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ON
POVERTY OF THE BLOOD,

AND ITS SYMPATHETIC

DISORDERS OF THE LIVER, STOMACH,

AND

NERVOUS SYSTEM.

BY

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1858.



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Works by

G. WEST PIGGOTT, M.A. ET M.D., CANTAB.;

Fellow of St. Peter's College, Cambridge; and Fellow of the
Cambridge Philosophical Society.

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POVERTY OF THE BLOOD.

THE EFFECTS OF OVERSPENT NERVOUS ENERGY

AND

DISORDERED SYMPATHY.

“The blood is the life of the flesh.”

NOTHING is more essential to health than an adequate generation and equal distribution of energy or nerve power. This proposition opens a field of most extensive inquiry. The sources of that power, its variable action, whether feeble, overspent, or misdirected, the medium which it affords for connecting the immaterial soul with the material atoms of our frame, and with external objects, the means by which it may be accumulated or exhausted, the position which it holds in the human economy for resisting injurious influences from without, the subtle sympathies maintained by it between every part of the frame and every other part, the extraordinary diseases to which changes in nervous action give rise—shewn by spasm, paralysis, mental aberration, vitiated secretion, and defective nutrition, indigestion, and bilious attacks, and above all its profound effects in changing the perceptions communicated

INFLUENCE OF

by the various senses of touch, sight, taste, smelling, and hearing,—all these with an infinity of other points confer a great deal of interest upon the topic in question.

Nerve power manifests itself in conveying sensation, in causing muscular motion, in controlling the organic actions of secretion, in modifying animal temperature, and in radiating sympathetic action. In the first place, it ought to be remarked that the agent by which the nerve power is exerted, is unknown except by its effects, and it has received several arbitrary names sufficiently descriptive but wholly hypothetical; such as nervous influence, nervous energy, nervous fluid, from an analogy it is thought between it and “the electric fluid.” In the present state of science, no certain reply can be given to such questions as the following, because the link connecting spirit and matter is a profound mystery.

How does the will communicate with the muscle? How does the torpedo, by an act of its will, produce an electric shock which stuns if not kills its enemy? Is the *agent* material or immaterial? Is it a direct action of the energizing “spirit”* or is it some modification of electricity, galvanism or magnetism placed at the disposal of the *will*? The nervous force, however, in animal life, acts both voluntarily, as in muscular motion, and spontaneously, quite independently of the will. The muscles of the heart, chest, &c., move waking and sleeping without conscious will. But its agency can be instantly suspended by dividing the nerves of particular parts. Therefore it acts by means of the nerves. It is, therefore, a nervous influence or energy, in one part obedient, in another superior, to volition. No one can hold a weight of twenty pounds at arm’s length without exhaustion of the energy of that arm gradually taking place, the strongest man

* The word spirit is here used in the Scriptural sense.—See Eccl. iii. 21.

NERVOUS ENERGY.

finds the arm at length become exceedingly painful and finally powerless, yet a few moment's rest recruits the muscles. Significant fact; the nervous energy is regenerated; the will regains the instrument of its power. So the "Stand at Ease" of the army is essential to its vigorous evolutions.

Looking more closely at these instances, we see that much greater force can be developed by muscles in varied motion than by muscles held powerfully by the will in a state of rest. If an arm which can hold horizontally a twenty pound weight only for a few minutes is disabled by a continued painfully maintained position; how is it that vigorous movements of the same arm can be kept up during many hours? Clench your hand powerfully and apply the fist to the ear—a murmur will be heard similar to that of a shell. Close the jaws firmly with the ear on the pillow; a similar sound will be heard. In each case the sound is produced by rapid muscular tremor. The stethoscope discovers the same sound within any of the forcibly contracted muscles, as the biceps, &c. This tremor denotes a slight but rapid contraction and extension of the muscular fibres. The interval between those movements is not sufficient to recruit and supply the nervous influence. The blood, by its instantaneous and constant nourishment of the minute particles of muscle, invigorates the fibre to respond to the energy of the will. The muscle long kept in action becomes fatigued, that is, robbed of its natural susceptibility to the command of the will. The variously moving arm, as that of a carpenter, brings into play first one set of muscles then another, each having moments of rest to accumulate energy. From these examples we may gather that the nervous influence requires certain conditions for its energetic development. And evidently, first of all, we recognize in the changes of the moving arm, the direct result of a better circulation of blood within the fibres.

NERVOUS ENERGY

Vigorous supply of blood to the part is then indispensable. Next the blood must be capable of conveying nourishing particles as the elements of energy, that is of supplying the wear and tear of the acting parts. Thirdly: there must be an uninterrupted removal of the *debris* of action by means of the veins and absorbents, perspiration, &c., and lastly: the nerves themselves must be unimpeded and in free connection with the brain, which is the seat of the will. We enumerate then,

- (1) Determination of nervous influence,
- (2) Active nutrition,
- (3) Vigorous circulation,
- (4) Effective cleansing of the apparatus from waste matters (secretion),

As the four principal conditions of sustained muscular activity. From these data we can deduce the causes of a great number of disorders connected with the nervous state and poverty of the blood. We shall commence with some considerations which explain the variations in the generative action and power of the nervous energy.

The nervous energy is a variable force exerted by the nervous system. That it is a fluctuating power is proved by its being lowered by certain occupations and habits. It can be expended and exhausted by want of sleep, excessive fatigue of body or mind, by the too free use of stimulants, by improper or insufficient food. It can be accumulated by sleep, rest, and nutrition, &c.

We gain an idea of its existence by reflection. According to our previous regimen, habits, and exertions we are sensible within ourselves of considerable variations in the amount of nervous energy at our command;—of its deficiency and its accumulation. The English language is rich in words expressive of these conditions. We know causes only by their effects. Flow of animal spirits is the popular term for a lively nervous action,

IS VARIABLE.

whilst the vapours, megrims, blue devils and horrors &c. &c., are well known expressions for the opposite state. The sprightliness of youth gives a beautiful picture of superabundant nervous energy. Whilst innumerable ills that flesh is heir to may, in many instances, be ascribed to the effects on the constitution either of overspent or misdirected energy.

Overspent energy! How much significance lies in that single expression. It is the exponent of the times in which we live. It is the history of millions condensed into a phrase. But how few consider the true sources of mental and physical power. However comprehensive the education of the masses may be, how totally neglected is the common sense of health. You will hear the most sagacious remarks by the gentlemen of the hunt upon the conservation and the development of the health and strength of their stud. They know to a year in what period the constitution of a particular horse will be broken down under a given amount of hard work, reckoned by mileage and draught. They can foresee the precise point of using up when the animal energy shall be overspent. But who ever dreams in the pride of health and vigour of making a similar calculation upon the endurance of man? yet the health of both is essentially maintained, expended, and exhausted upon the same principles. But with this disadvantageous comparison, that the animal—man—contains within him an additional capacity for overstraining his energies in his intellectual attributes. His reason is the glory of his nature, but with a characteristic perverseness, he reasons, meditates, and plans astutely on all other subjects but the preservation of his health, without which all his achievements are a mockery and a sarcasm. He toils for half a life like a slave at the galleys to secure an elegant ease and retirement; but he omits the one condition necessary to render that repose worth having: an unbroken constitution.

OVERSPENT

There is nothing in this world which more authoritatively declares the relation of human beings to a moral law stamped and sealed by a Divine power, than the retribution which invariably follows the infringement of Nature's rights. All the terrible consequences of overspent energies witness against that spirit of avarice, ambition, or selfishness which urged its victim to overtask its powers in the greed for riches, honour, or renown, if not for baser enjoyments. The laws of Nature assert their dignity and justice in chastising the offender. They are impressed upon living matter by the same First Cause which gave gravitation, heat, and light to the elements of the solar system. And it is just as impossible for us to escape the penalty attached to a forgetfulness of those laws as for an insane man to escape injury who, forgetting the law of gravitation, precipitated himself from the monument. And as it is said that there are very few people perfectly sane in this world, we may certainly accuse those of a species of insanity who, by a continued violation of the laws of life, health, and disease, ignore that punishment which assuredly awaits them at some future day in the sufferings of their own persons. The experience of the reflecting physician reveals to him each year the extraordinary variety of punishments which Nature inflicts, adjusted to the multiplicity of wrongs committed in her kingdom. Doubtless some of these wrongs are revenged in the most marked manner, and transmitted from generation to generation in a form so distinct and decided as to extort, when least expected, a belief in a retributive design on the part of the Supreme Governor of the universe.

But what is this nervous energy or animal spirits? It is the effect of life playing among a healthy, well-nourished organism. The animal spirits are the very soul of sensuous enjoyment. They play along the nerves, yet the temperament of the individual wonder-

ENERGY.

fully modifies the development and distribution of nervous energy. In some, we see great endowments of the brain, with feeble muscular powers: in others, enormous powers of digestion, with great energy of body and mind: in a third class, vast powers of nutrition with little energy of brain, but powerful muscles.

As a general rule, we each of us are endowed with an hereditary type of a particular cast. The tissues, the texture of the skin, the peculiar sensibility of the nervous system and the digestive power are all varied according to individual idiosyncrasies; and no regimen, climate, or mode of life can essentially change the natural constitution, though within certain limits training, exercise, climate, and diet do alter to a great degree the accessory development of the frame.

The link which connects the soul with matter is undiscoverable. But as we must take cognizance of a cause by its effects, we know by our own sensations that the great sources of our natural force are sleep, food, and exercise. Accordingly it is by their use or abuse that either an abundance or waste of nervous energy is insured. Of these the most indispensable are certainly the proper adjustments of sleep and food; next of exercise. It is not impossible, indeed, for some peculiarly constituted individuals to preserve their health with very little out of door exercise. Such, however, are the exception, not the rule. The want of sufficient repose and the reverse are the most fruitful sources of derangement of the nervous powers. After a certain time, deprivation of sleep undermines the most powerful constitution as certainly as insufficiency of food and excessive sleep induce functional lethargy.

During sleep a total change comes over the physiological state. Organic changes, essential to the accumulation of power, then become more vigorous: the wasted elements of daily wear and tear are replaced by new material. The final act of the food in nourishing

UNEQUAL DISTRIBUTION

the blood, and the final act of the blood in renovating the tissues, especially the substance of the brain and nervous filaments, are then specially effected. Sleep is sacred to Nature. During that mysterious trance she ascends her throne and reigns triumphant over the mind. According as her processes are carried forward benignly or in trouble, so does she affect the soul. In that state she produces wondrous and fearful phenomena. The soul enchained in dreamy fetters follows her dictates like an obedient slave. Who has not trembled at the relation of the terrific scenes of somnambulism, whose tales of marvel and hairbreadth escapes almost supernaturalize the sleep walker? He, therefore, who violates that sacred law of Nature, sleep, is necessarily punished by the loss of health—consequent upon deranged nutrition and nervous distress. But there is no set time for sleep equally suitable for all individuals. King James adjudged with some relative truth—"Seven hours sleep for a labouring man, eight for a student, and nine for a fool." The nice adaptation of sleep, food, and exercise is the prime secret for invigorating the frame and preserving it to a healthy old age, whilst inattention to these points becomes a direct cause of nervous exhaustion.

The nervous influence is conveyed by the nervous filaments. If we accidentally exert continued pressure upon a considerable nerve, in all probability the conducting power of the compressed nerve, is for the time lost. Therefore pressure prevents the flow of nervous influence. The familiar example of "a limb asleep" illustrates the point. Sensation, movement and exercise of the will upon the limb are for the time suspended. The circulation languishes, the temperature falls. On the other hand intense insanity confers an almost superhuman energy upon the muscular system. Galvanism also produces violent and incontrollable action

OF NERVOUS INFLUENCE.

in the muscles, respiration, and features of the recent dead. Also during life galvanic shocks and currents induce powerful contractions totally beyond the power of the will. In these examples can be recognised extraordinary effects of modified nervous action. Most mysterious is the movement of the dead by electricity. Does the nervous influence linger in the fibres of the recent dead? And does the electric current for a time imitate the action of the life? The subject is too deep for human ken. These instances, however, awaken us to an important deduction, viz., that the generation and power of the nervous influence is capable during life of very great modification. But if mechanical pressure alone can suspend its activity in causing the organic sleep of a limb, doubtless other causes do modify it. And hence arises that most serious of all nervine derangement—*unequal distribution of nervous energy*. Physicians have long employed the term, and we have only to reflect how large a part, nervous energy plays in controlling, intensifying, arresting, and changing secretion, circulation, absorption, effusion, sensation, and motion—in order to be convinced that irregular nervous action is in the present day a latent cause of much modern ailment. One, therefore, of the most powerful means of improving the health is often found in those measures which solicit, engender, and empower an equal diffusion of the nervous influence throughout the whole bodily organism. I have just said that pressure interrupts the flow of nervous energy. From this it is evident that ill regulated pressure may seriously damage its equable distribution. What terms, then, are adequately strong to denounce that wilful compression of the vital organs so much practised by the votaries of the goddess Fashion? It is the duty of the male sex, in the interest of the health not only of their dearest relations of the opposite sex, but in that of future generations, to discourage by every means in

CONNECTION BETWEEN

their power so absurd and so baneful a practice. Consider the effects of compression of the nerves. Pressure of the nervous system exercises an immense controul over the discharge of its functions. Pressure suddenly removed from the viscera of the body may produce a fatal fainting fit. Pressure suddenly exerted on the brain, though not great or extensive, produces complete insensibility. Pressure on a particular nerve has often induced epileptic convulsions, agonizing tic douloureux, or even locked jaw. From such examples it will appear that the use of a well fitting yet commodious dress is no small adjunct to the well being of us all. Instances are not uncommon of distortion of the spine arising from the wearing of clothes too tight for the growing frame. During the period of adolescence, a permanent hitch in the hip or shoulder may be acquired by wearing a tight or uneasy garment. An awkward position is assumed to relieve the uncomfortable pressure, and a crooked spine or distorted joints are the grotesque reward for a mismanaged economy.

The nervous energy appears to be the medium of communication between the mind and the body. We cannot suppose that the immaterial soul can change in its essential powers according to the variations of the body. Yet as the amount of accumulated nervous energy is constantly varying according to the daily exertions and expenditure, it is plain that the powers of the mind, acting upon the external world by the instrumentality of the nervous system, must be exceedingly dependent upon its available force. Accordingly ill health, when associated with deficient nervous energy, can only be recruited by accumulating nervous power. "He that striveth for the mastery is temperate in all things." This text affirms a comprehensive physiological principle. By moderation and judgment in the use of sleep, by temperance in the indulgence of the passions,

and in meats and drinks; by systematic training of the limbs, and by tranquillity of mind, the nervous power can be wonderfully accumulated. But whilst these means are neglected, and medicinal substitutes for the natural tonics are largely exhibited, a counterfeit health only is obtained which disappears so soon as the artificial stimulants are withdrawn. Without constitutional power to react upon medicinal agents, how is it possible for the necessary changes, introductory to health, to be accomplished? The nervous energy being then a variable power, and at the same time the only means of communication between the mind and the external world, not only do our sensations, feelings, and ideas vary with the changes taking place in the telegraphic nerves, but a morbid state of mind is reflected upon the bodily organs. Thus arises a constitutional fret of action and reaction between mind and body, between sensation and nervous action, between passion and organic derangement, with the double effect of increasing the nervous tumult and of intensifying bodily disorder. First of all then, the cultivation of self-possession, and an intellectual calm, is of the highest importance towards allaying that fret of the system which can and often does keep up a constitutional irritability, and which robs medicinal treatment of half its restorative power. And it is worth remarking that quietness of gesture, and softness of tone, go a long way towards producing an interior calm; whilst abandonment to violence or agitation, and restlessness of manner, greatly promote the excitement of the mind. So, fear is the most unreasonable of all the passions; and he who gives way to it in danger loses his self-command, and practically ignores the doctrine of a Divine providence: resignation to the Divine will being the highest of all human virtues, and the only true source of that repose of the mind so beneficial to the benign operations of healing measures.

ACCUMULATION OF

The amount of nervous energy accumulated at different times varies through extended limits. It rises in the exuberance of health to a state of ebullition, calling for expenditure either in bodily or mental exertion, or sinks in the hour of prostration towards the Zero of nervine energy. Accumulation of nervous power debarred from opportunity of action, as in sprightly youth, "cabin'd, cribbed, confined," may prove the cause of a restlessness almost amounting to positive torture. The whole system yearns for the activity of its faculties. Not only the boy, incarcerated in hot, steaming, foul-aired schools, but the man accustomed to the chase, experiences an indescribable fidget and uneasiness almost amounting to fever when condemned to sedentary occupation. It is the voice of Nature. Well then ought the parent to reflect to what extent the intense desires of youth for open-air sports, carried out to fatigue, should be repressed by the wishes fondly cherished for the future distinction of the man. When the ingathering nervous influence is not expended in exercise, it is apt to become a concentrated exciter to many a mischievous trick or criminal act. The brain is commonly the seat of cumulative nervous influence in young people who are not trained to adequate muscular exercise. And here, especially in those of the fair sex, indulged at an impressible age in all the imaginative fascinations so richly afforded by modern romance, physicians almost daily recognize the disastrous effects of misdirected nervous influence. When during the years of growth the nervous energy, stored from the effects of nutrition and sleep, is expended principally within the complex organs of the brain—two results certainly take place.

First, the muscular system,—viz. the muscles of respiration, circulation and locomotion—being robbed of their natural supply of nerve power or *innervation*, acquire an enfeebled condition, and consequently a

FORCE.

constitutional debility is inevitable during the period of growth; so that the general functions at a critical age are only feebly performed; *nutrition* so dependent upon vigorous circulation is imperfect; and the purification of the blood by the secreting organs is indifferently accomplished. At the same time, *secondly*, the nervous system is weakened profoundly in consequence of the consumption of power in the brain by the morbid indulgence of the various passions of the mind, inflamed by the dramatic and marvellous combinations of the novelist; and as a further, but graver consequence, the mind is indeed cheated of natural and therefore invigorating enjoyments, by being beguiled to exist, as it were in an ideal world, in comparison with which ordinary life and manners appear distasteful and a source of disgust, *ennui*, and disappointment. Thus the sources of constitutional strength being deranged—as derived from exercise and perfect nutrition—the amount of nervous power sinks many degrees below the standard of health. Hence surely, though slowly, the influences so rife in England arising from atmospheric changes, exposure to chill, fatigue and unexpected excitement or improper diet, become, at length, the natural scourges of habits hostile to Nature and her laws, in the form of an incongruous and “interesting” invalidism: a delicate state of health which proves oftentimes *the* peculiar grief of domestic life and an indirect cause of a degenerate offspring, born only to sicken and to die in the flower of their age. Yet what pains, what parental cares and anxieties are often endured to procure an elaborate education for such victims of misspent energy! Though indeed there are so many examples of the melancholy effects of precocious stimulation, it is not always the novel, which proves the exhausting dram for mental intoxication. Precocity in all its forms is of hothouse growth. Forced education, however conducted, whether by

holiday rewards, keen competition, or rapturous encomiums, may and does prove equally baneful in many cases to the future energy of maturity. "Too clever to live!" What a common yet sagacious phrase is that. It needs but an ordinary observer to gather instances of the precocious boy or girl once proudly ahead in all the accomplishments and studies of the day, sinking below mediocrity in riper years. As it is with the body, so with the powers of the brain;—rapid growth often heralds premature decay. That which is hastily built wants firmness, durability, strength. True, mental exertions disproportionate to the age of growth, may indeed rear a wonderful fabric of human acquirements: the memory may be well stored, and the intellect highly developed, but can the brain in the end sustain so much premature labour unshaken, uninjured? The appeal to experience is decisive. Over-expenditure of nervous energy within the brain during early youth, arrests the development of the whole system, by depriving it of that amount of nervous power necessary for the vigour of the bodily functions. It behoves then every one responsible for the education of youth to look sagaciously to future rather than to present distinctions: to develop the bodily strength without overtasking the brain, and above all to be aware of extinguishing in youth by a treadmill-like discipline, its natural thirst for knowledge. Schools too often succeed by their mechanical grinding of the mind, in associating with books and learning a disgust and repugnance coexistent with life. It has often fallen within our observation at the University of Cambridge that owing to some such causes young men enter college, with feasible expectations of attaining academical distinction. Long schooled, well trained, thoroughly grounded, and creditably learned, they come into residence with brilliant hopes; and during the first year they feel certain of first or at least second class honours. Soon, however, they find

ENERGY.

their powers of attention, penetration, and invention beginning to flag: school days have begun to tell upon them: their interest in study is exhausted. They were overworked already. Gradually they sink into apathy, and to the huge disappointment of their friends gain no academic honours at all. This is the history of thousands. Overtaxed in their youth, their brain powers fail them, whilst muscular exercise affords them constant delight. Boat-racing and other sports carry them away with a wild excitement; and the man of promise, destined by his parents for high distinction, pants for a small pair of silver sculls—perhaps the only prize which fortune ever awards him. And years of incessant parental anxieties and sacrifices induct the passing triumph of a college boat-race! And many have sown, in such excessive muscular exertions, the seeds of a formidable disease of the heart. It is melancholy to reflect how many young men annually fall victims to overspent nervous energy—to overstrain either of body or mind.*

* Since writing these remarks, I have met with the following passage in "What will he do with it?"—

"Albert Morley summed up his theories on the collegiate ordeal in these succinct aphorisms. Nothing so good as an university education, nor worse than an university without its education. Better throw a youth at once into the wider sphere of a capital provided you there secure to his social life the ordinary checks of good company, the restraints imposed by the presence of decorous women and men of grave years and dignified repute;—than confine him to the exclusive society of youths of his own age—the age of wild spirits and unreflecting imitation—unless he cling to the safeguard which is found in hard reading, less by the book knowledge it bestows, than by the serious and pre-occupied mind which it abstracts from the coarser temptations." A stripling sent to college already disgusted by too elaborate and exhausting education, we think, is exposed to the strongest temptations at the most fascinating period of his life—that of first becoming master of his own actions after long scholastic control. In such a case overspent mental energy at school too often proves the powerful inciter to dissipation and ruinous amusement.

CONSERVATISM

In general the accumulation of a certain amount of nervous energy is indispensable for the effective resistance to injurious influences.

A sailor in the last stage of scurvy is apt to be killed by the overwhelming noise of discharging a large gun. The nervous strength was almost at Zero. None could be expended in reaction. One sudden blow to the reduced nervous power and all was lost. Nervous shock destroyed the weakened frame. Again, a young lady has danced enthusiastically at an evening party, and while greatly fatigued drinks iced lemonade, and exposes herself imprudently to the night air. She is observed to languish from that time, and ultimately dies. In a state of fatigue her powers of resistance against the double chill of iced lemonade and cold damp air were too low to admit of a saving reaction: prostration continues, she cannot recover her strength in time to arrest fatal changes; the result of a low stock of nervous influence. It is thus that, in a weakened state, influences otherwise harmless suddenly become deadly. A man in the delirium of fever has burst from his bed, plunged into a pond, and been rescued from drowning—*cured*. A man already tired, wearied and faint, falls into a mill stream; fever ensues, and he dies rapidly. Witness the opposite effects of the same agent in different states of nervous power. So in the practices of hydropathy he who gets no reaction by the wet sheet envelope, will assuredly be made extremely ill by a long subjection to the process. Instances of the principle are of every day occurrence, and the greater part of the illnesses attacking persons usually enjoying good health may be traced to deficient accumulation of nervous energy. If this energy is below par from whatever cause—whether intemperance, excessive study, morbid excitation, fatigue, fasting, or deprivation of sleep, or even nervous shock and grief—the same causes which produced no

OF VITAL ENERGY.

ill effects when the nervous system was above par, now assume an astonishing hostility of action. It is after a day's indulgence in the pleasures of the revel, that an east wind or a wetting to the skin brings on some serious attack: after long and close confinement to study that a long walk and hard exercise produce a bilious attack, a jaundice, or an indigestion: after unusual irritation or passionate excitement that the weak vessel in the brain is apt to produce an apoplexy: after long deprivation of food that a heavy meal produces the epileptic fit: after prolonged watching that sudden surprises give the fatal stroke to the faltering heart: after the shock of a catastrophe that a trifling cause hastens the fatal termination.

A most imperative law of the living organism is that of periodicity:—periods of action and repose. We enjoy a kind of double life—the voluntary and the involuntary; the voluntary in which all the free agencies of man are in operation during his waking hours, and the involuntary life carried on both waking and sleeping in health, almost unfelt, in all the spontaneously sympathetic actions and reactions of our complex animal machinery. But both are subjected to the law of periodical rest and action: a gathering and expenditure of force. The periodicity may have a cycle of months, days, hours, or seconds, still in all there is an instant of preparation and a moment of energy. The tender infant after a long preparatory rest, in which the powers of voluntary movement were gradually accumulating, is ushered into the world in a state just adapted to a few voluntary acts requiring at first long and oft-repeated periods of repose to gather strength for renewed and increasing attempts. These periods lessen as age advances. The first beat of the heart of an incipient animal as in the hatching yolk was followed by a pause in which new power was accumulated. So in

health there is a constant periodical action and rest in all the muscular fibres: a kind of charging and discharging of power. So also in the brain a considerable period is daily consumed in restoring nervous power to that delicate organ. And long continued studies demand a proportionate amount of relaxation. The brain, like a constantly strung bow, loses its vigour by continued strain. It is thus that our most celebrated statesmen experience renewed energies from their indulgence in autumnal sports. Nor can the man of business long expect successfully to pursue his calling without periodically relaxing the bonds which tie him to his post.

Nature's periodicity has many cycles. The boy is father to the man, and childhood reappears in the evening of life. Combined with daily action and rest is the development of changes matured in cycles of years. There are the septennial changes which demand a close inspection. Every seven years some important change has been effected, and even in after life it is well known that diseases are apt to be developed of a peculiar character, corresponding with the climacteric periods—42, 49, 56, 63, 70, and so forth. The turn of life is reached, the constitution strengthened or weakened by these critical times. To disregard the demands of Nature at such periods betrays a profound ignorance of her laws: and may prove the source of permanent invalidism if not a more fatal result. It is then that the forces of Nature must be carefully husbanded. She requires rest and tranquillity to elaborate her mysterious changes, and woe to that mortal who then disregards her teachings. To forget the possibility of indisposition depending solely upon climacteric changes argues great want of penetration. Many an invalid in vain troubles himself with a course of medicine to cure that which is only dependent upon the climacteric passage. Sixty-three is a common time for old gentlemen to experience

PERIODICITY.

a change in their health, and after this, to use a common phrase, they may seem "to take out a new lease of life" even when

" The big manly voice,
Turning again towards childish treble, pipes
And whistles in his sound."

Sir Henry Halford says that climacteric disease is in general more clearly characterized in men than in women; and that it may occur any time between the ages of fifty and seventy-five. Its commencement is often foretold by some occasion of feverish excitement. An accelerated pulse, wasting of flesh, without obvious exhaustion, wandering pains in the head and chest: a white tongue, sluggish bowels, unrefreshing nights with little sleep, lassitude, and a feeling of fever—such are the symptoms, and they may be of some duration. When the powers of the system are adequate to recovery, the symptoms gradually disappear.

The varieties of indigestion with decline of muscular strength, are commonest of all the climacteric disorders: next of the liver, kidneys, &c. Cutaneous diseases, and derangements of the heart or brain, are less common forms. Inflammation of the skin, particularly of the toes, and carbuncle, are indeed by no means rare affections in elderly persons. Whilst asthma, chronic gout, and rheumatism are apt to assume at these periods peculiar tenacity. A climacteric disease, then, is one in which periodic changes are taking place in the constitution, and accordingly require very great watchfulness and care in their treatment.

In climacteric disorders the reaccumulation of the nervous energy is of pre-eminent importance, because the vital powers are already on the decline. All the physician's art is here put to a severe test. Reinvigoration must be the watchword of both patient and practitioner.

SYMPATHETIC

*By a subtle and infinite interchange of nerve fibres, every bodily organ is subject to sympathetic influences propagated from point to point of the living organism by means of the nervous fluid.**

This action is due to the nerve power exerted along the sympathetic nerves, which are wholly distinct from nerves of ordinary sensation and voluntary motion. The spinal cord proceeding from the brain is comparatively slightly connected with the sympathetic system, which forms an independent network of nerves and nerve organs called ganglions, and are compared to little brains. Its ramifications spread around and into every organ. It encloses in a delicate network every artery, it regulates the pulse, the size of the arteries, and exercises a mysterious control over all the secreting functions: it acts independently of the will, night and day, and in certain organs assumes a periodic action determined by days, weeks, or months. In a word, organic action is everywhere presided over by it, and every part is placed by it in sympathy with every other. In this system, however, impressions travel comparatively with a slow wave from point to point. The prick of a foot to-day may induce to-morrow or a week hence a lock-jaw. To-day's startling telegraph shall produce a nervous shock whose effects shall slowly pervade the frame from organ to organ in succession, and a month hence you shall be able to trace an obstinate indigestion, a bilious attack, or increasing debility to the sympathetic but deranged nervous actions started by the sudden blow given to the mind. Again, animals recently killed display movements still carried on by the sympathetic action as yet un-extinct. The heart of the sturgeon beats many hours after it is removed from the animal. Irritation of the intestinal

* As the term electric fluid is used to express a stroke of lightning, it is in the same sense that we use the term nervous fluid to denote the nervous energy.

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canal produces a slow change in its movements, which at last even inverts their action. A healthy man suddenly placed on shipboard in rough weather soon may experience a regurgitation of the bile contrary to its usual course; and this reversed muscular action may continue for some time after the first nervous impression has ceased. The postman's knock or a black sealed letter may completely suspend all power of digestion, and the heart may almost cease to beat. Many diseases have their periods of incubation, and the storm bursts the more violently the longer it has been brooding.

The action of mind upon bodily health is a matter of daily experience. Everywhere within the interior of the body innumerable interlacing nerve fibres spread in all directions. On careful dissection we see, intimately associated with every organ, a plexus of sympathetic nerves. And under excitement or emotion we are sensible of some nervous change passing within the breast: but in the present state of human knowledge, as already remarked, we cannot grasp the marvellous link which connects the soul with its organs. But whatever it be, the sympathetic actions, including the emotions, are in general entirely beyond the powers of the will. Organic sympathy is a law impressed upon animal life by the Great First Cause; and though we have no immediate control over this mysterious action, yet eventually, according as we obey or violate the laws of health, the action of that sympathy may become very remarkably altered.

In robust health sympathetic action is a slow, calm, yet vigorous process. On the contrary, in debility all is changed. New but morbid actions are also developed. Physical pain is often reproduced by psychical action. Emotions of the soul then actually cause a bodily pang. A sudden thought may produce in the delicate an enduring ache, a fit of sickness, or even a relapse into a former illness.

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It is thus that agitation, flurry, and excitement are common accompaniments of debilitated health. For it is a singular physiological law that the organs in general become more excitable in proportion to their weakness. The victim of indigestion, whose stomach is always reminding him of its difficulties, knows too well the long train of sympathetic qualms of which once he could form no imagination. Hence the total want of sympathy felt by the robust in general for the invalid troubled, in their opinion, with mere imaginary "nervous" ills: forgetting that the nerves alone can convey the sensations of pain.

One of the most remarkable organic sympathies is that between the liver and the stomach. So closely, indeed, are their derangements associated, that not only is the patient but the medical attendant himself liable to error in distinguishing between them: and for the simple reason that both disorders often have many symptoms in common. A liver complaint is a favourite explanation of disordered health with some, while others will exclaim "It is all stomach"—when sometimes it is neither, but simply some disorder in the blood of which the supposed stomach or liver complaint is the mere sympathetic symptom. I have had many patients under my care who had been unsuccessfully treated for a liver complaint by mercurials, &c., who speedily recovered by attention to the state of the blood.

It is a common result for derangement of the liver to engender indigestion. If we take digestion in its most comprehensive sense, viz., the conversion of food into blood—the object of all nourishment,—and consider how intimately the fluid secreted by the liver is concerned with blood manufacture, it will clearly appear that a healthy liver is indispensable for perfect nourishment of the blood, and therefore for the bodily nutrition. On the other hand, imperfect digestion

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leads to biliary derangement. Bilious attacks, and even jaundice, frequently follow the use of indigestible food. The stomach was of old supposed the seat of the soul, and no other organ except the brain is subjected to so many sympathetic actions. It is in direct relation with the skin, the heart, the lungs, and indeed with all the internal organs.

With the skin, as a blood-circulating, perspiratory, and temperature-regulating organ, the stomach engages a constant sympathy. By the influence of weather and climate upon the skin, the stomach receives powerful impressions. A host of causes, such as cold, heat, damp, friction, bathing, exercise and perspiration, act almost immediately upon the stomach through the influence of the skin. Obstruction of its pores, damp and chill even of the feet, rapidly affect the powers of digestion. Eruptions of the skin and stomach derangements are also closely connected.

With the heart the stomach is united by a remarkable sympathetic link. Violent palpitation, nightmare,* and spasm of the heart, are often due to dyspeptic irritation alone.

Distressing derangements of the heart are very frequently entirely sympathetic. *Post-mortem* examination of such cases often shows that organ to be perfectly healthy, while various diseases of other parts can alone account for the heart symptoms. Double pulsation at the wrist, declaring disordered action of the heart, is not an unfrequent result of disordered digestive organs. In some chronic forms of indigestion the pulse becomes reduced to forty or fifty beats per minute; and some of these cases have been known to end in softening of the mucous membrane of the stomach.

* The sensation called nightmare essentially depends on impeded circulation of the blood.

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Intermittent pulse, undoubtedly a sympathetic derangement, is also an occasional effect of an inflammatory state of the coats of the stomach. Extreme morbid sensibility of the stomach is sometimes another cause of sympathetic irritation of the heart.

Tumultuous, hurried, and confused palpitations too, are often accompanied by the signs of indigestion. "In a crowd of diseases, in those particularly where the action of the nervous centres is more or less modified, the heart presents irregularities and well marked intermissions."—ANDRAL.

All the ordinary symptoms of diseased heart (except some revealed by the stethoscope) may be present without the slightest organic disease of that organ; yet it cannot be denied that the continuance of those symptoms does very often predispose and ultimately lead to real organic changes. The overstraining of the heart by mechanical pressure of the circulating blood, during violent exercise, as in rowing matches, or other violent feats of strength, is known to be a common cause of these affections. It is well known that fox-glove or digitatis, though often depended upon to reduce tumultuous action of the heart, frequently fails and rather increases the disturbance. This happens from the stomach being in an irritable state. The sympathy between the stomach and heart thus overpowers the sedative action of the medicine.

The intimate sympathetic action between the stomach and lungs affords a fertile explanation of many disorders of the latter. Incessant cough is sometimes wholly dependent on gastric irritation: and that which commenced in sympathy may end in serious disease.

Even in catarrh, or a common cold in the head and first air passages, the stomach quickly sympathises and suffers a corresponding distress. But in order at once to explain these relations, we have only to draw the

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reader's attention to the fact that that most important sympathetic nerve, the pneumogastric, which regulates the functions of the stomach, also distributes a principal branch to the lungs and their bronchial tubes. It is thus that even asthma of the severest kind occasionally springs solely from a derangement of the digestive organs.

Cutaneo-hepatic sympathy. Not the least important of these organic sympathies is that existing between the functions of the skin and the liver. Among the various causes which affect the functions of the latter may be mentioned—the effects of cold, heat, moisture, dryness, as well as other atmospheric changes. The liver is the largest organ in the body, and the most solid. It is a good conductor of heat, and consequently, as it lies largely approximated to the hypochondriac regions, it is extremely liable to experience a chill when improperly defended from the cold. Jaundice is thus not an uncommon affection in prolonged and severe winters. Considering the important designs fulfilled by the liver, which at once receives nearly the whole of the blood returning from all the digestive organs and the lower limbs, on its way to the lungs and heart; and at the same time serves the important office of forming bile—it is manifest that the application of cold to the surface of the body may cause a stagnation of the circulation of the blood within the liver, and the disorder spreading thence, by sympathetic action, may also occasion the derangement of other important viscera. Thus taking a cold through a chill, by deranging the liver and the flow of bile, often causes diarrhœa in those so predisposed: or in others, by deranging the circulation within the lungs, while the cold air is also being respired, may assist in procuring a troublesome bronchitis. And thus, as I have often had occasion to observe, a severe cold may be combined with a bilious attack, which renders the disorder so much more severe.

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Another effect of the sympathy of the liver with the skin is, that the latter under biliary derangement becomes hot, dry, harsh, and often highly eruptive. And it is remarkable that many of the remedies which remove obstruction of the liver also relieve cutaneous disorders. Conversely, attention to the functions of the skin alone is often a most successful means of restoring those of the liver.

Concerned as it is in elaborating much of the nutriment absorbed by the alimentary tube, preparing it to be exposed to oxygenation in the lungs, and endowed also with the function of separating from the blood, the various elements forming bile, as sulphur, soda, carbon, &c., we cannot but recognize in this organ most extensive relations, and wide-spread sympathies, and a profound influence upon the organic life. When the liver is really at fault, perhaps more of the bodily functions become deranged than by the disorder of any other organ. The circumstances—that in infancy it forms a large proportion of the whole weight during the period of rapid growth, and that in adult age it still exceeds in weight any other organ—shew distinctly how closely its healthy action is associated with normal nutrition, *i.e.*, with the integrity of the general health.

The sympathy between the brain and the digestive organs—is one which above all others arrests the attention of an ordinary observer, and it is so obvious as hardly to need illustration. Those who know no changes of humour, temper, and mental energy, from corresponding derangements of the digestive organs, may be reckoned among Nature's favourites. I have known cases where the eating of a morsel of food for breakfast has induced a kind of lethargy of the brain, and a temporary loss of memory.

A gentleman consulted me some years ago, who, being a foreigner, was obliged to earn his means of

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subsistence by tuition. He had some years previously suffered from a "brain fever." I have seen him unable to ward off a kind of torpor uniformly following the slightest repast taken during the day, and he was compelled in consequence to defer his single meal till night, when his labours were completed. The act of digestion gave rise to a temporary congestion of the brain. This kind of drowsy stupor after food is an illustration of the sympathy of the organ of thought with that of digestion—He must be a sanguine character who would venture to solicit a boon of a hungry belated alderman. Let us compare the humour of some of our friends before and after a good dinner, and note the wondrous sympathy of the brain with the stomach. What pleasantry and urbanity distinguish the after-dinner speeches of some of our most caustic diplomats! But we have only to reverse the picture and witness the sufferings of a man who is always concentrating his attention upon his chylopoietic viscera, to recognize the torments of a ruined stomach, and the megrims of the wretched hypochondriac. Happy is he who feels not he possesses such an uneasy organ. For it is the centre of animal life and vigour in every healthy individual. It is almost impossible for any one to exhibit a constant and sustained development of bodily and mental energy without vigorous digestive powers. The stomach feeds the blood, but the blood nourishes the brain. An act of mental concentration consumes, in its instrument of thought, many elements of the blood, proportionate to the quantity of nervous matter engaged. We would here protest against any imputation of materialism. The soul is as truly an existence independent of our particular form of animal life, as electricity is independent of particular forms of matter. In the electric telegraph, the consumption of zinc sets in motion a certain quantity of electricity; so in the human telegraph the consumption of blood in

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the brain generates an equivalent of nervous energy. A hard student, though sedentary, is usually a large consumer of food. He will be as hungry after five hours' intense mental activity as a sportsman after a five hours' walk. The physiological difference between them as regards the consumption of blood is, that the one consumes it in his brain, the other in his limbs. For Liebig has shewn that every muscular action is an act of change of matter—the oxidation of the tissue, and a consumption of blood. But on these principles it naturally follows, that the debility arising from over-action of the brain is more difficult to remove than the fatigue arising from bodily exertion. The organ of thought is infinitely more complex, delicate, and tender than the organs of locomotion. Continued and varied muscular exertion as a rule tends to harden, confirm, and enlarge the muscles, while long-continued brain work may inflict irremediable damage. The circulation within the structures of the brain is of the most intricate and subtle kind. The minute blood vessels ramify in a soft and yielding substance, and are destitute of that support afforded by the firmer tissues of all other parts of the body. On this account alone, chronic congestion of the brain is no uncommon sequel to excessive mental labour: and it is a disease which, from being deeply encased in a bony cavity, does not offer the same facilities for cure, as congestion of other parts of the system.

It is not necessary to multiply illustrations of organic sympathy. We have seen some of those which exist between the various digestive organs, the heart, the lungs, and the skin, and there are abundance of physiological facts to establish sympathetic actions between every other organ of the frame. In a word, each structure possesses its own sympathetic system of nerves. The arterial blood vessels are everywhere the

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framework about which that system is supported, and these nerves everywhere excite, regulate, or depress the action of the blood vessels themselves.

From the foregoing review of some of the principal sympathetic influences of the human frame, it appears certain that it is almost impossible for any one of the vital organs to become much deranged without transmitting a deleterious influence to other parts. And there is reason to believe that such a thing as a mere *local* disease is almost an impossibility. It is true we may not be able to detect the deviations from the healthy state in the various parts of the whole; but in the face of such universal sympathetic relations, with the important fact of the blood penetrating every part, and completing its whole circuit many thousand times each day of our existence, with so many and such incessant changes among the various gaseous and mineral elements of our frame,—it is manifest that our general health must be modified by the existence of any disease whatever in any part of the body.

DISORDERED SYMPATHY.

The variable strength of the nervous force, arising from its ebb and flow, waste or accumulation, according to the previous habits and history of the individual, is one of the principal causes of unequal distribution of the nervous energy. As a general rule, wherever the blood is more freely conveyed and circulated, there, is the nervous energy more particularly concentrated; and therefore unequal circulation of the blood, inevitably induces unequal nervous action. The blood is the life of the flesh, and the chief phenomenon of life is the generation of nervous force. With faltering circulation there must be but flickering action. While the oil of life is supplied steadily, its lamp burns with wonted heat and power, but a wavering uncertain gleam is significant of coming extinction. It would be most desirable to have at any moment an exact measure of the nervous force, or, in more popular words, of the strength. Many a human life might have been saved, had the means of estimating that strength been known beforehand, and many a capital surgical operation would have been shunned. The amount of nervous exhaustion which endangers life is manifestly most variable at different times. Collapse takes place unexpectedly from this circumstance. The amount of rallying power measures the strength. Abernethy was very sensible of this difficulty, and strongly expressed his wish that a ready measure of nervous or constitutional power could be devised.

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This variable strength explains a number of otherwise puzzling occurrences. You have often exclaimed, or heard others do so, "I have done the same thing many a time, and it never hurt me before;" and you do it again, but against the advice of a friend who knows you well, and sees from your appearance it will be too much for your strength—and some serious injury accrues by the imprudent act. Who cannot recollect instances of mistaken powers or strength? A man will at one time take more than his usual quantum of wine with benefit, and at another time—he is made ill by a small amount. At one time he will walk *ad sudorem*, enter a railway carriage, sit in a draught while heated and perspiring, and escape injury; but another time, in a different nervous condition—the act shall nearly cost him his life. A thousand instances of the effects of nervous variation, or change of nervous energy, might be detailed. The pulse is not a sufficient means of measuring the latent stock of nervous power. Its sources are deep, profound, and beyond immediate examination.

If, however, I might venture the opinion, the Abernethian difficulty may in some measure be removed by considering the individual *power of reaction*. A delicate appreciation of its strength, is most important in all medical tact for estimating the propriety and suitableness of the proposed treatment. In all disorders of debility, the economy of nervous expenditure, in order to secure its gradual accumulation, is of first-rate expediency. I might cite many examples of extravagance in spending this force.

A very delicate person is prostrated by the continued use of irritating, painful purgatives; still more so, if they occasion profuse action. For when the nervous force is low, and nervous symptoms are already established, there is a further abatement of force, by pain, irritation, and excessive action, and the nervous symptoms

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are aggravated. In this way persons who try experiments upon themselves by using a variety of quack pills—often sink by slow degrees into a state of low nervous energy. Constitutional energy can be spent indeed by the overaction or stimulation of any organ whatever. Vital action is expenditure of force. For the action is the result of the use of force. Remedies may occasionally prove worse foes to the constitution than the disease itself. The querulous sick may have to blame themselves for their impatience. Thus, if a person is suffering from chronic engorgement of the liver, a rapid impression may at his desire be made upon the disorder, in some instances, by large doses of calomel and strong purgative draughts, but their employment in weakly persons expends so much nervous force, that what is left only suffices for a low nervous life, and they are so reduced in strength that it requires many weeks to set them up after being knocked down by the remedies. At the same time be it remembered that as engorgement and congestion are often occasioned by debility of the blood vessels arising from deficient nervous energy, the low nervous state induced by over active remedies, renders them liable to a return of the disorder. Organic fatigue by remedies is then to be shunned by all possible means.

Exercise is a fine tonic; but if it is used so as to produce great fatigue, it spends more force than it gains, and in the delicate, therefore, may occasion serious relapses. The physician's best art cannot be contrary to the common sense of physic, and a fine trait of intelligence is exhibited in many of those popular sayings which in truth express some of the most profound principles of science. To what do patients in general more tenaciously cling than to the opinion that their own medical attendant "understands *their* constitution"—i.e., their powers of reaction, the effects of remedies upon them, the means by which their nervous energy is exhausted

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or accumulated—in a word, what they can bear, what does, and what does not benefit them? Truly, the rapid appreciation of the amount and kind of constitutional reaction, and the latent strength of the nervous energy, is the highest tact of the medical art.

I accidentally met a lady, a friend of mine, some time since, at the seaside, whose appearance was alarming. I inquired after her health, and what had happened. She said “she had been recommended by her medical attendant to come to the seaside for her health, and take a course of shower baths; but they had produced such an alarming prostration that she felt as though another would be her death, and she should take no more.” Now, this fact precisely exemplifies a low latent power of reaction, and a feeble stock of nervous energy, which had quite escaped the observation of her attendant at home. In this way, for want of surer means of estimating the strength, the most grievous errors may be committed. I know of no means better adapted to ascertain the constitutional strength than the careful observation of the effects of bathing, exercise, and gentle treatment, and much time is often saved in the end by graduated measures in chronic disorder. The peasant inventor of the so-called water-cure, adopted a rough mode of getting an insight into the invalid's state. As the first thing for him, a cold bath was to be taken in his presence, that he might watch the results! By the glow, redness, chill, breathing, and appearance of the bather, he sagaciously verified several cardinal points in the patient's constitution as cleverly as a horse dealer finds the defects of a horse by trotting him on the turf.

None of the consequences flowing from depressed nervous energy are more frequent than disordered sympathy; for it consists in irregular or disordered distribution of the nervous energy. And as weakness

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induces irregular circulation of the blood, so nervous debility causes unequal flux of nervous influence. But as all sympathetic action is maintained by this power, sympathetic disorder necessarily arises from unequal flow of energy—a sure result of a low nervous state. Examples are better than abstract statements. In 1847 a young woman in Addenbrooke's Hospital had totally lost her voice; for nine months she spoke only in the faintest possible whisper. I applied electricity several times to the vocal organs. I considered there was here an irregular distribution of nervous energy through the vocal nerves to the vocal muscles. The electricity brought these into rapid action, and in a short time she was able to sing and speak. Some time afterwards she walked nine miles to shew that the cure was permanent. Her health was delicate.

Perhaps the most common form of disordered sympathy is that between the brain and the heart and digestive organs. Dr. Pemberton (writing on atonic indigestion) says—"We have more than once known necessity for a great exertion of mind to supersede the stomach affection, which has reappeared on the necessity being withdrawn." As a general rule, intense mental application, or emotion especially soon after a meal, is singularly reflected upon the digestive organs.

A lady wrote to Pinel, the great French physician, as follows:—"Le principe de tous mes maux est dans mon ventre; il est tellement sensible, que peine, douleur, plaisir, en un mot toute espèce d'affections morales, ont là leur principe. Un simple regard désobligeant me blesse cette partie si sensiblement, que toute la machine en est ébranlée. Je pense par le ventre, si je puis m'exprimer ainsi."

Now these disordered sympathies form the staple of all the nervous sufferings of a long standing invalidism. The uneasy sensations at last absorb the whole reflective powers of the mind; and the mind in its turn becomes

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the real exciter of painful sensations. Nothing can be more reprehensible than for the invalid to encourage the development of morbid sympathies. By so doing, he at last educates those nerves destined to convey, as it were, silently and insensibly, the necessary nervous influence, to declare their operation by indescribable feelings. That the nervous influence can be educated to act in new modes, is seen in the increasing susceptibility to the mesmeric influence, of persons who have been once mesmerised.

It is an imperative duty of all invalids to avoid nourishing the growth of an exquisite sensibility, which, when once established, clings to the system with all the tenacity of an acquired habit. Nothing is more difficult to shake off than a trick of the nervous system. M. Barras was a great sufferer from nervous excitability, which at last settled in the stomach, and his words are so striking that I shall here put them in an English dress. "The sensibility of the stomach is exalted to an astonishing degree; the organic becomes animal, (the organ itself has become as it were an animal,) to use the language of Bichât. All that passes in the principal organ of digestion, I perceive as well as if it took place upon an organ of touch;—the presence of food was perceived there as if it had been upon the hand itself." Mr. Teale, of Leeds, in his excellent work on Neuralgia, has ably described a form of indigestion dependent upon spinal irritation. And without doubt, disordered sympathy, as transmitted to the stomach from whatever source, whether from the brain, spinal cord, liver or other parts, is capable of producing severe forms of digestive disorder.

Disordered sympathetic action is sometimes strikingly displayed in the liver. A great many authors have recorded cases of abscesses forming in the liver subsequent to blows on the head. "Out of ten soldiers

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who had severe blows on the head, seven died having abscesses formed in the liver." The nervous shock of such injuries commonly induces vomiting: then nausea is established with fever, pain and tenderness in the region of the stomach and liver, and other signs of congestion and approaching inflammation of the liver, which terminates in abscess.

The secretions are deranged by disordered sympathetic action. The mind, through the power of the sympathetic nerves, really excites and changes the nature of the secretions, so that the poets are not wholly imaginary in describing the hot, scalding tears of woe. The saliva of all enraged animals is more deleterious than when unirritated. The schoolboy's mouth waters more intensely as he gazes on the tempting orchard's blushing fruits. The infant in arms suffers from imbibing nutriment from the grief-worn and anguished breast. Marvellous stories are on record illustrating the wonders of Nature's finest power—sympathy. Our limits forbid the further discussion of this interesting subject: and these allusions must suffice to exemplify the point, that disordered nervous sympathy may peculiarly derange the action of the secreting organs. As, therefore, low nervous energy induces disordered sympathy, the conclusion is legitimate that it also may exert a considerable influence upon the quality of the secretions.

No one can carefully consider the various powers and attributes of the nervous force, without acknowledging the paramount influence which it exercises upon the functions of organic life. It is concerned in the vigorous action of every organ: and a defective supply of the nervous principle or energy, necessitates a faltering function. With the ebb and flow of this influence there is a corresponding change in the vital

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actions. Depressed nervous energy is therefore no unusual forerunner of general indisposition. With inefficient determination and distribution of nervous influence radiated from the great nervous centres, is associated, to a greater or less degree,

- (2) Imperfect nutrition,
- (3) Feeble circulation,
- (4) Defective purification of the system from waste material.

In the next Section we shall make some observations upon those forms of imperfect nutrition commonly exhibited in consequence of *Anæmia* or an impoverished condition of the blood. But, as we shall see further on, there are many causes which conspire to produce this state besides those proceeding immediately from depressed energy and disordered sympathy. Yet the intimate connection between all the three grand systems of life—displayed in nervous action, nutrition, and circulation, renders them all inseparably sympathetic, though perspicuity requires their individual consideration.

OBSERVED RESULTS,
WITH
SELECTED CASES
OF
DEBILITY, INDIGESTION, TORPID LIVER,
AND NERVOUS DERANGEMENTS,
&c., &c.

IN the former part of this paper I have attempted, very imperfectly, to give an outline of the character and operations of the nervous energy, and its variable state or power; and the means by which it may be accumulated, or dissipated, or depressed. It now remains to consider, more in detail, the remoter sympathetic consequences of overspent or depressed vital energy, as inducing a gradual poverty in the blood and many distressing symptoms, the whole of which, directly or indirectly, may be traced to these unique causes. I shall attempt to shew, in a word, that several internal diseases may spring from this single root—blood-impoverishment. Thus whilst the overspent or depressed vital energy has been the indirect or remote cause; the ill nourished state of the blood, more or less crude with half-elaborated sustenance, is the disturbing cause of the special organic derangements which will here be related.

PREVALENCE OF THE DISORDER.

I have selected the term Poverty of the Blood, because it is a significant English expression, which needs little explanation. And I am inclined to believe that this constitutional disorder is more common than it was formerly. But the grounds of my conviction of the frequency of the blood disorder in question have been derived from personal observation, and particularly by microscopic examinations of the blood of various patients during many years. And at Harrogate there is a very good field of observation. I have observed a large number of cases, fairly coming under the category of overspent or depressed vital energy with poverty of the blood: a probable fact, indeed, if the antecedents of many of our visitors be carefully examined. Taking for example several thousand prescriptions entered in my books, I am struck with the large proportion of patients who required blood-enriching treatment according to the signs of that disorder.

In the present section of the subject I shall select a few instances which seem to clearly illustrate the symptomatic ramifications spreading apparently from the same cause—impoverished blood. At the same time, it should be borne in mind that temperament, age, and sex, very greatly modify the symptoms pronounced by the organic functions. And I would here emphatically disclaim a desire to give an undue importance to the point in question: as I am fully aware that quite as many and even more fatal diseases arise from plethora and repletion than from the opposite state: a topic requiring a separate consideration.

THE WAYS AND MEANS OF BLOOD IMPOVERISHMENT.

The object of all action between the blood and the tissues is twofold—supply and loss: and it may be expressed in one word *exchange*. Animal life, in its inmost recesses, is as it were an exchequer of receipts and payments infinitely small and innumerable. The blood is the currency of the human realm, ever fluctuating, ever receiving a new coinage, and defacing, wearing, recalling, and melting down the old. Vigorous and profitable transactions in the departments of import and export are the signs of prosperity in the organism; whilst incessant exchanges of old atoms for new are the sources of all energetic action. Millions of figured particles—themselves bearing a coin-like form, under the microscope—represent, in their sum total, the wealth of the individual strength. And wonderful to relate, each of these cells has a life receipt and expenditure of its own. Each is organized, grows, and dies. The aggregate of all these current receipts and expenditures represents the sum total of health and disease in the whole frame. In health, indeed, the drafts upon this bank of current capital, are always honoured. But not so in its poverty-stricken state. In the disorders of the constitution then arising, the exchanges undergo great and sudden fluctuations. If the exports fail, there is a glut. Whilst should the demand exceed the supply, and the exchequer be well nigh drained, perturbation, excitement, and panic are the order of the day.

CHIEF ELEMENTS OF THE BLOOD.

The blood in its natural state consists of a glutinous fluid—the same which quickly forms a natural, tough, hard defence on an abraded part of the skin (and is, indeed, a natural glue)—and myriads of floating cells, perfectly round, often presenting, when dried, a well defined rim and a depression in the centre, containing one, two, or more nucleated dots. These cells or blood coins, are of two kinds—new and old; white and red. Their matured state results from the transformation of the white into red blood particles; when then from any causes the white particles fail to be perfected, all rosy colour departs from the cheeks and lips, the blood assumes a pale, straw colour, sometimes even milky, or a very pale yellowish pink which scarcely stains white linen. The ruby colour of the blood is ascertained to depend upon the young blood cell drawing through its tiny envelope (from its mother liquor, the serum) a combination of iron with phosphorus and oxygen in definite proportions. The presence of iron in the blood is pathetically demonstrated by the following story, related by the celebrated French historian, M. Thiers:—

“A French gentleman was seen during the Reign of Terror, to approach the place of execution, watch his opportunity, and when the fatal axe had severed the head of a particular victim, he collected a quantity of the flowing blood in a crucible and departed. Arrived at his house, he committed the blood to the heat of a furnace, and from the ashes of the burnt blood he obtained a small globule of iron. He ever afterwards wore it set in a gold ring as a priceless gem, in memory of an executed friend.” It would seem there is more force in the expression, “an iron constitution,” than is generally supposed. Healthy blood, indeed, is powerfully chalybeate, and it is this property which renders blood stains often so providentially indelible for the detection of murder.

EXAMPLES OF

The following table gives the result of a careful analysis of the blood of a very sickly girl before and after her restoration to health, made by Simon:—

	In disease.	After restoration.
Water.....	8710	8060
Solids	1440	2070
Blood globules....	320	950
Fat	25	23
Fibrin	20	12
Albumen.....	800	810

In a hundred thousand parts.

The sources of the natural forces of life are undoubtedly, in all animals, wholly drawn from nutrition; yet dependent on unobstructed function. At the same time, deficient or excessive exertion is incompatible with enduring vigour. But as the nutrition of the tissues, as derived from the blood, is the sole source of physical power, it follows that an excessive demand extorted from the blood—a demand disproportionate to the compensating supplies prepared by the digestive organs—must in time occasion an overdrained, and therefore an ill nourished or impoverished state of the blood. It is in this sense, then, that the term “Poverty of the Blood” is here adopted.*

My attention to the prevalence of the disorder as a common root-disease situated in the blood, was more particularly roused by a remarkable occurrence which I think has never yet been noticed, and which I beg leave to introduce here. Having been engaged for some time in microscopical observations in June, 1851,

* The medical term for this state, ANÆMIA, which denotes privation of blood—the opposite to plethora—is not very accurate; because in what is called the Anæmic state, the blood vessels are often full of blood of an exceedingly reduced quality—there is a *plethora* of a crude ill elaborated fluid unworthy the name of blood. Oligohæmia would perhaps be a more correct term: but it is a good rule to eschew such barbarous words, when plain English answers as well. The term Poverty of Blood suffices to denote an ill nourished condition of the circulating fluid.

IMPOVERISHED BLOOD.

I was watching the development of a brood of young frogs most of them in the tadpole state. In the course of time I was surprised to observe that in one of them the hind legs had not grown. In the rest, the extremities, now lively in action, caused no little trouble in microscopical management. Under the same diet this one had remained for some time *in statu quo*. In the healthy frogs, myriads of red oval globules could be seen to be rapidly pouring through the microscopic blood vessels ; and a most interesting spectacle it was. But in my stunted friend I was surprised to witness a very different sight. Here no ruby coloured tide of countless thousands of these globules poured its rapid streamlets. One by one, like solitary travellers, with long intervening spaces, the globules slowly advanced in jerks ; colourless and few. In all superficial parts, by means of careful management and illumination, I observed the same poverty of blood globules. Did this state account for the non-appearance of the hinder legs ? From that moment I conceived a great interest in tracing the effects of impoverished blood.

Overspent energy in all its forms, whether by mental or bodily exertion or exhaustion of an excessive kind, is prolific in such disorders.

Anxiety, grief, hard study, late hours, want of sleep, are among the many causes of exhausting nervous energy : and a low accumulation of nervous power is felt in a faltering action of the weaker organs. Thus, if a man has previously injured the liver, or hardened and thickened the coats of his stomach by excessive drinking, when anxiety or grief, or any exhausting circumstances steal upon him, the stomach or liver, or both, keenly feel the chief stress of the disorders of the blood called forth by the overspent powers of the body.

PROLONGED ABSTINENCE.

Again, rapid growth beyond the sustaining powers of the constitution, or under a poor diet and hard work, may induce the same disorder of the blood. Close confinement to sedentary occupations often produce identically the same constitutional distress. I could recount many instances of this from personal knowledge. Injudicious bleeding frequently repeated is of course a direct cause of the disorder in question.

Abstinence is another method of reducing the quality of the blood. All the symptoms of the disorder of which we write are developed in prolonged fasting, corresponding to the temperament of the individual. In the second stages, pain in the head, and delirium, and besides these symptoms, violent throbbing in the arteries of the throat and head are sometimes present. Burning feverishness and chills, screaming on exposure to light, extreme sensibility to the movements of the air: laborious respiration, palpitation alternating with fits of insensibility: excruciating pains in the stomach—such and many other symptoms accompany the process of death by abstinence—and have been frequently observed in persons incapable of swallowing food. The explanation of all this lies in the demand of the system for reparation—when food cannot be supplied, the bodily frame begins to live upon itself. Now, whether the blood be deprived of adequate nourishment by forced starvation, or whether it is exhausted by over-exertion or by disease, the same results follow, viz., blood degeneration or impoverishment, and its concomitant symptoms. As the disorder of the blood is less intense, the symptoms are less severe.

ANDRAL relates the following case:—"A habitual drunkard, imprisoned for theft, was suddenly put upon a diet of bread and water. At the end of one week his intellect was disordered, his face pale, flesh wasted, strength had declined, his nights were sleepless:

EXCESSIVE NURSING.

shortly there was delirium, at first mild, then furious. The prisoner was allowed brandy: the delirium ceased, and the flesh and strength returned."

Another form in which the disease is established, is consequent upon prolonged nursing:—Excessive lactation. Delicate mothers, from supplying nourishment to their offspring beyond their strength, necessarily suffer from the same blood-exhausted state as that produced by defective nourishment. The human milk draws richly and largely on the resources of the blood from which it is secreted. So that, long-continued lactation requires vigorous powers of digestion to support both mother and child. When therefore from any cause the powers of making new blood are defective, that fluid in time becomes impoverished from excessive secretion of milk. The symptoms developed are familiar to the fair sex as—an exhausted feeling of sinking at the pit of the stomach—a dragging sensation at the back in the act of giving the nourishment—The appetite fails gradually—Heats and chills set in; feverishness is established with pain in the head, giddiness, night perspirations, "lightness of the head," dimness of vision; *and especially shortness of breath and palpitation, with muscular tremors*—The tongue becomes white, dry, and the pulse feeble and quickened. And if the exhausting drain is continued, emaciation proceeds, the memory fails: the spirits become low, irritable, and the temper changed. Many of these symptoms resemble the approach of consumption. We here have a catalogue of material ills which declare the internal disorder caused by defective nutrition. Poverty of the blood (with its accompanying nervous state) expresses emphatically the root of the disease.

Chomel relates a number of cases which bear upon our point. In 1811, all the miners in one of the galleries at Anzain fell sick, though it had been wrought

EFFECTS OF

in for some time, owing, it seems, to some defective ventilation. The disease began with violent colic, distension, black and green alvine evacuations, followed by *difficulty of breathing, palpitations, and great debility*. In the course of twelve days the face assumed the colour of wax yellowed by time. All signs of external blood vessels disappeared even from the inner surface of the eyelid and mouth. The appetite was not lost, but there was a progressive loss of flesh for six months or a year, when the patients died. In consequence of the intractability of the disease, the French school of medicine was consulted, and four of the survivors were placed under M. Hallé, who ordered a nutritious diet, infusion of hops and gentian and the "*vin antiscorbutique*" conjoined with *mercurial frictions*. Shortly afterwards one patient died. Within his body no coloured blood could be found, but a yellow serum occupied its place. The absence of red blood had not been hitherto suspected! The treatment was at once changed. Opiates with steel and other tonics were exhibited with rapid improvement, and recovery of the remaining patients.

Bad ventilation and the neighbourhood of sewers emitting unwholesome gases occasion the disease in this country.

Several cases have presented themselves to me for treatment, the whole of whose symptoms could be referred only to those of extreme poverty of the blood induced by residing in unhealthy localities. If the frontage is towards the north, and the keeping rooms be deprived of the purifying rays of the sun, the inhabitants are much more predisposed to the disease.

CASE I.

G. Y. applied to me for general weakness. He experienced early fatigue in trying to pursue his work as a joiner, shortness of breath, and much palpitation

UNWHOLESOME GASES.

after exertion. He looked pale and sallow: his lips were whitish, and the blood very pallid. For some weeks he had become gradually worse. His digestion was impaired. His pulse weak and quick, and the tongue pale. There was no thirst nor heats and chills: no disease in the lungs or liver. Slight exertion occasioned hurry and lassitude. Under these circumstances, I ordered him gentle aperients with quinine and steel. But these remedies, though they seemed to agree well with him, gave him no strength even after five weeks course. I was surprised at this, because he had discontinued work, and apparently took good care of himself. The blood seemed no better. From this fact I suspected that the original cause of his complaint was still exerting an injurious influence upon him. On particular inquiry I found the neighbourhood in which he lived very badly drained and ventilated, dark and dirty. I now ordered him to continue the same medicines, and shun the neighbourhood as much as possible. He now began rapidly to improve, and quite recovered his health in a short time under the same treatment as before.

CASE II.

In the same neighbourhood there dwelt a hard working woman, who gradually fell sick with a similar complaint. Her blood appeared as it were blighted by some noxious influence. Being extremely poor, and the mother of a large family, and having a totally disabled husband, there was little or no escape from the noxious influences. In spite of a good supply of nourishing food and very constant attendance on my part, after a short convalescence consequent upon being drawn out in a chaise into the sunshine and fresh breezes, she was smitten with the disorder again. Her blood became daily more pallid, and though she suffered no fever or thirst and very little pain, except towards

POVERTY OF THE BLOOD.

the last, she gradually sank contrary to her expectations. A few hours before death the blood that trickled from a puncture was almost pure serum, devoid of red globules.—These two cases are very similar to those of the French miners before related.

But poverty of the blood does not always arise from such causes. Living too much in the dark seems to blanch the blood as it does plants growing in a cellar. In the following case I had the satisfaction of knowing that the disorder is sometimes curable without any change of locality or habit.

CASE III.

Extreme pallor of the blood.

M. C. was seriously indisposed under the following circumstances. She was a servant of all work; living in a house in a dark situation; very little sunshine penetrated the dwelling. She complained of much pain in the sides; and was thought to have a liver complaint. The eyes had a remarkable appearance: they resembled the colour and deadness of those of a dead fish. The lips and lining of the mouth were almost a dead white. The gums were so extremely white as with difficulty to be distinguished from her white teeth. Extreme shortness of breath and palpitation of the heart at times, with great weakness and lassitude, were the principal symptoms. Here was a manifest case of blood pallor. By the aid of aperients and tincture of iron, in a few weeks she completely recovered, and the change in her appearance from a waxy to a brilliant rose colour was marvellous: the pallid blood had regained its natural ruby hue.

When, however, such cases are complicated with distressing cough, great anxiety is not unreasonably felt as to the probability of an approaching consumption.

ILLUSTRATIVE CASES.

CASE IV.

Suspected Consumption. Winter Cough. Extensive Effusion. Increasing Prostration.

S. W. Servant, aged 22. Ill five years. Long fits of coughing in the morning, so severe and continuous as to produce vomiting. Extreme difficulty of breathing. Great prostration of strength. Cough had lasted through the winter and part of the spring of 1852. Her general weakness had increased during the last five years. The pulse was alarmingly rapid and weak. Exhaustion was approaching. Dropsy had settled in both legs to a great extent, it having spread upwards from the ankles: the whole of both limbs being greatly extended with accumulated water. Her mistress appeared most anxious for her restoration: but consumption was believed to have already commenced. I was struck on examining the chest, with the extreme ivory whiteness of the surface. The pallor of the skin resembled the most beautiful alabaster. The tongue, lips, and mucous membrane of the eyes and mouth shewed the same universal absence of colour. The stethoscope revealed no symptoms of consumption, merely a little chronic bronchitis. The stomach was, however, most irritable. She had a constant sensation of a dead weight under the breast bone, and in the region of the stomach, and food increased it.

I found all the symptoms of poverty of the blood so intense, that I have never seen them exceeded. The microscope shewed a total absence of red globules. The blood itself occasioned only a faint, almost colourless, smear on glass, resembling thin gum water. And the stethoscope rendered audible the characteristic hum or "*bruit de diable*" in the jugular vein caused by the thin blood rushing through it. Withal she had not lost flesh. The skin was dry and harsh. The general health had never been properly established. These

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symptoms enabled me to predict a speedy cure. I sent her home to Knaresbro', with directions to soften the skin with general ablutions with soap and sulphur water alternate nights, and ordered simple diet. She entirely recovered in six weeks under the use of sedatives, purgatives, and steel, and so remarkably changed, with a blooming complexion, that her mistress did not recognize her when she returned in health.

In all these cases, shortness of breath and palpitation, with pallor of the mucous membrane, were striking symptoms: to these are generally added pains in the side and painful digestion. In a great variety of invalids I have found these symptoms correct signs of the impoverished state of the blood: but they require verification in each case by closer examination.

These are not extraordinary cases; but they pointedly illustrate the subject. Turn now to the records of military hospitals; and regard the rapid effects developed in the most robust soldiers, who have been almost drained of their blood by their wounds. Though they will take food with great eagerness, yet they have lost the power of digestion, and of converting the food into good perfect blood, "the whole contexture of the body being hereby weakened, they shall languish and be drowned in a dropsy!"

Contemplate on the other hand a delicate girl, whose blood is in the last stage of impoverishment as regards red globules. The blood flowing from a vein is sometimes almost white. She takes food indeed, but though the digested food is added drop by drop by the chyle duct to the torrent of the blood, it is only imperfectly organised. The veins become swollen with half-formed globules. Fat accumulates. The body also swells, and assumes a transparent pale colour. The face is bloated, and the flesh is easily indented by pressure. The whole frame partakes at last of the

ILLUSTRATIVE CASES.

general disorder, and is pervaded by a crude, imperfectly elaborated fluid. A drop of this blood under a good microscope shows myriads of colourless white blood globules. And whenever this state exists, a variety of severe disorders sooner or later make their appearance. Yet, if by any means these globules can be further elaborated into their perfect condition—all these disorders appear to vanish as by a charm. But the most nourishing food cannot accomplish this: it only adds to the suffocating load of crude blood, and accelerates the fatal dropsy.

Swelling of various parts of the body are often significant signs of the encroaching disorder. First, the cheek immediately below the eyelids appears puffy; next the whole countenance assumes a pale and dappled appearance, and then as the disorder increases the swelling becomes more general. If more nutriment be poured into the blood vessels than the system can transform into the perfected state, the blood gradually becomes paler,* weaker, less stimulating, and less energetic. As a natural consequence of this the body becomes more chilly. For as the animal heat is principally derived from the energetic action of the blood on the tissues, it follows that imperfect blood is incapable of maintaining a proper amount of animal temperature. The ancients, with good reason therefore, ascribed this form of disease to a cold phlegma. The blood, devoid of its natural stimulus, is apt to stagnate in the circulation, and hence arises a variety of obstructions, forming glandular tumours and swellings, and causing deranged action.

In the first stages of the disorder, paleness overspreads the features, &c., but as it advances, the blood, no longer red, gives a peculiar tint of the skin resem-

* The new nutriment when entering the blood is always white, like milk.

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bling that of the silk worm : later it becomes greenish, yellow, livid, or cadaverous, according to the natural hue of the skin.

All the secretions necessarily assume more or less the peculiarities of their mother fluid—the blood—particularly the bile and gastric juice : and in general they are all deficient in quantity as well as quality. All nature within, seems to falter with depressed function ; even the perspiration almost fails. The animal spirits cannot flow. Sleepiness, forgetfulness, apathy, torpor or dulness, except in excitement, declare how much depression here steals over the nervous energy. Swooning also, giddiness, early fatigue, depraved senses and tastes, and suffocation or coma, by a gradually increasing lethargy, may finally close the scene.

“When at the siege of Middleburg, for want of provisions the besieged were compelled to live upon cakes made of linseed, the hypochondria were very soon distended, and the whole person became swollen, so much so that many persons died of the disease—(BARON VAN SWIETEN). The invincible gluten of the linseed could not be converted into proper nourishment.” Here was a striking example of the effects of improper diet. Linseed fattens cattle, but in man it produces an imperfect blood. In the same way, a bread or potatoe diet, or any food too exclusively vegetable, may, under certain conditions, occasion the disease, and depressed or exhausted nervous energy is one of them. When the nervous influence is weak, the elaboration of perfect blood by the action of the organism becomes more difficult, and a poor diet increases the evil. The great Hippocrates wrote above 2200 years ago :—

“When the white pituita has seized upon the body, the whole body swells with a white tumour, and if it is carried off in the beginning, the man recovers ; otherwise it will turn to a dropsy and kill him.”

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Water in the head, or hydrocephalus, destroys annually a great number of children; it usually is accompanied by a scrofulous habit, which is almost invariably connected with a reduced state of the blood.

Several cases of alarming dropsy have come under my care, apparently dependent upon intensity of the blood disease in question. Effusion of the watery part of the blood takes place from stagnation, or retardation of the circulation, and more rapidly when the blood is thin, watery and poor. Debility of the heart, the chief engine of circulation, is a sure consequence of reduced blood—its fibres become lax, pale, and weak: and for want of sufficient nourishment the failing heart acts feebly on the blood vessels.

CASE V.

Serious symptoms of impoverished blood. Effusion.

Recovery.

A young woman being totally unfit for service, was brought sixty miles to be placed under my care, by her aunt. Every portion of her frame was extremely swollen. There was no feverishness; she experienced great prostration of strength; was very much oppressed in her breathing; her heart palpitated upon exertion, and all the signs in fact were complete of a peculiarly low state of the blood. I felt persuaded the universal dropsy arose neither from disordered liver, kidneys, nor from *disease* of the heart, nor from obstruction in the lungs or elsewhere; but that it was the general result of a blood disease. She was ordered solutions of iron with gentle aperients, and with scarcely any change in the medicines, she perfectly recovered both her health and strength, and acquired a remarkably ruddy complexion.

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Dropsy of the closed cavities, such as the chest and abdomen, is also similarly produced, and I have had lately two cases, pronounced hopeless, which proved that this opinion is not incorrect.

CASE VI.

*Poverty of the blood. Dropsy of the abdomen :—Ascites ;
Recovery.*

A little girl was brought from Knaresbro' with so extensive an accumulation of water, that a fatal termination was pronounced by several medical gentlemen, who said nothing more could be done : and that if she were sent to the Leeds infirmary it would only be to die. In this case all the signs, so often repeated in these pages, declaring poverty of the blood, were complete ; but, at the same time, the countenance appeared loaded and dingy. The girl gradually became ruddy, and recovered perfectly in six weeks, under the use of preparations of iron and iodine, and recently her mother brought her to me, a year afterwards, to exhibit her daughter much grown, in excellent health, no relapse having occurred.

CASE VII.

Approaching suffocation. Ascites. Poverty of the Blood.

Nearly the same treatment, pursued with the view of restoring the healthy properties of the blood, succeeded in saving a little boy about five years old. Poverty of the blood, together with a harsh dry skin, seemed also to be the chief causes of the dropsy. The little fellow lay gasping in bed on his back, his body hugely swollen, and I found the water might soon overwhelm his chest. The state of the blood, together with some

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congestion of the liver, appeared to me to be the principal conditions to be relieved. The sympathy between the liver and skin afforded one ready method of acting on the former. I ordered him to be thoroughly sponged with very hot soap and water every night, and to be laid between blankets and take a perspirative posset. For the blood he was ordered iodide of potassium, iodide of iron, and liquor of potash. Under this treatment the child rallied, and was brought to my house, not many weeks afterwards, perfectly well. This had also been considered a hopeless case by the medical attendant, and during the last two years he has had no relapse.

These cases are very common, and are, no doubt, often cured by medical means. My object in introducing them here, is to illustrate the principle that a great variety of severe disorders do arise from poor blood, and that they are sometimes curable by blood treatment.

Effusion may, however, arise in health from accidental pressure or mechanical obstruction. Thus obstruction of the liver, of the veins, or pressure of tumours, or intestinal scybalæ, are by no means unusual causes of dropsy. But there is a more special tendency to it when the blood has already become poor and thin. And it is more severe according as the predisposing and exciting causes co-operate more closely in the same direction. The following case is highly illustrative of this point:—

“A woman came from Killinghall, having the whole of both lower limbs enormously swollen. She was florid, and otherwise tolerably well. This case appeared to be one of mechanical obstruction. The dropsy (by the free use of Epsom salts and magnesia and a little colchicum wine) entirely disappeared in about a week; when she came and reported herself well.”

GASTRALGIA AND NEURALGIA.

There is no question more important, in practice, than the correct determination whether pain is inflammatory or caused by mere nervous irritation. Nearly all the inflammatory diseases are so imitable by a peculiar state of exalted sensibility, as occasionally to deceive even a wary practitioner. Death has sometimes been occasioned by treating a case as inflammatory where no inflammation existed. A few cases of painful digestion and neuralgia will better illustrate their relation to the blood disorder present, than any abstract discussions.

CASE VIII.

A gentleman consulted a physician for an eruption in the face. He was of a robust stout habit, and was recommended to be bled frequently during the year. After pursuing this plan for some time, he was suddenly attacked with exhaustion, and fell into a rapidly sinking state, and expired under all the symptoms of gastric irritation, and of extreme impoverishment of the blood.

Remarks. The frequent bleedings here exhausted the blood globules faster than they could be reproduced, and had all the effects therefore of slow starvation; with this difference, that the powers of life were so completely spent, that in spite of the vigorous administration of stimulants and nutritives, the system sank before effectual reaction could be established.

I have seen the loss of large quantities of blood in a few days blanch the complexion to a wonderful pallor; and it is surprising, in some instances, in how short a time, a month or so, blood may be again replaced by nutritious diet and judicious measures.

Now, in such cases we cannot doubt that the blood is greatly reduced in globules by such losses, yet the veins rapidly absorb water so that they are as full as before, soon after the bleeding, with a very *diluted* poor blood. In these cases, very peculiar symptoms have arisen, which have baffled distinguished practitioners from not appreciating the nature of the case.

"It is a law in pathology," says ANDRAL, "that in every organ the diminution of the quantity of blood which it should contain in a healthy state, produces functional disturbances, as well as the presence of an excessive quantity of blood."....."We have seen individuals who seem almost destitute of blood, who digested with pain to themselves; and some even rejected the little food they put into their stomachs. After great discharges of blood, digestion sometimes remains so laborious that the stomach is unable to repair its losses." Now, if great losses of blood occasion stomach disorders, and such losses produce an impoverished condition of the blood, our position, that poverty of the blood is also accompanied by peculiarly disordered states of the stomach, seems to need no elaborate demonstration. Mr. Langston Parker records the following case, which will illustrate this interesting point:—

A lady, aged forty, miscarried a fortnight before the symptoms about to be described set in. She lost a vast quantity of blood, which produced a state of great weakness and irritability. She now complains of great oppression and fulness, seated in the epigastrium (pit of the stomach). She is afraid to eat; food of any kind increasing the oppression to such an extent as to produce

POVERTY OF THE BLOOD.

a feeling of impending suffocation. Slight pressure over the stomach occasions a sensation which the patient describes as dreadful. There were fits of palpitation, hurried breathing, and constant cough. No evidence of disease of lungs or heart. The patient recovered by the use of small doses of blue pill and aloes at bed time, and tincture of iron in a bitter infusion during the day.

The following case illustrates how easily such disorders may be mistaken and improperly treated :—

A lady, aged thirty, miscarried in the third month, at which time hemorrhage was profuse. Two months afterwards, she was labouring under the following symptoms :—Great pain in the epigastrium, aggravated by pressure and accompanied by strong pulsation in that region. Fulness from distension after meals, with nausea, occasional vomiting, palpitations, and inactive bowels. A medical practitioner, supposing these symptoms were dependant upon some inflammatory affection, had ordered leeches to the stomach, which had aggravated all the symptoms. The pil. aloes, assafoet et saponis, was ordered to regulate the bowels, and chalybeates were freely given. Under this plan the patient recovered her usual health.

In this case there was, undoubtedly, an impoverished state of the blood; but how opposite were the two modes of treatment adopted. They firmly establish the conclusion that poverty of the blood may induce a painful state of the stomach. Such cases shew that *gastralgia*, or *pain in the stomach*, though often wholly incurable by mere soothing remedies, may nevertheless yield to blood treatment, when that fluid is much impoverished. And this is only what ought to be expected from a regulation of the constitution. It is a law of life and health, that the nerves demand a certain supply of vigorous blood, in order to maintain their healthy functions, and conversely, their functions

become disordered where that supply is deficient. Now pain is one of the symptoms of nervous disorder. In certain cases, especially where the great nervous centres have become enfeebled by overtaking the nervous energy, the nerves of the stomach—*i. e.* of its muscles or mucous membrane, become sympathisingly affected: irritability increases as the weakness becomes more realised. Food, which in health occasioned an agreeable stimulus, is now a source of pain: just as daylight, though pleasant to behold when the eye is sound, is agonizing in ocular irritability. While the blood is perhaps from thirty to fifty per cent below par, as regards its richer constituents, the great nervous centres—the brain, the spinal cord, and the solar plexus, and semilunar ganglion,—are deprived of their standard amount of nutrition, without which their functions cannot be properly discharged. The nervous weakness settles upon some particular part, according to the hereditary or parental type, habits or history of the individual. The great nervous centres are very common seats of low nervous action, and these are, as before observed, most closely associated with all the digestive organs: low nervous energy, *i. e.* general debility, is always marked by irritability. And in the case under consideration, much pain and inconvenience is produced by the stimulus of food taken into the stomach.

Now blood, and good rich blood too, is necessary to a vigorous action of every bodily organ; on the other hand, poor blood keeps the nerves irritable, neuralgic, and tender; it cannot give vigour to the muscles of the stomach, necessary for the digestive churning of the food; it cannot elaborate a sufficient amount of potent bile, gastric, or other juices; it cannot generate a proper amount of digestive heat, indispensable for the healthy concoction of aliment; and lastly, it is inadequate to stimulate the heart to perform the duties

of a vigorous circulation. Hence the impoverished blood adds no small embarrassment to the stomach difficulties which arise from two causes—first, from the tenderness and irritability of the mucous membrane and its nerves : secondly, from the imperfect digestion permitting fermentation, and consequent distension, and therefore a tension, of the delicate structures of the digestive organs ; pain may then become agonizing in the extreme.

When, then, the poverty of the blood can be positively ascertained, and especially when the usual treatment has proved nugatory, very remarkable relief is sometimes attainable by judicious attempts to raise the blood to a healthy standard. The wonderful sympathies existing between the various organs of the body, present the richest resources for removing disease. If any one function can be found to languish, in association with the digestive organs, it is the common sense of the question to omit no means of improving that state. It ought, however, to be stated, that pain after food is sometimes caused by nervous irritation, by spasms, and by obstruction, without an impoverished state of the blood. Those who are subject to pains in the teeth know that the paroxysm is sometimes occasioned by cold and heat, or sweets, and sometimes by pressure ; the former arising from irritability, the latter more generally from inflammation. Much indeed might be written upon the subject of painful digestion, which arises from so many different causes that it is necessary to distinguish between them and irritability caused by poverty of the blood. These causes may be

- | | |
|-----------------|------------------------------------------------|
| <i>Nervous</i> | —From sympathetic action. |
| <i>Muscular</i> | —From distension, cramp, gout, and rheumatism. |
| <i>Vascular</i> | —From congestion resembling a blood shot eye. |

ILLUSTRATIVE CASES.

- Ulcerative* —With or without cancer.
- Apthous* —From eruption of apthæ on the
mucous membrane.
- Irritative* —From the presence of foreign bodies,
or undigested matters—bile.
- Secretory* —From the generation of morbid
fluids, acrid acids—as in heart-
burn, &c.
- Fermentative*—From the food passing into various
kinds of fermentation.
- Mechanical* —From the adhesion of hard false
membrane to the delicate surface,
which hinders the churning action
of the muscles of the stomach,
&c., &c.

If, however, the pain arises from mere poverty of the blood, but little relief is obtainable by a routine treatment which does not grapple with the root-disease; and though tonics are resorted to, unless they enrich the blood, they are of no use. Indeed stimulants in all their varied forms are commonly employed for obviating the nervous depression; and under their exciting but temporary influence, a delusive power is attained at the cost of reduced stamina, till sheer exhaustion compels the sufferer to halt: it is plain that recruiting the strength, gaining increased supply of nervous energy from change of air and habits, and by educating the system to make more blood, and so establishing a new capital of power, offer the most reasonable plan for getting rid of these painful dyspepsiæ, when dependent upon the causes enumerated.

Every year a considerable number of patients apply to me suffering from the double distress—overspent energy, and poverty of the blood. In the manufacturing districts, the factory labours combined with domestic anxieties, produce a great number of these cases—where hard work, poor living, impure air, indifferent

clothing, and exposure to all weathers in passing from the factory to the home—are the precise conditions, for begetting the disorder of the nerves and the blood. Many of these have been treated for “a liver complaint,” some for indigestion, others for an incipient consumption.

The following case represents a numerous class of invalids suffering from pain after food, consequent upon impoverished blood. And I have often been surprised at the quick relief which has attended treatment directed to the improvement of the blood.

CASE IX.

Pain after food. Poverty of the blood.

No. —.—A young woman, who works in a mill, states that her principal complaint is pain after every kind of food. It lies, she says, undigested, and feels like a stone. She also experiences a sinking at the stomach, which food does not seem to relieve. Her strength is reduced; her limbs heavy. She admits she experiences flying pains, especially in the left side, and in the head. That she is troubled with palpitation, shortness of breath, irregular craving for food, and cold perspirations, as well as generally a nervous feeling and distress. The tongue is whitish, covered with a thin white coat, the eyes are dim, and complexion very pale. Warm aperients ordered with chalybeates. Rapid recovery in about fourteen days.

In some cases hot fomentations, applied night and morning to the stomach, do great service. And the various chalybeate springs are particularly efficacious.

The following cases illustrate the neuralgic pains which often accompany the disorder :—

CASE X.

Violent tic-doloureux of the face and head.

A married woman, the mother of a large family, had suffered during many months with agonising tic, coming on in fierce paroxysms in various parts of the head and face at once. She had all the appearance of impoverished blood. So intense were her tortures, that some benevolent ladies took a great interest in her case, and as she was poor, and had come from a distance, they volunteered to discharge her expenses at Harrogate, if a cure could be accomplished. Means calculated to enrich the blood were vigorously plied, and in a few weeks she regained a florid appearance, and was relieved of her dreadful sufferings. I have seen her once a year, several times since her recovery, and she has had no return.

The symptoms of a reduced state of the blood may also resemble those of pleurisy and other inflammations. Severe pain in the region of the short ribs—when accompanied by shortness of breath, a white tongue, and general disorder of the digestive organs—is frequently treated by leeches, blisters, and reducing measures, on the supposition of an inflammatory attack, and when this disorder occurs as a symptom of poverty of the blood, it is only aggravated by such measures. The pain is so severe, and appears to strike so deep, and be so persistent, as to lead to the suspicion of inflammation of the liver, affection of the spleen, gall stones, and even inflammation of the large intestine—the colon. And I have known cases in which severe treatment has been adopted with positive aggravation.

for a considerable time, which might have ended fatally from a continuance of such anti-inflammatory measures ; but they were quickly restored by the tonic invigorating plan, suitable for the improvement of the blood.

The following instances will suffice to illustrate the importance of the subject under discussion :—

CASE XI.

Mistaken inflammation and reducing measures. Recovery by the opposite treatment.—Restoration of the blood.

A married lady had been under medical treatment for a considerable period for *general debility*, without any great progress being made. She was now attacked with a violent pain in the right side, in the region of the liver : this pain, associated with derangement of the intestinal canal, was thought to indicate inflammation of the large intestine passing in that region. But measures adapted to relieve the supposed inflammation had exercised no control over the disorder. A low diet, and reducing methods had been unavailingly adopted, combined with warm hip baths, &c. A very gentle examination of the affected locality proved the violent pain to be purely a nervous one, unassociated with inflammation. Besides, every sign was present necessary to demonstrate an impoverished state of the blood. The patient had, however, become so reduced, the pulse had become so rapid and weak, that a fatal termination was apprehended by her husband. Under these circumstances powerful tonics—such as quinine and iron—were prescribed with most satisfactory results ; the very opposite to the plan before thought necessary. The case was neuralgia imitating an inflammatory affection.

CASE XII.

Neuralgia mistaken for rheumatism.

A young person, a lady's maid, had been suffering acute pain very constantly for twelve months, with gnawing sensations along the right arm, from the shoulder to the elbow. During that time she had been treated in a neighbouring city for rheumatism. On minutely examining the seat of pain, it became evident that a nerve of the arm was the seat of the disorder, as the pain could be instantly excited by pressure, exerted precisely upon its course. Besides, in connection with this pain, the system generally was in a reduced state, showing an impoverished state of the blood. The employment of invigorating remedies, sufficed in a short time entirely to remove the disorder, nor has the pain returned during the last four years. A few weeks treatment thus sufficed to remove an acutely painful affection that had resisted persevering treatment for a whole year.

LIVER COMPLAINTS,
DERANGEMENTS OF DIGESTION,
AND
NERVOUS DISORDERS.

The universal relation established, by means of the venous circulation, between all the bodily organs and the liver, endows that organ with an overpowering influence over all other functions. The vena porta, or gate of the liver, receives very nearly the whole of the blood returning from the various digestive and secretory organs. Any obstruction, therefore, in the free circulation through the liver, immediately deluges their tissues with the arrested blood. Stagnation commences; the first stage of chronic inflammation. Debility of the stomach, distension, flatulence, irregular secretion, disorder of the intestines, swelling of the lower half of the body and lower limbs—such are the consequences of the interrupted circulation to the liver; and in the course of the circulation beyond or from the liver, oppression, shortness of breath, palpitation, headache, &c., are occasioned by the same cause.

Interrupted circulation within the liver is therefore always a source of much organic distress. But—

The retention of bile, however caused, is not less replete with morbid results. If fresh bile be continually formed, and if its natural discharge be arrested, various forms of jaundice—from a light saffron to a deep orange, or black hue of the skin—

BILIOUS DISORDERS.

take place by absorption into the blood. Thus spasm of the bile duct, obstruction by gall stones, or by very tenacious viscid bile, or by a diseased state of the mucous membrane of the duodenum, &c., are common causes of bilious attacks, and jaundice of various degrees of intensity. Now when the bile is largely absorbed into the blood, it is said to cause a dissolved state of the blood. It may excite very troublesome irritation of the skin; it may act as a morbid influence on the nerves, causing melancholy (meaning black bile literally in Greek) hypochondriasis, low spirits, langour, lassitude, sleeplessness, irritability, feverishness, loss of energy, &c.; it may so stain the structures of the eye as to cause objects to look yellow, and dye even the bones of the body, and every internal organ, with a deep saffron hue.

Again the want of bile in the right place renders digestion incomplete. Bile is an extraordinary solvent, and the remarkable relief effected by the extract of ox-gall, in persons labouring under disorders produced by deficient bile, strongly confirm its important properties. When milk has passed through various stages of digestion in the successive stomachs of the calf, it becomes reduced almost to a dry curdy mass, but no sooner is it mixed with bile in the duodenum, than it becomes perfectly fluid. Incomplete digestion is necessarily unfavourable to the manufacture of healthy blood, and consequently, when a liver complaint is so severe as to combine

- (1) an interrupted circulation with
- (2) absorption of bile into the blood, and therefore cause—
- (3) deficient bile in the digestive process,

There results a long train of symptoms, varying, however, in detail, according to individual constitution. Now all these results may flow from the blood disorder under consideration:—for

EFFECTS OF POVERTY OF THE BLOOD.

If the white or young corpuscles of the blood, lack the vigour of their matured state—if the red are sparingly formed, the introduction of oxygen from the air into the blood by the breath is proportionately arrested. Impoverished blood, *i.e.*, blood deficient in red particles, however rich in the white, is crude, sluggish, unstimulating, and devoid of those properties which give it life and animation, and develop a paramount energy in the heart and all the functions. It is oxygen which sustains chemical action; electricity, change of matter, transformation, nutrition and solution, and discharge of effete, noxious matter, are all intensified or depressed according as oxygen is largely or sparingly introduced into the lungs. Oxygen to the system is life; its absence, death. Air is of no use to him whose blood cannot extract from it, in the lungs, that vivifying gas. The white blooded invalid is therefore proportionately de-oxygenated and enervated. I have often seen such an one laboriously inhale the breath of life almost in vain. In health, if the chest be emptied of its air by deep expiration, quickly the lungs assume a lilac, then a violet hue: immediately on inspiration it is changed to a rose colour by absorption of oxygen. Now the want of oxygen caused by the weak absorbing power of imperfect blood, necessitates a sluggish circulation through the liver. For the lungs, everywhere traversed by innumerable blood vessels, serve the double purpose of supplying oxygen, and drawing the blood through the liver. Besides, this weakly oxygenated blood causes the heart and arteries to beat languidly; hence, on both sides of the liver, and therefore, much more within it, there is reason enough for a languid circulation when the blood is impoverished. And so long as this is the case, a slow or impeded circulation in the liver is unavoidable. Crude blood, surcharged with imperfect blood globules, is not likely to improve this state of things. On the contrary, the disposition to

WHY MERCURY IS INJURIOUS.

the deposit of fat globules, so generally declared,* is apt to shew itself here—and the fatty liver, so often a companion to consumptive lungs, is at last formed.

One, therefore, of the most common results of poverty of the blood is general disorder of the liver and digestive organs: and these disorders cannot in general be removed by remedies addressed directly to the liver or stomach, but must be specially treated in reference to the blood disorder.

Poverty of the blood is seldom long established before organic disorders are declared. As before stated, the weaker organ suffers the most. That organ which could only perform, perhaps, a languid duty, supported by a rich animating blood, necessarily acts more feebly as the blood deteriorates, and becomes less nourishing; and the liver is particularly apt to sink into a weak torpid state, after repeated salivations, which have too much reduced the quality of the blood. Prolonged courses of mercury affect the blood in some persons similarly, though no salivation occurs. Dr. Farre relates the following instance quoted by Professor Pereira, a high authority:—

“A full plethoric woman of a red purple complexion consulted me for hemorrhage of the stomach, depending on engorgement (congestion) without disease. I gave her mercury, and in six weeks I blanched her as white as a lily.” Those who indulge in frequent doses of blue pill, calomel, &c., are often rendered pale by the practice; in consequence of the destructive action of the mercury on the red blood globules.

Having had occasion to prescribe a course of mercury, some years since, to one of my patients, a plethoric individual, whose blood globules I was in the habit of frequently examining with the microscope, I found

* In many cases it will be remarked there is a disposition to *en bon point* even when the blood is anæmiated.

SIMILAR SYMPTOMS OF POVERTY

after some weeks a peculiar appearance ; the blood was, to a great degree, in a dissolved state, the fluid part being tinged red by the dissolving or bursting of the red globules ; these contents had escaped, whilst a great number appeared curiously notched like the teeth of a circular saw—serrated. This indeed was so favourable an opportunity for observing the phenomenon, that I engaged an artist to take an accurate drawing of the blood globules, as seen through the microscope.

Professor Pereira also corroborates the point, expressly declaring that mercury diminishes the amount of red globules.

It is, therefore, evident that the free use of mercury in an impoverished state of the blood is injurious ; and this conclusion is highly important in its practical application ; for if a person really suffering from poverty of the blood be treated only for a “liver complaint” by the free use of mercury, the blood will be still further reduced, and the symptoms dependent on the blood will not be removed. In both these diseases most of the following symptoms are often present.

The Skin. —Is bilious looking, yellow, or swarthy, harsh and dry.

The digestion —Impaired and painful. There are distension, irregular appetite, and sometimes sickness or nausea, with headache.

Wandering pains—Shooting to the shoulders, along the short ribs, through the head or face. Dull gnawing pain in the regions of the stomach and liver.

Fatigue. —After slight exertion, with quickened pulse, flushings, &c., and oppression of the chest, palpitation, &c.

Sleep. —Disturbed, restless nights, swimming of the head, or vertigo when lying, starting during sleep, unpleasant dreams of falling.

OF THE BLOOD AND "LIVER COMPLAINTS."

Nerves —Shaken, tremulous, easily startled, excited, and agitated by trifling causes.

Mind. —Less intelligent, feeble, and irresolute; groundless fears, incapacity for energetic application, either to study or business.

Temper —Changeable, irritable, enigmatical.

Evacuations —Irregular and secretions abnormal.

Many other symptoms common to the two disorders of which we speak, viz., poverty of the blood and "liver complaint" might be mentioned. And it is my belief from carefully examining many hundred persons, that a large proportion of these who were said to have a "liver complaint," really suffered under the symptoms of impoverished blood; and treated under that idea, many of them failed to be relieved, because the stronghold of the disease was not attacked in the right direction, nor with suitable remedies. I do not, however, deny that what commenced in poverty of the blood, may eventuate in a disordered action of the liver—as it is an incontrovertible maxim that poor blood cannot maintain vigorous action in any organ whatever. But if mercury, the remedy so commonly employed for liver complaints, ruins the red particles of the blood, its continued use must render the skin paler, so that at last it assumes its natural yellow colour—when the blush given by the red globules is withdrawn, the increasing yellowishness may then be mistaken for an obstinate liver complaint!

Still further grounds for these views are afforded from the treatment of liver complaints in the east. When the Indian sun has tanned the skin, and the Indian salivations have paled the blood, the natural hue of a portion of that skin separated from the living

POVERTY OF THE BLOOD.

body is a swarthy yellow. If now the blood is not sufficiently red or abundant to tinge the skin, it necessarily looks bilious. Hence poor blood and a tanned skin together produce a fallacious appearance of a liver complaint.*

CASE XIII.

Frequent salivations. Broken constitution.

An Indian colonel sometime ago informed me he had been salivated three times in India, for a liver complaint. His blood was much reduced; the liver torpid; the digestive powers exceedingly weak. The red blood globules had been so often destroyed by the severe and oft repeated courses of mercury, that the power for generating a new stock was exhausted. He declared that nothing would "touch the liver" but calomel—without his favourite dose he was miserable. I warned him seriously against the drug. About a year after I saw him—he died. The blood became so poor, and the liver so torpid and obstructed, as to occasion a fatal dropsical effusion.

Those whose constitutions are reduced by frequent "liver attacks" and "liver treatment," generally find the usual remedies gradually become less efficacious—i.e. slower and less permanent in their effects. They do not rally so soon, nor so quickly respond to the "liver remedies." For such, then, it is of the last importance to have a change of treatment, and to be satisfied with a slower action, which, in the end, will

* A yellowness of the eyes, when slight, is not always a sign of a general impregnation of the blood with the colouring matter of the bile.

LIVER COMPLAINTS.

prove more beneficial than sudden and heroic attacks upon the biliary secretions. And for such, a perfect regulation of diet, the use of suitable spring water, still better mineral springs, exercise, and choosing a proper locality for habitation, will prove of the greatest service in preventing a return of the disorder. Very instructive are the following facts :—

GLISSON, the celebrated anatomist observed that the stony incrustations found in the liver of stall fed oxen in the winter, were not discoverable after they had been long feeding on the green pasturage of spring. And it is singular that the very plants which abound in the spring pasturage, such as dandelion, succory, and the grasses, should have been celebrated from time immemorial for dissolving obstructions in the liver. Milk whey, derived as it is almost entirely from the juices of pasturage, is also an excellent diet drink, and was a favourite antibilious remedy with the ancients.

BARON VAN SWIETEN says he cured a poor man (who could not afford to buy medicine,) of an inveterate jaundice, so intense that he had a constant flow of bitter saliva, by persuading him to live upon boiled grasses* sweetened with a little honey. He boiled also the tenderest kind, in flesh broths. “He assured me he was obliged secretly to cut out his diet from the meadows, since the farmers finding him to have so large an appetite, often gave him forcible repulses. By this course he was cured of a most obstinate jaundice, and I saw him some years afterwards in a good state of health.”

The Baron also records an interesting confirmation of the value of such remedies and change of diet as follows :—

A lady 60 years of age, after twelve years of recur-

* The planipetalous and lactescent grasses are universally renowned for their dissolving effects upon viscid bile.

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rent jaundice had, during the last year, become universally black; her eyes were of a most intense yellow, and her appearance struck horror into every beholder. She was ordered, during the spring, a decoction of the grasses, milk whey, during the summer a course of the Spaw waters and a large quantity of Venice soap and honey. She adhered to the course two years. During the last half year only improvement commenced,* and by the second year, she was perfectly cured. Van Swieten says that her friends in vain persuaded her to resign herself to a quiet expectation of death—"as the only sure remedy."

The herbs and fruits of spring have from time immemorial been used to ameliorate the bilious habit so often contracted during the winter months. The dandelion at present seems to have usurped the place of all other lactescent plants employed as antibilious remedies. And if it be taken in large quantities it has considerable efficacy. Much of the extract sold, however, has little virtue.†

When viscid bile is associated with poverty of the blood, the system gets rapidly reduced under the double disorder of obstruction and debility. And if the diet has been dry and heating with too small a proportion of fresh vegetable food, bile is particularly apt to be more scantily formed and of a more viscid and tenacious character. Gall stones, either soft or hard, then are to be expected, and while the constitution is maintained in the same low bilious diathesis, the disorder is apt to occur, especially at the close of winter. The following case appears to illustrate these views:—

* "The liver at length began to relent and the impacted bile to dissolve, which produced a diarrhœa that lasted six months."

† I know, indeed, that a pound of extract of dandelion was eaten by a servant without sensible effects by mistake for treacle. The American extract is generally more potent than the English.

CASE XIV.

Chronic jaundice. Poverty of the blood. Depression of spirits and general debility:

A gentleman from Nottingham had been treated there for three months for gall stones, he having experienced most of the symptoms of that disorder. During this time he had not recovered his usual strength, though no more recent attack had prostrated him. To relieve the former disorder, he had submitted to severe treatment under the effects of which he imagined he was still suffering. His complexion was extremely dark, dusky and tinged with bile. The eyes were of a saffron colour. He suffered from extreme despondency. From the time specified he had been confined principally to a fish diet, or mutton chops, until his appetite had quite failed him. The blood was at least twenty per cent below par; and it was evident, under these circumstances, he had not sufficient nervous energy to command a healthy action in the organisation generally, nor in the liver in particular.

I put him under a course of skin treatment, and relieved the obstructed perspiration; caused him to be much in the open air, driving and walking; prescribed some simple aperient medicines, invigorating the blood with chalybeates and good fare, enjoining him to consult his own inclinations with regard to diet, and take as much sound sherry as he felt did him good. After the meagre allowance and spare diet to which he had been confined, it was truly delightful, as his wife informed me, to see how he enjoyed his "generous living." His complaint gradually vanished, and he returned home in less than three weeks quite another man.

The influence which can be brought to bear upon the

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liver through its sympathetic connection with the skin, is one of the most satisfactory and valuable facts in physiology with which I am acquainted.

CASE XV.

*Periodic jaundice, with loss of flesh, appetite, and strength.
Poverty of the blood.*

M. S. was brought in a state of great debility from York to be placed under my care. For some time past she had been in delicate health. She had become emaciated; and her friends considered her case hopeless, and that death would at no distant period be the only relief to her sufferings. The peculiarity of her disorder was thus exhibited: at various periods, from one, to two or three days, she was seized with an excruciating pain between the shoulders, which seemed to strike through the region of the stomach; vomiting set in, and in a very short time the countenance assumed a saffron hue, shewing a jaundiced appearance, which after a few days gradually wore off, and then the scene was again and again enacted. Under these circumstances her appetite almost entirely failed; the blood became rapidly impoverished on account of the small amount of nourishment taken; emaciation and debility advanced with equal steps. As the skin was torpid it was vigorously stimulated by bathing. I ordered ox gall, with a little rhubarb, as an artificial substitute for the arrested bile; and when the spasmodic attacks were coming on, a few drops of chloroform in dilute nitric acid, to subdue the spasmodic action. As the spasms became less and less violent, artificial gastric juice, pepsine, was given with each meal, and she was put under the treatment of gentle tonics. In a few weeks, without any further change in medical treatment, she gained flesh, health, and strength, and a remarkably clear and ruddy complexion.

AND LIVER COMPLAINTS.

The value of pepsine in some cases of poverty of the blood is very great. I was sent for expressly to see a lady who had been unable for three weeks to take solid food, and scarcely any nourishment of a fluid kind : the stomach rejected almost everything that was administered ; she was emaciated, wan, pale, and utterly exhausted : I gave her a small quantity of pepsine in strong beef tea, and ordered her to take this, night and day, every two hours, if awake, and to drink champagne. She gradually rallied, and I have no hesitation in saying that, the blood being almost in the last stage of impoverishment, her life was saved by the digestive power of the pepsine.

GALL STONES are a more common result of viscid bile than is generally supposed ; their discharge is generally accompanied with excruciating pain, retching, and sometimes with shivering. But *quiet* gall stones may repose in the gall receptacle for many years and yet produce no great disturbance. *Jaundice* is the inevitable result of their obstructing the discharge of the gall, so necessary to the perfect digestion of the food in the duodenum or secondary human stomach. But since the recent bile formed in the liver is totally different from the perfect bile or gall found in the gall bladder, both in colour, taste and tenacity, it is evident that the absorption of imperfect or liver bile, and the absorption of gall into the blood, must produce very different kinds of jaundice : the first constituting rather a bilious habit, the second a true jaundice. These considerations have a very practical bearing upon frequently occurring cases. For liver bile long retained in that organ undergoes very peculiar changes ; one of which is the formation of *biliary* concretions within it, as distinguished from *gall* stones. Debility of the liver, too weak to discharge its own secretion, is the primary cause of these collections.

A gentleman was attacked with spitting of blood,

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and, dreading consumption, sent for the celebrated Dr. Mason Good. He had lost a good deal of blood. But it was clear "the irritation was within the liver and its appendages, which were gorged with bile. Active purgation being prescribed, discharges of bile—of a viscid, bird lime like substance, of a deep chocolate colour verging to green—commenced and continued for ten or twelve hours, with the relief of all the symptoms."

Enlargement of the liver, saturated with a large collection of its own bile—too viscid to make its usual exit,—is no uncommon precursor of an overwhelming bilious attack. And if this enlargement from bile be mistaken for *congestion with blood*, much injudicious treatment by blisters and leeches may be employed, especially if the blood be impoverished.

In persons who are liable to severe bilious disorders from this cause, the liver is too torpid to expel the secreted bile engorging its substance; at length the functions of the liver become deranged, nay, reversed; the bile goes the wrong way—it is absorbed into the blood; and the chief office of the liver—that of secreting bile from the blood—is subverted; in place of drawing it from the blood it throws it back into the system at large. This probably takes place in very bilious persons, more or less, daily, whilst there is no apparent jaundice, because imperfect or liver bile is absorbed, and not gall, from its receptacle. The effects of sailing in rough weather—swinging, riding with "the back to the horses," are due, most likely, to disordered nervous influence, thus reversing the biliary functions in the first instance, though reaction may copiously take place in sea sickness, &c., afterwards.

Paralysis of the liver is another form of biliary derangement which may occur from depressed nervous energy and disordered sympathy. We know by a vast number of recorded experiments that the nerves control

AND LIVER COMPLAINTS.

secretion. It is through them that anger, passion, and grief affect the liver so strikingly. Many cases may indeed occasion paralysis or nervous depression in any part. If then by any cause the nervous energy be unequally distributed, for that time, secretion becomes perpetually affected. This principle explains the quick relief which is, in a few instances, obtained by electricity applied in shocks to the liver.

Darwin relates an instance of this. A gentleman had been treated for jaundice, of six weeks duration, by many very severe remedies without relief. There was no pain, sickness or fever: ten smart electric shocks from a Leyden jar were passed, as nearly as possible, through the liver and along the direction of the gall duct. On that very day the secretion of bile reappeared, and in a few more days, by a repetition of the process, his skin gradually became clear.

A gentleman consulted me some years ago for a bilious attack, and as there were no symptoms which forbade the use of electricity, I caused him to undergo a series of electric shocks, and he informed me that the liver became free very quickly afterwards—an immense quantity of bile having been evacuated from the intestines.

Extreme poverty of the blood is sometimes associated with prolonged paralysis of the liver. In such cases, frequently the sufferers have drunk daily and largely of fermented liquors without being drunkards. No hardness, pain, or swelling is to be detected in the liver. No bile seems to be mixed with the food. The intestinal and renal secretions are not tinged with bile. The appetite fails, they emaciate, lose their strength; and “what distinguishes them from all other cases, at the first glance of the eye, is the bombycinous colour of the skin, which, like the full grown silkworm, has a degree of transparency with a yellow tint, not greater than is natural to the serum of the blood. Mr. C. and

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Mr. B., both very strong men between fifty and sixty, who had drank ale at their meals instead of small beer, but were not reputed hard drinkers, suddenly became weak, lost their appetite, flesh, and strength, and died in about two months from the beginning of their malady. Mr. C. was by trade a plumber; both of them could digest no food, and died apparently from *want of blood.*" (Darwin.)

Dr. Hamilton remarks that in chlorosis the bile is insipid and paler than in health. In poverty of the blood, the liver acts feebly for want of its normal stimulus, and hence the secretion of bile is much diminished. Confirmatory of this is the dry, harsh, unperspiring state of the skin in the disease. For, as before remarked, in the section on sympathetic influences, the skin is intimately sympathetic with the liver—the liver acting more freely as the skin becomes more healthy: while disorder in the former renders the skin hot, dry, and feverish.

A case is recorded* of an obstinate indigestion dependent upon deficient bile, which could not be removed till a profuse perspiration had been excited by a prolonged exercise with the broad sword. The extraordinary benefit derived in these cases from a powerful excitement of the skin, is a strong proof of the importance of the health of that organ to that of the liver. When, therefore, the blood is too low to admit of a mercurial course, and the ordinary remedies have proved unavailing, the endermic method, exciting efficient perspirations, rubefaction, and cherishing the varied functions of the skin by every possible means, may afford satisfactory means of relief. In the serious constitutional disorder of which we write, no means can well be dispensed with capable of improving the action of each particular organ as well as the quality of the

* Edinbro Med. Surg. Journal.

blood. The Duke of Wellington, about sixty years ago, was plunged by his physician up to the chin in a medicated bath, for a severe disorder of the liver, and was thus restored to health in a short time. And I have several times seen bilious engorgement yield in a few days under powerful appeals made to the skin.

But we must not omit to make allusion to the extraordinary effects produced by the bilious state upon the mind.

Melancholy (from *melainos* black and *chole* bile) has been observed on many occasions to have suddenly disappeared after the system has been rapidly relieved of an intolerable load of bilious collections. Horace in his epistles, however, gives a humorous account of a man who was joyful and happy, while sitting in an empty theatre, imagining that he saw and heard admirable tragedies, in which point alone his mind was affected. For his cure it seems his relations spared no expense, but when it had been effected by a strong dose of hellebore (a very violent purgative never ventured upon in the present day), which carried off both his disorder and the biliary collections that caused it, he cried out, "Oh my friends, you have not cured but undone me, in thus depriving me of so great a pleasure and forcibly tearing away the agreeable illusion." The vagaries of melancholy are most strange. Monomania is a form of it, answering to the definition of Aretæus, "that it is a concern of the mind, fixed and dwelling upon some one thought, without fever." Continued deprivation of sleep particularly disorders the liver, and leads to melancholy and depression of nervous energy. Hippocrates curtly describes melancholy as a sorrowfulness with silence and an aversion to human society. The disorder is frequently cured by the constitution being relieved of morbid matters.

CASE XVI.

A farmer became melancholic for some weeks under unfortunate circumstances. He used to sit the whole of the day silent, resisting the endearments of his wife and children, and wholly inattentive to business. The man recovered after about a hundred boils had made their appearance on his person, and related his case to me during the period of his convalescence.

In melancholic cases, mineral waters have, for ages, been recommended by physicians; the travel, change of scene and habits, together with the antibilious properties of many such waters, combine precisely the circumstances suitable to their requirements. Summer fruits are often most advantageous to the melancholic: they have been cured of the most extraordinary degrees of the disorder by living wholly upon them; such as grapes (grape cure), cherries, strawberries, &c., taken to the amount of three or four pounds a day. This kind of diet is apt to bring on a violent diarrhæa.

CASE XVII.

Melancholy. Poverty of the blood.

About two months ago, G. P., a young woman, was brought to me from Spofforth, in a very peculiar mental condition. She had been in service, and in tolerable good health, previously, except that from childhood she had been subject to pain in her head.

The present complaint commenced with nausea, pain in the head, and great sense of weariness and prostration: she lost her memory, and became incapable of pursuing her ordinary employment. She could not sleep refreshingly. She had become stupified, and, for a month before she left her situation, her health had gradually failed.

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"She has fallen into a silent way," fixes her eyes immoveably upon any object, and remains standing, apparently without ideas, for hours if not roused, generally looking downwards. Her friends can get her to do nothing whatever. "She seems dead alive." She eats very little. During the greater part of her illness, from October to January, 1858, the periodical changes had been regular. "She became very pale, her lips seemed to have no colour when she first came home." During the whole period the bowels have been extremely torpid and with difficulty excited—the biliary secretion was much deranged. She had already been under a physician's treatment without benefit.

The symptoms and the results of the treatment shew that this was a case of melancholy from retained secretion and poverty of the blood. I ordered ablutions every other night with very hot water and soap; a powerful linament for the spine, to arouse the nervous energy; brisk carthartics to relieve the system: and indeed the most powerful purgatives were quite indispensable. And to strengthen the nervous system, she took quinine and valerian. Under this treatment, with cold morning ablution, she was quite restored to health.

These cases are rare, but exceedingly instructive. They pointedly illustrate the immense influence of deranged secretions, especially the biliary, in producing melancholy and monomania. Nor can we doubt the accurate observation of the ancient physicians, who employed the term *melancholy*.

Melancholy may then be produced by bilious diseases. Conversely, grief and melancholy seem to have a special influence on the biliary secretions. A lady of high rank died suddenly from extreme grief. Upon examination the gall bladder contained a thick, black, shining matter resembling tar; the pancreas and spleen were of the same colour. Atrabiliary disorders are not therefore imaginary.

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The most common perhaps of all disorders associated with impoverished blood is a general derangement of the digestive apparatus, where all seems to go wrong, and every organ connected with the blood purification and manufacture has become deranged; where the general health, in a word, is totally debilitated. When degenerated blood has, for a series of years, pervaded the constitution, no part of the system can escape its penetrating influence.

The muscles wax pale, flabby, lax, and weak. Every fibre degenerates. The voluntary muscles first declare their weakness by early sensations of fatigue. Next the debility spreads to those concerned in circulating the blood—the heart and arteries; to those of the stomach and the muscular fibres of the bile-and gall-ducts. At last, even the nails and hair, as well as the skin, bespeak the general fault within. And throughout, the muscles of respiration (which connect both the voluntary and involuntary systems of muscles) partake of a weariness and weakness which render even breathing itself a fatigue. Besides all this, the nerves experience various distresses, and the mind sympathises with all. Truly it cannot be too often repeated, as a medical maxim, that, “The life of the flesh is in the blood.” Cases of this kind are very numerous, and as it is not my object to multiply examples of the same class of disorders, I shall here introduce only two cases of this nature by way of illustration.

CASE XVIII.

Severe indigestion. Neuralgia of head and side. Extreme depression. General disorder of the health. Poverty of the blood.

—— states she has been a great sufferer for five years, since the period when, after growing rapidly,

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she had become very tall for her age. She has been under a variety of medical treatment without benefit. She complains of intense shooting pains in her head and chest occurring night and day—especially at nights when in bed. Nothing suits her stomach. Every meal occasions her violent pains—all food indeed agonises her. The right side occasions her much gnawing, aching pain. She experiences great nervousness, palpitation of the heart, and hurried breathing, and exhaustion from slight exertion. These have been the prevailing symptoms during the last five years.

The complexion is like wax yellowed by time, with a tinge of a livid swarthiness about the mouth. The tongue is generally encrusted with a dry cracking dark brown coat, resembling the crust of burnt flesh. Deep and slight pressure both occasion great pain in the region of the liver and stomach. A loud sound is heard in the jugular vein by means of the stethoscope, denoting extreme blood impoverishment. The blood indeed is so poor as scarcely to stain white paper.

The temper has become morose, greatly altered for the worse. The cast of features is peculiar, with an extreme expression of suffering and misery, and gloomy apprehension.

The skin is harsh and dry, and the intestinal functions irregular, whilst the usual periodical changes are greatly in excess.

The nervous system is very irritable. The least surprise occasions a general flutter, agitation, and sense of distress.

She was most reluctantly induced by her friends to submit to further treatment; but being convinced that her varied and severe symptoms all sprang from one cause, poverty of the blood, depending on rapid overgrowth, over work, and the continuance of exhausting changes, I promised alleviation if she would agree to the measures proposed. The diet was regulated; the body

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fomented every night, the skin thoroughly stimulated by friction with soap and water. Alterative medicines night and morning, to correct the secretions and cure the marvellously encrusted tongue, and then liberal doses of chalybeate medicines, answered every purpose. At the end of a month, half the crust had separated from the tongue, and the other half not long afterwards. She acquired a most brilliant complexion, without a trace of the former livid appearance, or dejection; and this state continued permanent for two years afterwards, and so long as I have had tidings of her.

The liver and stomach are connected by so inseparable a sympathy that chronic disorder of the former is, nine cases out of ten, associated with derangement of the mucous membrane of the digestive receptacles. To enumerate, therefore, all the symptoms of a chronic "liver complaint," would require the relation of those of indigestion—which is called the protean disease. Chronic inflammation of the liver is a vague term which is used to denote induration, schirrus, tubercle, hypertrophy (enlargement), atrophy (wasting), and other opposite conditions: accordingly the term "liver complaint," which is used to denote all these, refers to a host of peculiar symptoms; and of these the most prominent are, as regards the liver—

A dry skin, sallow countenance, foul disordered tongue, occasional bilious attacks; pain in the region of the liver, increased by excitement, pressure, or sudden movements and peculiar attitudes; dragging sensations—pain in the right shoulder, greater ease in reclining on the left side; disordered internal evacuations, deposits of a urinary character, pink stains, high colour, scanty secretion from the kidneys. In some few instances, profuse perspirations set in—

But as regards the stomach and nervous symptoms—

Loss of appetite, distension, fulness, weight, heat, eructation, acidity, oppression, pain, slow digestion—perhaps retching, irregularity of the intestines, flatulence, colic, impaired memory and in-

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telleet in general, uneasy and indescribable sensations, low spirits, listlessness, headache, stupor or dulness, specks floating before the eyes (*muscæ volitantes*), spectral illusions, unaccountable fear, &c.

It is in these mixed cases that medical opinions are so often found to vary. One declares perhaps "it is all the stomach," another that the liver alone is at fault. It is a true case of "liver versus stomach." Judging from my own observation, and the reasoning formed upon the rich store of facts recorded in medical literature, I venture to assert my opinion that "poverty of the blood" is a latent cause of many of these disputed cases: they are often a true *questio vexata*; and the satisfactory results attained by treating them appropriately under this point of view—invigoration of the blood, and strengthening the whole system—appear to be no small confirmation of the opinion advanced.

CASE XIX.

I was called to visit H. W., in consequence of the extreme obstinacy of her disorder, which had resisted a variety of medical treatment by an eminent practitioner. She suffered from excruciating pains in the region of the short ribs. Two years previously she had been treated for pleurisy, and since that time the pain had remained exceedingly troublesome. Extreme general debility, *intense and constant indigestion*, violent palpitation of the heart, difficulty of breathing, loss of strength, violent attacks of colic, small rapid pulse, (no emaciation) alabaster death-like paleness over the features and general surface; an aggravation of nearly all the symptoms by the use of any kind of medicines; such were the complicated difficulties of disordered sympathy and poverty of the blood.

On the first examination I suspected chronic inflammation, as the result of acute inflammation, with adhesions of the serous surfaces; but, on further watching

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the symptoms, I no longer doubted. The whole appeared referable to the general blood disorder. On this conclusion the remedial measures were based. Notwithstanding the apparent disagreement of the medicines I adhered to the same plan—small doses of tonic medicines of the very mildest description were cautiously administered, and as she could bear them; the doses were gradually increased and changed for active blood remedies. By this plan, together with attention to the functions of the skin, and a regulated diet, she gradually rallied, and in about two months attained a healthy appearance, with a complexion so clear and rosy as to excite my surprise. The symptoms vanished one by one, under the potent influence of invigorating blood. No case could more satisfactorily demonstrate the universal degeneration of health kept up in the triple systems of life by the degenerated condition of the circulating fluids.

The nervous diseases which spring from the sympathetic powers of the nervous system when its energy is depressed, are of a most extensive character. No one can doubt that defective nourishment of the brain and other nervous centres must produce an injurious and aggravating influence upon such derangements. We witness it in the effects of slow starvation—incoherence, delirium, fantasies, and, in some, insanity, herald the closing scene. Now, in poverty of the blood, which is as it were a chronic starvation of the system, nervous disorders are liable to assume a great intensity. Thus the very weakness of the system favours the tendency to excitement and irritability. The paroxysms of epilepsy—those storms of the nervous system—often become more intense as the system becomes more reduced. And the thousand forms of hysterical disorder and nervous complaints—fidgets, fancies, phantoms, fantastic conceits, fickleness of disposition, and fearful-

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ness of mind, are all more or less increased, or aggravated by a reduced condition of the blood.

The nervous state, in extreme cases, is often characterised by the following symptoms of depressed nervous energy—

On the slightest occasion—a startling surprise, giddiness; death is groundlessly apprehended; absurd fears of having committed some grievous wrong, or of actually committing it. The moral perceptions are deranged. Timidity, anxiety, palpitations, tremours, difficulty of breathing, faintings, loss of recollection, blushings without evident cause; sensation of cold water running on the skin; twitterings or vibration in various parts of the flesh, small spasmodic actions, frequently renewed, twitchings, strange movements, rising of a ball in the throat, difficulty of swallowing—a sudden sensation of choking, unsteady sensation as through walking upon water; sinking down into the earth. Frightful dreams. Hysterical fits, &c., &c.

These cases sometimes terminate in mania; but the symptoms above enumerated by no means complete the description of the nervous state, which is seen in its full intensity in delirium tremens, a disorder brought on by over anxiety, and by excessive drinking of spirituous liquors, and abstinence from solid food.

With the reduced state producing low spirits is often associated a surprising defect of memory. We cannot doubt that the memory, though a mental act depends upon the health of the brain. Nor can we suppose that its functions can be vigorously discharged without certain conditions being satisfied. I have seen a full blooded red faced individual in the plenitude of health, faint at the sight of a surgical operation. For the moment the brain is, in any way, deprived of a certain amount of blood, unconsciousness takes place. If now the system be ill supplied with the vivifying fluid which is the “life of the flesh,” the brain cannot act with a sustained energy. And if at the same time the blood is poisoned by the absorption of bile, or by retention of the material intended to form bile, it is not surprising

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that loss of memory and morbid ideas should be the symptomatic results. The bark or grey matter of the brain is considered to be the chief seat of the intellectual energy, and a very uninvigorating blood is incapable of maintaining its vigorous action.

It is a very singular law, however, that the most opposite symptoms can be displayed by the protean disease of which we write. The brain especially may be as excited from inanition, from imperfect sustentation, as from inflammation. In the following case, all the signs of disordered secretion with poverty of the blood were present. Apoplexy had been thought imminent by an eminent practitioner, and powerful saline diuretic lowering remedies had been largely exhibited with an increase of all the symptoms. Cupping at the back of the neck had also been resorted to.

CASE XX.

*Intense giddiness. Violent throbbings in the head.
Gigantic obesity. Melancholy. Dreaded apoplexy.
Difficulty of speech.*

I took very careful notes, dictated by this patient so soon as he was able to give me an intelligible account, and from his statements I gathered the following particulars:—Mr. R. is an artist, weighing twenty-three stone. He has worked hard, lived well, and “enjoyed his evenings.” He is feeble, agitated, tremulous, and under a profound dread of apoplexy, which has been feared by his medical adviser. Treatment adopted with this view has aggravated all his suffering. He is now constantly giddy in all positions; whether standing, sitting, or reclining. His mind seems utterly prostrated. I understand him with the greatest difficulty from the indistinctness and thickness of his utterance. The arteries in his head and neck throb

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violently; he experiences great constriction or tightness across the eyes; he is short of breath and feels suffocating. He tells me these sensations are so acute that he often rushes into the open air feeling a maddening sensation of approaching death by choking, with very little relief. He complains of inability to fix his gaze upon an object steadily: the attempt occasions him alarming sensations as of approaching apoplexy. Throughout, he has experienced no particular pain, but a general prostration of strength. The appetite has never failed, and he has never had a headache in his life. He has been on low diet for a month.

Notwithstanding the opinion of the eminent gentleman who prescribed for him, I could not but recognise here all the symptoms of impoverished blood and retained secretions. Yet such was the alarming state of the patient, that a mistake might prove rapidly fatal. To treat him for poverty of the blood, if really suffering from the opposite state, would have been the height of folly. Examination of all the symptoms convinced me I was not wrong. I directed my whole attention to the improvement of the general health, enjoined exercise, a good diet, baths, and invigorating medicine, and I had the happiness of seeing him gradually get rid of all his symptoms, and as he regained his health he gradually become less stout. He lost eight stone, was reduced to fifteen stone, and has not varied more than a pound during the last five years.

A somewhat similar instance came under my notice not very long before this period which will strengthen the views here advocated. As, however, there seemed to be no derangement of the liver nor despondency, it will properly serve only to exhibit the violent head symptoms, sometimes associated with poverty of the blood.

CASE XXI.

Supposed inflammation of the brain. Intense poverty of the blood.

I was called to give my opinion in Derbyshire in the case of a young school mistress, H. M., who presented the following symptoms :—I found my patient in a great state of excitement, with violent pains, heat, and throbbing of the arteries of the head and neck; eyes glittering, intolerant of light, dilated pupils, skin hot, general feverishness, rapid weak pulse. I ascertained, however, that there were frequent relapses into a state of exhaustion, on arousing from which she lay gasping for breath like one dying. That she had been overworked, her energy had been overspent in a large school, with deficient exercise and sleep. In spite of her excited state, and the heated condition of the head and flushed countenance, I detected the most unmistakeable signs of an intensely reduced condition of the blood. Her friends had sent for me, being adverse to the proposed reducing measures, leeches, blisters, &c., recommended by her medical attendant. I forbade their application, entirely acquiescing in these views; ordered soothing treatment, good diet, perfect rest, and in two days put her upon liberal doses of steel. Without any other treatment she recovered from an intense pallor, assuming a most blooming appearance in five weeks time from the date of my visit, and resumed her occupation.

Depressed nervous energy may, as we have attempted to show, spring from a variety of causes; but there is one cause in particular which is worth alluding to here—I mean the long continued absorption into the blood of the essential oil of *tobacco*, which, though it is not equally injurious to all, does produce very serious distress in some persons, especially when their constitu-

tion is in a very susceptible and debilitated state. This oil is of a very subtle nature; it contains a peculiar narcotic, *narcotina*, more potent than morphia, and it has a specific influence on the action of the heart. Dr. Copland saw half a drachm in infusion prove fatal. Dr. Prout states that, it disorders the assimilating functions in general, and that some poisonous principle is generated by its use is evident from the cachectic looks, and often from the dark, and greenish yellow tint of the blood of great smokers.*

We see in a "coloured" meerschaum pipe, the penetrating action of the dark oil of tobacco by the mere contact with a small surface. In the same way, the hourly and daily contact of the oily vapour of tobacco with the mucous membrane occasions in time a considerable absorption, as we know by its constitutional effects. The *narcotina* acts as a powerful depressant, in time, upon the nervous energy, weakens digestion, interferes with the proper nourishment of the blood—and, at length, in certain cases, overclouds the mental power with a peculiar lethargy. Even inveterate snuff taking produces in some, severe and peculiar dyspeptic symptoms, and, "I have more than once," says Prout, "seen such cases terminate with malignant disease of the stomach and liver," Several singular cases have come under my observation; but the utter despondency which sometimes characterises depressed nervous energy and poverty of the blood, is strikingly demonstrated in the following instance.

* A tobacco poultice laid on the chest has caused death. A tobacco leaf spread over the region of the heart sometimes lowers its action remarkably. Injections of tobacco tea, used for hernia are dangerous from their tendency to stop the action of the heart altogether. Sir B. Brodie found that injections of tobacco thrown into the rectum of an animal paralysed the heart. A young man who smoked two pipes for his first essay, almost died from this cause. The expressed juice of tobacco applied to the head of a boy killed him in three hours and a half—PEREIRA.

EXCESSIVE SMOKING.

CASE XXII.

Intense depression. Contemplated suicide. Incapability of following any occupation. Immoderate tobacco smoking.

Mr.———has a very wild, excited appearance, alternately with expressions of gloom and despair. He complains of general debility. His aspect is that of an invalid suffering from poverty of the blood, and torpid secretions. He has not indulged in intemperate habits as regards fermented liquors, but has indulged immoderately in smoking tobacco. He declares his general state of mind and body is so insupportable in distressing sensations of depression and incapacity for the duties of life, that he often finds himself meditating self destruction.

I considered this a triple disorder—of poisoning by the essential oil of tobacco; of an impoverished condition of the blood, and obstructed secretions. On these grounds I promised him relief. The perspiratory functions of the skin were thoroughly excited, the secretory torpor obviated, the diet regulated, the blood invigorated by appropriate tonics, and though circumstances prevented his remaining at Harrogate more than a fortnight or so, he regained his health perfectly, continuing the treatment at home; and I heard the other day from his uncle that his health and spirits continued excellent.

In the nervous state, peculiar nervous habitues may be indelibly impressed. Sudden fright doubtless produces, in some instances of great susceptibility, very grave consequences, and that which was at first brought on by violence, may afterwards be recalled by association of ideas. Disordered sympathy is sometimes a key to extraordinary phenomena. “A very healthy girl born

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of sound parents who had never had epilepsy, was seized for the first time upon having her soles tickled by some girls who were at play with her, some of them holding her fast upon the floor, to prevent her avoiding the intolerable sensation. The head had never been hurt; but by the extreme nerves being titillated, they retained an impressed disposition, which ever afterwards renewed the epileptic seizures upon comparatively slight occasions; for if she happened to see any one threatening to tickle another, she immediately fell down epileptic; and the paroxysm was likewise renewed from slight anger, fear, or mental attention protracted longer than usual."

Epileptic seizures vary from the most transient and momentary state of losing consciousness to a prolonged fit of insensibility with convulsions, foaming at the mouth, blackness of the face, biting the tongue with clenched teeth, &c., &c. The former has been denoted "Le petit mal," by the French writers. I shall only give one case illustrative of this part of my subject.

CASE XXIII.

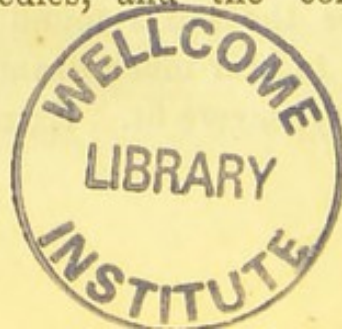
Epileptic fits in a delicate boy. Poverty of the blood. Scrofulous constitution. Long unsuccessful treatment at Hull. Recovery from blood invigoration, &c.

During the last six months a young gentleman has been attacked very alarmingly with severe fits; some of them lasting many hours. Several fits often happened in one day; and he has had nearly seventy attacks. A large permanent scar has been made on the right temple by long continued irritation of a blistered surface, kept constantly open for three months. Being called to see the lad I found him greatly exhausted, too weak to bear much examination. He had had a long and very severe fit. Extreme pain is occa-



sioned by pressing the region of the stomach and liver. And he complains of so much anguish there that I refrained from putting him to any torture. He said the pain, if increased, brought on the fits. Fomentation ordered and a simple aperient. The next day my suspicions were entirely confirmed, the alarming pain and tenderness were found to be owing to spinal irritation. The root of the epileptic seizures lay in the spinal cord. Leeches were applied to the affected part. The open blister was allowed to heal. And as the boy was evidently suffering under great general weakness, dependent on poverty of the blood and a scrofulous habit, I ordered him cod liver oil and quinine and iron three times a day, and some Gregory's powder alternate mornings. Under these simple measures he rallied apace. He had one slight attack within the next fortnight. His complexion, formerly sallow, pale, and delicate, became ruddy and healthy. He grew very fast. All the fits ceased, and I hear that he is completely restored by these simple measures.

In this case the immediate cause of the horrible convulsions, was disordered sympathetic action, excited in a low state of the nervous energy, by the affected spine; nervous irritation being the most common cause of epilepsy. At the same time, the scrofulous taint, fastened upon the delicate spine, kept up the spinal irritation; whilst the generally enfeebled constitution, dependent upon poor blood, was unable to institute a curative process. From these combined causes, the fits, until these points were attended to, maintained their tenacious grasp. On the other hand, the prompt relief and the rapid alteration in the boy's health, animation, and appearance, give evidence of the suitability of the remedies, and the correctness of the supposed causes.





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