have been strongly recommended, and pretty generally administered internally for the same purpose; these are æther, oil of turpentine, and alkalies, particularly the two first. Their efficacy has been strongly attested, but with little foundation in truth. The nitric acid [3j of the diluted acid daily, in a pint of any aqueous vehicle] is said to have effected the removal of biliary obstructions, and this probably by increasing the secretion of bile. In the jaundice which accompanies or supervenes on intermittent fevers, small doses of calomel or the blue pill, with mercurial frictions over the region of the liver, are the most effectual means.

Where the disease is occasioned by, and, in fact, is merely a symptom of some organic disease of the biliary, or other

contiguous organ, it is needless to observe, that there is no prospect of a cure; and therefore our treatment can only be palliative.

When the jaundice is removed, especially if it had continued any length of time, there is generally left a considerable degree of functional derangement in the digestive organs which requires alterative doses of the blue pill, every second or third night, with a bitter infusion in the day, as infus. chamomeli vel infusi gentian. compos. till the tone of the stomach and bowels is restored.

CHRONIC HEPATITIS.

Under this term, the greater number of those chronic disorganizations of the biliary viscus, which have been already described, are comprehended by practitioners; and there is some foundation for this custom, since chronic inflammation must evidently form a part of all the various derangements of structure which slowly take place in this or any other organ.

What I mean by chronic hepatitis, however, which is a very common disease in this country, as well as in hot climates, is a plethoric state of the vascular system of the liver, sometimes a congestion of the veins, sometimes an inflammatory condition of the arteries, accompanied, of course, by derangement of the biliary function, and of the nervous system of the organ. Among the arteries, as well as the veins, may be comprehended the vena portæ, since it performs the office of both. These states of venous congestion and arterial excitement in the liver, as in other organs, alternate with each other, the former appearing to be the cause of the latter, and the latter [the excitement] to be the natural cure of the former. They have many external characters which indicate when one or other of these conditions prevail. When there is an inflammatory excitement going on in this organ, the patient will often complain of irregular and uncomfortable glows of febrile heat on different parts of the surface, especially the hands, the face, or the back, with some quickness and irritability of the pulse towards evening, slight thirst, with the urine more highly coloured than natural. On the other hand, the venous congestion of the liver is characterized by creeping chills over the surface, paleness of the face, coldness of the feet, and, in short, those common phenomena which attend upon venous congestion generally, as described by Dr. Armstrong and others. These two opposite conditions, however, constantly alternate with each other in

the same individual, and should always be taken in connection.

Chronic Hepatitis in this country, as well as in India, makes its approaches in a slow and insidious manner, and commonly under the mask of some other affection. Without any symptoms of severe indisposition, it will often run on to suppuration, or organic induration of the viscus, before its existence is suspected. This observation unfortunately applies to all the chronic structural derangements of the liver. Indigestion, flatulence, and other affections of the stomach, are the more prominent features of this disease; and consequently draw off the attention both of patient and practitioner from the real source of the mischief. The relief, too, which is obtained by freeing the stomach and bowels of flatulence or fecal accumulations, whereby the pressure of contiguous organs on the liver is taken off, contributes to keep up the delusion.

While this chronic inflammation, obstruction, and impaired function of the biliary organ, is going forward, the patient is subject occasionally to tenderness, or even pain in the right hypochondrium, especially when pressure is made there, which pain is often extended to the right scapula, or even tip of the shoulder. Very frequently, however, the pain is complained of in the back, or over in the *left* side, near the region of the heart. This last symptom has often led medical men to suspect a cardiac affection, when the real disease was in the liver. To these symptoms are added, increased frequency of the pulse; alternate flushes and chills; some dyspnœa or breathlessness, on quick motion; unpleasant sense of flatulence and distention of the stomach; acidity; slow and uneasy digestion; inability to lie easy on the left side; gradual diminution of strength and flesh; pale or sallow complexion, with a dirty greenish hue, termed by Darwin Bombycinous. Dr. Saunders has justly remarked, that the extent and duration of the pains, in chronic hepatitis, are very various, sometimes running down the arms, even to the fingers' ends. "Every change of posture either relieves an old pain, or induces a new one, as does the mere bending of the body in any direction, or even extending the arms."

It is to be remembered, however, that these, and many other symptoms, which will presently be described under the head of "functional derangements," are common to chronic hepatitis, and many other organic changes of structure, so that there is no certain diagnostic mark whereby the disease may be clearly recognized. Chronic inflammation of this organ seldom goes on long, without indurating the structure,

or enlarging the volume of the viscus, when it comes under the vague designation of "enlarged liver," "scirrhous liver," &c.; of which we have already taken notice. When things have come to this extent, our hopes of cure are but slender, and a mitigation of the symptoms is as much as can be expected. The treatment and causes of chronic hepatitis will be completely embraced in the next and important section on *functional* derangements of the liver.

In the East Indies, where this disease may almost be said to be endemic, hepatitis creeps on in a most insidious manner. Dr. Ballingal has justly remarked, that, "when we hear of patients dying suddenly from this disease, who were previously treated as hypochondriacs, and thought to enjoy a reasonable share of health; when we see abscesses in the liver, discovered on dissection, which we never before dreamt of, it ought to awaken our most anxious inquiries, and impress upon our minds the necessity of an attention to the symptoms of those insidious attacks of liver complaint, which reduce a patient to the brink of the grave, without giving him any warning of his danger." In India, the picture of this complaint, when it has advanced beyond the primary steps, is very melancholy.

The patient is generally overcome with languor, listlessness, and aversion to enterprize, without corporeal pain or inability, sufficient to account for this circumstance. He delights in detailing his miserable feelings to others, especially to medical men, and to paint the result of his complaints as inevitably fatal. Pain is not, in general, an urgent symptom; but when more distinctly complained of, is frequently described as occupying the epigastric rather than the hypochondriac region, extending thence in various directions, as before observed. Although a sense of fullness, stuffing, or oppression, is usually felt about the lower part of the chest, yet there is sometimes a feeling of vacuity there, as Dr. Ballingal remarks,—"a sensation as though a part of the liver were there defective, or rendered destitute of sensibility, which disagreeable feeling is often relieved by pressure with the hand." A manual examination of the hepatic region will often assist us materially, in ascertaining the existence of a liver affection, especially when emaciation has advanced to a certain point. An obvious swelling over the side will often be perceptible to the eye; and when the patient is stripped and carefully examined, the ribs over the liver will frequently appear bulged out, as if by the act of inspiration. A dry, tickling cough sometimes occurs, but does not much attract the patient's notice; the stomach is irritable, the ap-

petite capricious, but not very defective. But it is to the state of the alvine secretions and excretions that we are to look particularly, in all organic, as well as functional disorders of the liver. They will be found in most—I might perhaps, with justice, say, in all cases, materially altered, both as to quantity and quality.

In the very beginning of the affection, when probably it is function, not structure, that is disordered, there is a constipated state of the bowels, the fæces being at one time of a darker, at another of a lighter colour than natural; these varieties of shade often alternating or blending till they end in a dysenteric irritation. During this time, the stools frequently contain half-digested substances, with a great extrication of flatus, the urine depositing a copious sediment of uric acid and mucus.

When the patient is worn out with this complaint, and dies apparently of flux, we generally find several small distinct collections of pus, something resembling vomicæ in the lungs. The whole mass of the liver, in such cases, is commonly altered in colour, while, in appearance, it looks as though it were par-boiled, being much firmer in texture than natural; so much so, indeed, that on cutting into its substance, a sensation is communicated to the hand of the dissector, as though his knife were passing through a soft cartilaginous mass. The small quantity of blood which flows from an incision into an indurated liver of this description, is a remarkable feature, and affords a striking contrast to the state of liver existing in the remittent fevers of India.

The diseased appearances, however, of the liver, as occurring in the eastern world, are generally confined to suppuration or induration, the legitimate results of preceding inflammation.

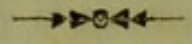
The great object, in the treatment of tropical chronic hepatitis, is to prevent these suppurations; for once they take place, our hopes of cure must be slender indeed. To obviate this dreadful accident, then, we should have early recourse to local, or even general bleeding, according to the urgency of the local or general symptoms, together with blisters, purgatives, and low diet. But we are not to expect that Chronic India Hepatitis, of any standing, will give way to these measures, however sedulously, or skilfully administered. They will not restore the structure and function of the biliary organ to a sound state, and bring the abdominal secretions to a healthy appearance. In such cases, the powers of mercury are alone to be trusted to; and these are, in general, sufficiently efficacious. The relief, indeed, experi-

enced in most cases of chronic hepatitis, the moment that mercury affects the mouth, is truly surprising. The removal of all uneasy sensations from the side, the clearing up of the skin and countenance, the restoration of the natural evacuations, and, in short, the removal of every complaint but debility, evince the powers of this remedy. It is melancholy, however, to remark, that unless the patient's circumstances admit of a removal from a tropical to a temperate climate, these healthy changes are seldom lasting. By remaining subjected to the same climatorial influence which produced the complaint, the patient is under the necessity of recurring, from time to time, to the same remedy which, like all others, must lose its efficacy by repetition. The auxiliaries in chronic India hepatitis, are the nitro-muriatic acid bath externally, the chlorine internally, and the extract of dandelion; all of which shall be treated of in the next Section on Functional Derangements of the Biliary System.

FUNCTIONAL DERANGEMENTS

OF THE

LIVER AND DIGESTIVE ORGANS.



It is by means of the internal surface of the alimentary canal, that the human fabric is first built up, and afterwards sustained. On the healthy actions of this extensive surface, the healthy actions of all the other parts of the body mainly depend. The abdominal organs concerned in the process of digestion and chylification, are all linked in the strictest bonds of sympathy. The stomach, liver, intestinal canal, and pancreas, are so associated in office, that no *one* can be deranged in function, without drawing in the others to a participation. This is now universally admitted. The tissue or membrane which lines the digestive organs, from the mouth to the rectum, is a secreting surface, which is constantly pouring fourth a fluid that is necessary for the digestion of the food in every stage of its progress. And it is a well-known fact, that, when any gland or secreting surface is over-excited, the fluid secreted becomes unnatural in quantity or quality. It is sometimes diminished, sometimes increased, but always depraved. This is familiarly exemplified, when the mucous membrane of the nose and bronchi happens to be acted upon by sudden atmospherical transitions, as in a common cold. At first, the membrane is dry and sub-inflamed; afterwards, a more copious secretion than usual comes pouring fourth, and of so acrid a quality as to excoriate the nose and lips themselves. It is just so with the mucous membrane lining the stomach and bowels. When inordinately excited by the quality or quantity of the food and drink, the secretions are irregular and morbid; and therefore a constant source of irritation is generated in this important class of organs. This irritation is propagated by sympathy [for we have no better term to express the fact] to almost every part of the human system, and the discerning practitioner can clearly detect the impaired functions of the abdominal viscera in the state of the mind, the nerves, the muscles, the excretions, and even the skin. I have repeat-

edly brought forward this great, but neglected truth, that, when any one part of the system is inordinately excited, some other part or parts are deprived of their due share of vital energy, as we every day see exemplified in what is termed derivation by blisters, &c. Now, when so large a share of irritation, and consequently of excitement, is kept constantly concentrated round the digestive apparatus, it is easy to see how the animal and intellectual systems must severely feel the loss. The deranged state of the nerves, the irritability of the temper, and the want of tone in the muscles, which are so conspicuous in stomach and liver complaints, afford the most convincing evidence of the truth of these positions.

When we consider the various ways in which the functions of the liver and digestive organs may become disturbed, both by the direct application of irritating substances to the viscera themselves, and by their associations with the surface of the body, the brain, and nervous system, &c. we need not wonder at the extent to which this class of maladies has arrived in modern times, and especially in the upper walks of civilized life.

I have shewn the vast chain of sympathies between the skin and abdominal viscera. In this climate, therefore, where the thermometrical, barometrical, and hygrometrical changes are more extensive and sudden, than in any quarter of the globe, the frequent disturbances in the vascular and nervous systems of the skin, from atmospherical mutations, are perpetually disturbing the balance of the circulation and excitement in the interior organs. This, upon the whole, is the most operative cause of functional derangement of the chylopoietic viscera in this country.

The next, in order of importance, is the habit of ingurgitating spirituous and fermented liquors, which have a direct, and indeed what might be termed a *specific* effect, in deranging the functions, and ultimately the structure, of the stomach, liver, and intestines.

The deleterious effects of inebriation would form a most curious and useful subject of investigation, for Dr. Trotter's Essay on Drunkenness is more a raphsody, adapted to the superficial general reader, than exhibiting any deep or enlightened views for the profession. Drunkenness so modifies diseases, that the young practitioner should endeavour to acquire a habit of recognizing and detecting this propensity, by the external and internal phenomena accompanying it. There is a character, a manner, an aspect in the inebriate, even when sober, which stamps him unequivocally. He be-

comes heavy and awkward in his gait; bloated in his countenance; his eyes and eye-lids are inflamed; he falters in his speech; his nose is red; his complexion sallow; his face covered with eruptions or excrescences; his abdomen rather tumid; his breath fœtid; his stools morbid in colour and smell; his urine often turbid and sedimentous; his skin and muscles flaccid; his hands tremulous. Finally, if no particular organic disease becomes prominent, he emaciates, and is overtaken by premature old age. The manifestations of the mind correspond with the derangements of the corporeal organs and functions. The inebriate is incapable of attention; fails in his memory and judgement; becomes irresolute; timid; nay, even cowardly. The morning hours hang heavy upon his hands, and he is miserable till he gets once more immersed in the fumes of the vinous or spirituous debauch. Finally, he sinks into sottishness and stupidity, and commonly dies paralytic, apoplectic, dropsical, or maniacal.

But as it is to the digestive organs that the inebriating materials are immediately applied, so *they* bear the onus of the morbid effects. The liver and its secretions are deteriorated in a remarkable manner. It is well known that, in the distilleries and breweries, where hogs and fowls are fed on the grains left after distillation and fermentation, the livers of these creatures are found indurated and enlarged. It is just so with hard drinkers. The constant irritation in the line of the digestive organs keeps up a determination of blood to these viscera, ending in congestion, chronic inflammation, or obstruction. In this country, where such an enormous quantity of ale, wine, and spirits is annually consumed, the mischief produced is proportionable, and, in this way, alone, the great prevalence of stomach and liver complaints might be nearly accounted for, but unfortunately there are many other sources of the same mischief.

A third cause of vast operative influence in this country, is the "PLAY OF THE PASSIONS." The people of England, from their geographical situation, mercantile habits, and political character, experience a more energetic excitement of the mental functions and faculties, than any other people on the face of the globe. This is speaking collectively; but when we analyse the different classes of society more minutely, we shall find that the pursuits of a commercial and manufacturing life, must involve its votaries, for obvious reasons, in a train of doubts, anxieties, and agitating passions, which have a decisive influence on the biliary and digestive organs in particular. The effects of strong and sudden mental emotions, as fear, surprize, grief, &c. on the

functions of the stomach and liver, are subjects of every day's observation; and the same causes operating more slowly and imperceptibly, at length effect the most serious derangements in the organs and functions alluded to. From the known sympathy between the sensorium and the chylopoietic viscera, we may reasonably infer that, when intellectual operations are carried on with immoderate zeal; or the mind kept in a harrassed and anxious state, a portion of vital energy is, as it were, withdrawn from those organs with which the brain sympathises, in consequence of which their functions become disturbed, or even suspended. A familiar example of this may be seen, in all degrees, among the class of sedentary LITERATI, whose biliary and digestive organs are torpid in proportion to the overstrained exertion of their mental faculties. Even the tradesman and artizan, though they have somewhat more corporeal, and less mental exercise than the class alluded to, yet we may assert, that their exercise is of a confined and partial nature; while their minds are very generally on the stretch, respecting their individual interests, and wavering prospects; so that, on the whole, they participate, more than might be suspected, in the very same diseases which affect their more learned brethren. If in these cases, which but too often happens, a variety of stimulating materials be applied to the torpid organs, the effects will be analogous to the application of heat to a torpid or frost-bitten limb—viz. a morbid irritation and excitement, which, like chronic chilblains, may last for months, or even years.

We now come to trace the consequences of those checks and interruptions of the biliary secretion. It is conjectured, for it cannot be accurately ascertained, that, in ordinary states of health, about six ounces of bile are secreted in the twenty-four hours. It has been demonstrated also, by direct experiments, that this secretion does not proceed at a uniform rate; on the contrary, it is known, that during the time our food is digesting in the stomach, the pylorus is closed, and biliary secretion diminished; whereas, whenever the chyme begins to pass into the duodenum, the biliary secretion is rapidly augmented. These facts sufficiently prove, that the fluid in question, is necessary for the separation of the chyle from the chyme, during its passage along the track of the small intestines. As a highly animalized fluid, it is more than probable that a part of it, or of its constituent principles, combines with the chyle, and enters the general circulation; since it will hardly be contended, that six ounces of bile are daily discharged, *per anum*, in combination with the fæcal

residue of our food. "One important use of the bile, (says Dr. Saunders) is unquestionably that of stimulating the intestines, and performing the office of a *purgative*." Although a deficiency of bile is very generally accompanied by costiveness, yet its *purgative* qualities are not so clearly made out as Dr. Saunders imagined; and I am far from thinking, that they are among its most important offices. A little farther on, Dr. Saunders remarks—"We shall afterwards observe, that where bile is defective, its place may be supplied by artificial means, with advantage; and, in no instance, has the application of chemistry to the cure of diseases, appeared more successful than in suggesting the use of proper remedies, in cases of diseased and defective bile." This passage contains a very erroneous statement; for those who have felt the effects of a scanty biliary secretion in their own persons, or observed them in others, can best judge of the difficulty experienced in combating these effects, and supplying the place of the natural fluid by artificial means. The consequences indeed of the want of bile in the alimentary canal are truly momentous! In the FIRST place, a defective assimilation or nutrition must ensue, when the peristaltic action of the intestines is unnaturally torpid, because the chyme is not presented in a proper manner to the mouths of the chyliferous tubes. From this source alone must arise a considerable share of that debility and emaciation, so generally attendant on complaints of this description.

In the SECOND place, many prejudicial chemical change and extrications of injurious principles must take place during the retarded progress of the alimentary matters through the intestines, partly from the *remora* itself, and partly from the deficiency of bile. From this source arise those flatulencies, eructations, acidities, &c. which create such uneasy sensations along the whole line of the alimentary canal.

In the THIRD place, the extraordinary delay of the fecal remains, in the first passages, cannot but be prejudicial to health, as every one must have observed in his own person, during even a temporary confinement of the bowels. From this source arise hæmorrhoids; partly from the mechanical obstruction of the hardened fæces; partly from the torpid circulation in the liver, preventing a free return of blood from the hæmorrhoidal vessels. In this way also arise, in part at least, those head-aches, so frequently attendant on constipated bowels; and which seem, in many instances, to be occasioned by the masses of hardened colluvies in the bowels pressing on the descending aorta, and causing an unusual quantity of blood to be thus distributed to the head, with

pain, vertigo, and various other uneasy sensations in the sensorium.

In the FOURTH place, a deficient secretion of bile, and torpid state of the bowels, admit of, or give rise to, accumulations of mucus throughout the whole line of the primæ viæ, which prove exceedingly prejudicial to the gastric and intestinal digestions, and aggravate all the symptoms before enumerated. This mucus occasionally becomes so viscid as to obstruct, in a very considerable degree, the passage of chyme and fæces along the line of intestines, and also the extrication of bile from the ducts of the liver into the duodenum, in consequence of which this fluid itself becomes inspissated, and gorges the pori biliarii. At other times, this mucus, by preventing the bile from passing out of the duodenum *downwards*, causes a regurgitation of it into the stomach, which either brings on sick head-aches, or bilious vomitings, that are taken by the patient, and indeed by the medical attendants themselves, for indubitable proofs of redundancy in the secretion of bile, when the original evil was, in reality, a deficiency of this fluid, and a torpor of the organ which secreted it.

FIFTHLY, The torpid action of the liver, by proving a check to the portal circulation, and, of course, preventing the same quantum of blood being transmitted through the cæliac and mesenteric arteries, in a given time, as when the office of secretion is going on briskly, must, of necessity, produce an unequal distribution of blood, giving rise to various anomalous symptoms, but particularly head-aches, hæmorrhoids, flushings, and irregular determinations to particular organs, according to the idiosyncracy of the individual, and his peculiar habits of life.

SIXTHLY, Although, in general, while a torpid secretion of bile obtains, this fluid will be insipid and inert, yet, from various causes, and particularly from atmospheric influence, the biliary organ is occasionally roused, for short periods, from its lethargic state; at which times, a comparatively inordinate secretion takes place, but of a very depraved quality, as evinced by the dark and variegated colour of the stools—by their peculiar fœtor—and by the various uneasy senssations produced in the line of the alimentary canal.

SEVENTHLY, During a torpid state of the biliary secretion, there is frequently an absorption of this fluid into the general circulation, probably during its delay in the pori biliarii themselves, giving either a decided tinge to the eye, or even to the skin; or else that peculiar sallowness, denominated by Dr. Darwin, *bombycinous*, from its resemblance to the co-

lour of a silk-worm. The absorption of genuine and healthy bile, as in simple obstruction of the ducts causing jaundice, is accompanied, as is well known, by a peculiar lassitude of body, and despondency of mind; from which we may judge of the effects produced by that habitual state of absorption, when a *depraved fluid* is constantly draining into the circulation, and diffusing its deleterious influence over every function of the body and of the mind! The effects resulting from this cause are, in all probability, greatly aggravated by *non-secretion*, or the delay of those principles in the blood which, in a state of health, would have been converted into bile. To this source may, in part at least, be traced the origin of those symptoms hitherto, and perhaps not improperly, termed *nervous*, which are as distressing to the patient as they are puzzling to the practitioner. The latter, indeed, generally treats them as ideal, or imaginary; but from this and the following consideration, they may probably be classed as real and severe affections of the nervous system.

The absorption and non-secretion of bile, while they account for the peculiar tinge of the eye and skin, explain another circumstance which generally passes unnoticed, viz. the pain and heat so frequently experienced in making water, whenever the biliary system is deranged. This symptom is almost constant in all severe hepatic affections, in tropical climates; and though in somewhat less degree, in this country, where it is chiefly the *function* of the liver that is disturbed, yet, in a majority of instances, it may be detected, and it will assist in the diagnosis of the disease. Even the furred tongue, and bitter taste in the mouth, though generally dependant on a disordered state of the stomach, may frequently be attributable to this absorption and non-secretion of bile.

Eighthly, The torpor of an organ, especially an organ of such magnitude as the liver, must, by its sympathies or associations, occasion considerable derangement in the balance of excitement throughout the system. "This torpor, says Dr. Saunders, is diffused by sympathy over *every part* of the system, and languor and lassitude prevail." Now, I conceive that this idea is not founded on accurate observation, or a correct view of the laws of the animal economy in health or disease; for it will appear, on a closer view of the subject, that if the torpor in question be diffused to *some organs*, it will cause a state the reverse of this—an overplus of excitement, or at least of *excitability* in *others*. "It frequently happens, says the same author, that bile is secreted in too small a quantity, as in hypochondriacal complaints,

and chlorosis, in which diseases, an unusual degree of torpor prevails, expressed in the one case by dejection and despair, in the other by inactivity and languor." To shew the futility of this reasoning, let one of those hypochondriacal persons, whose biliary and digestive organs are confessedly in a torpid state, be placed in the same room with a person whose biliary and digestive organs are in a state of healthy activity—and let a pistol be fired off in an adjoining room, we shall see this same hypochondriac, where, according to Dr. Saunders, "torpor is diffused over every part of the system," start from his chair, and exhibit, by the most violent agitation, unequivocal marks of *greater irritability* of nerve than his companion. Is this not a proof that the torpor of one organ destroys the healthy balance of excitement, rather than diffuses itself over the whole system?—or, in other words, that while the torpor is diffused from the liver to the alimentary canal, partly from sympathy, and partly from the deficiency of bile, a morbid excess of irritability accumulates in the nervous system, which inequilibrium of excitement explains, in a great measure, those mental symptoms accompanying a disordered state of the biliary and digestive organs.

It must be recollected here, that all those effects on other organs and parts of the system, resulting from association with the liver, become, in their turn, causes or re-agents, reflecting back upon their source, an aggravation of those ills which were originally disseminated thence. This is so clearly evinced in the action and re-action between the biliary and nervous systems, that, in many instances, it is difficult to say in which system the malady commenced. Indeed, any great degree of grief, anxiety, or other depressing passions of the mind, will as certainly derange the functions of the liver and digestive organs, as the derangements of those organs will produce despondency, irritability, fickleness of temper, and other disturbances of the nervous system.

This principle, or inequilibrium in the balance of excitement in the system, from the torpor of one organ or set of organs, is applicable to an explanation of several diseases in the class *Neuroses*, which have hitherto baffled all speculations. In *Chorea St. Viti*, for instance, there is as invariably a torpor of the uterine system, or biliary and digestive organs, as there is an inordinate excitement in a particular class of muscles and nerves, where Nature appears to exhaust or expend the morbid accumulation, by what appear ridiculous and extravagant motions. This seems the natural cure of the disease, and of course, requires a long time; but the most effectual artifical cures are conducted exactly

on the principle in question, viz. by a course of cathartics, tonics, and emmenagogues, to re-establish the balance of the circulation and excitement, and restore the energy and action of the uterine, biliary, and digestive organs. On this principle also, may be explained many cases of epilepsy, where the balance of excitement is occasionally, or periodically disturbed, and a morbid excess of it thrown on the brain and nervous system, in consequence, very frequently, of a torpor in the genital organs. Hence the lytta, by its peculiar effect on the urinary organs, in bringing on strangury, and a specific determination, as it is called, to those parts, has been singularly successful in restoring the balance of excitement, and preventing the paroxysms of this intractable disease.

In HYSTERIA, the morbid irritability is evidently accompanied, and we may safely presume, in many cases, caused by a defective energy in the uterine, biliary, or digestive organs; and hence, by restoring their functions to the healthy level, we subdue the disease.

There is great reason to believe that hydrocephalus, in a majority of cases, depends on a preceding torpid state of the liver and bowels, occasioning a morbid irritability in the vessels and coverings of the brain. Independently of the known sympathy between the brain and liver, any obstruction to the free circulation of the blood through the latter organ, will cause plethora and congestion in the former, and thus lead to effusion in an organ so soft and delicate as the brain of a child. The best mode of cure in hydrocephalus illustrates this reasoning:—If the *premonitory* symptoms of hydrocephalus be noticed, and the torpid abdominal viscera be roused into action by mercurial and other purgatives, the actual inflammation and effusion in the head will generally be prevented.

I trust, that under these eight heads, a rational explanation has been given of those symptoms depending on, or connected with *derangement of function* in the biliary and digestive organs, without any hypothetical speculations; and if this be granted, we have probably gone some way in elucidating the wide range, not merely of what are termed *Bilious*, but of Nervous, Hypochondriacal, and Hysterical complaints. At all events, whether we consider these last as causes or consequences of the functional derangements in question, we shall find that our best remedial measures hinge on this view of the subject; and that, considering the hitherto mysterious and intractable nature of these disorders, our success will be as superior to the old *farrago* practice, as the explanation here attempted is more simple and satisfactory than the loose

and indefinite ideas so long prevalent in regard to this class of human infirmities.

Before entering on the causes and treatment of biliary derangements, I shall add a few words on a subject that has not attracted sufficient notice. In my work on Tropical Climates, I hinted that I could have extended that Essay, by explaining the inveteracy, and, indeed, mortality of ulcers in hot climates. During the last eight or nine years, my observations on a large class of *cutaneous* affections have tended to confirm the ideas there broached; namely, that not only those local sores which Mr. Abernethy has traced to disordered states of the chylopoietic viscera, but also a very great proportion of cutaneous eruptions and blotches are dependent on derangement of the biliary secretion. Purgatives, diaphoretics, and mercurials, the three grand means of cure, in the greater number of cutaneous complaints, are, in reality, the most effective measures we can use in augmenting and meliorating the biliary secretion. The success which has attended my efforts, and those of others, to remove numerous defœdations of the skin, [so minutely, but sometimes so needlessly classed and distinguished by systematic writers] while acting on the principle in question, emboldens me to appeal to the test of future experience, for a corroboration of the statement here advanced.

Causes of Biliary Derangements. If the high range of temperature in tropical climates, broken occasionally by vicissitudes, can produce such lesion of structure in the hepatic system; so, in our own climate, the rapid transitions, the humidity, and the coldness of the atmosphere, operate most powerfully, though often unsuspectedly, on the functions of the liver, as well as on those of the other digestive organs. The partial application of cold or wet to the body, particularly to the lower extremities, when continued for any length of time, has a powerful influence on the biliary secretion, diminishing and deteriorating this important fluid, and disturbing the functions of the alimentary canal.

This is the principal operating cause in the production of bilious and gastric disorders among the lower classes of society, where want of clothing and bedding exposes them to the influence of cold and dampness. It has been supposed, even by the faculty, that people can hardly sleep too lightly covered at night. But I am disposed to think, that there is much greater danger from the application of cold, when scantily covered with bed-clothes, than from any superabundance of these last. In the one case, the sleep is frequently

broken by the disagreeable sensations of cold, and the refreshment, on getting up in the morning, is very incomplete; in the other case, even if there should be a considerable increase of the perspiratory functions of the skin, the sleep is followed by vigour and refreshment.

The Russians, who are every night bathed in perspiration, in consequence of sleeping over their ovens, resist the severity of their climate, and are more exempt from pulmonary complaints than almost any other nation. A large class of artizans and mechanics, in this country, suffer from biliary and dyspeptic derangements, by the application of cold and dampness to the feet, while they are employed in sedentary avocations, and consequently, when the circulation is languid on all extreme points of the body's surface.

The next cause, in order of importance, is INTEMPERANCE, both in food and drink. If, among the labouring classes of society, in this country, we see many ingurgitating a great quantity of inebriating matters, without any apparent ill effects, we are not thence to infer, that the artizan and mechanic, and much less the sedentary, the inactive, and the dissolute classes, can pursue the same practice, with similar impunity. The marked and decisive effects of intoxicating liquors, on the liver and its secretions, have been noticed in all ages, and are familiar even to vulgar observation. It is not improbable that the ancient poets had this circumstance in view, when they fabled the punishment of Prometheus, for having stolen *fire* from heaven, by placing a vulture to feed on his liver; thereby intimating, that those who are not content with the milder beverages of Nature, but ingurgitate the liquid fire of ardent spirits, must suffer the agonies of Prometheus, in the diseases of the liver thus induced.

It is observed by Dr. Baillie, in his Morbid Anatomy, that tuberculated states of the liver are most commonly found among people addicted to strong drink. Now, if hard-drinking, and particularly dram-drinking, be capable of exciting this terrible and incurable disease, derangement of structure in the liver, it requires no great stretch of credulity to believe, that a less excessive use of spirits, wine, and beer, such, indeed, as is daily practised, may be quite adequate [particularly in conjunction with the other causes] to disturb the *functions* of the organ in question; and this truth is hourly forced on the notice of every medical man who has the least pretensions to discrimination.

It is not, however, so easy to explain the *modus operandi* of spirituous potations on the hepatic system. To consider them, with John Brown, simply as *stimulants*, will not un-

loose the Gordian knot; for we see the hottest spices of the East and West devoured in large quantities, without any such effect. As a deficiency and irregularity of the biliary secretion, almost invariably characterise the long-continued use and abuse of spirituous liquors, it is not unreasonable to infer that they act, at first, as *specific* stimuli on the liver and its ducts, as well as on the whole chyliferous apparatus, gradually wearing out their excitability, and leading to paucity of biliary secretion, and deficient action in the lacteals.

That there are *specific* stimuli or excitants, we cannot deny, without asserting that tartarized antimony will not excite the stomach, jalap the intestines, or cantharides the kidnies. The effects of these medicines were only learnt by experience and observation; and so, in the present case, we learn from observation, what we could not have anticipated by reasoning, that in proportion as we substitute for the simple beverage of Nature, those drinks which have an inebriating quality, we become more and more liable, first to *functional*, and finally, to *organic* derangements of the liver and digestive organs.

In respect to food, it is a curious fact, that in most hepatic diseases, whether of function or structure, the appetite, though often irregular and capricious, is not often defective; a circumstance which is by no means fortunate for the patient, because the digestion is never good. The consequence is, that although intemperance in food might not have given origin to the disease, it now contributes to aggravate it. That the habit, however, of indulging in the pleasures of the table is one of the contributing *causes* of biliary derangements cannot be doubted, since not only gluttons, but animals stall-fed, are very subject to enlargements of the liver; and as there is no people who fare more sumptuously than the English, and that too, on the most substantial dishes, we are fairly authorized in setting down intemperance in food as one of the causes of hepatic derangements.

Particular kinds of food, too, are more calculated to derange the functions of the liver, through the medium of the stomach, than others—as fat, rancid and oily meats, together with the long catalogue of pastry confectionary.

It is, however, principally by the *quantity* of our food, that we injure the tone of the digestive organs. Those portions of our aliment, over which the stomach and duodenum cannot exercise the full power of digestion, pass slowly or rapidly along the intestinal canal, as foreign and irritating bodies, keeping up a constant irritation there, and producing a host of morbid associations in various other parts of the system.

Mental Agitation. I have already stated, that the people of this country have a higher degree of mental energy; and experience, from their political, commercial, and manufacturing habits, a greater range of mental agitation, than the inhabitants of most other countries. The more closely we watch the play of the passions in their effects on the material fabric, the more we shall be convinced of their powerful influence on the functions of the liver and digestive organs in particular. The receipt of a single letter or message, announcing a melancholy event, in which our interests are concerned, will so completely change the nature and appearance of the biliary fluid, together with the gastric and intestinal secretions, that they can scarcely be recognized as such! Every thing, in short, which disturbs the equanimity of the mind, interrupts the healthy functions of the liver and digestive organs; which, in their turn, react on, and aggravate the original causes. These causes alone, were there no others, would be sufficient to account for the wide spread of functional derangements of the biliary organ in this country.

Tropical Colonies. The widely extended intercourse which the English have with their tropical colonies, occasions an annual importation of diseases of the liver and other digestive organ, to a prodigious amount. These originally imported diseases must form a prominent item in the class under consideration; but when it is recollected, that the offspring of individuals affected with biliary and gastric complaints, very generally inherit a strong predisposition, *at least*, to the same maladies, we may form some estimate of the rapid strides which these diseases are now making among all ranks of society! Thus we see a variety of causes first engendering derangements of the digestive organs, and then we see an organization transmitted from parent to progeny, which is highly susceptible of these derangements, from even the slightest causes.

TREATMENT OF FUNCTIONAL AND INCIPIENT ORGANIC DERANGEMENTS OF THE BILIARY ORGAN.

The labour bestowed in exposing the nature, causes, and effects of these derangements, will greatly abridge our observations on their treatment, which last is rendered clear, and, in general, effectual, by a thorough study of the former. Whereas the man who prescribes for the name, without taking the trouble to investigate the nature of a disease, is

perpetually blundering, and by the misapplication of remedies, finds himself frequently embarrassed and disappointed. By studying the causes of a disease, we arm ourselves with so many remedies, not only for the prevention, but the removal of it; and by being minutely acquainted with its symptoms, our resources are multiplied when we undertake the treatment.

It is not true, that a disease must always be attacked in its seat, and that combating symptoms makes no progress towards a cure. We shall find, on the contrary, that every symptom which we alleviate has an influence, more or less powerful, on the origin. We may instance the heat of the skin in fever; every one will allow that this is merely a symptom or effect of fever, not the essence or seat of it; yet, what relief does it afford to the patient, and mitigation of the disease, to subdue this symptom! So in the disease now under consideration, constipation of the bowels is a very general symptom or effect; and yet, what essential relief does the removal of this symptom afford! In general, however, we may divide the treatment into two heads—withdrawing the causes, and obviating their effects.

Removal of Causes. Many of the causes which induce functional and incipient structural derangement of the biliary organ, cannot be avoided; and therefore we can endeavour only to counteract their effects. The natural atmospherical vicissitudes of this climate are beyond our controul; but by attention to dress, and by shifting our wet clothes as soon as we leave off exercise, we shall, in general, bid defiance to aerial transitions. The close sympathy which exists between the feet and stomach, and between the stomach and liver, will point out the necessity of paying the utmost attention to the warmth and dryness of the feet, a circumstance of more importance, as a remedial measure, in these disorders, than is generally imagined.

Having shewn that sudden checks to perspiration, and also long continued cold, are the fruitful sources of hepatic complaints, it is plain that flannels next the skin, and a sufficiency of bed-clothes at night, are preventive measures of great importance. And as a superabundant perspiration renders the extreme vessels more liable to sudden collapse, from the application of cold, it is evident that we ought to avoid that kind of exercise in the heat of the day, and particularly in the sun, which so inordinately increases the cutaneous discharge. When such causes are unavoidable, our next endeavour to shun the bad consequences is, not to desist at once

from exercise, but above all things, to avoid a current of air, the application of wet, or the drinking of cold liquids.

Abstinence from spirituous or fermented liquors, is almost a *sine qua non* in this part of the treatment of hepatic complaints; and the greatest attention to the quantity and quality of food is highly necessary. In respect to quality, no general rule can be laid down, as constitutions differ so much. The oily and rancid animal, together with the flatulent vegetable foods are for the most part prejudicial; and, in respect to quantity, the rule ought always to be, that we eat no more than we can easily and comfortably digest. This rule will be easily understood by every person who labours under bilious derangements.

Mental Anxiety. Those mental causes which produce or aggravate corporeal diseases, though apparently most, are in reality least within our power, either as to prevention or removal. The philosopher may declaim, and the divine may preach against the folly and danger of giving way to despondency and dread; but it is in vain! Wherever there is derangement in the hepatic functions, there will, in general, be low spirits; timidity; fickleness of mind; irritability of temper; and hypochondriacism, whatever efforts we may make to the contrary by way of reasoning. Religion, it is true, is more powerful; but the corporeal disease is apt so to cloud the mental faculties, as to convert the bright hopes and consolations of revelation, into gloomy superstition and unconquerable despair.

Those causes of hepatic derangements arising from certain trades and occupations, are sometimes to be removed, especially among the more opulent classes. As all sedentary employments, and those which keep the mind on the rack, are injurious to the class of diseases in question, so are they to be changed, if circumstances will admit; and if this cannot be done, their pernicious effects should be as much counteracted as possible by occasional relaxation, and such other means as a judicious practitioner can frequently suggest.

Medical Treatment. The variety of causes which we have traced in the production of hepatic derangements, both of function and structure, would seem to point out a corresponding variety in the treatment; but this variety principally regards the prevention or removal of those causes themselves; for, when their effects are once produced, a considerable similarity obtains in the means of repairing the injury. For instance, in acute hepatitis, whether the inflammation be

caused by inordinate exercise in the heat of the sun, by intoxication, or by cold or wet applied to the heated body, our plan of treatment will be almost exactly the same. So in cholera morbus, which may be considered a functional derangement of the biliary organ, the same treatment will, in general, be necessary, whether the cause be heat, cold, alternations of temperature, or ingesta occasioning a violent orgasm throughout the digestive organs.

In what may be termed the minor or subordinate means of relief, however, a very great variety in the treatment may be advantageously employed; since I have shewn that every symptom which we mitigate or remove, not only affords a partial relief to the sufferings of the patient, but operates beneficially, more or less, on the origin of the disease itself. This is of infinite consequence in the class of infirmities under consideration; since it often requires the utmost address on the part of the practitioner to induce the patient to persevere sufficiently long in any one plan of treatment, to be effectual. Hence, we are frequently forced to lop the tree, branch by branch, rather than cut it at the root; merely because the patient soon becomes tired, if daily advantages are not gained. We must not, however, be diverted from the attack of the enemy in his strong hold, as the routine practitioner too often is, by flying from point to point, and relieving symptoms only while the great body of the disease remains unsubdued, and indeed unsuspected.

We shall begin, therefore, with the essential, and gradually descend through the various auxiliary means of relief, which experience and observation have stamped with the seal of utility, in this interesting class of human afflictions.

I have already demonstrated, that in ninety-nine cases out of the hundred, there is a deficiency or irregularity, together with vitiation of the biliary secretion. As for a mere redundant secretion of bile, the thing itself is a bagatelle, and the treatment simple and easy. It is the torpid liver which every hour arrests our attention, and requires our exertions to obviate its long catalogue of effects.

I consider the three primary indications to be as follow.

1st. To increase and meliorate the biliary fluid.

2d. To daily remove the vitiated secretions of the liver and other digestive organs.

3d. To increase the tone and digestion of the alimentary canal.

There are some causes which increase the secretion of bile, but deteriorate its quality; such, for instance, as a high range of atmospheric heat, an intemperate use of fat and

oily food, violent exercise, &c. These, therefore, cannot be safely employed to stimulate a torpid liver; since the torpidity itself is frequently the result of long stimulation from these causes, particularly the first.

A moderately warm and steady atmosphere, is, however, peculiarly beneficial to the complaints in question, as it keeps up a mild action of the perspiratory vessels on the surface of the body, and by the cutaneo-hepatic sympathy, of the secreting vessels in the liver.

This accounts for the bad state of health, and even aggravation of their complaints, which tropical invalids so often experience on returning to northern countries. The cuticular and hepatic secretions are so interrupted and checked, that they are obliged to be constantly taking medicine, and bowel complaints very generally harrass them for a considerable time after their arrival in their native, but estranged country. Hence the genial skies of the southern parts of Europe, and of Madeira, are at first infinitely more salubrious for the Anglo-East or West-Indian, returning with hepatic complaints, than the raw and variable atmosphere of England; a doctrine which I believe, either from ignorance or self-interest, has never before been inculcated, but which I know from personal experience and suffering to be true.

As an internal medicine, there is none which so steadily increases and meliorates the hepatic secretion as some of the mild preparations of mercury. Whether this mineral acts on the liver as on other glands, by increasing its action, or whether it acts in a specific manner, as on the salivary glands, for instance, I need not stop to inquire; but that it does augment and improve the biliary fluid, in a very remarkable degree, both when it salivates and purges, is a fact which observant practitioners must have daily proofs of, and which requires no support from argument.

A gentle and gradual introduction of mercury into the system, retarded by daily evacuations from the bowels, till it slightly affects the mouth, or at least the breath, and kept at that point for some time, forms, in numerous cases, the most effectual method of restoring a due and healthy action to the biliary organ. As soon, in general, as a mercurial odour is perceived on the breath, the stools become yellow and more copious, the patient experiences an exhilaration of spirits, and food is relished and digested better. The eye and complexion, soon after that, clear; and animation is restored to the countenance. After keeping things in this state, for a longer or shorter time, according to the stage of the disease, a course of opening medicines, combined with bitters and

tonics, ought to be entered on, and continued for a considerable period. For the above purpose, the blue pill in two, three, or four grain doses, every night, combined or alternated with a purgative, seems to answer best, without ruffling the constitution, or producing much uneasiness in the bowels. Next to this is the hydro-calomel, which rarely gripes.

Where it is not judged prudent to bring the system under the influence of mercury, and in a majority of cases it would be at least unnecessary, in many detrimental, our plan is to enter on a course of medicines which will at once increase the biliary secretion, clear the bowels, and improve the digestion.

Such a combination as the following may serve as a model for medicine calculated to effect the two first intentions.

℞. Ex. col. comp. ʒj.
Sub. hyd. gr. xv.
Ant. tart. gr. ij.
Ol. carui ♏. v. M. ft. pil. xxiv.

Capiat unam, duas, vel tres quâque nocte.

Of all the varied forms of purgatives which I have tried, I have not found any which is more generally applicable, or more generally useful, than the above. The dose must be regulated by the effects produced. One or two stools should be procured each day, by these pills, and no more. They should be persevered in for a very long time, and they produce such alleviation of uneasy sensations during their use, that the patient at length is anxious for them to be continued.

During this period the compound infusions of gentian, cascarilla, quassia, calumba, &c. may be taken three or four times a day, with the carbonate of soda or ammonia, and a small quantity of any aromatic tincture, as of cardamom seeds. These medicines are capable of being infinitely varied, while the same object is still kept in view, viz. the elimination of viscid and depraved bile from the pori biliarii, and hepatic ducts; the increase of a better fluid; and the removal of all feculence and morbid secretions from the alimentary canal. The taraxacum or dandelion has lately come much into use in biliary obstructions, and I have often found it beneficial. Two ounces of the fresh root sliced and boiled in a quart of water to a pint, with two drachms of cream of tartar, is a good form. A wine glass-full of this three times a day is a moderate dose, or a scruple of the extract twice a day.

It not very unfrequently happens, however, that the purgatives above mentioned, either from the idiosyncrasy, or the caprice of the patient, cannot be employed; in which case, we must have recourse to others, but of much less efficacy. The sulphate of magnesia in the infusion of roses, with a few grains of sulphate of iron, will form a tolerably good artificial chalybeate water, with which the bowels ought to be daily cleared, giving twice a week at least, a few grains of the blue pill, to act on the secretory vessels and ducts of the liver; or five grains of the steel or squill pill, with half a grain of calomel, may be given every second or third night, and infusion of calumba, with carbonate of soda or potassa, during the day. I would also strongly recommend from half a pint to a pint of the compound decoction of sarsaparilla to be daily drunk as an auxiliary to the above remedies. Some men may deride sarsaparilla; but I can, from experience, assert, that in conjunction with purgatives, it is a most invaluable medicine. It should be continued for at least three or six months. A purgative which I have lately employed, as combined or alternated with the blue pill, is a kind of artificial Harrowgate water. The native Harrowgate water has been strongly recommended by my friend Dr. Armstrong, in his late work; but being in a southern part of the kingdom at the time, I could not come at the native spring, and therefore procured the proportion of the ingredients [sulphate of magnesia, supertartrite of potash and sulphuret of potash] and exhibited it thus prepared.* As far as my experience yet extends, this medicine will be found a most important auxiliary, if not an occasional substitute for mercury in chronic obstructions of the internal organs, and in obstinate cutaneous eruptions. In this last class of complaints, so disgusting to the eye and distressing to the patient, I have witnessed such good effects from the above medicine, that I should not be surprised at seeing it made, one of these days, the basis of some patent nostrum, in the hands of some of the Charlatan tribe. It purges without debilitating, and though nauseous at first, the taste soon becomes reconciled to it. It should, however, be always assisted by the blue pill, or that and decoction of sarsaparilla.

By a steady perseverance in any of these plans, but particularly the first, viz. (with mercurial aloetic medicines) it is surprising what may be done, not only in bilious, but in the whole tribe of nervous and hypochondriacal complaints.

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* I know this does not correspond with the chemical analysis of Harrowgate waters; but the effects are such as I describe them.

When, from sudden atmospherical vicissitudes, debauches, or errors in diet, a momentary redundancy and vitiation of the biliary secretion takes place, with nausea, sick head-ache, despondency, &c. the irritating fluids must be carried downwards by purgatives; but it is not generally known, that a pretty large dose of calomel, say from four to eight grains, will often allay the commotion of the stomach and bowels, carrying off the disordered secretions more effectually than any other medicine.

The above may be termed the radical treatment by internal medicines, inasmuch as it aims at the very source of the mischief; but much may be done by counteracting the effects, or alleviating the symptoms of this Proteian class of diseases, since, as I have before observed, these, in their turn, become causes, and aggravate the original malady.

I have instanced constipation as indubitably, at first, a mere effect of derangement and deficiency of the biliary secretion, but soon becoming a conspicuous feature in the disease: this, and indeed most other symptoms, will happily be removed by the means which we employ in the radical treatment; yet, there are various others which require separate attention. Thus acidity in the primæ viæ is often more troublesome to the patient than any other symptom, and keeps both body and mind uneasy; cardialgic sensations being, in general, borne with less patience than any others. For this, both the volatile and fixed alkalis must be used. The carbonate of ammonia may be combined with any bitter infusions, as may also the liquor potassæ (Brandish) which is a very powerful antacid. The oxide of bismuth, in five grain doses, two or three times a day, is a very excellent anti-cardialgic remedy, and its exhibition is unattended with any danger.

The head-aches which accompany nervous and bilious disorders, are so dependant on the original disease, that little can be done for their removal but by the radical treatment; blisters, æther, antispasmodics, and foot-baths, will give a temporary, and only a temporary relief.

Flatulence is a most troublesome symptom, and often requires the symptomatic as well as the radical treatment. Here the warmer aromatics and stimulants will be borne with ease and advantage; to which must be frequently added the fœtid gums and volatile alkalis. The mineral acids too, will often check the extrication of air, when alkalies and aromatics fail.

I may here mention the internal use of mineral waters, as those of Cheltenham, Bath, &c. Their physical virtues de-

pend on their warmth and purgative qualities. The exhibition of warm water alone, independently of any impregnation, is extremely useful, inasmuch as it acts like a warm bath on the stomach, communicating energy to the biliary organ, and also diluting the viscid and depraved secretions of both viscera. The morning is the best period for its administration.

We now come to the external remedial measures, which are of no mean importance in this class of diseases.

The tepid bath may claim precedence. If the extensive chain of sympathies between the skin and internal organs be kept in view, we may easily account for the benefit resulting from a judicious course of warm bathing. In augmenting a mild cuticular discharge from the pores of the surface, the warm bath increases the internal secretions, particularly the biliary; while, at the same time, it relieves the venous congestion in the portal circle, and determines to the periphery of the body. It is, of course, in deficient secretion or torpor of the biliary organ, that the warm bath can be advantageous; where there is an actual redundancy of bile, which, by the bye, is seldom the case, and never of long standing, as I have already shewn, the bath would be a more doubtful remedy. Though, as plethora in the portal circle almost invariably precedes any violent orgasm in the secretory vessels of the liver, the tepid bath might be serviceable in determining to the surface, and removing the congestion anterior to, and thus preventing, redundancy of secretion. Speaking generally, however, it is by far the most potent and agreeable external measure which we can put in practice, for the relief of those innumerable morbid and anomalous feelings with which the class of complaints under consideration is accompanied. The vapour bath is still more efficacious than the liquid, and where the circumstances of the patient will permit, ought to be preferred. Where neither can be obtained or afforded, the semicupium or half bath; and next to that, the pediluvium or foot bath may, in a considerable degree, supply their place with advantage.

After the warm bath, frictions, with flannel or the flesh brush, in imitation of the oriental custom of shampooing, are of infinite use; and the region of the liver, as well as the whole spine, ought to be particularly well rubbed, in order to excite the action of the various vessels, circulating, absorbent, and secretory; a measure which is seldom thought of, either by the physician or patient, but which will be found to reward the trouble with unusual benefit. With respect to the cold bath, it is not so easy to lay down any general rules. In many cases of what are termed nervous and

hypochondriac disorders, the cold bath is an excellent remedy; but where much functional, or any organic derangement, has already taken place in the hepatic system, the shock of the bath, and sudden afflux of blood from the surface to the centre of the body, become dangerous circumstances, and I have often seen the most serious consequences result.

In all cases, where it is wished to try its effects, the warm bath ought to precede its use for some time; and then, by lowering the temperature of the water in the most cautious manner, to come round at length to the cold bath itself.—When this last can be borne, and a comfortable train of symptoms ensues, with moderate reaction, then the benefit will be considerable, since these healthy oscillations of the vital fluid, lead to a restoration of the secretions and an equal balance of the excitability and circulation throughout the system. Under this head may be placed change of climate, or removal from a variable to a more steady atmosphere. All sudden changes of this kind, however, are dangerous. Hepatic complaints, occasioned, for instance, by the burning skies of India, will frequently be greatly aggravated by a direct voyage to, and residence in this country.

The eagerness with which we fly towards our natal soil, inspired with the cheering hopes of renovated health from the inhalation of our native air, is often more suddenly destructive than a continuance in the most unhealthy parts of either India. On arriving in England, the most southern and mild counties should be selected for retreats, till the constitution becomes re-assimilated; but where circumstances will permit, Madeira, Lisbon, or the South of France, afford safer asylums for the tropical invalid, than the vallies of Devonshire, or the beautiful shores of Hampshire, Sussex, or Dorset. Where an intermediate climate, however, is beyond our reach, the coasts above mentioned present a mildness and equilibrium of temperature, from their southern and maritime position, that render them extremely favourable to the constitution while undergoing the necessary regulation, whether medicinal or dietetic, for the re-establishment of health.

A sea voyage is, in general, as salutary in hepatic as in pulmonic complaints, though it is not a prevalent opinion among the faculty. The motion of the vessel, the comparative purity and equilibrium of the air, and regular hours, appear to be the chief causes of beneficial influence; but these, perhaps, may be well counterbalanced by the advantages available in a journey on shore, where, to the passive exercise of gestation or equitation, are added the mental amusement and pleasure resulting from the contemplation of rural

or romantic scenery, with all that variety of objects which the diversified face of nature presents to the eye of the traveller in this beautiful island.

It is but too true, however, that in the class of diseases now under review, a sombre tint is thrown over every landscape, and the mind is perpetually called off from external amusements and observations to a gloomy rumination on our morbid corporeal feelings and infirmities! Whether we climb the tall bark, or repose in the gilded carriage, corroding care pursues us with ceaseless vigilance, and rarely suffers us to escape from ourselves.

> Scandit æratas, vitiosa naves
> Cura! Quid terras alio calentes
> Sole mutamus? Artrabiliosus
> Se raro fugit.

Whenever hepatic derangement amounts to any thing like organic lesion, we have, in general, some local uneasiness, either in the region of the liver itself, or in those other parts of the body which sympathise with that viscus. Pain in the right shoulder is an occasional, but by no means a constant symptom; and therefore, its absence proves nothing. More frequently, we have a dull obscure pain in the right side; and what is very singular, the pain, though evidently depending on diseased liver, is not unfrequently situated in the left side, quite round under the false ribs. For this, and the pain in the shoulder, I cannot offer a satisfactory explanation.

The urine affords very considerable insight into the state of the biliary organ, and ought always to be most attentively watched. The turbid appearance, the brick-dust or pink sediment, and the irritation in passing it, are very general attendants on diseased liver. But there is a peculiar and indescribable cast of countenance accompanying organic disease of this viscus, which strikes the experienced observer at the first glance, and forms a clue to unravel the nature of the complaint. The colour, smell, consistence, &c. of the stools, must be strictly examined in all hepatic complaints. I have already alluded to the effects of biliary derangements on the mind, and particularly on the temper. This is a subject too much neglected by the physician. Even the dreams of a person, where occult organic derangement of the liver is taking place, assume a peculiar character, which throws much light on the disease. On this, as on most other points of this section, I was drawn to the subject by long personal sufferings.

Where dull obtuse pain is complained of in either side, and especially when pressure under the edges of the ribs gives uneasiness, the permanent counter-irritation and drain of a seton are of infinite benefit, as I have repeatedly observed in others, and personally experienced in myself. I know that some great authorities despise this measure, representing it as giving only temporary relief, and as being a great plague to the patient; but I cannot allow facts to give way to prejudices, and I state the advantage of setons from a practical knowledge of their good effects. In blisters and other counter-irritants, I have much less confidence, though I have sometimes seen them useful. The friction of mercurial liniment over the region of the liver is certainly beneficial, partly from the mechanical irritation, and partly from the mercurial absorption.

I may here mention, as somewhat analogous, the good effects of a broad flannel bandage, composed of several folds, worn pretty tight round the abdomen, and reaching up to the epigastric region. I first caught the hint from the oriental indigenous custom of wearing the cummerband; and both in my own case, and many others, where I have recommended it, a very beneficial change was produced. Its modus operandi may be explained, 1st. from the local support which it gives to the abdominal viscera; 2dly, from the equable temperature and warmth which it maintains there; and, 3dly, from the uniform degree of excitation on the surface, and discharge from the perspiratory vessels of that important portion of the body.

In winter, spring, and autumn, the general use of flannels is necessary in disordered functions or structure of the biliary or digestive organs. In winter, to defend from cold; in spring and autumn, to obviate atmospherical vicissitudes, which are then more prevalent. When the heat of summer renders flannels oppressive and debilitating, from the excess of perspiration, thin calico should be substituted.

The minutest attention is here to be paid to the feet. If they are allowed to remain cold or damp, an increase of torpor or morbid irritability will, by direct or reverse sympathy, be communicated to the liver and chylo-poietic viscera, and disturbance of their functions is sure to ensue. Hence the necessity of warmth and dryness, and the utility of frequent foot-baths, and frictions with flannel.

Though many of these circumstances have been noticed before, they are again brought forward here, from a conviction of their importance, and the necessity of impressing them strongly on the minds both of patients and practitioners.

Under this head may also be placed the remedial measure of exercise. A very erroneous idea is entertained of the nature and effects of exercise in the different disorders and states of the frame. Much mischief is daily done by carrying this remedy to excess, thus aggravating the complaints which it was intended to remove. Whenever it is carried to the length of fatigue in the complaints under consideration, its effects are similar to those of a debauch. All the active exercises should be pursued, during summer, in the mornings and evenings, while cool repose is to be indulged in, in the middle of the day, and particularly after the principal meal; since any exertion at that time, disturbs the function of digestion, and causes flatulence, acidity, and uneasy sensations through the line of the intestinal canal. In winter, on the contrary, the exercise should be in the middle of the day, while the fogs of the mornings, and raw air of the evenings, are to be avoided.

Speaking generally, the passive exercises are best, as gestation and equitation; but the swing has not been noticed much by writers, though I have seen its good effects in several instances of this kind. It powerfully determines to the surface, increases the perspirable discharge, and in this way relieves many uneasy internal sensations. It would, I am convinced, prove a very excellent substitute, not only for the other exercises above mentioned, but for a sea voyage, since its effects are very similar on the animal economy.

In respect to dietetics, the invalid himself is generally well acquainted with the kinds of food which best agree with him; but much might be done towards a cure, in this way, by the patient, had he resolution enough to bound the quantity of his nutriment within the pale of digestion. Satiety ought never to be felt at table, by the bilious; if it be, indigestion, flatulence, and oppression at the precordia, are sure to ensue.

Some attention is also to be paid to the time of our meals in this class of diseases. Early breakfast; dinner at one or two o'clock; tea, or rather coffee, at six; and little if any supper, agree best with the generality of patients. Raw and acescent vegetables, cheese, oily and rancid meats, soups, gravies, and every species of confectionary, are to be avoided: well roasted animal food, biscuit, or stale bread, and rice or bread puddings, ought to be the standing dishes.

Of all drinks, WATER is the best; but as few who have been accustomed to inebriating liquids can be brought to relish the simple beverage of nature, a very agreeable and salutary potation may be formed in the following manner,

and which will be found singularly beneficial in the wide range of bilious and dyspeptic complaints. Dissolve six drachms of dried carbonate of soda in a quart bottle of water, and four drachms and a half of tartaric acid in another bottle of the same size: when wanted for use, pour out a wine glass-full from each bottle, and throw them at the same instant into a tumbler, when an immediate effervescence will ensue, during which it is to be drunk off: this is good soda water, and a dozen of glasses thus prepared will not cost more than fifteen or eighteen pence. If ten drops of the muriated tincture of iron be previously put into the rummer, a most excellent and agreeable tonic mineral water is produced, which strengthens the tone of the digestive organs in a very remarkable degree.

Fermented liquors are very generally detrimental, and the least pernicious of the vinous are sound Sherry and Madeira. As to spirits, they are too often prejudicial; but if the patient will not, or cannot abstain from them, brandy should be taken, very much diluted with warm or cold water, and without sugar.

Patients of this description should not trust to their own resolutions in respect to quantity; but like Ulysses, who caused himself to be bound to the mast to avoid the Syrens, they should have the quantity of their drink, and the degree of dilution specifically limited, and on no account to be exceeded.

Tea and tobacco, as narcotic herbs, are in general hurtful, and spirituous and anodyne tinctures and nostrums are to be utterly proscribed, as tending to give deeper root to each symptom, while they afford a fallacious and temporary relief.

As the want of repose at night has a remarkable effect in aggravating bilious and nervous disorders, every thing which can tend to interrupt that solace of our woes, ought of course to be avoided. Of these, late hours and suppers are the principal. Tyrant custom has so inverted the order of nature in respect to the time of retiring to rest, that we all suffer more or less the penalties of despising her sacred laws! But as this subject will be more fully discussed in another part of the work, I shall only observe here, that early hours, both in retiring to and shaking off sleep, are indispensable in the treatment of this class of human maladies.

THE NITRO-MURIATIC ACID BATH.

This remedy has now come so much into use, and affords so decisive a proof of the CUTANEO-HEPATIC SYMPATHY, which I some years ago traced in the production and cure of bilious disorders, that I was naturally anxious to give it a trial in a class of diseases which I have long studied with more than usual attention. I have already seen sufficient, to be convinced that the Nitro-muriatic Bath is a valuable remedy, when aided by proper medicines internally; and I can corroborate a great number of Dr. Scott's statements relative to its effects on the human frame.

Composition and Mode of Administration. Into a glass vessel, capable of holding a pint or more of fluid, put eight ounces of water, and then pour in four ounces of the nitric acid of the London Pharmacopœia, and four ounces of muriatic acid, or the spirit of salt of the shops. This mixture may be labelled the "Nitro-muriatic Solution," and one ounce and a half to a gallon of warm water, will form a bath of medium strength. The proportion may be increased to two ounces, or diminished to half an ounce of the solution to the gallon of water, according to the age, strength, delicacy, or other peculiarity of the patient. A bath of two gallons and a half, is generally sufficient for the feet and legs. A narrow and deep wooden bucket is best; such as will bring the water well up to the knees, without requiring more than eight or ten quarts of liquid. The feet and legs of the patient ought to be immersed in this bath, at a comfortable warm temperature—say 96 degrees—and kept there twenty minutes or half an hour, just before going to bed. This may be done every night, or every second night, and the same bath will remain good for three or four nights. It ought to be kept in the wooden bucket, and a fourth part, or so, warmed up, every time it is used, in a well glazed earthen vessel, and added to the rest, which will make the whole of a sufficiently warm temperature. Or a fourth part of the bath may be thrown away, and a fourth part of fresh hot water added, and an ounce of the nitro-muriatic solution, which will obviate the possibility of any decomposition taking place by glazed vessels. But I have not observed any inconvenience from warming up a part of the same bath, in the abovementioned manner. Dr. Scott thinks, that sponging the skin with the bath is equally as good as immersion; and that whether cold or hot, the effects would be the same. In this last, I am very

far from agreeing with him, and give a decided preference to the warm foot bath, or warm sponging, for very many reasons, which need not now be explained. The strength of the bath must be regulated by the degree of irritability of the patient's skin. It ought, in general, to cause a prickling sensation when the immersion has continued a quarter or half an hour. The patients usually observe that their feet and legs continue warm, and even in a perspirable state the whole night afterwards.

Effects of the Nitro-muriatic Acid Bath. When carried to a considerable extent, so as to bring the system under its influence, it occasionally induces faintness, and a degree of nervous irritation or restlessness, with sometimes a coppery taste in the mouth, and an increased discharge of saliva, but without the mercurial fœtor of the breath.—These effects are very fugitive, and uncertain. I have known it produce a general itching all over the body, and, in some cases, a considerable degree of pain in the soles of the feet. In a few cases, a papular eruption over the whole skin succeeded.

" The nitro-muriatic acid bath, (says Dr. Scott,) appears in a particular manner to affect the glands, and to alter their secretions; and on this power a great part of its value in derangements of the liver, seems to depend. It sometimes very suddenly increases the secretion of bile; and this effect may be kept up for a length of time. It increases the perspiration, and often to a great extent. The almost instantaneous effects that it produces on some people, and its suddenly causing a flow of bile, are all unlike a remedy that is conveyed by the known channels of absorption. I can suppose, that the effects of this remedy do not arise from the transfer of matter by any set of vessels; but that they are the consequence of peculiar motions, which it has the power of exciting in the solids, or the fluids of the body." Now I appeal to the professional reader, whether the above be not a complete admission of the cutaneo-hepatic sympathy, which I took such pains to elucidate in my work on Tropical Climates, in which Dr. Scott's opinions are corroborated, if not anticipated.

Disorders to which the Bath is applicable. Dr. Scott properly observes, that there is a very large class of diseases in this country denominated Bilious, which arise from deficient, superabundant, and depraved secretions of bile; hence spring derangements of the stomach, giddiness, feverish heat; head-aches; restlessness at nights; cramps and spasms; me-

lancholy, and many of those unhappy feelings to which the term "*Nervous*" has been applied. In such cases, let the patient sit in the tepid nitro-muriatic acid bath for the legs half an hour or less, according to circumstances, every night, or every second night. With some of these biliously-disposed people, the first bath, and that in a few hours, produces decided effects. It purges, gives rise to the expulsion of dark-coloured fæces or bright-coloured bile, or bile of a brown, a green, or a black clour, like tar mixed with oil. The pulse, in time, becomes quicker than natural, and a degree of restlessness takes place. These effects may be kept up for a number of days. They are often, however, much longer in appearing. Where the bile is deficient in quantity, the effects of the bath are only known by the fæces returning by degrees to their natural colour, and by a gradual improvement of the health. With people disposed to bile, it is necessary to keep the bowels very open during the use of the bath; for one of its effects, as I have said, and on which much of its beneficial tendency depends, is to produce a flow of bile into the intestinal canal, the consequence of which should be obviated by laxatives. Those inconvenient effects of the bath arise from the very powers which enable it to correct more depraved conditions of the stomach and biliary organs. Although this bath, with little disturbance, produces many happy effects, let it not be supposed that delicate, or even strong people suffer no temporary inconvenience. Let it always, on the contrary, be recollected, that the advantages produced by it can never be fully appreciated until the patient has given up the use of it for a considerable time. Even those who feel no very sensible effects from it at the moment, generally, in the end, find their health improved.

As sponging the body with the N. M. water has nearly the same effects as the foot-bath, a small quantity may, at any time, be easily prepared, by adding two drachms of the "nitro muriatic solution" to each pint of warm water, in a common wash-hand bason. By means of a large sponge, the thighs, legs, stomach, chest, or arms, may be wetted with this mixture for ten or fifteen minutes daily; or the above-mentioned parts may be sponged alternately. With delicate people, or those who are very sensible to this remedy, it is often sufficient to immerse one hand, or wet one arm in the bath, for a few minutes. Washing both hands, or hands and arms daily, will frequently be quite sufficient for delicate bilious patients.

Marasmus, or general wasting of the body, both in old and young, and where no pulmonary or mesenteric disease is present, has now been ascertained, beyond a doubt, to frequently depend on functional disorder of the liver, and of those organs that are associated in office with it. Dr. Ayre, of Hull, has given the best account of this complaint; and, in order to render the Section on Biliary Derangements as complete as possible, I shall here introduce a concise analysis of Dr. Ayre's work, accompanied with some observations of my own.*

In the view which Dr. A. takes of the marasmus of children, he has identified it with what is termed "bilious disorders" of grown people, and with what Mr. Abernethy denominates "disorder of the *digestive organs*"—being, in fact, an "impeded biliary secretion, giving rise to venous congestion of the liver," and going under the name of hectic fever of children, infantile remittent fever, worm fever, &c.

Bilious disorder and marasmus are therefore adopted as synonymous and convertible terms, exhibiting three tolerably distinct portraits, as they appear in infancy, childhood, and adult age.

I. In infancy, this disease produces languor; sleepiness by day, and restlessness by night; morbid appetency for food, which, as the complaint advances, veers round to loathing. Towards evening, there is increased frequency and labour of breathing, with some stupor, starting, and heat of the body simultaneously with coldness of the feet and hands. If not relieved, a low degree of convulsion, called by nurses "inward fits," supervenes, terminating at length in the strong and more fatal convulsion.

If the infant be a few months old, or of a vigorous constitution, its bowels will sometimes become spontaneously loose, immediately after the commencement of the complaint, and then its craving appetite may continue, with occasional interruptions, for many weeks, without any considerable aggravation of the complaint, the alvine discharges being always depraved, many-coloured, slimy, yeasty, or offensive. The flesh gets flabby and wastes; tongue white, sometimes aphthous; occasional spasmodic cough in the evening, with what is termed "stuffing." Eruptions sometimes break out about the nose, mouth, or ears, or a rash on

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* Practical Observations on the Nature and Treatment of Marasmus, and of those Disorders allied to it, which may be strictly denominated Bilious. By Joseph Ayre, M. D. London, 1818.

the body, with a temporary relief of the more urgent symptoms.

After a time, the looseness becomes less serviceable, and the matters more and more unnatural in colour, with straining. The craving appetite changes to the opposite state, with a considerable increase of the fever, attended by restlessness, with intervals of stupor, terminating in convulsions. Temporary alleviations of the fever are occasionally observed from a return of the looseness; but the wasting of the flesh and strength proceed, the infant dying at length in a state of extreme emaciation and weakness.

II. When the age is advanced beyond the fourth or fifth year, there is some variation observable; the chronic form of it running less readily into the acute, from the diminished tendency to febrile and convulsive action in the system. In these subjects then, the chronic form approaches insidiously, at first merely as a craving for food. In time, the countenance loses its animation, and the muscles their natural energy of action. He complains of being chilly and tired, and of having an aching pain in the knees and lower parts of the thighs. He is dull and fretful; breath fœtid; itching of the nose, with discharge; slight pain or dizziness in the head. Towards evening, desire to go to bed, with heavy sleep in the night; tongue white; bowels somewhat deranged. As the disorder advances, there is a disposition to faint, with nocturnal perspirations about the head and neck. Moaning, starting, and grinding his teeth in sleep; tickling spasmodic cough in the evenings, with occasional retchings; hurried and quick breathing during sleep; bowels alternately loose and costive, the craving appetite failing as the looseness abates; skin harsh and dry; wasting of flesh and strength; occasional vomiting of his food.

Should any of the remote causes, as cold, improper diet, &c. be now applied, the acute form suddenly supervenes. Nausea, thirst, quick pulse, and high fever in the evening, with slight remission in the morning. The child raves or screams in his sleep, awaking in much distress; there is often considerable pain in the head, stomach, and bowels; tongue foul; urine scanty, high-coloured, and turbid; bowels constipated; and when moved by medicine, yielding feculent matter of a dark, slimy, yeasty appearance, and of a sour and highly offensive smell. The complexion is sallow, and the whole countenance appears languid, sunken, and somewhat fatuous.

III. *In the Adult.* Here the chronic form generally creeps on in the same gradual manner, and with nearly the same

symptoms, as in the child. The craving appetite is often the first noticed symptom, the patient complaining that the food does him no good; that he has an empty sinking feeling at the stomach, which is only temporarily relieved by food. He has listlessness and drowsiness, with chilliness; aching in knees and ancles; slight vertigo; dimness of sight; inaptitude for mental exertion; dejection of spirits from inadequate causes; great fatigueability from moderate exercise; unrefreshing sleep. In progress, the sleep is much disturbed; the complexion becomes decidedly sallow, particularly about the forehead, and back of the hands; the eyes lose animation. Loss of strength succeeds, generally with wasting of flesh, and constipation of the bowels; the fæces being always unnatural, frequently of a black green and slimy appearance, with offensive odour. The urine is commonly turbid, high coloured, with brick-dust sediment; tongue dry and furred in the morning, becoming sometimes nearly clean after breakfast. The pulse undergoes little alteration, excepting in irritable habits, where it is quickened. There is seldom much thirst; but there is generally a little heat about the head and breast, in the early part of the night, with a ready disposition to perspire profusely, at the same time that the feet are cold. In the fore part of the day, the patient thinks himself well, but falls off towards mid-day, and becomes more indisposed as the evening approaches. There is seldom cough in this complaint, as it affects adult age.

This chronic stage will last for months, or even years, with only an occasional abatement or aggravation of the symptoms; when, at length, it will pass suddenly into the acute state. When this last is fully formed, the very sight and smell of meat have a sickening effect. There is either an oppressive feeling, or an acute pain in the region of the stomach, or in one of the sides, generally the left; or in the bowels, striking to the back; excessively restless nights; some heat of skin, with thirst towards evening, and during night; furred tongue; scanty, turbid, and high coloured urine; fæcal discharges, like yeast, or dark, and even perfectly black, resembling tar in colour, and of exceedingly offensive smell.

It is not to be understood, that all these symptoms are present in every case, though a very considerable proportion of them will be found so.—I may, in passing, however, add my suffrage to that of Dr. A. in stating that many, very many, functional diseases of the liver are erroneously regarded by medical men as organic changes.

"Such views, (says he) when thus reduced to practice,

cannot fail to exhibit their fallacy, since they are founded on the error of regarding the liver as diseased, when it is only impeded, or disordered, in its action; and of employing means for reducing the force of the arterial action of the organ, and of the system, instead of those proper for renewing and sustaining its secretory function. To those of my readers, who may have imbibed such views, I would take the liberty to recommend the instructive practice of dissection; for from it they will soon learn for themselves, to distrust such speculations. In prosecution of their examinations, they will find but very few cases of diseased structure of the liver, compared with those which they had perhaps classed as such; for, however the contrary opinion may be generally entertained and expressed, a disease of the liver, according to the observations which I have made from such repeated examinations, is comparatively rare. That tendency, however, in the liver, to assume organic disease, which may be considered as comparatively rare in the chronic form of the bilious disorder, may be justly regarded as constituting a prominent feature in the severer forms of the acute one. The liver, in these cases, frequently acquires an increase in its bulk, so as to be readily felt externally."

The patients in whom Dr. Ayre met this disease, always had it as an effect of the acute state of the bilious disorder, the symptoms in the latter being severe. Here the fæcal discharge is of a yeasty colour; the urine excessively high coloured, turbid, and scanty—and the pain in the region of the stomach peculiarly severe during the night, and commonly increased by the recumbent posture. Bleeding and blistering produced no good effects in these cases. Dr. Ayre considers this enlargement of the biliary organ as not depending on the mere congestion of its vessels, but probably on the deposition of a serous or coagulable fluid into the substance of that viscus. In an early stage, and before the new matter acquires an organic structure, the removal of the disease is not difficult, as this affection differs materially from those tuberculous disorganizations which have been held forth to public view as the most common, when, in fact, they are the most rare forms of organic diseases of the liver.

Dr. Ayre does not disdain to take the morbid sympathies into consideration.

" A considerable number of the symptoms of the bilious affection, are produced by the operation of that law of the animal economy which we term sympathy; for, besides the general and local disturbance which is observed to arise directly from the disordered actions of the liver, and the other

chylopoietic viscera, there are several important affections produced through the sympathetic connexion subsisting between these organs and different parts of the system, whereby an irritation, present in the former, is communicated to parts of the body with which they have no local nor apparent relation."

Among the various sympathetic affections of this kind, Dr. Ayre enumerates those serous effusions which occasionally take place in the cellular membrane of the extremities, or even in the cavities of the chest or abdomen.

" When this irritation is directed to the membrane lining the larynx and trachea, it gives rise to the bilious cough; which, in many cases, very strongly resembles some of the forms of phthisis pulmonalis."

The resemblance, indeed, between the two diseases, is very strong; and has deceived some of the most observant practitioners. The breathing, however, in the sympathetic cough, though hurried in the evening, from the accumulation of phlegm, or on the accession of fever, is generally calm and natural in the morning; and although the pulse is not invariably rapid in phthisis, excepting in that from tubercles, yet it is nearly constantly so; and has always a preternatural degree of strength and wiriness in the evening, and even during the day, which is seldom met with in the same degree, in the simulated phthisis under consideration. The discharges from the bowels, in the real pulmonary consumption, are commonly healthy, whilst in bilious disorders, they are uniformly of an unnatural colour, and fœtor. The hope and animation too, attending the former, are wanting in the latter.

But it must be borne in mind, that where a mucous membrane has been long under the influence of a sympathetic irritation, it may, and does take on purulent secretion, ending in ulceration.

Among the morbid sympathies of bilious irritation may be remarked those of the head. Pain and dizziness, and a cloudiness of vision, with dark spots passing before the eye, attend the chronic form of the complaint, together with a decided failure in the powers of the mind. This irritation, Dr. A. believes, is often propagated to the brain in children, and there produces symptoms exactly resembling hydrocephalus.

But it is not, Dr. A. thinks, to the secreting and exhaling surfaces only, that this sympathetic irritation is confined.

" The cellular membrane is often the seat of it; and indeed it is probable, that many of those abscesses which take place in deep-seated parts, and even those which are disco-

vered in the brain, derive their origin from the same source; for there is scarcely any part of the body that seems exempt from the influence of biliary irritation, nor scarcely any of the morbid actions, local or general, of the system, which it does not sometimes produce."

Dr. A. knew a case of mania from this cause, which continued unabated for three weeks, and which was immediately removed by copious tar-like evacuations from the bowels. I have seen three instances of this kind. The various and changing forms of scrofula originate, Dr. A. thinks, from this source; and also those herpetic eruptions about the ears of children. They are all relieved by correcting the disorder of the digestive functions, and this principally by destroying an irritation which sympathetically excites the local disease.

Remote Causes. These are, cold; irregularities in diet; excess in the use of spirits; the impure air of crowded or close situations; certain eruptive fevers; sedentary employments, &c.; on each of which, Dr. Ayre makes many sensible and highly interesting remarks.

Treatment. However the vis medicatrix naturæ may be ridiculed by modern physicians, it is nevertheless incumbent on us to watch those efforts which Nature makes for her relief; for we may gather important information from these spontaneous movements, both in regard to the pathology and therapeia of diseases. In the disease under consideration, Dr. A. has endeavoured to show that an interrupted secretion and congested vascular system of the liver formed the prominent features; and that where a renewal of the secretion does not take place, a temporary, or even sometimes a permanent relief is afforded to the organ and to the constitution at large, by a hæmorrhage from the congested vessels, in the form of vomiting or purging of blood, piles, &c. To imitate these sanative efforts of Nature, therefore, as far as they are imitable, and to supply what they fail to afford, must be the paramount object of the practitioner.

The three general indications stand thus:—1st. To correct the disordered action of the liver, and remove the congestive state of that organ; 2d. to cleanse the bowels of their morbid secretions; 3d. to lessen or avoid the causes.

To fulfil the two first indications, those purgatives must be selected which have "an immediate and specific action on the liver, and are chiefly purgative by promoting the secretion and descent of the bile." Of these, "the mild preparations of mercury are the chief, and calomel may be considered as

the one, whose effects will be found most uniform and most to be relied on." To this I subscribe, so far as children are concerned, or adults in the acute stage of the disease; but in the reverse of these circumstances, I have found the quicksilver pill, upon the whole, the most generally useful, and the least productive of debilitating effects on the constitution.

"When a patient, who labours under a derangement of the biliary function, takes a small dose of calomel at bedtime, it commonly happens, that instead of the restlessness of former nights, he sleeps more calmly and soundly than usual, and awakes in the morning with a conviction that he owes his rest to an opiate. This fact I so frequently observe, as to be fully satisfied that the restlessness in this complaint depends upon the presence of some disordered actions, which the medicine relieves. And that these actions are those of the liver, and that the final change produced is in the functions of that organ, appear from the alteration which is observed in the motions; for previously to the use of the medicine, they are perhaps black, or of the colour of yeast, and of an unnatural fœtor; whilst, during its use, they gradually acquire a proper and healthy appearance."

Dr. Ayre justly observes, that the power of this medicine over the secretory functions of the liver is not confined to the augmentation of its activity when torpid; since "it is equally efficient to reduce the secretory action when in excess, its tendency, when acting, being to restore the actions of the liver, whether deficient or excessive, to their natural and healthy state." He recommends the doses to be very small, so as not to act in a purgative character.

"In ordinary cases of the disorder, a dose once in twenty-four hours is sufficient; but where the symptoms are urgent, it is often necessary to give it more frequently, abstaining from the use of purgatives until after the last dose of the calomel has been taken."

When the bowels are constipated, and there has been much irritation from sordes in the primæ viæ, as well as from the disordered action of the liver, it will be proper to give a larger dose than usual, following it up in two or three hours with a brisk cathartic. But the active purging thus induced, Dr. A. thinks, should not be repeated by means of calomel; other and more common purgatives being proper.

"In general, it will be found that active purging is rarely required to be repeated in the severest form of the disorder, the principal object in the treatment being to restore the healthful function of the liver, and to procure, once or twice daily, a regular and free, but not a purgative, evacuation from the bowels."

It is neither necessary nor proper to allow the medicine to affect the mouth. When it has been employed for some time, and the patient is verging towards convalescence, yet the symptoms of biliary derangement become stationary, or even return, as evinced by the unnatural appearance of the motions, then mercurial friction on the hepatic region employed every night will answer better than an obstinate perseverance in the calomel, the same precautions being attended to in guarding the system from its salivary effects. It is hardly necessary to observe, that the stools should be accurately and daily examined by the practitioner, in order to ascertain the changes which are produced upon the function of the liver by medicine.

It has been observed, that purgatives are seldom necessary in marasmus, the only purpose, in ordinary cases, that is required from them, being that of merely removing irritating matters from the bowels. Where they are required, therefore, our author chiefly employs the different purgative salts, which he prefers on account of their action being principally exerted on the small intestines, and from their having the property of increasing the secretions of the bowels. He gives them in small doses largely diluted with water. Genenerally speaking, however, the saline purgatives prove too inert in children, and require to be alternated or combined with calomel. Bitters and tonics, our author wisely condemns. They are injurious in the early stages of the disease, and unnecessary in convalescence. In the few cases where they may be necessary, they are advantageously combined with diuretics. Emetics are only useful at an early period, and then merely to clear the stomach from irritating matters. A free hæmorrhoidal discharge, occurring in this disorder, has proved serviceable, according to our author's experience.

I agree with Dr. Ayre, that general and local bleeding in marasmus is of little service, unless where the head is threatened. The great and paramount object is to restore the function of the liver. Opiates are condemned by Dr. Ayre, as also those various remedies which are exhibited for the purpose of allaying the cough, since this symptom will only subside with the cause on which it depends. The spontaneous diarrhœa which occasionally arises in this complaint is not to be treated with opiates and astringents, which are sure to aggravate the disease. "By restoring the secretion of bile, which corrects this putrid and acid tendency in the ingesta, and aiding the descent of its fæculent parts through the bowels, the morbid stimulus which produced the diarrhœa, is no longer given, and the diarrhœa itself is removed."

The febrile symptoms are removed by the same means which correct the morbid action of the liver. " A small dose of calomel, in fact, taken at bed-time, having more effect in subduing the fever and procuring rest, than any combination of those medicines which are in the highest estimation for those purposes."

Among the auxiliary remedial measures, there is none on which Dr. Ayre so much depends as the shower-bath;— " or, what is equally useful, and more generally acceptable, the practice of sponging the body with cold water upon first rising in the morning. The power which this possesses of strengthening the system, improving the digestion, and imparting a feeling of health and vigour to a convalescent in this disorder, is often remarkable; the invalid frequently being enabled, under its use, to digest food, which on all former occasions had disagreed with him, and to resist the influence of many of those causes which had before either produced or aggravated his complaint."

Vinegar or salt may be added to the water with advantage.

" The clothing of patients in this complaint should be warm, especially about the feet and legs, which are peculiarly liable to become cold, even when other parts of the body, perhaps, are preternaturally hot."

I have introduced this short Analysis of a part of Dr. Ayre's work, because I think no author has previously carried the investigation of bilious complaints, *in children*, so far as he has done; and I am convinced, that the subject is well worthy of cultivation.

SECT. V.

ON DISEASES OF THE HEART.

The heart is not only the central organ of the circulation but it is now rendered probable, by a great majority of evidence, that it is almost the *sole* power which moves the blood, in the ordinary and healthy circulation of this vital fluid. When the left ventricle contracts, and throws the blood into the arch of the aorta, there is no perceptible dilatation of that vessel, or of any of its ramifications, as has been abundantly proved, especially in the accurate and numerous experiments of the two Drs. Parry of Bath. There being no dilatation then of the arteries at the systole of the heart, and the blood being an incompressible fluid, the laws of hydraulics tell us, that when an impulse is given to the head of the fluid column, the fluid itself must move forward in every part of the arterial system. The truth of this is confirmed by the pulse. The stroke of the heart against the ribs, and that vibration of the arteries called the pulse, are perfectly simultaneous in all parts of the body; in the carotids; the radial artery; and the two tibials. This could not possibly be the case, if a consecutive series of dilatations ran along the arteries; it can only be produced by a consentaneous movement of the whole mass of blood, in every trunk and branch of the arterial system, at the very same instant.

Some people object to the heart's being the sole mover of the blood in this process, on account of the immense friction of the fluid against the sides of the vessels. They seem to forget that the heart only throws out about an ounce and a half of blood at each systole; and, consequently, that the whole column is only moved forward a few inches at each contraction of the heart. It would indeed require a much greater power in the heart to swell the whole arterial system at each pulsation, (which it must do, on the supposition of the arteries being dilated) than to move forward the column of blood, even through the arterial, capillary, and venous system.

By this it is not meant to deny that the arteries are endued with a contractile and dilative power; quite the contrary. I believe that these vessels are perpetually exercising this power, and altering their calibres; not, perhaps, so much to aid the regular propulsive action of the heart, or to account for the pulse; as to accommodate themselves to the ever-

varying balance of the circulation, or rather to the causes which produce that variation. Thus, when we are suddenly exposed to a cold atmosphere, the subcutaneous vessels contract, and the more internal trunks dilate with the afflux of blood, from the exterior. Presently these internal vessels begin again to contract, and they restore the lost balance of the circulation by driving the blood to the surface with considerable force. Hence, we see the face and skin redden, after being sometime exposed to a cold medium; whereas, they were first pale on entering it. Thus the dilative and contractile power of arteries, not only enables them to accommodate themselves to the action of various agents around us, but even to counteract these agencies, and preserve the living fabric from their injurious effects. It is also to be borne in mind, that the small vessels are every where under the influence of the nervous system, and wherever a greater degree than usual of nervous energy is directed, for healthy or unhealthy purposes, there the tide of the circulation is proportionally carried. This, indeed, seems to be one of the great uses for which the tonic and elastic powers of dilatation and contraction in the vascular system were designed.

When the blood has arrived at the capillary system, there is still no other visible or demonstrable impulse, than the *vis a tergo*, to pass it on to, and along the veins. Some Continental physiologists, especially Bichat and his followers, believe that the blood, when once in the capillary vessels, is totally beyond the influence of the heart, and, that this system has the entire power of propelling the blood through the veins to the heart. They have not, however, given us any proofs of this hypothesis, while in numerous experiments on living animals, the blood has been distinctly seen projected, *per saltum*, from the arteries into the veins. Every practitioner must have seen the blood flow in jets even from the veins of the arm, so as to cause alarm in the minds of young bleeders, lest they should have touched the subjacent artery. Others have thought, that the action of the surrounding muscles was a principal cause of the blood's motion in the veins; but it is very unlikely that Nature would have trusted so important an office to so unsteady and so uncertain an agent. There does not, indeed, appear to be any necessity for these auxiliary forces. The same power of the ventricle which moves the blood in one part of the circle, may move it in every part, unless it can be proved that an *accumulation* somewhere obtains; and this is completely disproved by the calibres of the vessels remaining the same, during both systole and diastole of the ventricle. The contraction of the

left ventricle then, at one and the same moment, dislodges a certain quantum of blood from the root of the aorta, while a similar quantum, from the roots of the cavæ, enter into and accumulate in the right auricle, which appears a mere receptacle to feed the ventricle. The next operation of the ventricle is to dilate; and that this is an *active* operation instead of a *passive* one, is pretty clearly proved by the following fact. Let two hearts be cut out of two living animals, and let the finger of one hand be introduced into a ventricle of one of these hearts, while the other heart is grasped with the remaining hand. It will be found that the expansive power of one heart is full as strong as the contractile power of the other. From this it is quite reasonable to infer, that while the left ventricle of the human heart drives the blood to all parts of the system, through the medium of the arteries, the right ventricle, by its expansive power, actively abstracts blood from the head of the venous column on the other side, and thus maintains a regular venous current. The same laws and observations apply to the lesser, or pulmonary circulation, as to the greater; the heart being a double one for the double circulation.

It may here be remarked, that there is always the same quantity of blood within the walls of the pericardium, whether the ventricles be in a state of systole or diastole. While they are contracting, the auricles are dilating; and *vice versa*. It must be confessed, however, that great obscurity still hangs over the *capillary* system, and the circulation of blood through it. When we consider the intimate relation which subsists between the nerves and the minute vessels; and how much the functions of the *latter*, in secretion, &c. are under the influence of the *former*, we may be right, perhaps, in considering the capillary vessels to be endowed with the power of aiding the heart materially in the return of the blood through the veins. I am strongly disposed to believe, that they are possessed of an erectile power, or self-distention, that plays an important part in both health and disease.

From this short physiological sketch, we shall proceed to the pathology of the organ.

The equal and regular distribution of blood to every part of the system, is of primary consequence to the well-being of all the other functions of the body. The blood is the pabulum of the secretions; nay, the source of the sensorial power itself, and hence any disturbance in the function of the heart, is sure to derange the actions of the other organs, and materially affect the brain, together with the various functions dependent on the nervous system. There is no

disease, in fact, or class of diseases, to which the human frame is liable, which occasion such dreadful sufferings, both mental and corporeal, as organic and functional affections of the heart; and that sometimes without the patient being able to assign any local habitation or name to the complaint.

There is an old medical gentleman residing within a very few streets of this spot, who has, for some years, laboured under disease of the heart, and whose sufferings are truly pitiable! In numerous letters which I have received from him, he seeks, in vain, for terms that may convey some idea of his feelings. One of the most dreadful of these sensations he calls a *feeling of annihilation*, which he describes as far exceeding any possible degree of pain. Others, in a similar state, but who were less capable of expressing themselves in appropriate language, have told me, that they frequently felt as *if their life was going from them*, which is in sufficient correspondence with the description of the unfortunate physician. There is no disease which assumes more strange and anomalous symptoms than disease of the heart. Hysteria will closely imitate other complaints; but when the organ of the circulation is deranged, it gives rise to a host of phenomena, which cannot be classed or arranged under any system of nosology, and which are often attributed by the superficial observer, to a disordered state of the patient's imagination, or to hypochondriacism.

Before entering on a detail of the *particular* diseases of this important organ, it may be useful to present a *general outline* of the principal phenomena which are, in the majority of cases, exhibited when the heart labours under any serious lesion, particularly of its organization.

1mo. The complexion and cast of countenance are almost always altered from the natural state, in organic affections of the heart. The subcutaneous vessels of the face are, more or less, distended, and the skin, consequently, suffused;* while the lips, the alæ nasi—sometimes the ears, exhibit a livid hue, with injection of their vessels. The face has also a puffed, or bloated aspect. But the expression of the countenance is peculiarly indicative of internal distress, and cannot well be overlooked, even by the most heedless observer.

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* In some cases, however, there is a deadly paleness of the face and extremities, mixed with a yellowish tint, especially in passive dilatation of the right side of the heart.

2ndo. In most instances, the breathing is more or less affected; being generally short and laborious, especially when the patient is walking on an ascent, or going up stairs. In advanced stages of the disease, indeed, a flight of stairs cannot be ascended without a sense, and absolutely a danger of instant suffocation. This phenomenon is to be accounted for thus:—viz. In going up a steep ascent, as a staircase, we are lifting a heavy burthen, equal to our own weight additional. This throws a great proportion of our muscles into strong action, whereby the venous blood is pressed from all parts of the surface towards the heart, which, in its disabled state, is incapable of maintaining an even balance of the circulation. Hence, the blood accumulates in the two cavæ, and in the veins of the lungs, so that respiration is greatly impeded. This process takes place, to a greater or less extent, even in the healthiest persons, when straining under burthens, running, jumping, or wrestling. What then must be the consequence where the heart is already impaired in structure, and consequently in function; and where there is any other impediment to the free transmission of blood thro' the lungs.

3tio. If the hand be placed on the chest, opposite to the heart, there will, in general, be observable something unusual in the stroke of the heart against the ribs. It may be either stronger or weaker than natural; it is sometimes entirely wanting; at others, extended over a great space: nay, to be distinctly felt in every part of the thorax, and in epigastrio; irregularity of action is also common. When there is active enlargement of the heart and its cavities to any great degree, the pulsation of the organ will not only be visible to the eye, but may often be heard at some distance; and its force will sometimes be sufficient to make the whole bed under the patient tremble and vibrate. I have seen all this too, where there was no *organic* disease of the heart, but merely a great orgasm in its function, produced by nervous irritation, and which, in a short time, would entirely subside.

Here *percussion* of the chest serves occasionally as a useful mean of diagnosis. If organic derangement have made considerable advance, the region of the heart will generally emit a dull sound on being stricken with the hand, quite different from that of a healthy thorax. Auscultation also is not to be neglected.

4to. The pulse very frequently participates in the deranged rhythm of the heart, varying from a slight occasional intermission up to the wildest and most tumultuous irregularity,

or down to a fluttering wiry state, which cannot be described. In this disease, however, as in most others, the pulse is not to be depended on alone. I have seen it perfectly regular in the worst cases of organic disorders of the heart; and extremely irregular, where the structure of the heart was found in perfect integrity, after death.

5to. The *urinary* secretion is very generally disturbed in cardiac diseases, especially when they have made progress; it becomes scanty, thick, or lateritious; and this scanty and deranged state of the urine ultimately tends to effusions into the cellular substance; first, of the lower extremities, and afterwards of the face and arms. Last of all, we have effusions into the thoracic and abdominal cavities, when the patient's life is held, of course, by a very precarious tenure.

6to. The sleep, in diseases of the heart, is also generally disturbed. The patient frequently starts from his unrefreshing slumber, in great fright and agitation, and with all the feelings of impending suffocation. This causes many people to pass whole nights in their arm-chairs, or bolstered high in bed; and that too, before there is any dropsical infiltration in the thorax or abdomen.

This phenomenon appears to be partly owing to the close nocturnal atmosphere, which is always unfavourable to the free transmission of blood through the vessels of the lungs, as asthmatic people well know; and partly, perhaps, to the universal quiescence of the voluntary muscles during sleep, in consequence of which there is no assistance given to the heart in the circulation of the blood, and that organ becomes unequal to the proper fulfilment of its function.

When sleep is obtained, it is not only represented as unrefreshing, but as greatly interrupted by frightful or disagreeable dreams. It occasionally happens, however, that people with extensive organic disease of the heart sleep soundly, and even with the head low, as I have seen in several instances.

7timo. In some cases there is pain in the region of the heart; but more generally the patient describes it as a sense of tightness or oppression, as though a cord were drawn round the thorax, impeding the functions of the lungs and heart, and occasioning great anxiety and distress.

Such are the phenomena commonly attendant on disease of the heart, and for which we can physiologically account; but in the majority of cases, there are various symptoms for which we can offer no feasible explanation, on any known pathological principle. They are, however, to be most carefully attended to in practice, since they will often lead to a

detection of the complaint, when the more regular symptoms are absent or equivocal, as they too often are. Indeed, it may be confidently asserted, that the diseases of no organ are so difficult of diagnosis as those of the heart and great vessels leading from it.

I have already alluded to the *mental despondency* attending cardiac affections. I have never seen a case in which this symptom was wanting; but then it is also present in other diseases, especially of the liver and digestive organs. The depression of spirits and irritability of temper in cardiac complaints, however, are of the deepest hue; and I am quite satisfied that very many cases of SUICIDE are attributable to this malady, which is now become so prevalent, from various moral and physical causes. When, therefore, a patient exhibits this despondency of mind, where there is no *apparent* moral or physical cause to account for it, we should make a strict examination into the state of the cardiac functions, for there we shall often find the source of the evil.

One of the most curious phenomena attending disease of the heart is, the sensation of some distant seated pain or pains, between which and the cardiac affection no possible connection or affinity can be traced, by any known law of the animal economy. One of these is a pretty constant pain in the guard of the left arm, which frequently runs down to the ring and little finger of the same hand, and which is of that gnawing disagreeable kind that occasions great annoyance to the patient. This phenomenon is a very general attendant on *valvular disorganizations*, and that peculiar affection called ANGINA PECTORIS; it is, however, very common in most other organic affections of the heart.

Pains and most unaccountable sensations are frequently complained of in the legs, shoulders, or head; for although in cardiac diseases there is seldom any delirium, yet headaches are very common, from the disordered function of the heart. A heavy weight or pain, just above the pubes, is also by no means unfrequent in the disease under consideration, and is utterly inexplicable.

Such is an outline of the more prominent symptoms attending diseases of the heart in general; and before taking up the individual forms, we may say something of the *causes* which lead to the production of this class of remedies.

It is well known that Corvisart considers diseases of the heart as next in frequency to those of the lungs. He assigns two principal causes for this frequency. One is, the *constant action* of the heart, which experiences no intermission from the cradle to the grave. This, however, is a very ridiculous

cause, since the Divine Architect has adapted the heart to its function of perpetual motion, equally as well as the brain to alternate waking and sleep, or the stomach to periodical digestion and repose. The second cause which he assigns for organic derangements of the heart, is certainly one of extensive and fatal operation; it is, *the play of the passions.* The greater number of these, as joy, anger, love, ambition, &c. derange the healthy rhythm of the heart's function, by accelerating its motion; and this acceleration of movement is much more prone to hurt the structure of the organ, than an opposite state of the circulation.

But there is a host of *subordinate causes* of cardiac derangements, which act slowly and imperceptibly; first on the function, and ultimately on the organization of that viscus: for instance, *violent exercise,* as jumping, wrestling, running, &c.; straining of the lungs, by blowing too long on wind instruments; or even a habit of immoderate laughter. Intemperance in drink, especially of *malt liquors,* conduces powerfully to disease of the heart, by giving too great a fulness to the blood vessels, and paralysing the lymphatic system; in consequence of which, a greater labour is thrown on the organ of the circulation.

Certain trades and professions, in the exercise of which the body is kept in unnatural and uneasy positions that obstruct the free course of the blood through the vessels, are efficient causes of cardiac affections. I have met with more cases of this disease among Tailors, than among any one class of artisans besides. Probably this was accident; but I cannot help thinking that the position in which a tailor sits, is very unfavourable to the free circulation of the blood. Add to this, that when tailors get off their board, they are remarkable for jumping, running, and capering about in the extreme. These sudden transitions from sedentary occupations to much corporeal activity are hazardous for internal organs.

A fertile source of cardiac disease is to be sought in the lungs. Every one knows the intimate connection between respiration and circulation. Any obstruction to the transit of blood through the pulmonary vessels, must throw additional labour on the right ventricle and auricle of the heart; and it is on this account that, in most cases of obstinate asthma, and of other chronic diseases of the lungs, we find dilatation, or some organic change in the right cavities or substance of the heart.

It unfortunately happens in this, as in many other diseases, that organic changes of the part, at first produced by mo-

ral and physical causes, leave an *hereditary tendency* in the offspring to suffer from the same malady; at least, the same causes will, in them, have a much greater effect in inducing the disease, than in those descended from sound parents.

Here it may be asked, how it comes to pass that *diseases of the heart* have only begun to excite much attention, within the last fifteen or twenty years? Several substantial reasons may be assigned for this. 1st. Because morbid anatomy was never cultivated with general zeal, among all ranks of the profession, till within the period alluded to. The consequence was—*first*, that a great number died of diseases of the heart, where no suspicion was entertained of the true nature of the malady. *Secondly*, the various *consequences* of diseases of the heart, especially dropsical effusions into the different cavities, were too often considered as the primary and only diseases occasioning the death of the patient; the organ of the circulation being overlooked, or carelessly examined. Of this I have seen many proofs.

But, moreover, there is strong reason to believe, that diseases of the heart have greatly increased, both in frequency and force, during the last twenty years. There never was a period like that for intense excitement of all the more turbulent passions. No class of society, in Europe, escaped the mental perturbations which raged from the commencement of the French Revolution till the late general peace. These commotions in our moral nature, produced the most deleterious influence on the functions and structure of the heart; and it is much to be feared, that the present frame and state of society, are little calculated to diminish the evil. It is therefore our duty and interest to watch the progress of this direful class of diseases, in order that we may be able to recognize them when we meet them, and alleviate where we cannot cure.

We shall now proceed to the different species of lesion; beginning with the pericardial envelopes of the heart—then the muscular structure of the organ—and last of all, its internal valvular and ventricular apparatus.

The *external surface* of the pericardium may be inflamed and not the *internal*, as I have often seen, in inflammation of the lungs, where that portion of the pleura, reflected over the pericardium, became inflamed, from mere *extension* of the disease, without any symptoms of the same on the internal surface of the bag. This is an important distinction; for inflammation of the pleural or external covering does not differ essentially, either in symptoms, treatment, or prognosis, from pleuritis or pneumonia; whereas, inflammation of the

concave surface of the bag, however little it may sometimes vary, in symptoms, from pneumonia, is a disease of quite another character, requiring a *modification* of treatment, and being infinitely more dangerous.

When, therefore, we are called to a patient, wherever the seat of the pain may be, whether directly under the sternum or in the region of the heart, as long as the symptoms are those which characterize pulmonic inflammation in general, and without any particular disturbance of the heart's function, we have no reason to conclude that the inflammation extends beyond the pleural covering of the pericardium, and consequently our prognosis and treatment may be the same as in pneumonia.

But when inflammation attacks the internal surface of the pericardium, we know that this tissue is reflected over the heart itself, to which it must soon spread, if not already there, and consequently we have, *bona fide*, CARDITIS, one of the most dangerous diseases to which the human frame is liable!

Carditis is defined by Cullen thus:—" Pyrexia; dolor in regione cordis; anxietas; spiritus difficilis; tussis; pulsus inequalis; palpitatio; syncope."

Here Dr. Cullen combines the characteristic symptoms of pneumonia with carditis. But this is a dangerous definition; because carditis may, and does frequently exist, without the cough, and difficulty of breathing, so commonly attending pulmonitis: consequently, a most dangerous inflammation might be going on at the centre of the circulation, while the above-mentioned definition lulled the practitioner into a fatal security.

Perhaps the most PATHOGNOMONIC symptom of cardiac inflammation, is that peculiar ANGUISH which is felt in the region of the heart, far exceeding any thing of the kind observable in chronic organic changes of this viscus, or in pulmonic inflammation. There are no other symptoms so constant as this: indeed, there are now numerous instances on record, where no indications could be drawn from the state of the pulse, breathing, temperature, or pain; while the most destructive inflammation was preying on the heart. But it must be remembered that, till of late years, sufficient attention was not paid to the symptoms and diseases of this organ; and even at the present, cardiac inflammation is often overlooked from inattention, or from the practitioner having his judgment warped by some theory, which diverts him from the true nature and seat of the disease; many striking instances of which I could here state.

Inflammation of the heart and its coverings, like most other inflammations, assumes several degrees of intensity, which may, however, be all reduced to three grades—the acute, the sub-acute, and the chronic. *Acute* carditis is a most formidable disease, and often accompanied with most distressing symptoms; even hydrophobia has been induced by inflammation of the heart. Besides the unutterable anxiety, of which the patient complains, there is often a pungent burning heat in the præcordial region, far exceeding that which attends common thoracic inflammation. In inflammation of the lungs, the head is remarkably clear; but in inflammation of the heart, the mind is greatly affected, and the expression of suffering, or even horror, in the countenance, is truly characteristic.

The pulse, though not invariably *irregular* in carditis, is very generally so, as might be expected; and there are not only wandering pains in various parts of the body, but there are, in most cases, strange and anomalous symptoms attending carditis, which are not observable in other inflammations.

In the acute form of the disease, the symptoms go on increasing in severity; the pulse becoming more confined and unequal; the anxiety and pain more distressing; until, in a few days, death puts a period to the patient's sufferings, or a vigorous treatment checks the inflammation. It is much more frequently fatal than curable; and that, for the most part, between the third and the seventh day.

But the sub-acute form of cardiac inflammation often continues for months, before terminating either way; and the chronic form, I have reason to believe, may harass a patient for years, before it arrests the function of the organ in toto, generally ending in enlargement, or other change of structure in the heart itself.

Appearances on Dissection. These are less equivocal than the symptoms during life. The following dissection, which I lately made in the presence of Dr. Yeats, of Brighton, and Mr. Coyne, on the body of an officer, will illustrate this point; for the appearances afford as fine a specimen of the disease, as could possibly be registered. The patient was forty years of age, sallow, and somewhat emaciated. I did not see him while alive.

Thorax. Lungs partially adherent to the costal pleura, with about half a pint of serous effusion in each cavity of the chest. The lungs not perceptibly diseased in their parenchymatous structure, but the air-cells filled with serous effusion, like a sponge soaked in water. The *pericardium* was

adherent to the surrounding portions of lung, and exhibited marks of inflammatory action. On being slit open, the whole interior surface was found lined with a reticulated exudation of coagulable lymph, tender, and of recent formation. Several bands and shreds of the same substance were seen passing from the pericardium to the heart, and which appeared of recent formation also. About six ounces of yellow serum, with floating shreds of coagulable lymph, in the cavity of the pericardium. The surface of the heart was coated over with a layer of coagulable lymph, in some places very thick, and capable of being peeled off without any force. In some places, there were large loose patches of this inflammatory crust, unattached, either to the heart or pericardium, but lying loosely over the surface of the heart. The parietes of the *left* ventricle were considerably thickened, enlarged, and indurated, but without any corresponding dilatation of the ventricular cavity itself. The external surface of the heart exhibited a gorged and inflamed state of the proper vessels and tissues of the organ, notwithstanding the effusion of serum and coagulable lymph. The valves and interior structure of the heart were sound, as was the arch of the aorta. The liver was somewhat enlarged in volume; but not sensibly altered in its organization. All the other viscera were sound.

The above may be considered as a perfect specimen of the POST-MORTEM appearances of acute carditis, verging a little to the sub-acute; for this patient, I had reason to believe, laboured under a chronic form of the disease during many months, while it was considered hepatitis; and even when the acute form supervened, the real nature of the disease was hardly suspected, and blood-letting was not performed till within a day or two of his death. The following case is also very illustrative.

A woman, thirty-six years of age, had suffered three different attacks of acute rheumatism, between the 16th and 36th year of her age. On the night of the 5th of November 1809, and without any manifest cause, she was seized with general horripilatio; wild and tumultuous action of the heart; lancinating pain in the præcordial region; very difficult respiration; fainting, but without thirst or cough. Antispasmodic medicines were exhibited, and rubefacients were applied to the lower extremities, but without any effect; and she was therefore sent to the hospital on the fourth day of the attack. The lips were now of a vermillion colour; the face sunken; the complexion a dark blue; the sleep frequently interrupted by startings and subsultus tendinum.

She did not complain of head-ache, but the taste was depraved; the thirst urgent; the tongue red and shining; an acute pain at the epigastrium, on pressure, as also in both hypochondria. The breathing was quick, short, and performed entirely by the diaphragm. The heart beat violently, sometimes intermitted; during which, the pupils became dilated, and the face and lips livid. The pulse exhibited all kinds of irregularity. No blood was drawn during this day; and on the following morning, all the symptoms were exasperated, as may be easily imagined; and cough, with *sanguineous* expectoration were superadded. Both general and local blood-letting were now practised, but without any apparent amendment. On the twelfth night of the disease, the patient was delirious, and on the twentieth died, the circulating system being in a state of excessive derangement.

On dissection, the middle lobe of the lungs was found consolidated; a few ounces of limpid serum in the cavity of the pericardium, but its internal surface not perceptibly diseased. The heart itself was enlarged to double its natural size, and was soft and flabby; the left ventricle greatly enlarged, passively; the mitral valve thickened and cartilaginous; the auriculo-ventricular opening was contracted to scarce six lines in diameter. The posterior and superior surface of the left auricle was injected of a dark red colour, presenting three or four small spheroidal tumours of three or four lines in diameter, and elevating the pericardium. From these, when cut into, a real purulent matter issued, mixed with sanies. The auricular appendix of this side was indurated, enlarged, and contained a sanious pus. No other morbid appearances were observable in the body.

It is evident, from the dissection, that the disease had been going on for a considerable time prior to the violent symptoms occurring, otherwise the volume of the heart would not have been found so enlarged. It was clearly one of those dangerous cases of metastasis to the heart succeeding acute rheumatism, of which we shall have occasion to say more presently.

The following well-marked case of acute carditis is condensed from Dr. Davis of Bath.

A young lady, sixteen years of age, of a remarkably full habit, took cold after dancing, and was attacked with inflammation of her feet and ancles. This inflammation suddenly disappeared, and was succeeded by hysterical symptoms, attended with delirium; for which she was bled by an apothecary. When Dr. Boisragon, now of Cheltenham, first saw

her, several days before she died, the symptoms were, general spasm and continual agitation of the body; watchfulness; outrageous talking and singing in a maniacal manner. Pulse 120, hard, and full. This hardness and fulness of the pulse diminished after the loss of twelve ounces of blood by a second bleeding; and the digitalis having been administered, the pulse slightly intermitted. It afterwards increased to 136, firm, but not hard. While preparing to open the temporal artery, the patient expired. She had not slept for nine days, nor was the violence of the delirium abated before death. The two bleedings certainly produced temporary remissions of the symptoms. The violence and permanency of the delirium prevented any distinct expression of this young lady's feelings; but she was once heard to exclaim, "*Oh!* my Heart, I wish it would burst!" No cough, nor other symptom of pulmonic inflammation occurred at any period of her illness.

Dissection. The vessels of the head were slightly distended; but no appearance of inflammation or effusion. On raising the sternum, the *lungs* appeared red, and filled with grumous blood; but no inflammation was discoverable in their structure. The external aspect of the *heart* was natural, and the usual quantity of fluid was found in the pericardium. On cutting longitudinally from the apex to the base of the heart, very decided marks of inflammation were observable over the whole internal surface of the right ventricle, and, in a slighter degree, in the other also. The columnæ carneæ, and tricuspid valves, were greatly inflamed. The inflamed parts were covered with a layer of coagulable lymph. Marks of inflammation were also perceptible on the upper surface of the diaphragm, and about the cardiac orifice of the stomach.

This case, though somewhat out of place, as touching *pericarditis*, I have brought forward on more accounts than one. It illustrates a point which I have before alluded to, namely, the anomalous and unaccountable symptoms which frequently attend the diseases of the heart—and especially the affection of the sensorium and mental powers. It also shows the danger of retroceded inflammation, particularly of the rheumatic kind. But the principal reason for the introduction of the case here, is to shew the inefficiency of the treatment pursued. It is true, that the real nature of the complaint, as Dr. Davis informs us, was not suspected; but this affords no just cause why a system of more active depletion should not have been employed, whatever was the organ affected. Any great commotion in the system, such as this patient

evinced, demanded powerful depletion; for even if the disease was not inflammatory, we would still be acting on the safe side. Instead, therefore, of two bleedings of twelve ounces each, she should have been bled to syncope repeatedly, till the morbid chain was broken.

The next case, from the same author, is still more in point, and deserves to be carefully remembered.

A young lady, twelve years of age, complained, during the first week of her illness, of pain under the sternum, in the left shoulder, and at the upper and inner part of each instep. The pain in the insteps lasted ten days, and was so violent, from the third to the tenth day, as to prevent walking, for the performance of which she was not disqualified by the severity of the other symptoms.

On the 8th day there was difficulty of breathing, and palpitation, which last symptom became so extremely violent, in the more advanced stage of the disease, that the whole chest seemed in motion; and the immediate action of the heart was compared to a hard body grinding against the ribs. After the first ten days, the pain in the insteps and shoulder was no longer felt, while that under the sternum became extremely severe, and extended to the left side. The subsequent difficulty of breathing and cough were occasionally relieved by opiates, which were administered under an idea that the disease was of a spasmodic nature. The pulse was small and quick, seldom beneath 130, never unequal or intermitting, except occasionally during sleep. Skin, in general, only moderately warm; but great heats, with perspiration, occasioned by the extreme anguish which she felt in the region of the heart, frequently took place. Screaming, and violent jactitation of the body were also produced by it. The tongue was clean and moist till towards the last, when it became whitish; considerable thirst; urine rather high coloured; bowels costive; continual vomiting for five days before death; towards the close of the scene, there was some pain in the region of the liver. There was no affection of the head in this case. The disorder lasted twenty-six days. She generally leaned forwards, even while in bed, placing a pillow against her heart; sometimes she could not bear the least pressure on the region of the heart. Two bleedings only were employed, one on the 8th, the other on the 18th day, without relief. The blood was buffy.

Dissection. The pericardium was very much thickened, inflamed, and adherent to the pleura. The tendinous portion of the diaphragm was also inflamed. The muscular structure

of the heart was inflamed to some depth, and the firmest adhesion had every where taken place between it and the pericardium. The heart was enlarged, pale, and flaccid internally, with large masses of coagulable lymph about the auricles and origins of the large vessels. The lungs, on the left side, were considerably inflamed; the liver large and turgid from congestion of its vessels.

In the above case, there does not appear to have been any suspicion of the real nature of the disease, otherwise a more efficient treatment would surely have been adopted. The case is therefore exceedingly valuable as a *beacon*, to guide us clear of the rocks of error upon future occasions, many of which will undoubtedly occur in every man's practice.

The Treatment of Carditis requires more promptitude and energy of decision than any other thoracic inflammation. The derangement in the vascular system itself, the alarming syncopes, and the perplexing anomalous symptoms, which so often attend inflammation of the heart, are sufficient to embarrass the old, and completely puzzle the young practitioner. But he must be on his guard, and not allow time to be wasted, which can never afterwards be recalled. General blood-letting, therefore, should be carried to the greatest extent compatible with the life of the patient; while, by means of cupping glasses or leeches, blood should be abstracted from the surface of the chest, as near the region of the heart as possible. The local bleeding should be far more copious than is usually practised. Not less than thirty or forty leeches should be applied; or if cupping be preferred, sixteen ounces of blood should be abstracted from the surface of the chest.

In all inflammations, we must first clear the bowels by a purgative, before any other medicine be exhibited. In carditis, this should be done as speedily as possible. In an hour after a large dose of Epsom salts is taken, a purgative glyster should be thrown up to hasten its operation. The patient, mean time, should be kept in the most quiet state possible, lying on a bed or sofa, with the head a little raised, and instructed not to move a single voluntary muscle, if he can by any effort exert this command over himself. This regulation is too little attended to; but if we reflect on the great influence which muscular motion has on the action of the heart, we shall soon be convinced of the importance of *quietude* in all derangements of this organ.

Next to general and local bleeding, which must be repeated, according to the exigencies of the case; our great dependence is on counter-irritation, digitalis, and antimony.

After the leeching or cupping, a very large and acrid blister should immediately be applied all over the region of the heart, with the view of shifting the seat of the inflammation from the serous surface of that organ to the skin. Then we must endeavour to allay the irritability, and lessen the inordinate action of the heart. For this purpose, there is, perhaps, no combination so powerful as that of digitalis, antimony, and hyoscyamus. Equal parts of the tincture of digitalis, antimonial wine, and tincture of hyoscyamus, should be exhibited; beginning with fifteen or twenty drops every four or six hours, and gradually increasing the dose, till evident proofs of constitutional effects are produced. These means, with a dose of calomel and opium every night, [five grains of calomel and one of opium,] will reduce cardiac inflammation, if any means will; and if they fail, when vigorously employed, and repeated according to the urgency of the symptoms, I am convinced that no other measures will succeed.

TRANSLATION OF RHEUMATISM TO THE HEART.

This is a subject of only modern observation, which would induce us to believe that *new* forms of disease spring up, from time to time, in consequence of the varying state of moral and physical causes, and the *predispositions* thence resulting. Thus, in a turbulent æra, when the mental emotions are vivid, and the action of the heart perpetually disturbed, it is reasonable to suppose, that certain *erratic* inflammations, as those of gout, rheumatism, erysipelas, &c. may fall more frequently on an organ whose function is preternaturally deranged, than at other periods. However this may be, the metastasis in question is one which deserves our fullest consideration.

Dr. Baillie, on the authority of Pitcairn, appears to have given the first hint of this metastasis; since which, many cases have appeared in periodical and other publications, both in this country, and on the continent.

Dr. Odier of Geneva, in his "*Manuel de Medicine Pratique*," published sixteen or seventeen years ago, mentions, among the various symptoms which are apt to supervene on acute rheumatism, an affection of the heart, that frequently degenerates into a chronic complaint, the prominent features of which are, a hectic fever, from slow cardiac inflammation of the rheumatic kind, accompanied by quickness and irregularity of pulse, oppression on the chest, cough, &c.

Anasarcous swellings often occur, and the patient is generally cut off in a sudden and mysterious manner.

Dr. Wells has collected several cases of this kind, in the 3d volume of Transactions for the Improvement of Medical and Chirurgical Knowledge, which may be consulted with advantage.

Sir David Dundas, in a paper read before the Medico-Chirurgical Society, in Nov. 1808, draws the attention of the faculty to this subject. He met with no less than nine cases in the course of thirty-six years. The principal symptoms were—great anxiety and oppression at the præcordia; dyspnœa increased by motion, and by taking food to an alarming degree; acute pain in the region of the heart, but not always; preference to lying on the back; great palpitation of the heart; violent pulsation of the carotids; noise in the ears; giddiness in the head. In some cases, the action of the heart was so very strong as to be distinctly heard, and to agitate the bed. The pulse is always quick, often irregular, generally hard. Towards the close of the disease, symptoms of water in the chest are developed, with swelling of the legs, and frequently ascites. In all the nine cases, the disease succeeded one or more attacks of acute rheumatism. In all, the patients were young—only two above 22 years of age—six males, three females. Most of them struggled with the complaint many months. Seven died, one is doubtful; one recovered, apparently from very rigid adherence to vegetable diet and repose. Six cases were examined after death—they all but one agreed in the following particulars: Heart uniformly enlarged; pericardium adherent to the heart; left ventricle most enlarged in size, *but not in thickness;* substance of the heart pale, soft, and tender. In the case of exception, there was no cardi-pericardiac adhesion; but instead thereof, water in the pericardium. In these cases, "the muscular structure of the heart was not increased in thickness beyond what it commonly is; so that its powers of action were not augmented proportionably to its bulk."

Dr. Pemberton states the following particulars of a case under his care. Mr. ——, aged 36, had been long subject to acute rheumatism. After being troubled during the whole winter with the complaint, he was seized in March, with pain in the region of the heart; difficulty of respiration; great palpitation and anxiety. The least motion appeared so to aggravate these symptoms, that he dared not to move or speak. He had rigors and profuse sweats. Slight cordials; venesection; blood not buffy. In three days he ventured to move; but great palpitatation and anxiety resulted. When perfectly

quiescent, the palpitation disappeared. He scarcely moved for a month. The hand, placed on the heart, felt a great throbbing; and this was continued along the carotids, causing an unpleasant noise in the head.—METH. MEDEND. Seton over the region of the heart; three grains of ext. conii and half a grain of digitalis three times a day; abstinence from fermented liquors; great temperance. The irregular action of the heart continued at intervals eight months, when it gradually lessened, and in a year totally disappeared.

Dr. Marcet met with two cases of rheumatic metastasis from the extremities to the chest, producing symptoms analogous to the foregoing, but less in degree. They proved fatal. In both, the heart was much enlarged.

An additional and very interesting case is subsequently related by Sir David Dundas, the particulars of which are as follow. A woman, ætat. 29, who had twice experienced acute rheumatism, was seized, after exposure to wet, in September, with rigors, succeeded by pain across the chest, difficulty of breathing, increased by the least motion; strong palpitation of the heart; violent action of the carotid arteries; sense of great debility; apprehension of death. In this state she had been for fourteen days, when first visited. She had not been in bed for many nights; her legs and thighs were swollen; pulse weak, and so quick as to defy calculation; no cough. *Blister to the region of the heart; digitalis.* By this last remedy the pulse became less frequent, but disagreeing it was left off. The action of the heart now became tremendous; she got weaker daily, and died at the end of two months.

DISSECTION. Left lung compressed to very small dimensions; heart enlarged to a most extraordinary size, and occupying nearly all the left side of the thorax; lungs on both sides strongly adherent to costal pleura; a pint of water in the thoracic cavities; considerable quantity of water in the abdomen.

In the 5th volume of the Edinburgh Journal, p. 299, two cases of inflammation of the heart are related by Mr. Crowfoot, one of which I conceive to have been decidedly rheumatic metastasis. W. Lewis, ætat. 23, tall, thin, formerly employed in husbandry, but lately a gentleman's servant, applied for relief on the 22d of December, 1808, complaining of considerable pain in his head, back, and limbs, with general pyrexia, prostration of strength, furred tongue, high coloured urine, &c. "Attributes his illness to Cold caught by exposure to the night air." Emetic—purgatives—small doses of calomel and saline medicines, with anodynes at bed

time. "This plan was continued till the 29th, when the fever appeared to take on decidedly a Rheumatic character. The feet, knees, and wrists became swelled and painful; and he began to complain of pain in his left side. The debility was much increased; a stimulating embrocation was applied to the side. The rheumatic symptoms became more severe; and the common remedies for acute rheumatism, *with the exception of bleeding*, were made use of." Towards the end of January, the pain of side and cardiac distress became the prominent symptoms, "still seeming to *alternate* with the pains in the extremities." On applying the hand to the left side of the thorax, the heart was felt to beat with great labour and difficulty. The pulse, though weak, gave a very peculiar jerking feel to the finger. "It is but due to truth and candour to state, that, till this time, the real nature of the disease had not been suspected; and my patient, naturally of a weak constitution, was now so extremely reduced, that I did not feel myself justified in employing what, in the beginning, might have been of the most essential service to him, the free use of the lancet." *Digitalis; blisters.* The former was discontinued, as it produced great irregularity of pulse, without any benefit. Mild nutritious diet; opiates.—He rallied a little, and was able to ride out on horseback; but towards the end of February, hydrothorax approached, and cut him off, with the usual symptoms, on the 5th of March.

Dissection. A considerable quantity of water in the cavity of the thorax; twenty-four ounces of fluid in the pericardium. Heart and pericardium bore strong marks of recent inflammation; their surfaces being rough with depositions of coagulable lymph, which connected the heart with the pericardium in several places.

The next case, in elucidation of our present subject, is more consolatory; it is detailed by Mr. Russel, of Birmingham, in the 10th volume of the above-mentioned Journal, and the following is an abstract. Seth Basset, a waggoner, ætat. 22, attacked with acute rheumatism in the latter end of May, 1810. Pain at first in legs and ancles, afterwards in the shoulders and arms. He was bled six times, by which he was so much relieved that he returned home, a distance of ten miles. June 27th, came under Mr. Russel's charge, with pain in the ancle, which was swelled and inflamed; pain in the left side of the chest; pulse full, tongue furred, skin moist. Twelve leeches to the side; feet and ancles to be fomented with flannels and hot water; calomel and purging salts. 28th, Pain of side easier, legs and ancles swollen,

and exceedingly painful. 29th, Pain and inflammation suddenly left the extremities, which yet remained swollen; great distress in the chest, breathing short and difficult; heart and large arteries throb violently; pain in left side on pressure. Between the sixth and seventh ribs of that side, a circumscribed red spot, the size of half-a-crown. Pulse 62, large, and full, communicating a jarring sensation to the finger. Easiest posture horizontal, with head a little elevated. Venesection to eighteen ounces, with great relief; pulse rose to 70. Antimonials and digitalis prescribed. Fomentations to the extremities continued. Remained better during two days. July 2d, Symptoms returned; pain in the chest, breathing short and quick, legs œdematous. Venesection on the following morning. Digitalis increased to twenty-five drops every four hours. July 4th, Pulse 88, and full; symptoms less violent; pain of left side not returned on the 5th. He breathes easier, but the heart and arteries still beat violently. Pulse 92, and full. Twenty ounces of blood abstracted. Digitalis increased to thirty drops 4tis horis. He was much relieved by the bleeding, and continued so till the 18th, when the pain of chest and violent action of heart and arteries again returned, together with a distressing beating noise in the head. He was now taking forty drops of tinct. digitalis thrice a day, without any perceptible effect upon the pulse. He was very low, and, for the first time, dreaded the lancet. Bled to eight ounces. Syncope. Following day, symptoms so violent as to require another bleeding to twelve ounces, which produced considerable mitigation of symptoms. 20th, Exceedingly low; pulse irregular, and intermitting; no pain, but giddiness in the head. Digitalis discontinued; a light cordial prescribed. Lay in a horizontal posture, and was scarcely able to speak; pulse feeble, and intermitting every third stroke. Appears sinking very fast; takes nothing but a little wine. 23d, Much better; free from pain; pulse regular, breathing free, legs œdematous; complains only of extreme debility. In two months was able to work, and he has now continued two years free from complaint, excepting palpitation of the heart upon any extraordinary occasion.

The next case on record, in the same Journal, is by Mr. Penkivil, of Plymouth.— Mrs. W. a thin, delicate woman, about 50, after some days' illness with pyrexial symptoms, was found by Mr. P. much prostrated in strength; skin hot, pulse slower than natural, but full, with vibrating wiry throb; tongue coated, bowels costive, ancles swelled and painful, though not red; knees swelled, and exceedingly painful; excruciating pain, violent throbbing, and hissing noise in the

left temple. Leeches to the temple, blister to the back of the neck; sudorific draught at bed-time; purgative next morning. *Sinapisms to the painful joints.* Next day, head and temples somewhat relieved; joints of inferior extremities equally painful as before; joints of superior extremities becoming sore. Cathartic pills repeated; nitre and antimonials thrice a day; *joints to be rubbed with camphorated oil.* This plan produced allevation of some, aggravation of other symptoms; the inferior joints got better, the superior worse; the pain of temple was mitigated, but the hissing noise remained. Now came on great watchfulness; remarkable anxiety at the præcordia, to quiet which, an opiate with an antimonial was given at night, and the powders were changed for camphor mixture with acetate of ammonia every four hours.—Some ease was procured; "but now the complaint assumed a change of symptoms. The inflammatory action seemed to fly from the circumference to the centre. The heart and arterial system became peculiarly affected; their pulsations were slower than natural, but remarkably full and violent." These orgasms were now and then followed by a sudden collapse, faintness, and twitchings. The pain in the temple and hissing noise were increased, and the case assumed a serious aspect. Venesection from the arm to sixteen ounces; and, the bowels being previously opened, an anodyne sudorific draught. Blood not particularly buffed; symptoms relieved by the venesection. Systole and diastole of the abdominal aorta could now be observed with the eye, yet the pulse was at 40 in the minute. Blister to the left side of the head; antimonials with jalap, after which an anodyne at bed-time. Next morning the vascular orgasm reduced, and the pulsations more numerous in proportion. "Following this plan of treatment, [Query, was venesection reiterated?] Mrs. W. in the course of a week was convalescent.

An interesting communication upon this formidable malady is given in the Journal General de Medicine for February 1815, by Dr. Matthey of Geneva, which I shall transcribe in the terse language of my esteemed friend, that zealous cultivator of medical science, Dr. S. Palmer, of Tamworth.

After observing that rheumatism of the heart may terminate fatally, degenerate into chronic disease of that organ, or admit of cure by the resources of medicine, Dr. M proceeds to illustrate, by observations drawn from his own practice, these three different modes of termination.

Case 1. April, 1813. M. Bresse, ætat. 37. *Symptoms.* Severe pain of the right hip, increased by motion; frequent,

full, hard pulse. General and local blood-letting, blisters, and antimonials relieved these symptoms. Urine, at first scanty, high coloured, and depositing a sediment, restored to the natural state. Digestion vigorous. The pain of the thigh continues yet, in a slight degree; the whole extremity somewhat swollen; wrists becoming suddenly painful and tumefied.

May 14th. Great pain in the night; not relieved as usual by an opiate. 15th, morning. Pain increased, and an expression of indescribable uneasiness; no pain in the præcordial region, no oppression or cough; pulse irregular, small, frequent; stroke of the heart unusually perceptible. Blisters to the legs and region of the heart; sedatives internally.—5 o'clock, P. M. Distress extreme; bowels copiously evacuated; syncope for a few moments on again lying down; weakness and distress went on increasing. Died at eight o'clock. Body not examined.

Case 2. A boy, nine years of age. *Symptoms.* Pains of the shoulders and thighs, subsiding without medicine. Convalescence not marked by return of wonted vivacity. Walking and climbing produce great fatigue. Palpitation of the heart, difficult respiration, oppression, lividity and swelling of the face. Three months from the cessation of the original pain, the extremities became œdematous. Urine scanty; pulse frequent and irregular. One month afterwards, the symptoms all aggravated; intolerable pain of the legs; pulse irregular and intermittent; anasarca; ascites. Died suddenly. Remedies, leeches, venesection, blisters, diuretics, opiates. Morbid appearances. Serous effusion in the thoracic and abdominal cavities; pericardium much thickened, and strongly and universally adherent to the surface of the heart; heart itself not enlarged.

Case 3. A boy, of delicate complexion, ætat. 10. Attacked in the beginning of 1809, by symptoms of rheumatic fever; wandering pains of the limbs and region of the heart; sense of suffocation, especially on lying down or turning in bed. These symptoms entirely subsided in a month, and recovery seemed perfect. February 3d. Bore a journey and much exertion with impunity. 5th. Complained suddenly, on lying down at night, of severe pain of the left side, and suffocation; was sensible of his approaching end, and almost immediately breathed his last. Morbid appearances. *Encephalon.* Vessels gorged with blood; slight gelatinous effusion between the dura mater and arachnoid membrane; small

quantity of serum in the lateral ventricles; much fluid blood issuing from the vertebral canal. *Thorax.* Much serum effused, particularly in the left cavity. The heart completely adherent to the diaphragm, mediastinum, and lungs; twice its natural size, and containing, between its own substance and the pericardium, several layers of a substance which, on the surface in contact with the heart, resembled a firm dark brown jelly; while the other, adhering strongly to the pericardium, displayed the colour and appearance of muscle, but without being regularly organized. The internal surface of the pericardium, here and there, lined with a grey and soft gelatinous matter, readily separating from the heart; superficial vessels much injected.. *Abdomen.* Mesenteric glands slightly obstructed; small intestines inflamed.

Case 4. A lady, aged 24, of strong constitution, seized in June with acute rheumatism. Pains of all the limbs vehement during the first eight days, then gradually diminished. Fifteenth day, she complained of severe pain under the left breast, extending to the sternum, and constricting the thorax. Other symptoms, extreme distress, dyspnœa, palpitations of the heart; pulse wiry, frequent, irregular. Prescribed repeated venesection, leeches, blisters, digitalis, camphor, and Dover's powder. Sixteen days from the invasion of these symptoms, the patient was able to rise from bed, and sit up during part of the day. Palpitations, dyspnœa, continue; urine scanty. These symptoms were soon removed by digitalis and nitre. A relapse experienced in August. The former remedies and tepid bath employed with success, but convalescence tardy; the slightest exertion followed by palpitation and dyspnœa. Recovery not complete till October.

Case 5. A lady, aged 18, subject to rheumatic pains, felt, on the morning after a danse, slight pain in the shoulder, and suddenly all the symptoms of metastasis upon the heart; dyspnœa, palpitations, frequent syncope, extreme distress. Venesection, blisters, sinapisms, employed from the beginning, and frequently repeated. Restlessness during 12 days extreme. Symptoms from that time gradually subsiding; entirely removed in two months.

Dr. M. recommends, as preventives, in persons disposed to rheumatism of the heart, immersion in the cold bath, and flannel clothing next the skin, with the obvious view of inuring the constitution to, and counteracting the influence of atmospherical variations upon the surface of the body. Abstraction of blood, under certain restrictions, and absolute

repose of the voluntary muscles, are considered by him as the most important agents in the cure of this dangerous affection. Bodily exertion should be avoided even long after recovery. To the effect of rheumatic irritation, vehement, mistaken, or injudiciously treated in the commencement, Dr. M. attributes many, or even most of the organic affections of the pericardium and substance of the heart.

M. Merat, in the same Journal, makes some pertinent remarks on Matthey's cases. The essence of the rheumatic principle, he observes, is unknown to us; but its effects have been correctly appreciated by physicians. The muscular system is peculiarly obnoxious to its ravages; and the internal organs participating, in structure, the characters of that system, are often affected by it. Of these, the heart is unquestionably the most conspicuous.

The signs of rheumatic affection of the heart are difficult of diagnosis. The principal phenomena resulting from metastasis to the heart, are pain about the præcordia and palpitations, though these certainly accompany the greater number of its organic lesions; the distinctive character, he thinks, is metastasis of the disease from a muscular region to that organ.

My worthy friend, Dr. M'Arthur, late physician to the Royal Hospital at Deal, writes to me thus:—"In a few instances I have noticed pain in the intercostal muscles, and palpitations of the heart, to an alarming degree, in acute rheumatism; but I know not whether they could properly be called metastasis, because the original inflammation of the joints had not previously receded: they were, however, decidedly rheumatic, and declined, *pari passu*, with the other local symptoms. The disease might be termed extension of the rheumatic action to the heart. A very remarkable case of this kind occurred in the person of Lieutenant Boyce, of his Majesty's ship Impregnable, sent to the Naval Hospital at Deal, under my care, on the 12th May, 1813. The detail of treatment would be too long to transcribe, and consisted in numerous repetitions of venesection, purging, opiates, &c. The diseasec ontinued obstinate and violent; but the last symptom, palpitation of the heart, has at length given way, and he is now perfectly recovered."

In reply to my query respecting Metastasis in acute rheumatism, Dr. Porter, of Bristol, has obligingly stated, that, "independent of the translations of rheumatic action from limb to limb, which occur in all cases, he has in a few instances, seen metastasis to the heart—to the respiratory organs—to the brain. From the head it was driven by leech-

es and cold applications; from the chest by blisters; but where the heart was attacked, sufficient mischief ensued to disorder its functions during life, notwithstanding that the retroceded inflammation had been checked in a few hours by blisters and other appropriate treatment. In all these instances the external local disease disappeared previously to its attack upon the vital organ. In some cases the metastasis took place without evident or ostensible cause; in others, it appeared the result of topical refrigerants."

I examined, on the 20th of October, 1817, in the presence of Dr. Lind, junior, a young lady, Miss W. ætat. 22, who had been under my care for disease of the heart more than a year. The action of that organ was exceedingly wild, tumultuous, and irregular. She was obliged to keep almost always in the perpendicular position; constant cough, without expectoration; pulse observing no order, intermittent, redoubling, feeble; could not bear pressure upon the epigastric region; urine scanty, and depositing copious sediment. These symptoms came on, in a slight degree, immediately after an attack of acute rheumatism, twelve years ago, and had gradually advanced to their present fearful aspect.

Exactly three months after the above was printed in the first edition, the dropsical swellings amounted to such a degree that the lower extremities burst, and this long afflicted young woman died. I opened her in the presence of Mess. J. and G. Williams, Surgeons, of Portsea, where I then practised. The heart was actively enlarged, in all its parts, to a most astonishing size. No disease of the valves was perceptible, nor adhesion between the heart and pericardium. Effusion of water in the chest, abdomen, and lower extremities was, as usual, the immediate cause of death. Between the integuments and muscles, this young woman every where exhibited vast layers of yellow fat, as is often observed in people with disease of the heart.*

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* Since the first and second editions of this work, the author has met with several interesting cases of deranged function and disordered structure of the heart, clearly resulting from mismanaged, suppressed, or translated Rheumatism or Gout. And what is of greater consequence, he thinks he has ascertained that, in disordered states of the heart and other internal organs, from these causes, a very mild and well managed course of mercury, with sarsaparilla and other eccoprotics, has a powerful influence in arresting the progress of disorganization, a power which it does not possess in apparently similar derangements from other causes. Hence an additional reason for the most scrutinizing examination into the previous history, as well as the present symptoms of all organic or functional disorders of the vital viscera.

As the individual derangements of structure affecting the heart, appear to be better classed and distinguished by M. Laennec than by any other author, I shall here endeavour to convey to the English reader, a concentrated analysis of this gentleman's diagnostics and symptomatology of these melancholy and interesting affections, some of which diagnostics I have put to the test of experience, and can vouch for their general accuracy.

1. *Hypertrophia Simplex, or active Aneurism of the Heart, without Dilatation of its Cavities.* This disease, which, however, is not very common, has entirely escaped the notice of Corvisart. It is an augmentation and condensation of the muscular structure, and consequently of the ventricular parietes of the heart, not only without a corresponding increase of capacity in the cavities; but more commonly with a diminution of their volume. It may affect one or both ventricles, but rarely the auricles.

When the disease is seated in the left side of the heart, its parietes sometimes become more than an inch in thickness, at the base of the ventricle, which is double what they should be. There is a corresponding increase of substance in the carneæ columnæ of the valves, and in the septum ventriculorum. The muscular substance of the heart is much more dense, and of a deeper red colour than natural; while the cavity of the ventricle appears to have lost in capacity what the parietes have gained in thickness. The anatomical character of *hypertrophia sine dilatatione*, in the right side of the heart, does not differ materially from the above.

Signs of Hypertrophia of the left Ventricle. In addition to the general symptoms of diseases of the heart, already described, may be put down, as nosological marks, which, however, are far from infallible, a strong and full pulse; strong pulsations of the heart, in the left side, equally felt by the patient himself, and by the hand of the practitioner; a want of sound on percussion of the cardiac region. Auscultation, however, by means of the stethescope invented by Laennec, affords more certain data for diagnosis. When the cylinder is applied between the fifth and sixth rib, the contraction of the left ventricle will communicate a very strong impulse, accompanied by a sound much more dull than in a healthy state of the parts. The contraction of the auricles is very short, and little sonorous. The beating of the heart can only be heard over a very small space. In this affection, more than in any other, the patient experiences a constant

sense of the heart's action; but he is not subject to violent palpitations, excepting when under the influence of strong moral or physical agents. Neither is there much intermission, or other irregularity of the pulse.

Signs of Hypertrophia of the right Ventricle. According to M. Corvisart, these differ from those attending hypertrophia of the left ventricle only in being accompanied by a greater tightness of the chest in respiration, and a deeper colour of the face. Lancisi put down pulsation of the external jugular veins, as a sign of active aneurism of the right ventricle of the heart; but Corvisart rejects this diagnostic, because he saw it in cases of dilatation of the left ventricle. Laennec, on the other hand, observed this phenomenon in every case of considerable hypertrophia of the right ventricle. I have had an opportunity of verifying this statement of Laennec in a recent case. When the contractions of the heart are investigated by the cylinder, the same phenomena are presented as in the affection of the left ventricle, except that the *impulse* is stronger at the lower part of the sternum than opposite the apex of the heart, between the fifth and seventh ribs. Hypertrophia simplex of the *right* is still less common than hypertrophia of the *left* ventricle. In simultaneous hypertrophia simplex of both ventricles, there is a combination of the symptoms above enumerated.

2. *Dilatation of the Ventricles of the Heart.* The *passive* aneurism of Corvisart presents the following pathological characters, anatomically examined. The cavities of the ventricles are enlarged, while their parietes are attenuated, and the muscular substance, in general, softened in consistence. The parietes of the left ventricle, in particular, are occasionally not more than a couple of lines in thickness, the muscular substance being sometimes of a violet hue, at others, pale or yellow. The carneæ columnæ, in these cases, appear more than naturally separated from each other, and the septum ventriculorum thinned, like the parietes. This simple dilatation may affect only one ventricle, but more commonly it extends to both; which is not the case in the opposite condition, namely, in hypertrophia simplex.

Signs of Dilatation of the left Ventricle. These, according to Corvisart, are, "soft and weak pulse; slight palpitations, as if a soft body raised the ribs, but did not come against their internal surface with a lively stroke; an absence of sound, on percussion, over a considerable extent of the

cardiac region." But these signs are all fallacious. In general, the heart's action, in this complaint, cannot be felt at all, and the pulse cannot be depended on. The cardiac region will also sometimes sound well, when there is dilatation of the left ventricle to a great degree. The only certain diagnostic, is a clear sound transmitted through the stethescope, at each contraction of the heart, when the instrument is applied opposite the apex of this organ.* The degree of clearness in the sound, and the extent over which it is heard, are proportioned to the degree of dilatation. Thus, when the sound of the ventricular contraction is as clear as that of the auricle, and, at the same time, the action of the heart can be heard, by means of the cylinder, in various parts of the chest, and even in the back, the degree of dilatation is extreme.

Signs of Dilatation of the right Ventricle. According to Corvisart, these are nearly the same as those attending dilatation of the left, as far as regards the pulse, and tangible action of the heart. He does not, as was before mentioned, attach much importance to the jugular pulsation noticed by Lancisi. The more unequivocal phenomena, according to this veteran physician, are the greater dyspnœa than when the left ventricle is affected, the greater disposition to serous effusions, the more frequent occurrence of hæmoptysis, and a deeper livid tint of the face, sometimes amounting to a violet hue. Laennec has observed an *habitual turgidness* of the external jugular veins, without sensible pulsation, to be a very constant attendant on passive dilatation of the right ventricle. The absence of sound, on percussion, this accurate observer has found to be a very equivocal symptom, and in this light it has appeared to me in practice. Although, in general, the face exhibits a considerable degree of livor in this disease, yet there are many instances where it is extremely pale and leuco-phlegmatic; a remarkable case of which lately fell under my own observation. It is also consonant with experience, that *active dilatation* of the right ventricle, that is, dilatation with hypertrophia, presently to be described, is more frequently accompanied by lividity of face and extremities, breathlessness, discharges of blood from the lungs, and serous effusions, than the passive dilatation now under consideration. The most certain pathognomonic sign of ventricular dilatation of the right side, according to Laennec, is the clear and distinct sound or noise produced by the heart's action, when explored by the stethescope, applied to the

* See Laennec's Work on Auscultation, vol. ii. p. 268.

lower part of the sternum, or between the ribs of the left side. The truth of this I have lately had an opportunity of witnessing in two cases.

3. *Dilatation of the Ventricles, with Hypertrophia, or thickening of their Parietes.* The combination of these two affections is extremely common, infinitely more so, indeed, than simple dilatation without hypertrophia or increase of substance, the complaint investigated in the preceding section. This is the active aneurism of Corvisart, and may take place in one or in both ventricles at the same time. It is in this last case that the heart is sometimes found to have acquired a prodigious volume, twice, thrice, or even four times its natural size. With this increase of size in the muscular structure of the heart, there is generally a proportionate increase of density.

The signs of this disease are a combination of those attending simple dilatation, and simple hypertrophia of the ventricles: thus the ventricular contractions will produce, through the stethescope, a strong impulsion, and a well-marked noise, the auricular contractions being quite sonorous. The cardiac pulsations are heard over a great extent of the thorax, sometimes, especially in thin subjects and children, in every part of the chest.

In this active enlargement of the heart, its pulsation can not only be distinctly felt, and generally seen, in the cardiac region, but the head, the limbs, and even the clothes, will be observed to vibrate in consequence. The carotids, radials, and other tangible arteries, will also, in general, give evidence of this morbid force and action of the central organ of the circulation. If the hand be pressed against the ribs of the left side, the heart, according to the expression of Corvisart, "seems to be irritated thereby, and to react more strongly." "Cet organe semble s'irriter contre la pression et reagir plus fortement." The pulse in this, as in most other diseases, is very fallacious. Even in this state, and violent action of the heart, the pulse at the wrist will feel small, feeble, and regular. The cylinder applied alternately to the left side, and to the lower part of the sternum, will give the indications whether one or both ventricles are in a state of active dilatation. As it is in these cases, that the heart acquires the largest possible size, so it is here that we most frequently observe the absence of healthy and natural sound for a greater or less extent, on striking the cardiac region.

But it must never be forgotten, that, of all diseases, those of the heart are the most difficult to be ascertained, by any one set of symptoms or mean of diagnosis. The whole history

of the patient's complaint should be accurately investigated, and then percussion and auscultation employed in aid of the general phenomena; for it ought to be borne in mind, that active and passive dilatations of the heart are, after all, but *relative disproportions* between the circulating and other organs of the body, or between the different parts of the heart itself, and that an augmentation in the size of this organ, which, in a person of narrow chest and weak lungs, becomes the cause of perpetual sufferings, would, in a person whose chest was capacious, lungs sound, and capillary system of firm texture, occasion no inconvenience at all.* In short, there are few people whose hearts are in perfect and healthy proportion to the other organs and systems of the body, and this disproportion is the source of innumerable derangements of function and structure through life. It is, in general, much more advantageous to the constitution that the heart should be below than beyond the natural size, though a considerable degree of enlargement is not always incompatible with comfortable, if not robust health, and even long life, where there is no defect in any other organ or part of the body.

It is evidently of the greatest consequence, however, to discover this disproportion between the heart and other organs, before it begins to produce any serious inconvenience; for it is at this period that we can put in force certain preventive checks to future sufferings. One of the great advantages of auscultation is the early discovery of this tendency to enlargement of the heart.

The heart is subject to a great many other disorders of structure than are here enumerated, such as a fatty degeneration, a flabby, and, as it were, rotten state of the muscular substance, an induration of the same, and an atrophy, or wasting of the organ; but the symptoms attending these states are not yet sufficiently ascertained, and therefore their diagnosis must depend on the accumulated observations of future pathologists.

Valvular Disorganizations. There is a melancholy and distressing class of complaints, to which the heart is subject, denominated *ossification* of its valvular apparatus. It is curious that this species of induration is almost exclusively confined to the *left* side of the heart and the *arterial* system thereunto belonging, while the right side of the heart and

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* Vide Laennec, vol. ii. p. 275.

veins; in other words, the system of *black blood*, is nearly, or altogether exempt from such disorganization. Two inconveniences naturally result from induration, or, as it is called, ossification of the mitral valve in the heart, and semi-lunar valves of the aorta, the general seats of this lesion. In the first place, by their thickening and immobility, they obstruct the free passage of the blood from the auricle into the ventricle, and from the ventricle into the aorta. In the second place, by their immobility, they cease to perform the office of valves; and, consequently, when the ventricle *contracts*, the mitral valve suffers a part of the blood to regurgitate back into the auricle; and when the ventricle *dilates*, the semi-lunar valves suffer a portion of blood to return from the aorta back into the heart. The derangement which the circulation must experience from this state of things, when the auriculo-ventricular, and the ventriculo-aortic openings have become considerably contracted or obstructed, may be readily imagined. The diagnostic symptom attending the ossifications in question, is difficult to describe, but extremely easy to recognize, after having been once observed. It is a murmuring noise or tremor, which has not been inaptly compared to the purring of a cat, that may be distinguished by the hand applied to the region of the heart, and in some measure heard, while the hand is placed on the ribs, but not unless the hand is there. When the stethescope, however, is used, the purring murmur is heard distinctly by the ear alone.

The constitutional symptoms attending this class of disorganizations, are those described as attending diseases of the heart, in general, and need not be recapitulated. The same remark applies to the treatment.

There is sometimes a difficulty in distinguishing organic diseases of the heart from functional disturbances occasioned by nervous irritability. It is well known that students in medicine very often fancy themselves to be affected with cardiac diseases, after hearing a lecture, and particularly a clinical lecture on this class of complaints. Many of Corvisart's pupils pined—some of them for years—in misery, supposing themselves to be victims to this dreaded malady, after walking the hospitals with that celebrated physician, and having their attention directed to diseases of the heart by a man who so long and so successfully cultivated this branch of pathology. Literary men, of all descriptions, from the increased sensibility of their nervous systems, resulting from sedentary habits and intellectual cultivation, are very liable to various affections of the vascular system, which imitate organic dis-

cases of the heart or great vessels, causing considerable alarm and disquietude. Among these, palpitations in the chest, and pulsations at the pit of the stomach, or lower down in the belly, are the sources of great anxiety. Although these symptoms are not to be despised, or carelessly examined into by the medical attendant, they are, for the most part, attributable to nervous irritability, and consequently are not, in themselves, dangerous. But it should be borne in mind, that disordered *function* may, and too often does, in time, produce alteration of structure; and then we are awakened, when it is too late, to the real state of the case.

Treatment.—As a *cure* is but seldom attainable in actual organic disease of the heart, our principal exertions must be *palliative*, and, if possible, to arrest or, at least, protract the progress of the complaint. There is, in fact, but one grand or fundamental indication in the treatment of organic diseases of the heart; and that is, *to facilitate the circulation of the blood*. It is the inability of the heart to circulate the blood in a proper manner, that is the source of all the morbid phenomena of the disease, and all the sufferings of the patient. The want of power in the right side of the heart to send the blood through the lungs, as fast as it returns from the general venous system, causes ultimately those dropsical effusions in the cellular tissues of the lower extremities, and the different cavities of the chest or abdomen, together with the purple hue of the lips and face. And it is the defective circulation in the lungs, which produces the difficulty of breathing and cough, so distressing in this class of afflictions.

Now, as there is scarcely a muscle in the body, whose action does not accelerate the motion of some portion of venous blood towards the heart; so *quietude* is absolutely indispensible in the treatment of the complaint. Without quietude, there is no chance of retarding, much less of arresting the progress of the disease. We may as well expect to cure an inflammation of the eye, while exposing that delicate organ to the beams of the sun, or to smoke and dust, as to attempt the mitigation of organic disease of the heart, while exercise or corporeal labour is continued. It is on this account that this class of diseases proves speedily fatal to the lower orders of society, who cannot procure the indulgence of rest, while people in a better condition of life keep the disorder at bay for many years, and even with a tolerable share of comfort, when they can abstain from corporeal exertion, and have the means of pursuing the instructions of their medical advisers.

From some cases which have fallen under my own observation, and from cases related by that accurate observer Laennec, there is reason to believe that active enlargement of the heart may be actually cured completely by a rigid and long continued perseverance in the means hereafter to be pointed out. But, however this may be doubted by some physicians, it is at least certain that, in a very considerable proportion of instances, life may not only be greatly prolonged, but even rendered comparatively comfortable, by a proper regulation of the regimen, and adoption of the remedies prescribed. I know, at this time, four men, who are turned of seventy years of age, and some of whom, from the symptoms and history, must have had organic disease of the heart (particularly valvular disorganization) for at least twenty years; yet they may live for many years to come, altho', it must be confessed, that their lives are held by a very precarious tenure. It is not true then that diseases of the heart always go on increasing from bad to worse, till death terminates the scene. I know several cases where the disease appears to be at a stand, and where the patients enjoy a tolerable immunity from sufferings, except when the rules of regimen and quietude are broken, and a temporary aggravation of the symptoms ensues.

The degree of danger, in these cases, is commonly in proportion to the degree of interruption in the functions of respiration and circulation. Whatever may be the amount of disorganization in the heart, if the breathing can be performed with tolerable ease, and if the blood do not stagnate in any part of the body, life may be preserved for a long time, and *vice versa*. The œdema of the face and extremities indicates the obstruction to the return of blood to the lungs from the general circulation; and in proportion to the difficulty which we experience in removing these infiltrations, is the danger. On the other hand, as long as we can carry off these effusions by means of diuretics or other remedies, our patient is pretty safe; always, however, bearing in mind that *sudden death* is a common termination in this melancholy class of complaints. And here I shall digress for a few minutes on the subject of *sudden death*.

The rapid increase of APOPLEXY, in these latter years, has now attracted the attention of all medical, and even common observers; nor do I think that the circumstance is at all accounted for, on the supposition of an increased repletion in the way of diet. In the fourth Number of the Medico-Chirurgical Journal it was shewn that, even in the aged and infirm, active aneurisms or enlargements of the heart were

infinitely more prevalent than passive diseases of that organ. Now every man of observation must have remarked the distress occasioned in the head by derangements of the heart, and especially by active enlargements, accompanied as they are by inordinate action of the diseased organ. In two instances which lately fell under my notice, there was every reason to believe that the apoplectic attack was determined by active enlargement of the heart; and it was with much satisfaction that I lately read a strong confirmation of opinions which I had for some time entertained on this subject, by M. Bricheteau, of Paris, of which I shall take some notice here.*

Baglivi appears to have been the first who has recorded a case illustrative of this connection, in opening the body of Malpighi, who died of apoplexy. The left ventricle of the heart was found actively enlarged, but Baglivi drew no conclusion from this coincidence or consequence. Gibellini [*de quibusdam cordis affectionibus*] details a similar case, and Lieutaud another. But M. Richerand seems to be the first who distinctly traced apoplexy to aneurism of the heart. "L'ouverture des cadavres des personnes mortes d'apoplexie, (says he) m'a prouvé que *l'excès de force du ventricule gauche est une disposition plus prochaine à l'apoplexie*, qu'un cou court, &c." *Nosog. Chir. tome* 3.

Legallois, a few years ago, read before the *Ecole de Medecine* a very curious case of apoplexy resulting from the inordinate force and action of the left ventricle of the heart. The subject was a woman, who felt a sense of suffocation on the least motion; her sleep was disturbed; she could only lie on the right side, and was subject to nasal hæmorrhages. She was cut off in the 25th year of her age by an apoplectic seizure. On dissection, an effusion of blood on the brain was found, while the *left* ventricle of the heart was so enlarged, and its parietes of such preternatural strength, as to leave no doubt in Legallois's mind that the inordinate action of the heart was the cause of the apoplexy.

Richerand has still more recently stated an instance in point, in the case of the late illustrious Cabanis, who perished by a fourth attack of apoplexy in the spring of 1819. The *left* ventricle of the heart was enlarged to thrice its volume, and its walls increased to triple their usual strength.

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* De l'influence de la circulation sur les fonctions cerebrales, et de la connexion de l'hypertrophie du cœur avec quelques lesions du cerveau.—*Journal Complimentaire des Sciences Medicales, Juill.* 1819.

But it is M. Bricheteau who has given the greatest development to this interesting investigation. During two years of careful observation at the Hotel Dieu, where the cases were open to the inspection of all, he has been able to collect a great body of evidence in proof of the connection between cardiac aneurism and apoplexy, thirteen cases of which are detailed in the Journal before mentioned. We shall condense and translate the fourth case as a specimen.

Case. A woman, 50 years of age, after having been turned out of several hospitals, was received into the Hotel Dieu, in May, 1816. She had not slept, with any kind of comfort, for several months; was obliged to keep in the erect posture in bed; was harrassed with a sense of suffocation, and pain in the epigastric region. No pulsation of the heart to be felt in any part of the chest; pulse regular, feeble, and slow; breathing quick and laborious; constant restlessness and complaining; lower extremities œdematous. Although many of the characteristic symptoms of cardiac disease were absent, it was yet suspected by the medical attendants; and two blisters were applied to the thighs, in the hope of relieving the epigastric pain, of which she so bitterly complained, administering, at the same time, antispasmodics, digitalis, &c. A few days after her entrance into the hospital, she was found one morning hemiplegic of the left side, with a total suspension of the excruciating pain with which she had been so long harrassed. She now fell into a state of indifference as to her situation; became daily enfeebled; the left arm swelled, and, strange to say, the pulsations of the heart *now* became evident, though extremely irregular. She died ten days after the hemiplegic attack. On dissection, the heart was found so enlarged as to almost fill the left side of the thorax, the parietes of the left ventricle having acquired a great thickness, and the carneæ columnæ enormous dimensions. There was effusion of blood within the cranium.

The various other cases which Bricheteau has detailed, tend to the same point; and from what I have now brought forward, I think we may safely conclude that the late increase of diseases of the HEART has contributed considerably to the increase of APOPLEXY, and perhaps of many other disorders denominated nervous.

But to return from this digression. The heart carries on the circulation of the blood most easily when we are in the recumbent posture; but in structural derangements of this organ, there is generally so much embarrasment in the breathing, that the patient cannot keep in the horizontal position.

Nevertheless a half reclined posture should be advised, which relieves the heart without oppressing the head or lungs.

If the patient be at all robust, plethoric, or flushed in countenance, with difficult respiration, and strong, hard, or full pulse, then bleeding from the arm must be practised, and repeated at longer or shorter intervals, according to the urgency of the symptoms. The turgid vessels must be relieved, at all events; otherwise the organic disease of the heart will be accelerated in its march, or those effusions of blood or serum into the cavities of the chest or abdomen ensue, which greatly endanger the patient's life. It must be remembered, however, that these general bleedings should always be *small;* since, in embarrassed states of the circulation, any sudden reduction of the vital energy of the system has a strong propensity to cause those very *serous* effusions which it is our object to guard against, by gentle reduction of the quantum of blood in circulation; so true is it that extremes approximate, and produce similar effects.

It is clear that the circulation is, even in health, more languid in the abdominal viscera, especially in the system of the vena portarum, than in other parts of the body, for very obvious reasons, and therefore in deficient energy of the heart, whether from functional or organic disease, there is a considerable tendency to congestions of blood in the abdominal organs, and portal circle. Hence the function, and sometimes the structure of the liver, is apt to suffer in diseases of the heart much more so than those of the stomach or intestines, the functions of which, with exception of flatulence, often preserve their regularity to a great degree, when the most serious lesion is going on in the heart.

It has been shewn that *active* aneurism of the heart is much more common than *passive*. This is the case more particularly, where diseases of the organ follow acute rheumatism, the suppression of some accustomed evacuation from the system, or the translation of a cutaneous eruption or irritation, as erysipelas, from the surface to the interior of the body. In this extensive class of cardiac diseases there is constant danger of some other organ or tissue in the body, becoming diseased from the violent action of the heart, and impetuous propulsion of the blood through the vessels. I have shewn how disease of the heart tends to apoplexy; and this consideration leads to the importance of watching the various organs of the body, during this morbid state of the circulation, and guarding them, when threatened, by general or local detractions of blood, low diet, intestinal

evacuations, and counter-irritation. On the continent, aneurisms of the aorta, and other large arteries, have been arrested in their progress by repeated blood-letting, quiescence, and starvation. In aneurism of the heart also, I am persuaded that many cures might be effected by a rigid system of this kind steadily persevered in.

In every disorganizing process going forward in the heart, excepting perhaps simple passive dilatation, which is comparatively rare, there must be some degree of inflammation, or at least irritation, existing in that organ. This is evident from the symptoms during life, and the dissections after death. Hence an important indication of treatment is to withdraw irritation from, or subdue inflammation in, the central organ of the circulation. Local blood-letting by leeches in the neighbourhood of the heart, is frequently necessary, while some point of counter-irritation should be established, by blister, issue, or seton. These last measures are too much neglected by medical practitioners, in organic diseases of the heart, which are considered so hopeless in their results. But in these cases, I have seen apparently insignificant measures mitigate the complaint, when stronger ones had failed, or could not be ventured on.

As there is almost invariably a morbid irritability [or organic sensibility] of the heart in this class of disorders, considerable advantage is derivable from opium, hyoscyamus, digitalis, and other direct or indirect sedatives, when judiciously managed, and especially when combined with aperients, and ant-acids or aromatics. Aperients are necessary, for obvious reasons; and as flatulence of the stomach is both a common and very troublesome symptom in these complaints, aromatics and alkaline absorbents are very useful. Every symptomatic *effect* which we relieve, in this class of afflictions particularly, is a point gained, and contributes more or less, to retard the progress of the original *cause*.

When there is reason to believe that a repelled eruption, or a suppressed constitutional discharge, led to the production of the complaint, we ought to endeavour, by all possible means, to re-produce the original affection; since this will be more serviceable than a multitude of other measures that do not run so parallel with the steps of Nature.

When infiltrations begin to shew themselves in the cellular membrane or cavities of the body, the case is bad, but not entirely hopeless. Life may still be long preserved, or even the progress of the disease considerably arrested by judicious measures; for these dropsical effusions are often the consequence of neglected or improper treatment, and when they

are dispersed by diuretics and aperients, their return may be frequently prevented by proper remedies and regimen.

That these dropsical effusions should not deter us from local, or even general bleeding, has been amply demonstrated by modern practitioners, and by none more forcibly than by Dr. Crampton of Dublin. These effusions are not seldom the effects of inflammatory action going on in the chest or abdomen, in consequence of disease of the heart, and they cannot be prevented from recurring, but by removing their primary cause.

For the temporary removal of these serous collections we must have recourse to diuretics and alterative aperients.

There is not a more powerful diuretic in the Pharmacopœia than the following, in any kind of dropsical effusion, but especially of the chest.

℞. Acidi tartarici - - - - - ℈j.
Carb. sodæ - - - - gr. xxv.
Spir. æther. nitrici - - f. ʒiß.
Infusi digitalis - ʒiij ad ʒvj.
Aquæ menthæ vel aneth. ℥j. M. ft. haustus bis terve in die sumendus.

While the above medicine is in use, the following pills may be given every night:

℞. Pil. hydrargyri, gr. iij ad gr. v.
Aloes spicat. - - - - - - gr. j.
Pulv. scillæ - - - - - - - gr. j.
Ol. cassiæ - - - - - - - gr. ij. M. ft. pil. ij. H. S. S.—

The above formulæ will reduce dropsical swellings in most instances, and the re-establishment of them must be prevented by the means pointed out, or even by a continuance of the foregoing remedies, graduated according to the circumstances of the case.

A *combination* of disease in the heart and in the liver, at the same time, has been so frequently observed, that two authors of celebrity, Corvisart and Portal, have each contended for disorder in the one organ being a great cause of that in the other. Corvisart supposed that, in these combinations, the heart was the organ *first* affected, and the liver *secondarily*. Portal takes the opposite side of the question. But

the rule is not absolute either way, for it is very unlikely, that in such complications, the *origin* of the mischief should be exclusively in one particular organ. When we consider how very difficult it is to detect *incipient* deviations from healthy function or structure in either of the organs alluded to, we shall be constrained to acknowledge, that the proof of the priority can rarely be very evident. From pathological and physiological reasoning, however, I think the probability is in favour of M. Portal's opinion. One physiological reason is, that the liver appears to be less under the influence of the action of the heart in health, than most other organs. The vast flow of blood to the liver does not come, *per saltum*, from the heart, as it does to *every* other viscus, but is first strained through millions of capillary tubes, which moderate its velocity, while any impediments to the free action of the heart can only influence the reflux of blood from the liver, in common with that from the lungs, brain, and other organs. Secondly, enlargements of the heart can hardly ever disturb or press upon the liver, whereas enlargements of the liver may very readily encroach upon the capacity of the thorax, and so disturb the function or even structure of the heart.

The pathological reasons are stronger. We know that disordered states of the liver will have such a temporary *sympathetic* influence on the heart, as to lead us often to fear that there is serious organic lesion in that organ or its vessels, which fear is removed by observing the cardiac symptoms decline as the functions of the liver and digestive organs become restored. On the other hand, there is rarely any instance of temporary sympathetic disorder in the liver, from organic derangement of the heart, though we may sometimes find permanent combinations of disease in the two organs.

If, therefore, the various disordered states of the liver and its functions frequently exert a temporary influence on the *actions* of the heart, we may reasonably conclude that repetitions and degrees of this influence will occasionally lead to *permanent* derangement of *structure* in the same.

But, however this point may be settled, it behoves the practitioner, while treating liver complaints, to examine with a scrutinizing eye, whether there be any derangement of action, or symptoms of lesion of structure in the circulating organ. If he overlooks this, he will not only be miserably disappointed in his expected success, but, in all probability, will give a false prognostic to the patient or his friends, and thereby suffer in professional reputation.

Let us illustrate these observations by two cases, not copied from imagination but from nature.

We will suppose that ossification of the valves, or dilatation of the pulmonary cavities of the heart takes place, accompanied with appropriate symptoms, but frequently giving rise to swelling and tension of the right side, with various indications of liver derangement. The routine physician's attention is naturally fixed by these latter apparently unequivocal traits of abdominal disease, while the less obtrusive features of disorder of the heart are either unnoticed or attributed to sympathy. He delivers a favourable prognosis, and enters on a vigorous plan of treatment; but although the hepatic symptoms are signally mitigated, or almost entirely give way, yet the patient regains not his health, and still complains of mysterious and inexplicable symptoms not only in the breast, but in various parts of the body, which are considered nervous, or perhaps imaginary. Soon afterwards, however, the delusion vanishes; the legs begin to swell towards night, while increased cough, difficulty of breathing, palpitations, languor, and various anomalous symptoms, assume a portentous aspect, till, sooner or later, the unfortunate patient perishes, with all the unequivocal symptoms of watery effusion in the chest; or suddenly expires in some unguarded moment of agitation or exertion, to the astonishment of his unprepared relatives, and the discomfiture and injury of his unsuspecting physician.

Again, in a patient previously exhibiting all the undoubted symptoms of liver disease, palpitations of the heart, stricture of the chest, dyspnœa, light faintings, irregularity of the pulse, and all the phenomena characteristic of weakened and disordered action of the heart, are occasionally, or upon the occurrence of any cause capable of strongly influencing the sanguiferous system, developed. In this case, if the physician happens to have had his attention much directed towards disorders of the heart, he will perhaps decide hastily that these are of that melancholy description, which only can admit of palliative treatment, and will deliver his unfavourable prognosis accordingly. But another more acute practitioner is called in. He institutes a minute inquiry into the commencement and progress of the malady. He discovers that the symptoms of the liver disease obviously *preceded* the derangement of the heart; consequently, that the latter has been determined by the mechanical encroachment of the morbid liver, or by the constitutional infirmities resulting from this state of the biliary system, propagated to the heart, the *structure* of which, he has reason to hope, may not yet have suffered any permanent alteration. Assigning to the maladies of the two organs, their proper and relative importance

his curative plan will be as successful as his views have been correct. Mercury and other remedies are exhibited; the disease of the liver yields; and all the dependant train of symptoms in the chest yields with it.

The inferences to be deduced from this reasoning are obvious. Had the physician who was consulted in the first case, correctly ascertained, as he ought to have done, the pre-existence of the thoracic, with respect to the abdominal malady: had he acquainted himself by a cautious and deliberate contemplation of the attendant symptoms, with the incurable nature of the lesion affecting the heart, his unfortunate patient would not have been needlessly subjected to the torture and exhaustion of a full mercurial course, nor his own reputation have suffered from the delivery of a false prognostic.

On the other hand, had the physician *originally* employed in the last case, been equally circumspect, his inert and inefficient plan would have been exchanged for the more energetic and successful remedies of his fortunate successor; and his abilities and opinions would not have been brought into perhaps unmerited suspicion or contempt, by the unexpected issue of the case.

On this account, every means of throwing light on the diagnosis between the two classes of disease should be employed; and among these, thoracic percussion, abdominal compression, and auscultation, are too much neglected, or foolishly despised, in this country. To give an instance of the vast importance of abdominal pressure and thoracic percussion, I may observe, that in a majority of cases where the liver is enlarged there is nothing preternatural to be felt under the margins of the right floating ribs, to which place alone an examination is usually directed. But the fact is, that enlarged livers very frequently, indeed most frequently, encroach on the *chest*, rather than on the belly, and there produce a train of *thoracic* symptoms that still farther mask the source of the malady. But a hand accustomed to thoracic percussion can tell, with considerable exactness, how far the liver *rises* under the ribs, while the abdominal compression, in various postures, ascertains the extent of its *dip* in the belly; and thus a tolerable diagnosis is formed between the diseases of the two cavities. How often these are confounded may be seen by Dr. Wilson Philip's invaluable paper on dyspeptic phthisis in the Medico-Chirurgical Transactions.

There is another circumstance that ought to be attended to in all cases of internal disease, accompanied by doubtful, mysterious, or anomalous symptoms, and that is the state of the urethra. I have seen so many sympathetic affections

of various remote parts of the body depend on slight *strictures*, or even irritation in the male urethra, that I have long made an examination of this kind, a material item in the process of ascertaining the seat and nature of diseases.

When it is ascertained, or strongly suspected, that derangement of the biliary organ *preceded* that of the heart, we ought to institute a plan of treatment for the removal of the *former* complaint, if removable, that may not be detrimental to the *latter*. Notwithstanding the outcry which has been raised against mercury, because it has been *abused* in the hands of ignorance, and viewed through a distorting medium by prejudice and illiberality, there is no other medicine, if it be judiciously managed, which can restore the disordered function of the liver, with such certainty as this dreaded mineral. In chronic inflammation of the heart, especially when arising from translated rheumatism, mercury has a powerful effect in arresting the progress of disorganization, when slowly and carefully administered; a fact which has been noticed by a distinguished physician, Dr. Farre, in a letter to Mr. Travers on iritis, and of which I have seen several convincing proofs. There is, therefore, no valid objection to the temperate administration of this medicine in diseases of the heart, complicated with, or resulting from, disease of the liver. On the contrary, it should form the basis of our treatment in all such cases; unless it be found that, from peculiarity of constitution, it increases the irritability of the organ, or deranges the nervous system of the patient.

In all organic diseases of the heart, however, it is on low regimen, rest, and reduction of vascular fulness, by reiterated small local or general bleedings, that our great hopes must rest. Animal food, in most instances, should be totally abandoned, and water only taken for drink. The most perfect quietude, if that can be obtained, should be enjoined, both in respect to mind and body; and all irritability of the system, as much as possible, allayed by cautiously managed sedatives, especially opium, hyoscyamus, and digitalis.

OBSERVATIONS

ON

THE NERVOUS SYSTEM.

THE brain, the spinal marrow, and the nerves, form a system, by means of which we think, feel, and set the *voluntary* muscles in action. It is through the medium of this system also, that the *involuntary* muscles (as the heart for instance) and the various glandular and other organs, are stimulated to the performance of their respective functions. This system, in its turn, is dependant on the heart and arteries for the power of performing its functions. When the heart ceases to propel blood to the brain, we cease to think, feel, and move, while the same may be said of the involuntary muscles and internal organs. All experiments on the living or dead, contravening these positions, the result of general observation, are—" vain philosophy." The nervous and vascular systems, then, are mutually dependent on each other; and to which was given the *first* impulse by the hand of our Creator, it is needless to conjecture.

In respect to *diseases*, however, there is every reason to believe that their *causes* operate *primarily* on the nervous or sentient system of our frame, and secondarily on the vascular system. This, indeed, we cannot prove by dissection. The brain and nerves of a furious maniac will frequently, nay generally, exhibit precisely the same appearances as those of a contemplative philosopher. *Organic* changes may take place in the brain and nerves *during* a disease; but their *functions* may be all astray for a long time *previously*, without exhibiting any cognizable mark of altered structure. That this is the case with respect to the *brain*, (whose texture is so susceptible of impressions) in that greatest of all *functional* diseases, insanity itself, is now proved beyond a doubt. I may refer to the dissections of Esquirol, a man who has had more opportunities of investigating this subject, than any

man now living, for the truth of this position. As for the *nerves*, no pathologist will be so hardy as to say, he can recognize the marks of disordered *function* in them.

Neither is it meant to be denied, that some *change* of structure or organic arrangement takes place in lesion of *function*. All I maintain is, that such change (if there be change) is not demonstrable in the present state of our knowledge. Such being the case, the true path of our investigation lies through the phenomena or *symptoms* which *disordered nervous functions* exhibit, until traces of altered structure arise, when both the functional and organic disorders should be carefully viewed in conjunction, and as very frequently standing in the order of cause and effect to each other.

The causes of derangement in the nervous system may be branched into three classes :—1st. Those causes which act on the brain and nerves in their functions of sensation; 2dly, in their functions of volition; and 3dly, in their connection with the blood-vessels.

The nerves have three great offices to perform in the animal economy; namely, to convey impressions to the brain from all parts of the body, external and internal; to transmit the nervous fluid or influence, whatever it may be, to the various muscular and other parts of the system from the brain —and to co-operate with blood-vessels in the great visceral functions of digestion, chylification, sanguification, secretion, excretion, &c.

When we examine into these various and complicated functions, and the perpetual interruptions which they are meeting in civilized society, it is astonishing that the nervous system is not even more frequently and more extensively deranged than it is!

I. *Derangements through the Medium of Sensation.*

The nerves are often very much disordered in their function of sensation, which may be morbidly acute, torpid, or depraved. The system of artificial stimulation, moral and physical, under which we live, in the present frame of society, has caused a greater or less degree of the foregoing state of nerves to be present in almost every individual; and what is but little suspected, we invariably find — a combination of these morbid states in the same person. While one class of nerves will be so morbidly acute, that, as Dr. Whytt has correctly observed, " disagreeable or painful sensations, and violent or irregular motion, will be excited in the body, by

the application of such substances to the nerves of the different organs, as in a more healthy and firm state, would either occasion less uneasiness and disturbance, or none at all," there will be another, or other classes of nerves, so deficient of their healthy share of sensibility, that all the impressions which they ought to convey to the brain shall be unnaturally faint, and all the actions and functions dependent on them, imperfect. Thus, in a person of what is termed the "nervous temperament," all the voluntary muscles, and even the mental emotions, will be so easily excited, that very trifling moral or physical impressions will set mind and body in the greatest agitation; but if we examine the ganglionic system of nerves in the same individual, we shall find one or more of the organs supplied by them, especially the liver or digestive apparatus, proportionally torpid.* The consequence of this torpor in the liver, will be a deficient secretion of bile; in the intestines, constipation; in the retina, impaired or indistinct vision; and so forth. In short, a portion of the nervous system may be in such a state of preternatural irritability as to occasion *spasms* of the corresponding muscles, while other portions are so torpid as to induce a paralytic state of the muscles or organs dependent on them.

It is very curious that the rudiments of this doctrine, which modern zeal is elucidating, have been distinctly noticed by Sydenham. "In my opinion, (says he) those disorders which we term hysteric in women, and hypochondriac in men, arise from *irregular* motions of the animal spirits [now termed excitement or nervous influence], whence they are hurried with violence, and too copiously to a particular part, occasioning convulsions and pain, and destroying the functions of the respective *organs which they enter into, and of those also whence they came; both being* highly injured by this *unequal distribution,* which quite perverts the economy of Nature."

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* When I say supplied by *them,* (the ganglionic nerves) I do not mean to assert that the viscera are exclusively under the influence of the ganglia. The innumerable connections of the spinal nerves with the par vagum and great intercostal, prove that no part of the system is exempt from the influence of the brain, though the *functions* of the viscera are wisely placed out of the power of the will.

Mr. Charles Bell has very lucidly shewn, in his lectures, the descent of the cerebrum and cerebellum through the whole spinal canal, from both of which portions the nerves arise, by separate origins, but afterwards unite. This explains at once the connection between the sensorium and viscera. The ganglia may be placed as checks to *volition* from the brain to the organs, and to common *sensation* from the organs to the brain.

II. *Derangements of the Nervous System through the Medium of their Function of Volition.*

I have already stated, that the nerves have not only to transmit impressions to the brain, but to convey the volitions of the mind, and the cerebral influence, to all the parts of the body. Now the mental functions being disturbed by a host of moral and physical agents that, in high states of civilization, are perpetually operating, the nerves themselves, so connected with and dependent on the brain, participate in this disturbance, and I believe suffer more from this cause, than from all the morbid impressions made on their other extremities, whether spread on the external surface of the body, or dispersed through the internal organs and tissues. Every person who has paid attention to what passes within him, must be conscious of the truth of this remark. A burst of any of the passions, from moral causes, will derange the nerves, agitate the muscles, and disturb the internal functions, more strongly than the application of almost any physical agent to the sentient extremities of the nerves themselves. The moral commotions in our nature, then, prove a most prolific source of nervous diseases.

III. *Derangements of the Nervous System, through its Connection with the Vascular System.*

The nervous and vascular systems act and react on each other so perpetually and reciprocally, that it is impossible to say in what part of the circle the predominating influence or action begins or resides. The brain can no more exhibit the operations of mind, without impulses of blood from the heart, than the heart can throw out blood, without nervous influence from the brain.*

But it is not alone in the healthy operations of the animal economy that the strict reciprocity of action between the nervous and vascular systems is observable. In every deviation from health, whether of the acute or chronic kind, irregularity of the circulation deranges the equilibrium of the nervous influence, and *vice versa*. Thus, any cause that in-

* If the heart of an animal continues for some time to contract and dilate, after it is separated from the body, it only shews how plentifully this important organ is embued with nervous influence, derived from the sensorium and its appendages, which enables it, for a short period, to obey stimulation, after the source of supply is cut off. This circumstance offers no argument in favour of the heart's independence of the brain, practically speaking.

creases considerably the action of the heart, will put the arterial system, or some particular part of it, on the stretch, and then the nervous excitement or excitability of the said system, or part of it, is proportionally augmented, with a train of corresponding phenomena, as heat, pain, morbid sensibility, &c. ending often in inflammation, congestion, or effusion. If, on the other hand, the whole, or a part of the *nervous* system, be unusually excited by any cause, as heat, friction, &c. the whole or part of the circulating system will be also excited, and a corresponding increase of momentum or local accumulation* of the blood will be the consequence. This great fundamental rule holds almost universally. Wherever the nervous influence predominates, there the stream of the circulation is fullest: wherever it is deficient, the circulation languishes; where it is annihilated, the circulation stops.

I shall here beg leave to cite a few passages from an eminent continental physician, M. Broussais, which tend to the illustration of these deductions.

"1. That moderate degree of irritation or excitement which corresponds to health, is susceptible of great variety, from idiosyncrasy of constitution; and, in fact, is always *individual*. If the various systems, organs, or functions were *equally* developed and proportioned to each other, then we should have that *imaginary* equilibrium which the ancients denominated, the *tempered temperament*. *General strength* would result from this equilibrium, and form a regular and energetic exercise of all the functions; *general weakness* would depend on a less energetic exercise of the same. But for the most part, we observe a *predominance* of some systems, organs, or functions over other systems, organs, or functions in the same individual. To understand this, it is necessary to recollect, that those stimuli or excitants which act on the moving and sensible fibres, cannot have a general or uniform action throughout the whole frame; cannot excite all the organs to the same degree. On the contrary, they more frequently act *partially*, or on certain sets of organs, affecting others remotely, or feebly by sympathy. *Irregular* excitement then must be the consequence of *inordinate* stimulation, which *irregularity* of excitement is still

* This may appear to be contravened by the circumstance of the circulation going on in a palsied limb; but it is only those functions of the nerves on which muscular motion and sensibility depend, which are disturbed. The nerves distributed on the internal surfaces of the vessels themselves, and throughout the capillary system, have still the power of preserving the vital properties of those parts, and thus keeping up the circulation therein.

further increased by the well-known law, that *the more a part is irritated, the more susceptible it becomes of an increase of irritation.* This, of course, soon becomes a morbid state. There is another important law, which has never been disproved since the days of Hippocrates, namely, *the greater the degree of irritation or excitement in one part, the less there must be in some other.* Strength and debility then are rarely general; but are most frequently found in the same individual; a truth which saps at once the whole foundation of Brunonianism. It is very true, that an inequilibrium of this kind, to a certain extent, is not incompatible with health, and only shews itself in the shape of variety of temperament. But carried beyond this boundary, it passes into disease.

"When we consider the influence of the various agents that surround us, air, food, drink, the passions, &c. on the human frame, we cannot but admit that their *excess and deficiency* must be constantly producing super or sub-irritation, in all degrees. But in either case, the result is derangement of the balance in the vascular system, evinced by irritation in some internal viscus, amounting to inflammation, fever, or internal hæmorrhage; or in the nervous system, giving origin to those various diseases arranged in the class *Neuroses.*

"It will not be questioned that *excessive* stimulation may produce super-irritation or excitement, with consequent derangement of balance in the circulation; but some may be disposed to doubt whether *defective* stimulation can tend to the same event. We can admit, indeed, that a *general* and regular subduction of stimuli, as of food, drink, light, heat, &c. may induce *general* debility and emaciation, without deranging the balance of the circulation and excitability; for this is the very process which the physician is so often called upon to effect. But in common life, this is a rare occurrence; for, in nine cases out of ten, where there is *defective* stimulation of one kind or of one organ, there is *excessive* stimulation of some other kind or of some other organ; the consequence of which is *irregular* excitement. Nature herself, indeed, tends to induce irregular concentrations of excitability, and local accumulations of blood, in all morbid or excessive subductions of stimuli. The great viscera seem to attract to themselves the blood and vital energy, in all cases where the sum total of it is extremely reduced. Thus intense cold, while it stupifies, will produce internal inflammation; great degrees of hunger and thirst will determine gastritis; and we see, in cases of extreme exhaustion, the blood disappear from the surface to feed the interior organs, which, on dissection, are found gorged and congested.

Let us pause here for a moment, and make a few reflections on these important observations of the French physicians. The experiments of Dr. Seeds, related in the first volume of the *Medico-Chirurgical Journal and Review*, corroborate the foregoing statements. Take, for instance, the sixth experiment, p. 443, where the animal was bled to death, by opening the internal jugular veins. "The contents," says he, "of the *cranium and spinal canal were so gorged with blood*, that it might, at first sight, have been imagined that blood-letting would have saved the animal." In every case where the animals were bled to death, there was effusion of water on the brain and spinal cord, often accompanied by red spots like inflammation. Every one must also have seen effusion in the chest, from carrying blood-letting too far in certain kinds of pneumonia, accompanied by typhoid fever, with irregular distributions of blood. With these facts and reasonings before our eyes, is it not evident that the present rage for subduing fever by blood-letting *alone*, and that not by pints, but by *half-gallons* at a time, is pregnant with danger, and likely to bring a valuable remedy into utter disgrace?

In all those febrile states of the system, where the balance of the circulation and excitement is greatly deranged; where one organ is gorged and another exanguious; where one part is torpid and another in a high state of irritation, we shall err most lamentably in attempting the restoration of balance in the circulation and excitement, by *profuse* subductions of the vital fluid *alone*. The principle which directs this practice is a confined one, and rests on limited views of febrile commotion. The enlightened medical philosopher will assign venesection the foremost rank, it is true; but he will no more trust to that *alone*, than the nation would trust to a Wellington without soldiers. He will call in the assistance of those other remedies which experience has proved to be possessed of power *in equalizing the circulation and excitement*. Among these, *mercury*, both in its purgative and salivary character, holds the very next rank to blood-letting; after which follow the cold and warm affusion, antimony, diluents, &c. and even well-timed stimuli.

But to return. "These irregularities of excitement will be the more easily induced, by inordinate stimuli, in proportion to the enfeebled state of the system generally; for it has always been observed, that the equilibrium of the functions is more easily broken, and that irregular concentrations of vital energy more frequently take place, when the sum total of strength is below par.

" Although it is almost impossible that any one of the great internal viscera should continue long in a state of irritation without affecting others by contiguity or sympathy; yet we shall generally find a particular viscus the *principal focus* of irritation, This focus establishes itself most frequently in the *mucous membranes*, the most sensible tissues in the human frame, and which, in reality, form the organs of internal sense. To them are immediately applied the various *excitantia* from without [food, drink, &c. to those of the digestive apparatus; atmospheric air, with its various impregnations and degrees of temperature to the mucous tissues of the respiratory apparatus], and they are the centres of the greatest number of sympathies.

" As these tissues are extremely vascular, the irritation does not long confine itself to the nervous portion of their structure; but, according to the well-known law, " *ubi stimulus, ibi fluxus,*" an inflammation or congestion—in some rare instances hæmorrhage is the result. The parenchymæ, and the serous membranes become affected in the same manner, primitively or consecutively. On the other hand, the *muscular* structures are more generally the seats of nervous *irritation* alone. This nervous irritation we see sometimes *exalted* to spasms, or convulsions; sometimes *diminished* to torpor, or even syncope or paralysis. In all these cases we plainly observe, that the more the vital energy is augmented, or as it were, accumulated in one part, the more it is reduced in others. *Overplus* of action in one organ, annihilates the *regular* action of another, as was long ago observed by Hippocrates, who did not see things through the light of Brunonianism.

" It is very true, indeed, that at the commencement of diseases, and in strong subjects, with a vascular system well developed, we shall see a state of super-irritation or excitement in several parts or organs of the body, internal and external, at the same time. But it is equally true, that if this super-irritation or excitement runs very high, or makes much progress, it will presently precipitate itself on some of the vital viscera, and there play round a centre, to a greater or less extent. Then it is, we see the exterior of the body, and the less important organs enfeebled; the muscular force becomes prostrated, chained down, or, as it were, planet-struck, [syderées] excepting in some rare instances, where the muscles are the seat of irritation; and then we see an opposite train of phenomena in the viscera: they are, as for example, in tetanus, so *torpid* as to bear the most enormous

stimulation without danger of inflammation; the most enormous cathartics, without the chance of purgation*.

"2. The irritation of an organ may determine, by sympathy, an irritation in one or several other organs at a distance. This is particularly remarkable in the mucous membranes, where, as observed by Bichat, a *single point* of irritation is capable of disturbing the action of other organs or systems, in all degrees, from the most trivial sympathetic ailment, up to delirium, tremors, convulsions, irregularity and and intermission of the pulse, or death itself, from excess of pain. The seats of these sympathetic irritations are also suddenly transferred from point to point; and what is of still more importance, the irritations are liable to be suddenly converted into unequivocal inflammations; a strong proof that the *Neuroses*, the *Phlegmasiæ*, and the Hæmorrhagiæ are but modifications of the same affection. Thus irritation is the parent or first step to inflammation; for the former disturbs the balance of the circulation, and this disturbance increases the irritation, or leads to reaction; consequently the vascular and nervous systems act and react on each other, and any deviation from harmony between the two, leads to numerous diseases. Sometimes these irritations, and vaccillations in the balance of the circulation and excitement gradually subside spontaneously, for the most part accompanied by some *secretory evacuation* from the system, which restores the equilibrium.

"3. Now, notwithstanding we have shewn that *excess* and *deficiency* of excitement are very generally combined in the same individual, though existing in different organs, yet our attention is to be chiefly directed to the *former*, or super-irritation. Rarely, indeed, is *debility* or sub-excitement, a dangerous disease; rarely is it unaccompanied by some neighbouring irritation, as its cause. Hence the infatuated Brunonian, by applying stimuli in certain cases of debility, has too often hurried on the *concealed* super-irritation to a fatal disorganization. We should therefore be cautious how we use stimulation; and never venture on it, unless where

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* This explains a circumstance so ably insisted on by Dr. Dickson—the necessity of active purgation in tetanus, and in its *precursory* state of torpor in the bowels. Strong purgatives, in fact, tend to restore the balance of the excitability, and the equilibrium of the circulation. This should be kept in view in all febrile states of the system, where super-irritation prevails in the vascular and nervous systems, while the secretory and digestive organs are torpid.

there is strong evidence that *little or no super-excitement* is lurking about any vital organ internally."

I shall now endeavour to present a sketch of the more prominent phenomena which these irregular distributions of the nervous energy and of the circulation produce in the human constitution, following the plan of the illustrious Whytt, and adopting such of his delineations and observations as have been confirmed by subsequent experience and investigation.

The sagacious Sydenham has truly observed, that the shapes of Proteus, or the colours of the chamelion, are not more numerous and changeable than the variations of hypochondriac and hysteric complaints. Those symptoms, therefore, denominated *nervous*, are so irregular and anomalous, that it is exceedingly difficult to embody them in a connected view, or even to enumerate them; in fact, they imitate, with the greatest exactness, the symptoms of almost every other disease; and there are few chronic derangements, whether of function or structure, with which they are not more or less blended or associated. Their principal focus, however, is in the line of the digestive organs, from which they appear to radiate in every direction to the various other organs and tissues throughout the body. Thus, among the primary and most constant phenomena may be reckoned flatulence in the stomach and bowels; nausea; deficiency, or great irregularity of the appetite; indigestion, or ravenous craving for food, with rapid digestion, followed by a sense of faintness and emptiness about the stomach; sometimes pains and cramps of that organ, with sense of oppression there; low spirits; anxiety; timidity; strong pulsations occasionally in the belly; spasmodic affections of the bowels, with partial and uncomfortable distensions of them by flatus; borborigmi, or rumbling noise of wind in the intestines; sometimes pains in the back and loins resembling those attending gravel; irritation about the neck of the bladder and along the urethra, with frequent desire to make water, and a great discharge of limpid urine.

The nervous invalid often experiences sudden flushings of heat over the whole or part of the body; at other times, shiverings, or a sense of cold, as though water were poured over him; flying pains in the arms or limbs; cramps or spasmodic motions of the muscles or of a few of their fibres; sudden starting of the legs and arms; and, as in the hysterical paroxysm of females, a kind of general convulsion affecting at once, the stomach, bowels, throat, legs, arms, and almost every part of the body; the patient, mean time,

struggling as in an epileptic fit; or crying, laughing, sobbing, and writhing in hysterical agitation.

The vascular system exhibits proofs of its participation in the nervous disorder, by palpitations of the heart, and considerable irregularities of the pulse, especially at night, when hot flushings and quickened circulation, with subsequent faintness, sickness at stomach, or other anomalous symptoms, disturb the sleep, and cause the patient to get up in the morning entirely unrefreshed.

It might be expected, *a priori*, that the brain, the source of thought and volition, as well as the centre of sensation, should exhibit symptoms of disorder; and such is the case. Among these symptoms, we observe giddiness, after rising up hastily; general pains in the head, sometimes returning periodically, sometimes confined to a single point, as though a nail were driving into the brain, and thence called *clavis histerica;* singing in the ears; dimness of sight, or appearance of mist or floating objects before the eyes, without any visible fault in the organs; unusual smells; obstinate sleeplessness, attended sometimes with an uneasiness not to be described, but which is lessened by getting out of bed; disturbed sleep; frightful dreams; nightmare; sometimes drowsiness, and too great inclination to sleep; fear; peevishness; sadness; despair at one time, and great elevation of spirits at another; unsteadiness of thought; impaired memory; strange fancies and persuasions of labouring under diseases of which the patient is quite free; while he imagines his complaints to be as dangerous as he finds them troublesome, and is often angry with those who attempt to convince him of his mistake.

"Patients, says Whytt, after having been long afflicted with many of these symptoms (for all of them never happen to any one person) sometimes fall into melancholy, madness, the black jaundice, dropsy, tympany, phthisis pulmonalis, palsy, apoplexy, or some other fatal distemper." Assuredly such a state of constitution as has been described, is highly inimical to comfort; but, as far as my observation extends, it is but rarely that those formidable and fatal diseases enumerated by Dr. Whytt, supervene on the train of nervous affections, unless the latter be grossly misconstrued or very injudiciously treated.

Cheyne draws a still more frightful picture of nervous diseases, than either Sydenham or Whytt. "Of all the miseries, says he, that afflict human life, and relate principally to the body, in this valley of tears, I think *nervous disorders, in their extreme and last degrees,* are the most deplor-

able, and beyond all comparison, the worst. It was the observation of a learned and judicious physician, that he had seen persons labouring under the most exquisite pains of gout, stone, colic, cancer, and all the other distempers that tear the human machine; yet, had he observed them all willing to prolong their wretched being, and scarce any ready to lay down cheerfully the load of clay, but such as laboured under a constant internal anxiety, meaning those sinking, suffocating, and strangling nervous disorders. It is truly the only misery almost to be dreaded and avoided in life. Though other evils be burthens, yet an erected spirit may bear them; but when the supports are fallen, and cover the man with their ruins, the desolation is perfect."

Predisposing Causes. A morbid degree of delicacy and sensibility in the nervous system may, unfortunately, be born with us, as an hereditary legacy from our parents; but it much more frequently becomes engrafted on the constitution as a consequence of other diseases, or of irregularity of living, anxiety of mind, or insalutary occupations. Whytt has very correctly stated this in the following passage. "Long, or repeated fevers, profuse hæmorrhages, great fatigue, excessive or long-continued grief, luxurious living, and want of exercise, may increase, or even bring on such a delicate state of the nervous system." *2d. Ed. p.* 537.—The various causes, in short, which I have traced as predisposing to irregular states of the circulation, and of the functions of the digestive organs in particular, predispose the nervous system also to be irregularly excited by agents which, in a robust state of health, would produce no inconvenience at all.

Females are more liable to nervous diseases than males, in consequence of the natural delicacy and superior sensibility of their nervous system, and of the sedentary habits which they usually indulge. Age, on the contrary, which gradually blunts the sensibility of the nerves, often relieves the class of disorders under consideration.

The effect of sedentary habits in deranging the equilibrium and healthy functions of the nervous system, and through this last, the functions of the digestive and other internal organs, is well known to the medical practitioners of our great manufacturing towns, and has been minutely delineated by Dr. Hall of Nottingham, in his valuable Treatise on the Mimoses.

Of the predisposing causes, one, of no small importance, is defective assimilation of our food, from a deranged state of the organs and their nerves concerned in this process. This strikes at the root of health and strength, by depriving

the whole system of its fundamental support, and debility, the parent of irritability, is the result. The learned and observant Whytt has completely anticipated the whole of the *chylopoietic* doctrines of the present day, and it is only the scarcity of his work which gives them the air of novelty, to which, in truth, they are but little entitled. On this account, I shall here condense some passages from that illustrious physician's writings, convinced that they are founded on the immutable basis of truth.

" That many of those complaints (says he) which are commonly called *nervous*, proceed, in a great measure, from a particular *unnatural or depraved sensibility* of the nerves of the alimentary canal, appears evident from this, that, although, in many cases, the stomach and intestines are much diseased, yet the patients are not affected with any remarkable nervous or hypochondriac symptoms, while others are greatly troubled with these complaints who have a good appetite, a quick digestion, and no tough phlegm or other noxious humour in their stomach.

" This delicate state of the first passages, or an unnatural sensibility of their nerves, not only disposes people to many complaints in those parts, but the whole nervous system is thereby rendered more mobile, and liable to be affected by the slightest causes."—" When my stomach and bowels (says he) have been out of order, and affected with any uneasy sensation from wind, I have not only been sensible of a general debility, and flatness of spirits, but the unexpected opening of a door, or any such trifling unforeseen accident, has instantly occasioned an odd sensation about my heart, extending itself from thence to my head and arms, and, in a lesser degree, to the inferior parts of my body. At other times, when my stomach is in a firmer state, I have no such feelings, from causes which might be thought more apt to produce them." And again, " from what has been said, we may see, that faintings, tremors, palpitations of the heart, convulsive motions, and great fearfulness, may be often owing more to the infirm state of the first passages, than to any fault either in the brain or heart. But it would be unnecessary to insist farther on this head, as the powers which the alimentary canal, when its nerves are disagreeably affected, must have in producing disorders in the most distant parts of the body, cannot be doubted by those who attend to that wonderful and widely extended sympathy, which obtains between it and almost the whole system." 547.*

* The stomach, through the medium of the par vagum and great intercostals, has *demonstrable* communication of nerves with every organ,

Dr. Whytt's conjecture that the defective chylification may produce an impoverished or otherwise unhealthy state of the blood, which gives rise to various nervous symptoms, appears to be well founded, though we have not, in modern times, sufficiently attended to this subject.

In my work on Tropical Climates, I long ago attempted to trace a considerable source of nervous affections to the retention of certain secretions, particularly the biliary secretion; and I am convinced, from longer experience, that there is much foundation for the supposition, though it is incapable of demonstration, like too many other medical facts. The same observations will apply to deficient menstruation, &c.

Another source of nervous complaints is to be traced to imperfect or masked gout, and to the various causes which induce that disease. The same causes, indeed, which lead to gout, tend, in civilized life, to derange the whole line of the digestive organs, and through them the nervous system itself.

TREATMENT OF NERVOUS DISEASES.

One of the greatest improvements which modern medicine has experienced, is the attention which is now paid to the investigation of the causes, predisposing and exciting, of diseases, instead of hunting after general or particular modes of treatment applicable to all cases; yet the great difficulty, in the practice of our profession, consists in the investigation of causes, and of the seat and nature of the functional or organic lesions resulting from them. Almost every tyro can tell you the remedies, when the disease is ascertained; but, alas! here is the task—hic labor, hoc opus!

No class of diseases exemplifies the truth of these remarks more forcibly than the class *neuroses;* where, as Dr. Whytt has justly remarked, "the numerous warm, aromatic, stimulating, and fœtid medicines which have been called nervous, or anti-hysteric, however proper they may be in some cases, are nevertheless hurtful in others." 632. In short, the whole treatment of nervous diseases hinges on the removal or correction of the predisposing and exciting causes, as Dr. Whytt so long ago observed.

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structure, and tissue in the whole body. Still the reason why *remote* parts often sympathise more strongly with the stomach, and *vice versa*, than parts more contiguous and more intimately connected by nerves, remains, as yet, to be explained. The fact is not the less certain, although the cause is concealed from our view.

As a morbid sensibility or over delicacy of the nerves in general, or of those of the digestive organs in particular, is often a part of our constitution from the cradle, or rather from our progenitors, it is sufficiently evident that such a state of things cannot be entirely removed; but only ameliorated in degree. Now as debility has ever been found the parent of irritability, the experience of ages has proved that such means as *strengthen* the whole system, blunts the morbid sensibility of the nerves. But the system is not to be strengthened by an indiscriminate use of bitters, tonics, rich food, and stimulating drink, however *palatable* such a doctrine may be to the patient. Temperance and *gradually increased exercise* are the fundamental tonics and antispasmodics; and the medicines denominated such, should be very sparingly administered. It is on this point that Dr. Whytt of old, and too many modern routine practitioners, have erred, by prescribing a farrago of bitters and tonics, which seldom excited more than an artificial appetite, or produced more than a kind of forced digestion. The great object is to induce healthy secretions in the line of the alimentary canal, by the most gentle and natural means. Thus an infusion of chamomile flowers and rhubarb will act in the treble capacity of slightly whetting the appetite, exciting the gastric and intestinal secretions, and carrying off disordered crudities from the bowels. In a great many cases the dandelion tea, [two ounces of the fresh root sliced and infused in a pint of boiling water over night] with a gentle alterative aperient, occasionally, will, if persevered in for a sufficient length of time, produce more beneficial effects than any course of tonics and bitters. In respect to bark, steel, and chalybeate waters, they must be cautiously administered; and for them no general rule can be laid down. It is strange that Sydenham enveighs against purgatives, and is loud in the praises of steel in nervous disorders. Whether the constitutions of the inhabitants, or the nature of nervous diseases may have undergone some modification since Sydenham's time, may be difficult to say; but certainly aperients or alteratives, combined with gentle bitters and tonics, are now found to be more generally useful than the heating chalybeates which Sydenham recommends.

There is no doubt but that the fœtid gums, as galbanum and assafœtida, together with certain vegetables of disagreeable odour, as valerian, &c. have considerable effect in lessening the morbid sensibility or irritability of the nervous system, and these may be usefully employed, on many occasions, and particularly in the female sex.

The *narcotics*, as opium, hyoscyamus, poppy, hop, and laurel water or prussic acid, are dangerous sedatives, since they too generally leave an increased morbid irritability, after their soothing effects have passed away, besides deranging the functions of the digestive organs, and confining the secretions. The hyoscyamus is the least injurious, as producing the least tendency to constipation. Sydenham was in the habit of giving opiates in this class of complaints; but the practice is not commendable.

Of all the means of strengthening the tone of the nervous system, the gradual exposure to cold, with sufficient corporeal exercise, may be ranked first in permanency of effect. We all know that heated rooms and crowded assemblies, enervate the system both by the temperature and impurity of the air therein breathed and applied to the external surface of the body: reasoning then, as well as experience, points out the propriety of employing the reverse of these, as remedies or preservatives in nervous affections. In the open air, we breathe a pure atmosphere, which is of great consequence; but a moderate degree of cold to the surface of the body acts sympathetically throughout the whole nervous and vascular systems, giving increased tone and activity to all the glandular and other organic functions internally, and thus contributing most materially to health. Another object, not less important, resulting from exercise in the open air, is the subtraction or lessening of that morbid sensibility which predominates in the brain and nerves of the sedentary of all classes, literary, commercial, and manufacturing, as well as the idle and luxurious.

The same principle which directs cool air leads, of course, to the cold bath. But this last remedy requires more caution than the former. If any internal organ is obstructed, which is not seldom the case, the shock of the bath is dangerous; and, perhaps in all cases, it would be much more prudent to commence with the tepid bath, and by gradually lowering the temperature, degree after degree, come at last to the cold bath. But as the bath is separately treated of, I shall refer to that and other sections in the Hygiene, where the whole of what is said on the conduct of the non-naturals, is peculiarly applicable to nervous disorders.

HYGIENE;

OR, THE

CONSERVATION OF HEALTH, AND MITIGATION OF DISEASE,

BY MEANS OF THE NON-NATURALS.

Prestat argento, superatque fulvum
Sanitas aurum, superatque censum
Quamvis ingentem, validæque vires
Omnia prestant.

As primitive *simplicity, temperance,* and *obedience to the rules of nature,* were evidently accompanied by a greater immunity from disease and premature death, than is observable in the progressive stages of civilization, philosophers and physicians have never ceased to hold *these* forth as the only means by which we can evade the long train of morbid afflictions which a wide deviation from the path of nature had, in subsequent ages, produced. But the truth is, that time and circumstances have effected so complete a revolution in the manners and affairs of man, that we may, with equal prospect of success, attempt to arrest the tides of the ocean, as turn him from the habits in which he is now naturalized; or emancipate him from various morbific causes, which necessarily flow from the state of society in which he exists.

It is true, that a few individuals have the power, and a very few the resolution, to put in force the various *preventive* checks of disease, and thus attain a green old age; but the great mass of society must be contented to make the best compromise they can, with those evils which surround them: in short, they must rather attempt to mitigate those ills they cannot shun, than hope entirely to prevent their occurrence.

By tracing several diseases to their sources in various parts of this Essay, a repetition of such causes of ill health is here unnecessary, though from the very nature of the subject, some little tautology will be unavoidable. I shall class my remarks under the following distinct heads.

Sect I.—*Air.*

It is probable, that three-fourths of the disorders to which the constitution is liable, in this climate, originate in, or are at least considerably influenced by, *aerial transitions;* and therefore we cannot be too much on our guard against this source of danger. Our principal defences against these atmospherical changes, so rapid and destructive in Great Britain, will be pointed out in subsequent articles, particularly in those on clothing and bathing. A few observations, however, on other points connected with air, may be properly introduced here.

If the natural state of our atmosphere be variable, and if certain parts of the surface of the earth, and even animal life itself necessarily tend to vitiate the composition of the air, our own folly, or the imperious customs of civilized life, give tenfold force to these unavoidable enemies of our health. It is not on the husbandman, the soldier, or the sailor, who are so much exposed to the conflicting elements, that their malignant influence principally falls. It is on the delicate female, the pale mechanic, and the sedentary artist, who add artificial to natural extremes—fly from one to the other—writhe under the effects of this imprudence—and then rail against the climate as the cause of all their miseries!

In the crowded ball room, heated to a tropical temperature, the sensitive Belle and effeminate Beau, carry exercise to the extreme of exhaustion; and, in this state, rush fearlessly forth, under the gloomy skies of a hyperborean night! The ghastly train of consumptions which annually follow this imprudent conduct, have no premonitory effect in preventing a repetition of it. Youth ever has been, and ever will be, prodigal of life; and while the sick-bed and tomb lie masked under the seductive features of the theatre, the ball room, and the drawing room, they will continue to be thickly tenanted by premature decay and self-destroyed beauty.

Against the effects of these nocturnal exposures, which society *will not* avoid, the medical philosopher can only propose such checks as a knowledge of the animal economy suggests.

There are five circumstances to be attended to when we are subjected to the influence of the night air; viz. 1st. The condition of the body before going out of doors. 2d. The de-

fence of the body's surface while exposed. 3d. The defence of the lungs. 4th. The exercise on the way. 5th. The conduct to be observed on getting home.

1st. The condition of the body ought to be as warm as possible, short of perspiration. Many lives are annually lost by the ill-judged caution of lingering about the halls and doors of heated apartments, till the body is cool, before venturing into the air. In this state, it is highly susceptible of the baleful influence of the night. It would be better to issue forth, even with some perspiration on the surface, than wait till the system is chilled. The greater degree of animal heat in which we are, on going first into the night air, the less injury will we sustain from it.

2d. As this injury is received through the medium of the skin and the lungs, it is quite evident that the safeguard of the former is warm clothing, constructed of materials that are bad conductors of heat, as woollen, cotton, &c.

3d. The defence of the lungs themselves has been hitherto strangely overlooked; though it requires but a moment's reflection to be convinced of the vast importance of this consideration. In the space of one minute the delicate structure of the lungs is exposed to an atmospherical transition of perhaps thirty or forty degrees, from the over heated theatre to the freezing midnight blast! Is it not strange, that we should have been so very solicitous about heaping fold over fold on the surface of the body, while we never dreamt of the extended surface of the lungs which we left completely exposed? Is it not still more strange that this should have been forgotten, when daily observation shewed that the lungs were the organs which, nine times out of ten, suffered by these exposures?

It cannot therefore be too strongly enforced, the necessity of guarding the organs of respiration from the direct influence of the night air, by such mufflings about the face, as may not only detain a portion of the air expired from the lungs each time, but communicate a degree of warmth to each inhalation of atmospheric air. A large net, for example, such as is vulgarly called a comforter, folded loosely round the face, will receive a portion of caloric or heat from the breath at each expiration, which portion will be communicated to the current of air rushing into the lungs, at each inspiration; and thus a frigid nocturnal atmosphere is, in a considerable degree, obviated.

4th. As we proceed into the night air, while the body is warm, so we should, by a brisk pace, endeavour to keep up that degree of animal heat with which we sat out, and that

determination to the surface, which is so effectual in preventing affections of any internal organ.

Lastly. As the sudden transition from a heated apartment to a frigid atmosphere must, in some degree, produce a determination to the centre, and more or less check the perspiratory process, some warm and moderately stimulating liquid should always be taken before going to bed, in order that the functions of the skin, and the balance of the circulation may be restored.

I have dwelt longer on this subject, because it is, in reality, of more importance than is commonly supposed; and because we are so familiarised to it by frequency, as to pass it almost unnoticed.

Atmospherical *transitions* being guarded against, other peculiarities of the air, unfavourable to health, will be easily avoided, with the exception of *easterly* winds; which, in this island, exert so very powerful an influence on the human frame, both mental and corporeal. There certainly is something in an easterly wind, independent of its temperature, which is inimical to the free and regular performance of the animal functions, and particularly the functions of the skin; for invalids will feel its effects in rooms, where the temperature is regulated by a thermometer, nearly as much as though they were in the open air.

This observation is as old, if not older than Lemnius, who, after condemning the South and East winds, and praising the North and West, [*lib.* 1. *Hist. lib.* 1. *Cap.* 41.] says, "In a thick and cloudy air, men are tetrick, sad, and peevish; (aurá densa ac caliginosa tetrici homines existunt et subtristes, &c.) and if the *western winds* blow, and there be a calm, or a fair sunshine day, there is a kind of alacrity in men's minds; it cheers up men and beasts: but if it be turbulent, rough, cloudy, stormy weather, men are sad, lumpish, and much dejected, angry, waspish, dull, and melancholy."

Virgil seems to have had ideas of this kind in his mind, when he wrote the following passage.

> Verum, ubi tempestas, et cœli mobilis humor,
> Multavere vices, et Jupiter humidus Austris . . . .
> Vertuntur species animorum, et pectora motus
> Concipiunt alios.

However well cleared and cultivated a country may be, yet the current of air passing over a large tract of land, is never so pure, or at last so healthy, as that which passes over the ocean. Deleterious impregnations, in a greater or less degree, must unavoidably mingle with a land wind; and when we examine the medical topography of those parts of the

continent over which the easterly winds traverse, we cannot but conclude that vegeto-animal, and other terrestrial effluvia are the ingredients which give origin to the phenomena in question.

As the wind alluded to acts principally by confining the *secretions* from the skin, in the first instance, we can only obviate its effects by such means as tend to restore them—these are diluting warm drink, the warm bath, exercise, and clothing; of which in their place.

Although the deterioration of the general atmosphere by the breathing of all living creatures, is not of a moment's consideration; yet, the effect of human respiration on those atmospheres which we inhale in our habitations, and particularly in crowded apartments, is not to be entirely overlooked. The vitiated condition of the air, in this way, is at least one of the causes of that *pallor* observable on the cheeks of people subjected to its influence. The means of obviating this source of ill health, are so obvious as to require no comment: but I may here remark, that many people have so exaggerated the consequences of breathing respired air, that in the anxiety for *ventilation*, they have subjected themselves to streams and currents of this element, of such unequal temperatures as induced *real and serious diseases*, when they strove to avoid the most trifling, if not wholly imaginary ones.

On many constitutions, and particularly on people denominated *nervous*, certain barometrical changes in the atmosphere have a remarkable effect. Thus when the glass is very low, the wind southerly, and a storm impending, such a sense of sinking, weakness, tremor, and dejection is often felt by valetudinarians, that they are quite miserable till the equilibrium of the atmosphere is restored, when all their morbid feelings vanish "into air—thin air."

By the superficial observer, and often by medical men themselves, these ailings are laughed at as vapourish or imaginary; but they are real physical effects resulting from sudden diminution of pressure in the airy medium that surrounds us; and require rest, with some cordial drink and generous diet for their relief; for they cannot be entirely removed, till their cause ceases to operate.

Still, with every exertion and precaution, we cannot always counteract the insalutary effects of atmospherical vicissitudes, thermometrical, hygrometrical, and barometrical, on our constitutions. We are then forced, if our circumstances will permit, to migrate to those parts of our own or other countries, where the heavens naturally present greater uniformity. From various well known physical causes, the atmosphere of the

ocean presents a superior degree of equilibrium, in these respects, to that of the earth; and consequently the *shores* of countries participate in this advantage.

Of our own island, the southern coast has, for obvious reasons, the superiority in point of temperature, and particularly the shores of Hants and Dorset; as being equally removed from the piercing easterly winds, and rain-fraught gales from the western ocean; while a broad expanse of ocean lies in front. Penzance, however, appears to combine the greatest number of advantages which England can afford for the phthisical invalid. During the inclement winter of 1819—20, I was informed by my friend, Dr. Forbes, resident physician in Penzance, that there was very little snow, (at least up to the 10th of January, 1820) and that the thermometer had seldom been much below the freezing point.

Sect. II. *Food.*

When the human frame is anatomically and physiologically examined, and particularly the masticating and digesting organs, we shall be constrained to admit that man is naturally more of an herbivorus than a carnivorous animal; and without going so far as to adopt the Pythagorean doctrines, either of ancient or modern times, there can be little doubt that a considerable predisposition towards many of the most fatal diseases with which we are afflicted, is generated by the use or abuse of animal food. The mischief, however, lies infinitely more in the quantity than the quality of our diet. When we contemplate each varying tribe of mankind, from the turtle-eating Alderman to the earth-devouring Ottomaque, and see him subsist, exclusively or collectedly, on every thing which air, earth, or ocean, can produce, with, *cæteris paribus*, an equal degree of longevity, we are irresistibly led to the conclusion that it is principally by *excess* that we convert food into poison.

Again, in the whole catalogue of human maladies, how many are brought on by deficiency in the *quantity* of food? Very few! While, on the other hand, there is hardly a disease that is not ameliorated by diminishing the usual scale of our sustenance. Nature herself, in most instances, inculcates this important lesson. When any of the numerous tribe of acute and dangerous diseases approaches, the appetite is immediately withdrawn altogether; and, in a great proportion of the chronic ailments, it is impaired! How have we improved this hint of Nature? By not only turning a deaf ear to it, but by acting diametrically opposite to the salutary monition. No sooner does the appetite fail, than the cook, the confectioner, and chemist, are up in arms, to redress this *grievous calamity*, and caudles, condiments, and tonics, pave the way for bleeding, purging, and water-gruel!

In medical affairs, our attention is too often directed to *effects* instead of causes. Thus *debility* being a natural consequence of almost every derangement in the structure or function of the living machine, the object of the patient, and too often of the physician, is to remove this *symptom*, very frequently at the expence of aggravating the original cause; to the removal of which, the debility is in reality favourable. Where lesion of an organ suddenly takes place in a vigorous state of the system, we are forced to induce debility as quickly as possible; otherwise, the diseased organ will be in the

greatest danger. Thus it is that great strength and vigour of constitution are not only unfavourable to recovery from some diseases, but constantly predispose to them. How seldom do we hear of valetudinarians, or people who are forced on a low regimen, dying in any sudden or mysterious way? But does a week or a day pass, that we do not see blazoned forth in the public prints, or circulated in private, the accounts of men cut off in the prime of life and health, with scarcely any warning; generally, indeed, after a hearty dinner, some vigorous exertion, or a convivial supper? From what, then, can these accidents arise, but from too much blood (the natural consequence of too much food) overpowering some organ essential to life, by bursting its natural boundaries. In this way, but in a minor degree, it gives origin to a great proportion of fevers, and the immense tribe of inflammatory complaints. To the formation, too, of that Proteian host of human miseries—THE NERVOUS DISEASES, this cause mainly contributes, by deranging the function or structure of the digestive organs, which are kept in perpetual irritation by flatulence and the presence of indigested remains of too much food.

But I shall not pursue this subject further, nor offer any other recommendation of abstinence than the foregoing slight sketch of the dangers of repletion. Man is so much the slave of his passions and appetites, that were a prophet to rise from the tomb, and warn him against indulging them, he would not be listened to; or at least, his advice would not be followed! The only thing we can do, therefore, is to point out, as far as is practicable, such *antidotes* to the effects of repletion as experience can suggest, abandoning entirely the hope of weaning mankind from those habits to which they are bound by adamantine chains. In the last section of the work, this subject will be again glanced at, and a principal antidote to the evils of repletion pointed out. *Vide Medicine.*

I shall conclude this section by recommending the valetudinary (for no other will listen to advice) to study the *time* of taking food. Early breakfast—dinner as near the middle of the day as fashion, or folly, or pride, will permit—a pretty hearty tea or coffee, in the evening, about six o'clock, and no supper, will be found the most salutary code which the physician can lay down.* People of weak digestion are told

* It may be remarked, however, that there are many constitutions where, even in valetudinary health, a *little* animal food for supper, both agrees well, and contributes to repose. Here the practice then is not detrimental.

"*to eat little and often*:" I am very far from thinking that this is always judicious advice. The stomach, and other digestive organs, require their intervals of repose, as well as the voluntary muscles; and if regular and stated periods are appointed for taking food, the appetite, by the force of habit alone, will return at these times, and digestion will follow. But if the stomach is kept constantly at work on little *tit bits*, there never will be a keen relish for food, or a powerful and easy digestion.

Sect. III. *Drink.*

In every nation, even the most refined and modern, a great majority appear, by their practice at least, to *think* that water is only fit for beasts—thus giving a negative to the celebrated Greek inscription in the pump-room at Bath. They have, indeed, with no small ingenuity, contrived so to medicate the native fountain, that they are always either outstripping or lagging behind the placid stream of life!

The moralist, the divine, and the philosopher, have long descanted on this theme, with little success! Present pleasure is, by the great mass of mankind, considered a certain good; while future sufferings are problematical events, and are therefore disregarded. Nay, where we know that a to-morrow of misery must necessarily succeed a to-night of debauch, the fear of pain is instantly absorbed in the prospect of enjoyment, and we voluntarily incur the one for the other's sake!

Of what use, after this, would it be to waste time in pourtraying the mental and corporeal ailments which flow from excess in inebriating liquors? Do not the maniac, the dropsical, the liver-grown, meet our eye in every street? Does not the groan of the suicide vibrate on every ear? Do we not see former affluence clothed in the rags of squalid poverty, in every hospital, workhouse, or charity, throughout the kingdom, or wandering, *in forma pauperis*, from door to door? Do we not see every tie with which nature, religion, or affection, binds us in social harmony, severed by the intoxicating bowl? Have these and a thousand other examples any operative effect in checking the evil? Little or none! "Morbos odimus et accersimus."

Intoxication, however, is not our subject. No one will dispute the bad effects of this propensity.* But a very considerable proportion of the middling and higher classes of life,

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* There are a few, indeed, who are very careful to commemorate the names of all those who have drunk hard, and yet lived to a good round age; but make no note of those who fall early victims to intemperance. This reminds us of the sophism of Rabelais, that "drunkenness is better for the body than physic, because there be more old drunkards than old physicians." Rabelais forgot that physicians seldom take physic.

as well as of the lower, commit serious depredations on their constitutions, when they believe themselves to be sober citizens, and really abhor debauch.

This is by drinking ale or other malt liquors to a degree far short of intoxication indeed, yet, from long habit, producing a train of effects that embitter the ulterior periods of existence. Corpulency, obesity, hebitude, vertigo, apoplexy, and other affections of the head, are known to result from the abundant use of malt liquors; but it is not generally suspected that they have a peculiar tendency, independently of the adulterations which too often enter into their compositions, to produce effusion of water in the cavities of the chest, and to predispose to those numerous organic affections of the heart itself, which, of late years, have forced themselves on our attention beyond any thing known in former periods.

Malt liquors assuredly give a greater degree of fulness to the blood-vessels than any other species of drink, while, in common with the latter, they paralyse the absorbent system, and render torpid many of the salutary secretions. The heart is thus called upon for unusual exertions, which eventually injure its function or structure; while the equilibrium between exhalation and absorption on the serous membrane of the chest is deranged, and dropsical effusions in the pericardium or bags of the pleura ensue.

The beer-bibber then, has probably little reason to exult over the dram-drinker. If he escapes ascites, or dropsy of the abdomen, he runs the risk of hydrothorax, or water in the chest, a much worse disease! If he have an immunity from disorders of the *liver*, he becomes predisposed to derangements of the *heart!* If he experience not emaciation and tremors, he too often becomes overloaded with fat, and dies apoplectic! If he be not so liable to maniacal paroxysms of fury, from the fire of ardent spirits, his intellectual faculties become sodden, as it were, and stupidity ensues!

It may be added, that deleterious as is the habit of excess in vinous, spirituous, or malt liquors *after meals, or on going to bed,* yet there are some hopes of reformation, or, at the worst, of prolonged existence, while the *morning dram,* or other stimulating beverage, is avoided.

It may be right to state, for the benefit of those who will not abstain from spirituous liquors, that acids correct, in a very considerable degree, their deleterious qualities. Punch is therefore far preferable to what is termed grog; and grog much less injurious than raw spirits. In what way the acid acts as a corrector of the spirit, I am unable to explain; but of the fact I am quite certain, from long and attentive obser-

vation and inquiry. It is sufficiently obvious that water, when mixed with the spirit, corrects its bad qualities, *first* by simple *dilution*, thereby rendering the spirit less stimulating to the digestive and biliary organs; *secondly*, by increasing various secretions, particularly the urinary, whereby the blood-vessels are kept less turgid than they otherwise would be. On this account, it is probable that weak hollands, or gin and water, form the safest beverage, where spirits must be indulged in.

Although the injurious effects of tea have been greatly exaggerated, yet, when we consider how universal is this beverage, and how much reason there is to believe, from some recent disclosures, that the native plant is adulterated to a great extent with deleterious ingredients, we may fairly set it down as contributing, in no mean degree, to those derangements of the digestive organs and nervous system, which now meet our eye at every step. This is one of the penalties (and no trifling one it is) which we incur from civilization and refinement. Our food and drink have become so complicated in their forms, that thousands, perhaps millions, make a livelihood by systematically poisoning us!

Sect. IV. *Exercise.*

Physicians and philosophers, in every age, have extolled exercise as the grand prophylactic in guarding against the accession of all diseases. That man was designed for exertion, cannot be doubted; but, that much injury is every day done by invalids, and those confined to sedentary occupations, attempting to *strengthen* their constitutions by strenuous exercise, at intervals, I am well convinced. Violent exercise did great harm, even when nations were nearer a state of nature than they now are. Galen, in his discourse to Thrasibulus, inveighs against the athletic practices of the Gymnasium. A smart walk of a mile is, to a valetudinarian, what a furious wrestle would be to an athleta. If we trace those dreadful aneurismal affections of the heart and arteries in early life, we shall find their origins in violent exercise, or sudden over-exertion, in nine cases out of ten, where age and ossification are not concerned. In the long catalogue, therefore, of nervous diseases, where there is any suspicion of functional or organic lesions, indicated by palpitations, shortness of breath, and flushings of the face, let long continued or strenuous exercise be dreaded. The passive exercise of a vessel or carriage is safe; but quick walking is extremely prejudicial. Because we see the laborious classes of society robust, having been inured to labour by long habit, we are not to expect that we can exchange debility for vigour, by imitating their manners, in the middle, or latter periods of life.

It is with exercise indeed, as with food and drink. By long habit we may become gluttons and drunkards, apparently with impunity; and so, by early and long continued habit, we may become capable of walking a thousand miles in as many successive hours, or of labouring hard, sixteen or eighteen hours out of the twenty-four. But although no organ or part gives out at the time, we are inevitably laying the foundation for future diseases in all three instances. If habit then cannot secure us from the injurious effects of *inordinate exercise,* how can we expect to escape when we fly to it, or indulge in it, at irregular periods? In fine, moderate and slow exercise in the open air is extremely salutary; but where it is carried to the length of much accelerating

the velocity of the circulation, it endangers derangement of the heart, lungs, brain, or any weakened viscus, in valetudinary constitutions. In the healthy and robust, active exercise may be indulged in to a considerable extent, though even here it has its limits.

In my own person, I had, some years ago, a very severe and alarming instance of the bad effects of too great muscular action, occasioned by a habit of walking very fast.

After a day and a night of unusual fatigue, and rapid pedestrian exercise, together with considerable mental anxiety, I was suddenly seized with an intermission of the pulse, at irregular periods. During each intermission, I felt the heart give a kind of struggle, as it were, and strike with great violence against the ribs, accompanied by a peculiar and most distressing sensation in the cardiac region, which I cannot describe. The irritability of the heart soon became so great, that walking half a dozen yards, or going up a flight of stairs, brought on palpitation, and such a rapid and irregular motion of the heart, that the pulse could hardly be counted; and at these times, the intermissions would be as often as every second, third, or fourth stroke.

These phenomena somewhat alarmed me, and the more I dwelt upon the subject, the more aggravated became the symptoms, till at length I could not walk at all, nor could I lie on either side in bed, without great uneasiness and palpitation.

This extreme debility and irritability of the heart continued, with little abatement, for eight weeks; during which time I used horse exercise, and kept, when at home, in the horizontal position. At length, the heart gradually lost its morbid iritability; and, at the end of fourteen or fifteen weeks, I could walk nearly as well as ever. But occasional intermissions of the pulse took place, for some time, especially when flatulence prevailed in the stomach or colon; or when anxiety of mind was present. Many other curious and interesting phenomena attended this complaint, the particulars of which I shall probably lay before the public, at a future period.

Now, if the mere exertion of inordinate walking, with mental emotion, could induce such derangement of action in the circulating organ, what must be the consequence of violent, interrupted, and straining exercise, on the heart, and vascular system in general, when alternated with sedentary habits and mental anxiety?

There is not a year that *criket matches* do not lay the foundation for aneurisms and diseases of the heart. It is

on this principle, also, that *hard labour* is said by the vulgar, and most truly too, "to wear a person out." Blacksmiths, Porters, and all those who are accustomed to inordinate muscular exertion, or in the habit of lifting heavy burthens, are particularly liable to diseases of the heart and arteries, that shorten their lives. Even that noble animal, the horse, is very subject to disease of the heart, in consequence of his spirited muscular exertions in the chace, in drawing heavy loads, and in racing.

As for ruptures, and other consequences of violent exercise, straining, &c. they are too familiar to require animadversion here; but I trust, that enough has been said to excite the attention, both of patient and practitioner, to this important subject. I wish it, however, to be distinctly understood, that the foregoing observations are only applicable to *inordinate* corporeal exercise, especially when attempted by the valetudinarian, or those usually employed in sedentary occupations. *Moderate*, or even pretty free pedestrian exercise is, in general, extremely salutary, and is probably the most *natural*, were we in a *state of nature;* but, in proportion as we recede from this state, by advancing civilization, and particularly as we congregate in large cities, where every thing around us, almost to the air we breathe is artificial, our muscles lose their tone, and incapicitate us for those athletic exercises so praised by the ancients. Fortunately, there is another species of exercise within the reach of the upper classes of society, to whom it is most necessary, and which has not been duly appreciated by the profession, but to which we would draw the attention both of patient and practitioner—this is *passive* exercise, in carriage or on horseback, including sailing, swinging, &c. Where the invalid is unequal to pedestrian exercise, he should gradually increase his carriage or horse exercise in the open air; but *pedestrian* exercise is to be resorted to whenever he is able to endure it, for it is upon *this* that the great hope of health must ultimately rest.

Sect. V. *Clothing.*

If the ancient Romans knew not the luxury of a linen shirt, and were not over nice in frequently changing their greasy flannels, yet their dress was, probably, much more conducive to health than ours. It were devoutly to be wished, that silk was now worth its weight in gold, as formerly; for scrofula and phthisis would assuredly be then checked in their ravages. The necessity of defending the body from sudden atmosperical transitions, has been so frequently enforced in various parts of this Essay, that the present section has been greatly anticipated.

It is not, however, so much from *lightness* of dress that we suffer, as from *inequality* of clothing. When the Indian was asked how he could bear to go naked beneath the rigorous skies of Canada, he replied, that he was "*all face;*" and, although I am not quite so great an admirer of nature, as to think we ought to imitate the original pair of Eden; yet I am fully persuaded, that we accustom ourselves, upon the whole, to a superabundance of clothes; and, that were we to wear a lighter dress in winter and a heavier one in summer than we now do, that is, *a more uniform system of garment throughout the year,* we would lose, in a great degree, that keen susceptibility to aerial impressions, for which we are remarkable, and which occasions such a waste of life in this country. The same remark is still more applicable to the daily changes of dress; for here, indeed, is the great source of evil. Among the fair sex, in particular, and also among the fashionable and effeminate of the other sex, we observe a warmer dress worn in the morning and mid-day, when exercise is taken, and when the sun is above the horizon, than in the evenings, when the frame is languid, and the air damp and cold. If to this we add, the rapid transitions from heated and crowded assemblies of all kinds, to the midnight skies, often amid rain or snow, we shall have abundant cause for the havoc which pulmonic complaints occasion among the upper classes of society. These dangers, into which the affluent voluntarily run, bring them on a par with the indigent, who are exposed to others from necessity.

It would be still worse with the upper classes of society, were it not for the very salutary effects of *frequent change of linen;* which, though indulged in for the sake of comfort or luxury, has a most astonishing influence on health. In this variable climate, the functions of the skin are generally *below* par, and irregular; frequent change of linen excites the perspiratory process in a very strong degree, and therefore improves the cutaneous function.

The laws of dress then being so completely under the empire of FASHION, I shall not waste time in useless admonitions on the dangers and extravagancies into which the votaries of this tyrant are led. I would only recommend, that linen be preferred to silk, cotton to both, and woollen to all. That a lighter, *but more uniform* species of clothing be early introduced and steadily persevered in, by which a *habit* of bearing with impunity the transitions of the atmosphere, will be gradually and cautiously acquired.* The invalid, however, who has any weak organ, will pause ere he attempts to attain this hardihood of constitution, which should have been slowly acquired from early youth; yet even here, much may be done by gradual and judicious exposure.

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* Let me not be misunderstood. I should be far from sanctioning, much less recommending, that *semi-nudity* of attire which has been said to distinguish the *present race* for two or three hundred years past. I again reiterate, that it is against the practice of enveloping ourselves in seven-fold shields of woollen at one period of the day, month, or year, and exposing the naked pores to the "*pelting* of the pitiless storm," at other periods of the day, month, or year, which I protest; and that too among the weakest and most delicate portion of society, enervated by excessive refinement, civilization, and sedentary avocations.

Sect. VI. *Ablutions.*

By these I do not mean simple cleanliness, a virtue for which the English are conspicuous above all other nations; but I could wish to draw the attention both of physician and patient to the warm and cold bath, particularly the former, a mean of preserving health and removing disease, which is far less cultivated in this climate than it deserves to be. It seems strange that the general and salutary use of the warm and cold bath should be now confined to Asia, and the Russian and Hungarian parts of Europe, while the more enlightened nations of the latter have only recourse to them occasionally by the advice of their physicians. This is more to be wondered at, since the bath is proverbially one of the greatest luxuries of life.

Sed vitam faciunt, balnea, &c.

The stupendous and beautiful baths of the ancients lie in ruins, and the ocean, lakes, and rivers, now supply their place amongst us, as they did in the days of Homer among them. In the eastern world, however, and in the Russian and Hungarian dominions, the importance of bathing is acknowledged, and the practice is general.

It is a mistake to suppose that it is only in a hot climate, where the perspiration is abundant, that the cleanliness of ablutions is necessary. In the wilds of Russia the peasant stews himself in hot vapour, and then rolls himself in the snow. By early inuring himself to these transitions, he preserves health to a very old age, and seldom requires medicine.

When we reflect on the functions of the skin, and the sympathetic influence which they exert on the various functions of internal organs, as traced through the whole of this Essay, we shall be constrained to admit that of all preventive and curative means, bathing holds the foremost rank. Indeed it is inexplicable, the apathy which European nations, but especially the English, evince on this most interesting point; though I would fain hope that the views of health and disease which I have here laid open to the general reader, will lead to a more extended use of this powerful means of prolonging life and preserving health.

Cold Bath. If a person immerge into water at a temperature of 48° or 50°, the whole system receives a shock, and

the blood is rapidly expelled from the capillaries of the surface, and driven upon the interior trunks, whose elasticity enables them to accommodate themselves to this sudden change of balance in the circulation.

Re-action next succeeds, more or less quickly, according to the strength of the constitution. The contractile power of the heart and arteries soon overcomes the collapse of the capillaries, and there is a rush of blood to, and a glow of heat over the surface of the body. This oscillation, produced partly by art, and partly by nature, is extremely salutary, under ordinary circumstances, and conducted in a proper manner. The previously torpid capillary and perspiratory vessels of the skin are thus roused, as it were, and distended by the new impulse, *ab interno*, and the whole excretory apparatus is put in motion. But this is not all; the various glandular organs of the body sympathise with the skin, a new stimulus is given to their functions, and the whole system experiences a kind of renovation, evinced by the lightness, flow of spirits, and pleasant sensations which succeed the cold bath.

This re-action, or glow, is the criterion of salubrity in the practice of bathing, and the sooner it takes place after the immersion the better. I say *after* immersion, for in very vigorous constitutions it commences before the person leaves the water. In proportion as the constitution is weak, or the action of the heart and arteries enfeebled, the access of the re-action will be later and later; and in some, it will not come on at all, when the bath is highly dangerous.

We may thus gain an insight into the diseases for which the cold bath offers advantages; and also those where it will, in all probability, disagree.

An erroneous opinion, that the cold bath braced, and the warm bath relaxed, has led thousands labouring under symptoms of *debility* to use the former, with direct detriment to their constitutions. A very considerable proportion of those complaints characterized by *debility* are dependent on organic or functional derangements of the *heart;* and in these the shock of the cold bath, the sudden afflux of blood from the surface to the centre, and even the effort at re-action, are highly deleterious, often very dangerous. Again, obstructions or infarctions of the liver, spleen, or any of the glandular organs, offer insuperable bars to the cold bath. Hence we see, how accurately should the seat and cause of a patient's disease be investigated and ascertained, before we thoughtlessly, as is too often the case, recommend the trial of sea bathing, when we are tired and foiled in the exhibition

of other remedies. The chest and abdomen should be minutely examined, by percussion and compression; the phenomena of the circulation, respiration, biliary secretion, &c. carefully scrutinized, before we venture to prescribe a measure on which so much of the patient's health—nay life, may depend!

Where none of these objections exist, then a cautious experiment of the cold bath may be made; beginning with the tepid, and lowering the temperature gradually to the level of nature. The salt water bath is always preferable to the fresh. This seems, in some measure, to depend on the excitement of the salt on the skin, and the consequent determination of blood to the surface.

But the utility of cold bathing, as a *remedy*, sinks into comparative insignificance, when contrasted with its importance as a *preventive* of disease, and as a temperer of the constitution when early begun, and long persevered in. Infants bear cold water better than adults; and if the cold *affusion* even, where the bath is inconvenient, were steadily pursued, the constitution would be habitually inured to those aerial vicissitudes, and accidental exposures, which, in the varied scenes of life, so often destroy health and happiness afterwards.

It is almost superfluous now to observe, that a moderate degree of warmth, from exercise, is salutary before plunging into the water; and that the dip should be of short duration. Indeed, much harm is daily done by continuing in the water too long, and that very re-action of the system, which is the sole object of the bath, is thereby frequently prevented. The middle of the day is, in general, to be preferred, and gentle exercise used after the bath.

The shower bath, so easily constructed in private houses, would be a valuable apparatus to the nursery, whereby a hardy race of children would be sent forth to meet the aerial vicissitudes of our climate.

Warm Bath. As the first instance of cold bathing, *as a remedy*, was that of Melampus bathing the daughter of the king of Argos; so Medea's cauldron is supposed to be the first record of the warm bath. From the derivation of the word, "care-destroyer," and the fabulous stories of old age restored to youth by the effects of Medea's boiler, we may suppose that the warm bath was highly appreciated in ancient times.

It is still so in the eastern world, from the Equator to the Pole; and the very circumstance of its being considered so refreshing a cordial in hot climates, is a sufficient answer to

the popular, but erroneous opinion of its *debilitating* effects. It is true, that the effeminate Romans carried this luxury to such a pitch of vicious extravagance, as to bring on it the title of one of the three great destroyers of human life; but this only proves its abuse, without at all militating against its salutary operation, when used in moderation. Indeed, if the general use of the warm bath should ever become prevalent in this country, it will probably produce a more beneficial revolution on the health and longevity of the inhabitants, than any change which the hand of time has ever wrought. So far from weakening or enervating the constitution, it has a decidedly contrary effect; and therefore, in *debilitated* subjects, it is infinitely more proper and safe than the cold bath. We have seen that the paramount good effects of the latter result from the re-action of the system. Now this re-action is entirely an effort of the constitution itself to resist, as it were, or undo what the cold immersion had produced. Here a considerable degree of vital energy is necessary, otherwise, some internal viscus may suffer. But the warm bath, say at 96°, elicits the blood to the surface of the body, with hardly any of that re-action observed after the cold bath. The whole cutaneous system of vessels is thus filled with blood, while the vessels of the interior organs are relieved, and that without any particular exertion of the heart, which might render it liable to subsequent exhaustion. This accident we frequently see follow the cold bath, where the dip has been too short, and the re-action smart. The patient falls back after the glow into a chilly state, during the remainder of the day, an indication of weakness in the circulating organs.

On the other hand, where the patient is immersed for ten, fifteen, or twenty minutes in the warm bath, at 96°, the spirits are raised, the pulse mended, and the appetite increased; in short, a general renovation is felt throughout the whole frame. This is more particularly observed after exhaustion from fatigue; and the oriental nations have long known how to appreciate its virtues in this respect. Homer describes Ulysses, among others, as refreshing himself with the warm bath, on his return home after all his toils and dangers. The diseases for which the warm bath may be employed, are much more numerous than those where the cold bath can be exhibited with safety. Atonic gout, indolent swellings of the joints or lymphatic glands, paralysis, scrofula, chlorosis, almost the whole class of cutaneous diseases and defœdations, incipient phthisis, chronic obstructions of the liver, and other abdominal viscera; chronic rheumatism, old syphilitic and syphiloid diseases, nephritic and calculous dis-

orders, colic, enteritis, [particularly when the vascular action is reduced, and obstipation is violent] and a multitude of other "ills which flesh is heir to," are removed or mitigated by this sovereign and potent medicinal agent.*

Where perspiration is required, the evening is the proper time for warm bathing, the patient going to bed immediately after. Where this is not necessary, the forenoon is the best period, and gentle exercise should succeed the bath, to prevent any collapse of the system, which, in very weak constitutions, may occasionally follow the determination to the surface.

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* No family indeed ought to be without a slipper bath. In the various diseases of children the warm bath is often our principal, or only remedy; and in many of those spasmodic seizures which so rapidly snap the thread of life in all ages, the warm bath is our surest refuge. In disorders of internal organs, however, the chest, abdomen, and the whole circulating apparatus should be carefully examined by a competent judge, before the bath is ventured on. How often is it inconsiderately prescribed by the routinist, without any examination of this kind, but merely after a few common-place questions!

Sect. VII. *The Passions.*

Without, for a moment, giving countenance to the absurd, the degrading doctrine of materialism, yet, we are constrained to acknowledge that a most intimate connexion or mutual dependence exists between mind and matter, which nothing but the mortal pang can dissolve. It is not our place to trace the effects of corporeal derangement on the constitution of the mind, or the faculties of the soul. They are the subjects of daily and melancholy observation. But the play of the *passions* on the functions and structure of the body, has not been duly appreciated, in this country at least.

In the passions I, of course, include the whole range of mental emotions, from the most placid meditation up to a paroxysm of rage on one hand, or down to an abyss of despair on the other.

These have been quaintly, but not inaptly termed by Piccolomineus the "*fulmina perturbationum*," and by Burton "the thunder and lightning of perturbation, which causeth such violent and speedy alterations in this our microcosm, and many times subverts the good estate and temperature of it."—These various emotions are to the mind, what the various species of food and drink are to the body. They stimulate, they depress, they tranquillize, and they ruffle the soul; but what is more to our purpose, they produce the same effects on the body. Examples of this are every moment before our eyes. The vascular and nervous systems are perpetually under the influence of the mental emotions. What palpitations and tremors are every morning excited by the postman's rap, when we are in anxious expectation of intelligence from absent friends! How often are we hardly able to break the seal of important letters! The effects of the mind on the circulation of the blood were early observed; instance the detection of Antiochus's passion for Stratonica, by the pulse. But it is not on the heart and large vessels only that mental emotions operate: the minutest capillaries feel their influence. Let the idea of *shame* cross the imagination of sensibility, and instantaneously the capillaries of the cheek are gorged with blood! Let the emotion be changed to *fear*; quickly the lily usurps the rose, and the vessels of the face are blanched and bloodless!

Certain passions of the mind can invariably cause an accumulation of blood in certain parts, and those parts *only* of the body, whenever they are excited. Other passions, as anger, can rouse the organs of the circulation into such preternatural action as to overcome lameness, and other decrepitudes; nay, for a time, to ward off the icy hand of death itself. Thus Muley Moluc, though lying on the bed of death, worn out by an incurable disease, and not expected to live an hour, started from his litter, during the important crisis of a battle between his troops and the Portuguese; rallied his army; led them to victory; and instantly afterwards sunk exhausted, and expired.

Terror and alarm have frequently the same stimulant effect; and numerous instances are on record of their removing obstinate diseases: thus Hildanus relates that a man disguised as a spectre seized another suffering under a paroxysm of gout; dragged him down stairs, with the gouty feet trailing along the ground; and left him on the cold earth. The gouty patient finding himself deserted by the supposed ghost, started on his legs, and sprang up stairs with infinite agility; and from that moment never afterwards felt a symptom of gout. On the other hand, terror has often produced such a sedative effect, as to arrest, at once, the circulation of the blood, and cause instant death. "A jew, in France, (says Ludovicus Vives, lib. 3. de Anima) came by chance over a dangerous passage or plank, that lay over a brook, in the dark without harm: the next day, on viewing the perilous situation he had been in, he fell down dead!"

But the corporeal effects of mental impressions are not confined to these violent emotions or passions. The *imagination* alone, is capable of producing equally wonderful phenomena in the material fabric. The animal magnetism of Mesmer, and the metallic tractors of Perkins, though mummeries and impositions in themselves, effected real cures, and induced many of those extraordinary sensations described by the patients and dupes. Thus, an eminent physician at Paris pretending to a lady that he was an adept in the art, made so evident an impression on her by the preparatory solemnity of voice and gesture, that, by the time he carried his hand to the region of the heart, he felt that organ palpitating violently. Oppression and tightness of the chest followed; the muscles of the face became convulsively twitched; her eyes rolled; syncope supervened; and the contents of the stomach and bowels were evacuated!

It is an inexplicable fact, that our attention being strongly directed to any particular part of the body, will frequently

cause what is called a determination of blood to that part, with various unaccountable feelings there. It is by the knowledge of this fact that we have a clue to the cures of Mesmer and Perkins. Thus Dr. Haygarth in Bath, and Mr. Smith in Bristol, having formed *mock* tractors, and applied them with all due form and solemnity to patients labouring under chronic rheumatism, were assured by them that the greatest relief was obtained by drawing the painted pieces of wood over the affected limbs. It is in this manner that amulets, incantations, and charms, have indubitably produced, in the times of ignorance and superstition, many of the now almost incredible effects recorded of them. They have lost their power by the diffusion of knowledge; but the principle is still in action, though under different forms. Thus during the siege of Breda, in 1625, when the garrison was on the point of surrendering to the enemy, from the ravages of scurvy, a few phials of sham medicine were conveyed into the fortress by the Prince of Orange's orders, and distributed among the scorbutics in doses of a few drops, as the most valuable and infallible specific. The consequences were, that the mental energy inspired by confidence in the medicine, worked miracles. "Such as had not moved their limbs for a month before, were seen walking in the streets sound, straight, and whole. Many who declared that they had been rendered worse by all former remedies, recovered in a few days, to their inexpressible joy." *F. V. Mye de morbis et symptomatis, &c.*

But the influence of imagination, through the medium of certain passions, as faith, hope, &c. over human infirmities, is probably wider and greater at this day, than in the darkest ages of ignorance. With the progress of medical science, its *real* cultivators have multiplied to a vast extent, and *soi-disant* professors have exceeded all calculation and belief. In the former class, when merit, chance, good fortune, or other circumstance, establishes a reputation for *superior* skill, the efficacy of the prescription is infinitely enhanced by the patient's confidence in its power: and one physician will cure a disease with precisely the same remedy, which entirely failed in the hands of his less celebrated cotemporary. "Plures sanat, in quem plures confidunt." *Cardan de sapientia.*—Hippocrates makes the same remark; and Avicenna says, "Ægri persuasio et fiducia omni arti et consilio et medicinæ preferenda."

It is in this way that the magnificent and unqualified promises of the charlatan inspire weak minds with extravagant expectations, and actually, in some rare instances, produce

those marvellous cures which we hear trumpeted forth; and those too by drugs either totally inert, or diametrically opposite to the views of even the quack himself.

> Sunt verba et voces quibus hunc lenire dolorem,
> Possis, et magnam morbi depellere partem. *Hor.*

As the nervous and vascular systems are so particularly under the influence of the mind, we may form some idea of the wide range of effects resulting from the various and almost unlimited play of the passions among so thinking and so reading a people as the English nation.

Corvisart observes, that diseases of the *heart* were extremely common in the times of the French revolution, when the minds of all classes were kept in a constant state of agitation and alarm. In this country, the attentive physician may daily observe both disordered action and disordered structure of the heart resulting from mental causes. With the progress of intellectual cultivation, civilization, and refinement, a host of what may be termed PREDISPOSITIONS to disease, have arisen, that lay us at the mercy of almost every breath of heaven!

Our feelings are rendered so acute, that we are all soul within, and all nerve without. We thus, like the spider, "live along the line;" and every event that happens on any point of the globe's surface is regularly transmitted, like an electric shock, to this sympathetic island! The consequence is, that a morbid *sensibility* is generated throughout the whole population, but particularly among those in the upper walks of life, where exposure to the vicissitudes of the atmosphere, temperance *per force*, and daily labour, blunt not the senses, and fortify not the corporeal fabric. Thus constituted, it may be imagined what havoc those great and predominant passion, love, piety, ambition, &c. &c. produce on the enervated frame, when they are carried beyond their natural and salutary boundaries. "Passiones maxime corpus offendunt (*ait Philo Judæus de anima, lib.* 3.) et animam, et frequentissimæ causæ melancholiæ, dimoventes, ab ingenio et sanitate pristina."

LOVE, that cordial drop which heaven has thrown into the bitter cup of life, destroys, and ever has destroyed, more victims than the conqueror's sword! I need not allude to the wide gulph into which the victims of its *illicit* indulgence are daily plunged, by myriads: this is evident to the most superficial observation. But it is little suspected by the pro-

fession, and not dreamt of by the world at large, that the *salutary boundaries of virtuous love* are so very generally *unconsciously* overstepped, as to occasion a range of moral and physical evil in the human race, that would startle the most stoical mind, were that range faithfully and accurately delineated! "De tantillâ lætitia, quanta tristitia; post tantam voluptatem, quam gravis miseria!"—*Bern. C. 3. Med.*

The investigation cannot be publicly conducted; but it may be privately prosecuted by the medical philosopher; and though a path but little explored, it will be found to lead to most important conclusions in the developement and treatment of many obscure and anomalous diseases.

Religion, too, the benefits of which extend beyond the confines of the grave itself, has too often been turned, by the weakness of human reason, into superstition and fanaticism, which re-acting on the corporeal fabric, have destroyed the physical, as well as the intellectual powers of the unhappy and misguided zealot! Here the medical philosopher has too many opportunities of witnessing the havoc which intemperance in these sublime passions, produces on the nervous and vascular systems in particular, and through them on almost every organ and function in the human fabric. Those cheerful and moderate indulgences in religious meditations, and exercises of christian duty, which enable man to live in tranquility and die in hope, are converted by the fanatic into engines of destruction to his own health and happiness. He lives in terror, and dies in despair! or, as is too often the case, the seat of reason gives way, and the soul is immersed in a chaos of maniacal phantasies!

Should it be objected, that we are here trenching on the confines of the divine, we may observe, that in their respective researches, the physician and metaphysician must frequently exchange grounds, and that it is difficult to lay down a precise line of demarcation between their territories.

To genuine religion, as taught in the precepts of Christ, the above picture has no applicability nor similitude, no more than the best remedies can be fairly branded with the name of poisons, because they may become so in the hands of ignorance or wickedness. It is the abuse, not the use of religion that brings so much misery on mankind.

The subordinate passions, as envy, emulation, ambition, hatred, &c. predispose to, produce, and aggravate the various disorders of the nervous and vascular systems, to an extent far beyond what is generally believed or suspected. These passions are so universally, so constantly, and so com-

monly in action, that their familiarity puts us so much off our guard, that we scarcely notice the corporeal derangements which they are perpetually generating. Plato was so struck with the effect of the passions on the *body*, that in his Charmides, he says—"omnia *corporis* mala ab anima procedêre:"—all diseases of the body proceed from the soul.

But it is the class of mental emotions, denominated *fear, grief, sorrow, and anxiety*, which make the greatest depredations on the functions and structure of the central organ of the circulation. Till the late writings of Corvisart, Burns, &c. cardiac affections were, comparatively speaking, passed over unnoticed by medical practitioners; yet there are many curious allusions in some of the ancient writers to this very subject. Chrysostome, in his Epistle to Olimpia, describes sorrow "as a cruel torture to the soul, consuming the body, and *gnawing the very heart*. Animarum crudeli tormentum, dolor inexplicabilis, tinea non solum ossa sed *corda* pertingens." Agrippa (*L.* 1. *C.* 63.) alludes to the palpitation of the heart and syncope induced by fear. "Timor inducit frigus, *cordis palpitationem*, vocis defectum, &c." But the most remarkable passage of antiquity, is that of Melancthon; it would not dishonour the first pathologist of the present day. "Mœstitia cor quasi percussum constringitur, tremit, et languescit, cum acri sensu doloris. In tristitia, cor fugiens attrahit ex splene lentum humorem melancholicum qui effusus sub costis in sinistro lateri, hypochondriacos flatus facit; quod sæpe accidit iis qui diuturna cura et mœstitia conflictantur." "Sorrow strikes the *heart*, makes it flutter and pine away, with *great pain;* and the black blood drawn from the spleen and diffused under the ribs on the left side, makes those perilous hypochondriacal flatulencies which happen to those that are troubled with sorrow."

This is a true picture of cardiac disorder from the nervous irritation of grief or sorrow; and ought to be kept in mind, both by patient and physician.

The effects of grief, indeed, are often the cause of more suddenly fatal affections of the heart, than is here mentioned. Every one knows, that Philip the Fifth of Spain died suddenly, on learning the disastrous defeat of his army near Plaisance. Zimmerman states, that on opening his body, the heart was found burst. And thus it is, that the vulgar and metaphorical expression of a "*broken heart*," is sometimes pathologically correct.

A remarkable instance of the influence of the mind on the body occurred, since the first edition of this work, at the Hospital *de la Salpetriere*, in Paris. Mary Glin, a widow,

70 years of age, and who had enjoyed remarkably good health all her life, was so astounded with horror, at learning her daughter, with two children in her arms, had thrown herself out of a window, and was dashed to pieces, that, in one night, her skin, from head to foot, became as black as that of a negro. This blackness was permanent, and the woman having died about two years afterwards of pulmonic inflammation at the hospital abovementioned, she was dissected by the surgeons of the Institution, and the skin was found to correspond in structure with that of the negro. *Journal de Medicine, December,* 1817.

But the peculiarly deleterious effects of anger, on the heart, stomach, and liver, should not be passed over entirely unnoticed. We have only to look in the face of an enraged man, to be convinced of the nervous and vascular emotion which obtains through every part of the system—

> Ora tument ira; fervescunt sanguine venæ;
> Lumina gorgoneo sævius angue micant.

It behoves every person, who has the least tendency to complaints of the liver or heart, to be incessantly on his guard against this temporary madness, which deranges the functions of these two organs in a most remarkable degree.

I have said less of the effects of the passions on the stomach, liver, and bowels, because the phenomena are so striking, as to be acknowledged and observed by all classes. I wish more particularly to draw the attention of the profession to their effects on the heart, because less known, and less suspected.* I shall conclude this section with a curious subject; the effects on health of literary studies, or passion for literary distinction.

DISEASES OF LITERARY CHARACTERS.

If the literary classes of mankind, locked up in their libraries, be secure from various morbific causes, to which their brethren in the more active walks of life are daily exposed, they are preyed upon by a host of maladies, in some measure peculiar to themselves. It is a melancholy, but a certain fact, that a high state of intellectual cultivation is

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* The author has long directed his researches to *the effects of mental emotions on the heart and nervous system,* and should a common degree of health be spared, he hopes to bring forward some new and important information on this interesting subject, ere long.

rarely attained but at the expense of bodily health; and hence the ludicrous observation of Frederick the Great, that "man seems more adapted by nature for a postillion than a philosopher," is not without foundation in truth.

While the mind is on the rack of thought, the body is inactive; and while a determination of blood is constantly kept up to the head, and consequently an excess of excitability obtains there, the stomach, liver, and alimentary canal become torpid: and hence arise a long train of nervous, dyspeptic, and hypochondriacal complaints, to which the literary amateur is proverbially subject. To quote the words of a most intelligent physician,* in a letter to the author, on this subject, "unfortunately the physical is too often in the inverse ratio of the intellectual appetite, and with the *Bulimia Doctorum* there is too frequently associated a stomach *'as weak as blotting paper,'* to use Vogel's just, but rather ludicrous comparison." The effects of literary studies on the digestive organs, and, through them on the whole body, have been long observed, and sometimes exquisitely described both by poets and physicians. Ovid has painted the victim of intense thought with great spirit—*"pallor in ore sedet, macies in corpore toto;"* but Voschius and Ficinus have given us as good a pathological account of the business as Abernethy, Parry, or any modern physician could do. "Studiosi sunt cachectici, et nunquam bene colorati, propter *debilitatem digestivæ facultatis."* *Voschius de peste.* Ficinus is still more particular. "Accedit ad hoc, quod natura, *in contemplatione;* cerebro prorsus, cordique intenta, stomachum heparque destituit; unde ex alimentis male coctis, sanguis crassus et niger efficitur, dum nimio otio membrorum superflui vapores non exhalent."

This intellectual exertion produces deleterious effects also, by preventing sleep. The tired brain can no more repose, than the overstrained muscles after violent exertion; hence the studies of the day rise in incoherent images at night, or drive away sleep altogether. "Partem noctis, studiis dedico, non vero somno, sed oculos, vigiliâ fatigatos cadentesque, in opera detineo." *Seneca, Ep.* 8.

But the worst of all is that pest of literature, *hypochondriasis*, which, in a greater or less degree, attaches itself to all classes of the studious.† The various uneasy sensations

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* Dr. Dickson of Clifton.

† By the term "*studious*" I do not exclusively allude to the *man of literature;* but to all the more studious classes of the three learned professions; and also to all those of other professions and occupations, where much thought is combined with a sedentary life.

which the dyspeptic hypochondriac feels, are transformed in his imagination to the most dangerous diseases of which his reading has furnished him with any description. Indeed, so closely do the nervous or sympathetic, imitate *organic* derangements, that medical men themselves are often deceived by the similitude, and how much more prone to error must the hypochondriac be, whose whole nervous system is unpoised; where the sensations are conveyed to the sensorium irregularly, and there make the most exaggerated impressions. Thus that flatulence in the stomach, so constant an attendant on sedentary habits and deranged digestion, will often so mechanically disturb the motions of the diaphragm, and obstruct the free action of the heart, that palpitations of this organ and intermissions of the pulse, with strange and distressing sensations in the chest, will be the consequence. Then the hypochondriac takes the alarm. Angina pectoris, polypi, ossification of the valves, and other diseases of the heart, arise in frightful review, and aggravate all the symptoms! If, as is almost always the case, he has frightful dreams, and starts suddenly from his unrefreshing slumbers, then dropsy of the chest, or of the pericardium, is his miserable and unhappy lot! In these constitutions, where leanness is so general, a pulsation can be very frequently felt between the pit of the stomach and navel, on making moderate pressure with the fingers. This symptom, which, in reality, is nothing but the action of the aorta, obstructed perhaps by fecal accumulations, is immediately converted by the literary hypochondriac into an aneurism of the aorta or cœliac artery, and great and direful will be his apprehensions and forebodings.

There is no part of the body where these morbid feelings will not seat themselves, and ape the more serious organic lesions. In the bladder they will imitate stone, and harass the hypochondriac with the constant dread of lythotomy. In the lungs they will assume the mask of asthma, nay of phthisis itself; and the pseudo-purulent expectoration will confirm the patient in his belief that consumption is his lot.

From their inactive life, torpid bowels, indigestion, and intense thought, the studious are very much affected with head-aches. These are soon converted by the sensitive patient into organic diseases of the brain or its membranes; and epilepsy, apoplexy, or mania itself, are set down as the certain consequences that may be daily looked for!

It is no easy task to root this wrong impression out of the imagination, while the morbid sensation retains its seat in the corporeal fabric. Indeed, arguments have oftener the effect

of riveting the hypochondriac in his opinion, than of persuading him of his error. In truth, it sometimes requires all the discrimination of the physician to distinguish the real from the pseudo-affection; or, in other words, to draw the line between the sympathetic and organic lesions.

When the disease of an interior organ is proved to be of the sympathetic or nervous class, nothing but dissipation of mind, and exertion of body, can effect a cure. By dissipation I only mean the withdrawing the mind from literary pursuits, and from the opportunity of dwelling on the corporeal sensations, such as horse by exercise, or any amusement that requires some management, and presents a succession of objects.

Anothar species of dissipation is light reading, or the perusal of even a good novel occasionally. Rabelais, Cervantes, Burton, Butler, and Sterne, have cured more of the MORBI ERUDITORUM than Hippocrates, Celsus, Galen, Boerhaave, and Cullen.

Whenever we find the *diseases of literature* assail us, we should have the *lamp* scoured out and no more oil put in it. It is *night study* that ruins the constitution by keeping up a bewildered chaos of impressions on the brain, during the succeeding sleep—if that can be called sleep which is constantly interrupted by incoherent dreams and half-waking trains of thought. Such is the sensibility, and such the irritability of the studious brain and nervous system, that it is hardly safe to indulge in the sight of theatrical representations, as the mimic scene is sure to rise in the distempered imagination, should sleep take place; but more frequently the histrionic impression continues so vivid as to banish all tendency to repose, and the night is spent in tossing on a sea of incongruous images, and floating among the *disjecta membra poetæ!*

If, to procure repose, opiates or spirituous liquors are had recourse to, then the brain is likely to suffer congestion or inflammation, as was the case, I believe, with the celebrated Professor Porson. Here the morning alone should be dedicated to study, and the evening to light amusements, some entertaining occupation, or perambulation through town or country with a literary friend.

As the digestive organs are particularly implicated in the derangements resulting from literary studies, the blue pill and aloes, three grains of the former and one of the latter, should be taken every third or fourth night, to carry off diseased, and increase the healthy secretions of the liver and alimentary canal. Acidities in the stomach and bowels should be corrected by magnesia and the volatile alkali, while

the sea air and bath should, if possible, be enjoyed in the summer season.

Lastly, I would recommend my literary brethren (from some little experience in intellectual avocations) to always keep in mind the "*invita Minerva*" precept of the poet. When we find the intellectual functions indisposed to exertion, we should not *press* them. One hour of *mental* energy is worth a week of forced labour. In the "iter ad astra" it is sometimes dangerous to goad our Pegasus too much. The path is narrow and intricate—the etherial courser is often restive when *spurred*, and flounces out of the proper road.

On a future occasion I shall more particularly delineate the connexion and mutual dependence that exist between the mental and corporeal functions, and open some pathological views to the literary classes of society, that may be of most essential service to them in their intellectual labours. Few of them are aware of the vast influence which the state of the *digestive organs* exerts on the finest effusions of the imagination!

Sect. VIII. *Sleep.*

This mysterious state, in which we pass one-third or more of our existence, in nearly intellectual annihilation, has puzzled the philosophers of all ages to analyse. It is not by metaphysical disquisitions, but by physical and physiological investigations that we shall ever gain any insight into this most remarkable phenomenon.

The more intimately we become acquainted with the laws of our own frame, the more we will be convinced that there is no *function* in the body, with the exception perhaps of the heart, which has not its *alternate* periods of action and repose. This, however, is not the received opinion. One grand division has been made of the functions, into animal or voluntary, and organic or involuntary. The various muscles of locomotion, the muscles by which we masticate our food, &c. belong to the former class—are under the command of the will, and have their periods of repose when we sleep. Those muscles employed in the circulation of the blood—in the digestion of our food—in the secretion and absorption of various fluids, as the bile, &c. belong to the second class—are not under the will, and are *supposed* by physiologists to go on uninterruptedly both while asleep and awake. The intellectual system has also its alternations of exertion and rest; for when, in sleep, the senses, as hearing, feeling, &c. cease to transmit impressions to the brain, the mind has no longer materials to act on, and immediately becomes unconscious of its own existence.*

This law of the intermission of action has been applied by Bichat to the theory of sleep. "General sleep," says he, "is the assemblage of particular sleeps. It is derived from that law of the animal life which causes in its functions a constant succession of periods of activity, and times of intermission; *a law which pointedly distinguishes itself from the organic life.*" Now I do not think that this *point of distinction* is so fairly made out as Bichat supposes; for, if we except the heart, we shall find that the stomach, intestines,

* This statement refers, of course, to natural and sound sleep. Dreams will be noticed hereafter.

liver, lungs, and all the organs of secretion, excretion, and absorption, are governed by the same general laws of *alternate action and repose* that regulate the voluntary muscles, the organs of sense, and the intellectual functions.

But to return to the subject of sleep, as connected with Hygiene. I shall consider it under two points of view: 1st, its proper and salutary periods; 2d, its abuse and interruptions.

1st. When the various stimuli of light, heat, noise, and the bustle of occupations connected with day, are withdrawn, then the tired muscles, organs of sense, and intellectual functions, would sink into a sweet oblivious quiescence till the sun again appeared, did we obey the dictates of nature. This is the case with the majority of animals; though some of them, destined for prey and slaughter, necessarily select the night for their depredations. This last class is that which the votaries of fashion have resolved to imitate. They raise a host of *artificial* stimuli around them, the moment that the *natural* stimuli are withdrawn; and these are kept up till the night is far advanced, and till sober mortals, together with almost all animated nature, have waked from the first period of sound and refreshing sleep! Then again, when "the breezy call of incense-breathing morn" rouses all living creatures to exertion with renovated vigour, the night-consumer lies, like Polyphemus, immersed in the fumes of debauch, or tossing on an ocean of chaotic dreams, resulting from the unnatural and pernicious stimulation of every nerve of sense, during the preceding evening!! It is no wonder that the candle of life, thus lighted at both ends, should be rapidly consumed, independently of the numerous *wasters* which prey upon its substance in every direction!

The valetudinary then will ponder on these things; and will endeavour, as far as the evil habits of society will permit, to go early to repose, withdrawing all artificial stimuli of light, heat, noise, study, &c, and after eight hours of rest, will force himself from his couch, however difficult may be the effort at first. As he will soon acquire the habit both of sleeping and waking at a particular hour, he will thus not only prolong his existence, but will, by early hours, be able to turn the natural range of life to a much better account.

Interruptions of Sleep. Many of these, such as asthma, water in the chest, organic diseases of the heart, &c. cannot be treated of here; but there is a large class of sleep-destroyers which are connected with the stomach and other organs of digestion, and which may be greatly mitigated by

a little attention. They operate with such a powerful influence on our health and spirits, that I shall go into some detail on this interesting topic.

It has justly, I think, been considered by a late author (Mr. Waller) that disturbed sleep, frightful dreams, and terrific visions, are all so many grades of NIGHT-MARE, which is the climax of the disorder.

The vulgar opinion that *bad dreams* are the forerunners of disease, is perhaps not entirely chimerical; since, in grown persons at least, they are indicative of derangement in the biliary and digestive organs, and when they amount to frequent and distressing attacks of Incubus, they are by no means to be ranked among the lesser calamities to which our nature is liable. How many are there, in fact, to whom sleep is rather an object of terror than comfort; and who rise from their couches more wearied and exhausted than when they retired to rest!

The Greek term EPHIALTES is expressive of the weight and oppression felt in night-mare, and which conveys the idea of some *living being* having taken its position on the breast, inspiring terror, impeding respiration, and paralysing all the voluntary muscles. The real nature of *Incubus* is to this day a matter of doubt; and as physicians have paid little attention to its investigation, the victim of this frightful hag is left without a remedy, and almost without a hope!

Virgil, in the twelfth book of the Æneid, has given a description of Incubus; and Walter Scott, in his Lady of the Lake, had evidently night-mare in view, when he penned the following expressive lines.

> In broken dreams the image rose
> Of varied perils, pains, and woes;
> His steed now flounders in the brake,
> Now sinks his barge upon the lake;
> Now, leader of a broken host,
> His standards fall—his honour's lost;
> Then—from my couch may heavenly might
> Chase this worst phantom of the night!

The first attack of the fiend is, if the sleep be profound, in the shape of a disagreeable dream. The patient imagines himself exposed to some danger, or pursued by an enemy whom he cannot avoid. He frequently feels as though his limbs were tied, or deprived of motion; at other times, he fancies himself confined at the bottom of a cavern or vault, and in danger of suffocation. This is often the whole of the sensation which the disease produces, when it goes off by an

oblivious sleep or a pleasant dream. Here, Incubus is not fully formed—the predisposition to it only is evinced. A real paroxysm of night-mare is thus faithfully drawn by Mr. Waller.

"When the paroxysm does actually take place, the uneasiness of the patient in his dream rapidly increases, till it ends in a kind of consciousness that he is in bed and asleep; but he feels to be oppressed with some weight, which confines him on his back, and prevents his breathing, which now becomes extremely laborious, so that the lungs cannot be fully inflated by any effort he can make. The sensation is now the most painful that can be conceived: the person becomes every instant more and more awake, and conscious of his situation; he makes violent efforts to move his limbs, especially his arms, with a view of throwing off the incumbent weight; but not a muscle will obey the impulse of the will: he groans aloud, if he has strength to do it, while every effort he makes seems to exhaust the little remaining vigour. The difficulty of breathing goes on increasing, so that every breath he draws seems to be almost the last that he is likely to draw; the heart generally moves with increased velocity, sometimes is affected with palpitation; the countenance appears ghastly, and the eyes are half open. The patient, if left to himself, lies in this state, generally about a minute or two, when he recovers, all at once, the power of volition; upon which he either jumps out of bed, or instantly changes his position, so as to wake himself thoroughly. If this be not done, the paroxysm is very apt to recur again immediately, as the propensity to sleep is almost irresistible, and, if yielded to, another paroxysm of night mare is, for the most part, inevitable."

Where the disease is established, some confusion of head singing in the ears, and spectra before the eyes, will remain for a time after being roused. There will also be in many cases acceleration of the pulse and palpitation of the heart. Mr. Waller is of opinion that when the paroxysm goes off, as frequently happens, without the patient waking, strange hallucinations are produced, which give origin to reputed visions, and supernatural visitations, even among people of great intellectual cultivation. The degree of consciousness during a paroxysm of night-mare is so much greater than ever happens in a dream, that a person who has had a vision of this kind, cannot easily bring himself to a knowledge of the deceit, unless he wakes out of the paroxysm, and finds some incongruity in respect to time or place. It was probably nothing but attacks of Incubus which gave origin to the

following complaint from the amiable Cowper. "To whatever cause it be owing (whether to constitution or God's express appointment), I am hunted by *spiritual hounds* in the night season." *Hayley's Life of Cowper.* Now we know that when the digestive organs are deranged, there will be very preternatural pulsations extending from the œsophagus to the rectum, and these combined with night-mare, might very easily give rise to the idea entertained by the poet: indeed the visions accompanying Incubus are often of the most frightful kind. Forestus, when affected with this complaint, thought he was pressed upon the chest by a black dog, in consequence of which he could not breathe. "Putabat pectus suum comprimi a cane nigro, unde respirare non potuit."

There is little doubt but that, in this way, many well-meaning persons have deceived themselves and others with the belief that they have seen spectres, heard voices, &c. in the dead of night; and very possibly that such convictions have, under certain circumstances, produced the event foreboded or dreaded.

To a modification of Incubus, Mr. Waller attributes that indiscribable terror which some persons feel in their sleep, and which frequently obliges them to vociferate aloud, and generally to start with such violence, or even to jump out of bed, with or without a terrific dream.

Incubus will sometimes occur in the healthiest persons, when any indigestible food happens to lie in the stomach or the upper portions of the alimentary canal, during sleep.—But a peculiar habit of body is necessary to render a person *subject* to it. Many feel it from youth. These are generally of a contemplative disposition, and of that particular temperament which disposes to hypochondriasis and nervous diseases. Sedentary employments, confinement within doors, great application to literary or other studies, &c. also predispose to the attacks of Incubus. Those too, who are accustomed to coarse and unwholesome food, however exposed to the open air, are obnoxious to this disease; hence its great prevalence among sailors. Hypochondriacs and pregnant women are also its victims.

The proximate cause of Incubus has given rise to various speculations. A very general opinion prevails that this affection is produced by mechanical obstruction to the blood's circulation, from particular position of the body.—It is a certain fact, however, that no posture is a security from night-mare among the predisposed; neither is a full stomach to be accused as the cause, nor an empty one to be expected as the antidote of this disorder. There is, how-

ever, an almost universal opinion, that Incubus attacks persons *only* while on their backs; and this opinion *seems* to have some foundation in fact, from the following circumstances. One of the symptoms almost inseparable from the disease is this, that the patient *appears to himself* to be kept down upon the back by some external force; and as, at the moment of recovering the power of volition, a great confusion of ideas prevails, a person may easily imagine that he has recovered himself by some effort of his own, by turning from his back to his side. But these things are extremely fallacious, as there is no trusting to the senses during a paroxysm of Incubus.

It appears, however, from the mode of treatment to which this disease gives way, that the primary cause, in whatever manner it may act, has its seat in the digestive organs, and that night-mare originates in defective digestion, whereby the food, which should be converted into good chyle, is transformed into a half-digested mass of *acid* matter, which is productive of heart-burn, eructations, flatulence, gripes, with a long train of dyspeptic and hypochondriacal complaints.

There are many stomachs which quickly convert every thing they receive into an acid; and such will be generally found to be the case with persons subject to habitual night-mare, or frightful dreams, and disturbed sleep. Such stomachs are too frequently distended with some acid gas, which alone gives rise, in many cases, to paroxysms of Incubus; and may often be instantly removed by any warm cordial, as peppermint, gin, brandy, carbonate of ammonia, &c. Whytt used generally to take a small wine glass-full of brandy going to bed, in order to keep off night-mare and terrific dreams, to which he was very subject.

Of all medicines, however, the carbonate of soda, taken in a little ale or porter, as recommended by Mr. Waller, will be found the most efficacious. About a scruple going to bed, is a sufficient dose; and where acidities prevail in the stomach, the same quantity twice in the day, will be useful. This medicine not only neutralizes any acid in the first passages, but likewise brings away by stool, vast quantities of viscid slimy matter, so acrid as to burn and excoriate the parts it touches. The appetite now generally improves; but the propensity to acidify remains for a long time in the stomach, and requires great attention to diet and regimen. There are few people with whom particular kinds of food do not disagree, and these being known should be avoided. Thus chesnuts or sour wine will almost always produce Incu-

bus among those predisposed to it, as was observed by Hildanus. "*Qui scire cupit quid sit Incubus. Is ante somnum comedat castaneas, et superbibat vinum fæculentum.*" In this country, cucumbers, nuts, apples, and flatulent kinds of food, are the articles most likely to bring on night-mare.

The following draught I have found very efficacious in preventing attacks of Incubus, viz. carbonate of ammonia, ten grains; compound tincture of cardamoms, three drachms; cinnamon water, two ounces; to be taken going to bed.

Intemperance of any kind is hurtful. Most vegetables disagree; and pastry, fat, greasy, and salted meat, are to be avoided. Moderate exercise is as beneficial as sedentary avocations, intense study, and late hours are prejudicial.*

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* A question is often asked, is it hurtful to take a nap after dinner? It is certain that both man and animals feel a natural propensity to sleep after a full meal. That rest, or at the most *passive* exercise, is proper after the principal meal, is unquestionable; and in valetudinarians, I have not observed a short slumber on the sofa, after dinner, either injurious to health, or preventive of sleep in the night. I need hardly remark that to eat and drink to satiety, and thus induce an irresistible sleep, is injurious to the constitution. Those too, who undergo much fatigue before dinner, may fairly be indulged in a short repose after that repast.

Sect. IX. *Medicine.*

"Haec nusquam quidem non est."—*Celsus.*

Some good and much harm are every day done by the family medicine chest, and the patent medicine warehouse. If the experienced physician is often at a loss what to prescribe, and frequently finds it most prudent to prescribe nothing at all; what infinite mischief must be hourly produced by the patient, and the still more ignorant quack, pouring drugs, of which they know little, into a body, of which they know less! The dictionaries of *popular* medicine and gazettes of health slay annually their thousands; not *directly* indeed, by the actual injury of the remedies which they congregate without knowledge or discrimination, but *eventually*, by procrastinating the interference of the regular practitioner till the period of cure is past, or until the disease has taken that hold on the constitution or part, which will baffle all future remedial measures.

Speaking generally, every domestic or patent medicine which simply evacuates from the skin or bowels, *may* do good; but all those which, in any way, lull pain, (and most of them have opium in their composition for this very purpose) or prove stimulant or cordial, *must* inevitably do injury, in nine cases out of ten. It has been abundantly proved throughout this Essay, that *debility* is rarely independent of some organic or functional disease, and that the latter, must, for the most part, be removed by remedies which operate as evacuants, in some shape or other—such as purgatives, diaphoretics, sialagogues, cholagogues, &c. including blood-letting. Now it may easily be conceived how deleterious must that medicine prove, which, by an anodyne property, soothes, for a time, the painful sensations proceeding from, and wisely designed to point out the nature and seat of, the disease; thus masking the enemy, and enabling him to revel on the very vitals of the unhappy victim, unsuspected—unassailed! Again, if any stimulant or cordial property be combined with the anodyne (as is generally the case in patent medicines) then the *gilded* poison gives redoubled force and activity to the original malady, and the patient is pushed forward with an accelerated, though hidden velocity, to the confines of the grave, or what perhaps is worse, to a state of irremediable torture, and lingering decay.

These are the glorious fruits of that wide system of *charlatanism* which pervades these islands, and which must prove as strong "a preventive check" to population as the statistical philosopher can desire! It is on this account, I have been solicitous to pourtray the *causes* of disease as beacons to general readers; but to attempt to teach them how to use the remedies, when they are actually overtaken with illness, would be to furnish them with the letters of Bellerophon for their own destruction.

Nevertheless, a few observations on some safe and useful medicines may be allowed here. As by far the greater number of our maladies flow from repletion, or the excessive indulgence of food and drink, so an open state of the bowels, or rather a periodical evacuation of them by purgatives, would obviate a very great proportion of the disorders we incur. Man will not abstain from animal food two days in the week; but he will take a couple of doses of physic, as an alternative—and it is the best alternative we have. Five grains of the blue pill and one or two of aloes, (where the person is not disposed to hemorrhoids, or three or four grains of jalap as a substitute for the aloes, where he is,) taken regularly twice a week, for three or four months in the year, with half a pint of the compound decoction of sarsaparilla, every day for the same period, would do more towards the preservation of health and prolongation of life, than all the balsams and elixirs from the "Balm of Gilead" down to the "Dutch Drops." If ever a medicine deserved the name of *diacatholicon,* it is this. Happy would it be for mankind if every patent for sealed poison were burnt, and the foregoing formula substituted instead!

The old custom of bleeding in the spring, and taking some cooling physic, has been ridiculed by modern physicians; but as the season alluded to generally brings with it a host of inflammatory affections, I know not upon what principle the practice has been condemned. For my own part, I am old-fashioned enough to most warmly recommend the revival of this exploded precaution.*

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* Since the first edition was printed, I have observed the following passage from the pen of a distinguished physician, Dr. Perceval of Bath. "It may be remarked, that the old and popular custom of taking purges in the spring and fall of the year to prevent fevers, serves to confirm the value of this practice." *Dublin Hospital Reports.*

THE END.

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