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AN

APOLOGY FOR THE NERVES:

OR,

THEIR INFLUENCE AND IMPORTANCE

IN

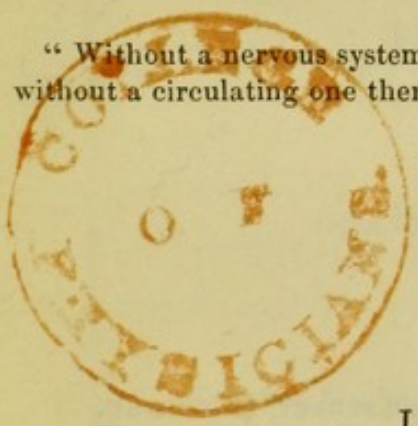
HEALTH AND DISEASE.

BY

SIR GEORGE LEFEVRE, M.D.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS,
LATE PHYSICIAN TO THE BRITISH EMBASSY AT THE COURT OF
ST PETERSBURG, ETC. ETC. ETC.

"Without a nervous system there is no animal,—there can be none; without a circulating one there are myriads."—*Dr Macculloch on Fevers.*



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TO

BENJAMIN TRAVERS, Esq., F.R.S.,

&c. &c. &c.

TO WHOSE FRIENDSHIP

THE AUTHOR IS INDEBTED FOR THE OPPORTUNITY

OF

VISITING THE GREATER PART OF EUROPE

AS A TRAVELLING PHYSICIAN;

AND OF SUBSEQUENTLY PRACTISING HIS PROFESSION

DURING A PERIOD OF FOURTEEN YEARS

IN THE CAPITAL OF RUSSIA,

THIS VOLUME

IS

GRATEFULLY INSCRIBED.

London, *October* 1844.
60, Brook Street, Grosvenor Square.

PREFACE.

If "The Travelling Physician" has been censured by his professional friends for omitting all medical topics in the account of his Rambles, he is at least willing to make the *amende honorable*, by the present endeavour to supply the omission.

In the physiological part of this work he has condensed the labours of others into a small compass; and in the pathological, he has stated the results of his own experience in a northern latitude. He is doubtful whether this will be worthy of his brethren's acceptance, seeing that the human race is, with few exceptions, every where subject to the same diseases, and that the treatment of these is pretty generally conducted upon the same plan, at least in those countries in which he has sojourned. He has introduced some peculiarities of the German school, both as regards the *modus medendi*, and the choice of remedies.

Goethe has said of book-makers—

> "Sizt ihr nur immer! Leimt Zusammen
> Braut ein Ragout von andrer Schmaus."

Nor is it difficult by gluing together, and collecting

the fragments of others' labours, to add another volume to shelves already groaning under their heavy loads.

As regards physiology, opinions fluctuate as much in this branch of science as they do in chemistry,—nothing seems stable for any length of time. To reduce a matter to the test of experiment is much more easy than to reduce it to the test of truth. After the sacrifice of hundreds of animals to establish the validity of some favourite theory, it is objected to the experimentalist, that his deductions are fallacious, and then more life is sacrificed to prove that he was wrong.

There is at present a leaning towards the re-establishment of old doctrines. In the blood we are again to recognize all those vital phenomena which Hoffman and his disciples could not find upon making a diligent search for them, and when the more delicate and beautiful system, founded on the influence of the nerves, triumphed over the gross and peccant humours of Boerhaave. The importance of the blood in the animal economy is one of those self-evident truths which require no farther confirmation. If it be not the "life thereof," it is the food of life; but be it remembered, that without the influence of the nervous system, it loses all its powers and its vitality, which latter is rather borrowed from the nerves than inherent in the blood; and although this fluid is essential to the well-being of the nervous system, yet it is formed through the instrumentality of the latter; for blood is

not blood indifferently to the animal in which it circulates; it must be of the same kind, and elaborated by one of the same species. It is formed from chyle, by the conjoint aid of chemical and nervous agency, which must be in due force to prepare it properly, and without which its nutritive powers are insufficient for the purposes assigned them.

It is usual to speak of the blood as of a viscus, which has existed in the same state from the commencement; the one waxing merely in growth, the other in quantity. Now the blood is ever changing, never the same; at no one hour of the day is it the same in the body, either as regards its quantity or its quality.

Even in a healthy state, the fibrine, the albumen, the red particles, the serum, are never for any length of time in the same proportion to each other; but when disease manifests itself, the changes become very apparent. The fibrine is in excess in inflammation, and in acute rheumatism it is found in triple proportion to what it is in health.

The red particles abound in plethoric habits, and are deficient in the leucophlegmatic.

The serum increases in the same ratio that the solid parts diminish, and its saline particles are not constant in their proportions.

It must be a stumbling-block to the humoral pathologists, who attribute all disease to the state of the blood, that the latter is never in its normal state in

the pregnant woman, although she may enjoy the best of health during the whole period of gestation.

It is asserted by those even who strenuously maintain the vitality of the blood, that the red particles and fibrine alone enjoy this advantage, which is denied to the serum; yet the latter is as essential to the constitution of the blood as either of the former; for when the serum is expressed from them, what becomes of their vitality?

Extraneous, adventitious matters may be mixed with the blood, but they do not stand in the same relation to it as the serum, which is part and parcel of it.

If the blood be vital, it is so throughout; but we lean to the opinion that it borrows its vitality from juxtaposition with the vital solids, as iron becomes magnetic within a certain distance of the magnet.

It may be wasted to almost any amount, and be reproduced by the nervous power working upon fresh materials. The delicately framed parturient woman, whose requiem was all but sung (life having seemed to ebb away), shall rise triumphant from her couch, when the prick of a thorn or splinter, injuring a nerve, shall prostrate the athlete not to rise again.

The blood holds a most important place amongst the vital organs, if it can usurp this title, but it does not hold the first place. To it the muscle owes its power, the nerve its tone; from it all the secretions are prepared; but it does nothing of itself; all depends upon its vitality, which it derives from the nerves.

In the further consideration of the subject, we shall endeavour to establish its full claims physiologically and pathologically, not endowing it with properties, nor attributing to it intelligence, but giving it its due rank in its triple alliance with muscle and nerve.

"The Travelling Physician" sought protection under the authority of a *sliding scale* for changes in opinions during twenty years of his life; and as he is well aware that a similar scale is applicable to every branch of science, he cannot but feel that a long exile may not have permitted him to keep pace with others in noting the all but daily discoveries that have been made in physiology. But if he has not learnt all that has been done at home, he may comfort himself with the idea that he will have less to unlearn. How much has proved ephemeral in this short space of time!

Sir Charles Bell's respiratory nerves had a local habitation, and a name, in anatomical text-books and manuals. They have been erased from subsequent editions of the same works.

Poisons were proved, as far as experiment can prove anything, to be introduced into the system by means of the blood.

This doctrine was set at nought by other experiments still more conclusive than the *experimentum crucis* of Magendie. Dr Addison and Mr Morgan maintained that the nerves alone were the operating agents, and that too upon the undeniable test of experiment.

Other physiologists again maintain that there was fallacy in these proceedings,—the old story,—and the general opinion seems to be in favour of absorption into the blood to account for the effects of poisons on the system.

What are we to think, then, of the nerves,—to hear once more of a nervous fluid, visible, ponderable, palpable, expressible from tubes, when the idea of this structure has been rejected, reviled, and proved fallacious, for nearly a century. If those who think they have arrived at the top of the tree find that they have again to descend to the bottom, the Author will have less cause for reproaching the frost and snows of Russia, which, if they prevented him from climbing so rapidly as he might have wished, may, at least, have had the merit of lessening the height from which he might have had to fall.

London, *October* 25, 1844.

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ERRATA.

Page 16, line 14, for *plusquam*, &c. read *Hominem, non ut a matre sed a novercâ natum.*
76, .. 15, .. *Me Hercle* .. *Mehercle.*
132, .. 23, .. their .. its.
156, .. 26, .. rebel .. able.
157, .. 14, .. effort .. effect.
161, .. 6, .. proves .. prove.
200, .. 24, .. qu'il, &c. .. qu'il dit à la cigale.
277, .. 23, .. La, &c. .. La manière anglaise a triomphé.
295, .. 9, .. into .. in.
353, .. 14, .. conglometion .. conglomeration.

AN

APOLOGY FOR THE NERVOUS SYSTEM.

PART I.

Introductory—Brain and Nerves—Respiration—Animal Heat.

INTRODUCTION.

THERE has been for some time a leaning of medical opinion to doctrines which were exploded, because they were considered as untenable. The *coup de grace* was supposed to have been given to the humoral pathology, and the views of Hoffman were adopted, and flourished on the spoils of Boerhaave.

There is in all sublunary things a principle of propulsion, and one of retrograde movement. It is seldom that the machine makes a dead halt for any space of time; if it do not go a-head it falls back. Some allow themselves to be carried down the stream, finding that they can make no head against it,—a sort of voluntary compulsion. Thus, even at the present time, and in the light of day, some anti-vaccinators are to be met with, here and there, who glory in every case of small-pox, if it succeed to vaccination, and

look forward to the re-establishment of Variola as to a medical millennium.

When it was observed by the political adversary of a certain premier, that he was a drag-chain to the coach, it was retorted that, but for this check on its speed, the vehicle would topple over. It is justifiable from time to time, to look at the foundation of systems upon which so much reposes.

When the late Dr Armstrong published his work on fevers, it was hailed by the pupils, and by the junior members of the profession, as a Newtonian system of medicine. The treatment of fevers became a matter of certainty. It was a plausible and specious composition, which caused the most bitter disappointment to those who put his plan of treatment into practice. The author himself, previous to the termination of his career, much modified it. This popular production savoured of the humoral pathology, and has imparted this odour to many subsequent effusions. The snake was only scotched, not killed by Hoffman, if we may judge of the attempts to twist itself into life again, which it is at present making. There is nothing extraordinary in this. It is the fate of all systems which have less than mathematical demonstration for their basis, and such evidence has never been claimed by the professors of the healing art. The greater the excitement, the greater will be the reaction;—the collapse follows. It has been too prevalent in founding a new system to sink the old to the bottom, whereas much valuable matter is to be picked from a stranded wreck. There is always something good in what is old, and it savours both of ingratitude and

of prodigality not to retain what may be serviceable. It is plausible to talk of laying the axe to the root, but we should be sure that we have planted a better tree before we fell the old one. Lopping and pruning would often stand us in better service. How much do we lament the ill considered zeal of our ancestors in defacing our ancient places of worship! When John Knox said that the only way to prevent the rooks coming again was to pull down their nests, he was thought, no doubt, to have said a very witty thing, and told a very plain truth; but both have proved equivocal, and the rooks are again congregating and trying to repair their old nests, and the chisel and the trowel are busy in restoring those works which Cromwell's soldiers and horses so cruelly mutilated.

If we could see into futurity, we should often spare ourselves much trouble. If we could be convinced that time changes all things, we should not be so precipitate in our actions, but trust more to its influence; and what is more important, we should avoid reaction. Sweeping reforms introduce conservative principles, which merge into restorative, and these again threaten the return to the original sin. In the medical, as in the religious, world, these changes are ringing, and teachers are at work to re-establish the doctrines which once were law in the school of Leyden. If these had been more carefully examined and sifted, they might have been reformed without being wholly rejected as untenable.

"The conjecture of the old humoral pathologists was not altogether wrong as to the existence of acrimonies in the blood; but they committed an error in sup-

posing them to be the cause instead of the effects of the disorder."

In the present observations which I have to offer upon these important matters, it is not intended to trace through the whole system of physiology the importance due to the nervous system, but to reproduce some of the most striking features which present themselves to notice in considering the relative value of the three great vital powers.

THE NERVOUS, THE MUSCULAR, AND THE SANGUIFEROUS.

If the offices consigned to the first be dispassionately considered,—if the weight of duty allotted to it be borne in mind,—if the importance of its functions, upon whose due performance the physical is connected with the moral man, be duly appreciated, there can be no hesitation in assigning it the first claim to consideration. In a state of health and tone we recognize its powers in the perfection of the five senses; the smallest derangement of its minutest organization is accompanied by imperfect communion with the external world in any of these five modes of relationship. The division of a little chord, finer than the most delicate lute-string, shall prevent the eye from seeing, the ear from hearing, the tongue from giving utterance; nor shall there be aroma in the rose, nor smoothness to the finger's touch;—all shall be dead without,—and then the inmost soul shall wither, pine away, and die. Its importance over the vital and

animal functions equally preponderates. The division of two small chords shall suspend respiration; and circulation is so dependent upon the duties of this function, that it soon ceases afterwards. In the processes of digestion, assimilation, and secretion, there is equal evidence of its prior claim to consideration. It is not so easy to test it in these latter operations by mechanical lesion as in the former; but pathology affords us the same conclusive evidence; and another power, of which at present we have but imperfect notions, but which offers us much that resembles the nervous, makes that evidence still stronger. Thus the nerves, which preside over digestion, may be subjected to test; and when, by division of these, this function is suspended, it may be renewed by the substitution of the electric fluid.

Moral causes come to our aid in affording us proofs of what secretion owes to the nerves. The eye, lubricated by the effusion of the lachrymal gland, shall be deluged with tears, or roll burning in its socket, as the mournful tale or worked-up frenzy shall operate in augmenting or suspending this secretion.

The kidney's functions are increased by nervous irritation; paralysis of the nerves, which are destined to them, as we witness in Ischuria Renalis, suspends their action, and speedy death ensues.* Thus, the vessels to honour and dishonour testify to the truth of the assertion that the nerves are paramount, and it would be waste of time to multiply instances in corroboration of the fact.

As the lord of the vineyard would gather no grapes

* The ancients preserved their tears in little vessels,—*Lachrymalia.*

nor press any wine without labourers at his disposal; but as, under his command, one prepares the ground, another plants the vine, while a third prunes and a fourth waters, and all is perfected in due season, so we should find the nerves to hold a broken sceptre, but for the agents which are in readiness to conduct the operations which they control. These are supplied by the muscles. What variety do they assume in their forms and disposal, not less so in their functions. The brawny deltoid of an *athlete*, the smallest fibre, stretching and relaxing the tympanum, are of one and the same structure. The sloth mounts his ladder step by step, as he lays hold of the branches with his claws,—the sky-lark soars to the clouds by one and the same means. There is a directing power; but this would avail nought if the instrument of obedience were not perfect in its kind. There are the bones and ligaments, which seem to have been rather too much neglected by the exclusives. The little round shot of the fowler's gun brings down the tenant of the air a humble suppliant to the ground; the muscle no longer obeys the nerve, because it can no longer rely upon the integrity of the bone. How the web is woven,—break but a few of its meshes, and the captive fly defies the spider still.

The scratch of the lancet, which shall distort the eye and render expression hideous, shall also make that seemly which was before a blemish in the features. The twig of a twig is only implicated in this performance, but it is muscle or its terminating extremity which is the subject of experiment. "The nerves of expression" is a term somewhat in the

usurper's style. Those which direct it would be less equivocal, for they surely can of themselves express nothing by themselves. The satirist Rabener relates the history of a lawyer, the skin of whose face was so thick that he was never seen to blush.

In the performance of all the different functions alluded to, we recognize as fully the co-relative aid of the muscular power to the performance of function, as of the seeming primo-motor. Where fibre is not demonstrable, function proves its existence; and this, in some instances, in an inverse ratio with its palpable operative; but, as Fontenelle observes, we have very bad eyes.

Let us return to the vineyard, whose lord has hired labourers. He visits his garden, and no man is at his work,—all are prostrate, exhausted, unable to labour. He is angry; and yet, by the appearance of things, the men have not been all the day idle. He calls his steward to explain, for none to whom he addresses himself hath power to speak; and the steward replies, that since they have been in his service, they have tasted neither of food nor drink; and that they have gradually grown weaker and weaker, till they have fainted away. Then the lord recognizes his fault and his impotency, and he orders to each a small portion of wine; and as each begins to revive, the portion is increased; and, after a certain time, the men are again labouring in the vineyard.

Now, he who would forbid the "banns between flesh and blood," as the author of Spasm and Palsy, &c., &c., intimates that some are inclined to do, must take but a very narrow view of things, and place

himself in the situation of the improvident lord of the vineyard.

This is precisely the case with the blood, which (whatever importance may be assigned it in the animal economy) is more a product of other organs than an organ itself.

The horror which nature is said to have of a vacuum is not greater than that which many physiologists had of attributing vitality to a moving fluid. Yet, as many horrors have been overcome, this also is one which has died away without producing any great convulsion in nature. It has amalgamated itself with those wonders of which Lucretius speaks in such energetic language:

> "Nil adeo magnum, nec tam mirabile quidquam
> Principio, quod non minuant mirarier omnes
> Paullatim."

It is said that the clot of blood becomes organized. The fibrin poured out in inflammation, in a semi-fluid form produces false membranes, which subsequently become organized. Müller has placed the matter in its fairest and most intelligible light. A few extracts from the division 6, p. 152, will suffice:—"To regard merely the solids as living is incorrect, for there are strictly no organic solids; in nearly all water constitutes four-fifths of their weight. . . . . Although, then, organic matter generally be considered as merely susceptible of life, and the organized parts as living, yet the blood also must be endowed with life, for its actions cannot be comprehended from chemical and physical laws.

The blood is not the only living fluid, as Spalan-

zani's experiments long ago proved beyond all controversy. "The blood manifests organic properties; . . . there subsists between the blood and the organized parts a reciprocal vital action, in which the blood has as large a share as the organs in which it circulates."*

In the important share which the blood has in all the phenomena of life, we have no evidence of its being influenced by voluntary power after it has been effused. It is then the *rudis indigestaque moles*, nor is design traceable in its actions unless it come in contact or relation with more formative powers; it is *false* membrane only which it produces; it is no longer the organ of thought or will. The blood is the food of the system; and, as functions are annihilated or suspended by an excess or deficiency of nutriment, as they are deranged by adventitious noxious ingredients mixed with the wholesome provender, so are the nerves and muscles annihilated functionally by precisely the same circumstances, as regards the quantity and quality of their food, which is the blood.

This, too, not only as concerns its constitution in the same species, but in its influence upon animals of different kinds, for it is found, by transfusion, that the blood of an herbivorous animal will not support the life of a carnivorous one, whereas the blood of two animals of the same species may be exchanged with impunity.

The nerves and muscles must form the blood which can alone invigorate them. Here, then, we come at once to the dependencies of the nerves, muscles, and blood, upon each other; and it is in vain to attempt to isolate them in their mutual influences. They are

* Müller's Physiology.

collaborators in all the functions of life, but they are not co-equals.

As futile would it be to attempt to separate mind from matter in our present state of limited knowledge; yet matter is not mind, nor is muscle will, nor blood life, nor brain thought, yet these are to life what matter is to mind.

We can substitute excitement, which shall rouse irritability in muscle and nerve, but was mind ever supplied by galvanism? The human species may possess a higher power than the rational; for this is not to be denied in many of its functions to the brute.* Instinct is common to both, nor sufficient for either. The Vicar of Harrow, in his "World without Souls," has put to nought the satire of Monboddo, "that men are monkeys with their tails rubb'd off."

BRAIN AND NERVES.

In contemplating the organ of the brain, the care which nature has taken, and the provision which the God of nature has made for the preservation of this most beautiful structure, we have ample evidence of its importance. We are reminded of the parallel which Paley draws between human and Divine works; whereas, in the former, there is ever an aim to approach what they never reach, viz. perfection; so, whatever proceeds from the hand of the Creator is so perfect in all its parts, whether in great things or

* Les animaux deviennent fous et enragés. S'ils n'avaient point de raison pourraient-ils la perdre?—*De Weiss.*

small, that all the combined efforts of human skill could not make the slightest improvement. The organization of the gnat is as complete as that of the camel, nothing is forgotten, nothing omitted in all the infinity of creation.

In examining the bony receptacle in which the brain is placed, we find the wall built up the strongest where it is most liable to injury from accidental causes. Its spherical shape is also a great safeguard. Triple membranes cover the convolutions, the external and strongest of which dips down and separates the hemispheres from each other, and, expanding below, places a shield between the great and little brain. These membranes prevent the pressure of the two parts of the organ upon each other.

In the arrangement of the vessels, every care is taken that the circulation should meet with the least possible impediment, so that congestions of blood, so detrimental to its functions, should be avoided; and as the vessels themselves are of more delicate structure than in other parts, and are bent at their entrance into the cranium, the impetus of the blood is thus diminished. The same care is taken of that part of the brain which is lodged in the spinal canal. This is surrounded by thick layers of muscles, and on its dorsal side the spinous processes of the vertebræ form a *chevaux de frise* for its defence. In mass the brain is the largest organ, with the exception of the liver, in the whole body; and in the human subject, as regards its surface, is more extensive in proportion than that of any other animal.

It is not intended to enter into its minute anatomy.

In our dissections of this organ, we must feel disappointed at our ignorance of the functions of its different parts; but we cannot but admire its beautiful and delicate structure, and an instinctive feeling would lead us almost to exclaim, If mind can emanate from matter, here must be its seat. Minute dissection has done much of late years towards the better knowledge of the functions of its different parts. Its fibrous texture, insisted upon by Dr Gall, and now generally recognized as correct, clears up many of the difficulties which before presented themselves in some of its diseases, and a more wonderful effort still remained to unfold its double structure. In this the wisdom of the Creator is not more apparent than his goodness, which is here lavished with unbounded hand. To the moralist, as to the physiologist, this proves of the greatest importance in clearing up so much mystery in the history of its functions.

The weight of the brain is estimated by Dr Sims at 46 ounces in the adult. Dr Elliotson estimates the spinal chord at 1½ oz., and the nerves a few ounces more; so we may state the nervous system of the adult to weigh 50 ounces. Dr Macartney declares he has ascertained the real nervous substance to be so inconsiderable, that he thinks "it is perhaps not assuming too much to suppose that the whole nervous system, if sufficiently expanded, would be found too tender to give any resistance to the touch, too transparent to be seen, and probably would entirely escape the cognizance of all our senses."

Besides the brain and nerves, there is a third system

named the ganglionic. It has been a matter of controversy, whether the spinal chord issue from the brain, or the latter be a termination of the former. Some anatomists have asserted that rudiments of the chord are found in the embryo before any trace of brain can be discovered. It is now generally admitted that neither the chord arises from the brain, nor the nerves from the chord; for in acephalous fœtuses the chord exists. "We must not forget," says Dr Elliotson, "that every part of the nervous system throughout the body is directly connected with others, and indirectly with all the rest, just as every blood-vessel with regard to its system." It is maintained that the nervous system is equally diffused, equally sentient, equally perceptive, throughout the whole body.

Now these powers are not the same in the nerves and in the brain. The brain is not in the little finger, but the latter is in the brain. A circumstance of common occurrence warrants the truth of this assertion. A man feels his digitals for months after his limb has been amputated; the impression is so strong that nothing but the assistance of his other senses can convince him that he does not feel the fingers or toes, which, perhaps, he has left in another hemisphere. Perceptive sensation is in the brain, and to whatever region pain may be referred, it has its real seat in the brain. If the nerves be divided, the functions of the parts to which they are distributed cease. If the optic nerve lose its power, the eye no longer sees; deafness is caused by injury to the auditory nerves; the division of the phrenic nerve suspends respiration; the tongue is speechless when the recurrent nerves

are cut. Of the blood's vitality there is no doubt, but we believe this is imparted to it by the nervous system. This is as fully developed in the fœtus in utero as in the adult, so that its presence is as necessary to the vitality of the child as of the mother. If brain and spinal marrow are wanting, ganglia and nerves supply their place. If muscles are made to contract after the nerves are removed, it is only as long as the nervous influence is inherent in them; even after all the blood is washed out of them the same will take place for a given time.

"The vitality of the blood, its formation and transformation into the solids and fluids of the body, the capability seemingly inherent in solids and fluids of certain interchanges which they undergo by means of their reciprocal affinities and agencies, still preserving their respective homogeneity; and the resistance which collectively they are enabled to maintain against injury and disease, as well as the power of repair, are referable to their nervous endowment."—*Travers on Inflammation*, &c., p. 17.

"The involuntary functions are closely connected with the encephalon and spinal chord, for the sudden destruction of these parts, or of a certain extent of them, puts a stop to the circulation;"* and is this not a full stop?

It is not the question of one part of the nervous system or one system of nerves, but of nervous structure; and there is no instance on record of any abortion, where physical structure in the shape of

* Dr Elliotson.

brain, nerve, or ganglion, is wholly absent. The most monstrous formation claims this privilege; and where brain and spinal chord are wanting, the ganglionic system has been found in excess of development.

"The heart never exists without its ganglion, so that the cardiac ganglion, as the heart is the first organ that comes into action, is the commencement of the nervous system."*

Is not its first action dependent upon this little ganglion? and can more be requisite to prove the supremacy of the nervous system over the vital functions? In reply to the assertion that "vegetables absorb, assimilate, circulate, secrete, and, in many instances, contract on the application of stimuli, and yet are not supposed to possess nerves," it has been found that strong electric shocks passed through the pith of the trunk destroy the tree.

Although it may not be proved that vitality and nervous influence are the same, yet we find them so intimately blended together in all the functions, that it is difficult to separate them. We find, moreover, that injury to the nervous system is followed by more disastrous effects than to any or all the other parts collectively.

The division of a nerve is the annihilation of muscular power.

If a sedative be applied to it, the muscle becomes inert.

The point of the stiletto dividing the spinal marrow above the phrenic nerves, fells the ox to the ground.

* Dr Elliotson.

If the nervous power be abstracted from the blood it loses its vitality. "By the instrumentality of the nerves, the brain makes the voluntary muscles contract, influences the functions of every other part when under the operation of the different passions, and receives impressions made upon every other part."

So much in a general sense. We shall now treat of its influence more specially, but only as far as great leading and striking facts are concerned.

RESPIRATION.—ANIMAL HEAT.

The human offspring, launched into the world wholly unprovided by nature against the physical ills which surround it, seeming, as has been said of old, *plusquam novercâ quam matre nata*, is made sensible of the change in its existence by a feeling of distress, which is convertible into a voluntary instinctive effort to breathe. It struggles itself into life.

This primary effort by which organs hitherto passive are called upon to play an active part, and one the most essential to its future existence, is allowed by modern physiologists to be the exercise of the voluntary muscles; and, as the will is conveyed to these through the agency of the nerves, it must be allowed that this power is the principal instrument in the orchestra of the drama of life.

The blood, which nourished it in its dependent state, is no longer meet for the same purpose when the offspring assumes a substantive existence, nay, it is prejudicial to it, and were it not changed in its chemi-

cal characters and properties by passing through the lungs, which is effected by the first inspiration, the very struggles it makes to breathe would render it at once a *caput mortuum*.

The uses of respiration are the purifaction of this fluid, and the generation of animal heat. The first is effected by submitting it to the influence of atmospheric air, which it receives throughout the immense surface of the expanded lungs, and this process is assumed to be wholly chemical. We recognize the nervous power in this voluntary action of throwing the blood into the chemical laboratory. In the generation of animal heat we shall find the same power possessing a still greater influence. As regards animal temperature, it must be considered in a double sense, viz. in the chemical acceptation of the term, or caloric, whether free or latent, and in the nervous sense, or the sensation of heat.

The standard human temperature is 94° Fahrenheit. It is susceptible of an elevation of 14° under diseased action. Dr Elliotson states that he has found it as high as 107° under the tongue in inflammatory fevers, and in tetanus 110°. In some affections, on the contrary, there is a great reduction of temperature from the natural standard. In the Asiatic cholera the thermometer placed in the mouth did not indicate more than from 77° to 79° Fahrenheit, and the same is the average in children affected with the blue disease. In many other affections, the sensation of cold is much greater than would be warranted by the thermometric indication of the abstraction of the natural temperature. Under natural circumstances, some parts

of the body are always warmer than others. What are the principal agents employed in the generation of animal heat, and what the superintendent power? In a chemical point of view, the whole phenomenon is resolvable into the different capacities with which certain forms of matter are endowed for holding caloric; or it is attributed to a process of combustion continually going on in the extreme vessels by which the carbon of the blood is, by its union with oxygen, converted into carbonic acid gas, and, in this process, heat is evolved, as it is in the ordinary process of the combustion of charcoal, out of the body.

A host of evidence proves, that however this process may be effected, yet, as far as regards animal temperature being maintained in the system, it is the brain which has the supremacy in the direction of the function; for, were it merely chemical, the same conjunction of matters should produce the same effects, which does not prove to be the case. Sir B. Brodie's experiments afford us evidence, that although the chemical part of the process may be performed under artificial respiration, yet that the animal heat declined rapidly in all cases where the brain had been removed, and this is in perfect harmony with the powers of resisting heat and cold, which the nervous system possesses in an extraordinary degree. Dr Elliotson says, that these experiments prove nothing, and insists upon the process being purely chemical. Still, the same author adds, "This does not prevent animal temperature from deserving the epithet vital, because it is regulated by the vital laws of the system, although through the instrumentality of chemical changes." It

depends upon respiration,—true, but upon that respiration only which is performed under the direction of the nervous power. It is lost under the artificial method.

Between heat as the result of chemical action, and the sensation of heat as a nervous impression, there is a striking difference. It is allowed by those who support the mechanical chemical doctrines, that it is very difficult to account for the difference of temperature in parts of the same animal. The dog's nose puzzles them, as does the circumstance of the sensation of heat in certain diseases, bearing no relation to the real measurable difference of temperature. A range of from 10° to 14° is about the maximum of increase. Now, if we dip one finger in a basin of water at 96°, and the other at the same moment in one of 110°, the difference will be perceptible, but in a trifling degree. Under other circumstances, this elevation, nay, half of it, will be as red-hot iron to the part affected. This can only be accounted for by nervous derangement. What comparison can be made between the sensation of heat in the gouty limb and the sound one, placed, as far as temperature is concerned, in the same circumstances. The latter would hardly be conscious of the addition which causes the excruciating pain of this disease, and is a direct proof of offence in the nerves of the part affected, of which this increased temperature is a consequence not a cause. There is a wide difference between heat in its free state and the sensation of heat. In further considering the subject of elevation of temperature in the surrounding medium, and the constancy of that in the animal, we must recognize the influence of that

vital power which watches and presides over the machine which it animates.

Thus we find the body capable of resisting a temperature sufficient to decompose dead matter. Animals, as well as man, have been exposed to a degree of heat exceeding that of boiling water, and without injury; when, at the same time, a thermometer placed under the tongue, has indicated an elevation of a few degrees only above the natural standard. This power of resistance is but of short duration, for the nervous influence is exhausted by so extraordinary a demand. Chemical agents come into play, and matter is resolved into lifeless form.

As regards cold, the same law prevails, the limits are the same. However great the power may be of resisting it, as soon as the nervous energy is exhausted, the system is subject to injury.

I have witnessed the effects of cold too long endured upon the little postillions, who are barbarously exposed to it in the winter season at St Petersburg. The lads bear it for a time, as they sit on their horses, clapping their hands, and singing to keep up their courage; but this fails them by degrees, and, finally benumbed, they fall from their saddles in a state of torpor which nothing but rolling them in the snow will overcome. There is seldom a fête given at St Petersburg, in the extreme cold weather, that occurrences of this sort are not recorded. In very cold nights the sentries are frequently frozen to death, if not relieved at short intervals.

As long as nervous excitement can be kept up, the resistance of cold is very great. General Piroffsky

informed me, that in the expedition to Khiva, notwithstanding the intenseness of the cold, the soldiers marched along, singing, with the breasts of their coats open, but only as long as they were flushed with the hopes of success. Where there is nothing to excite, and where exposure to cold takes place under the common routine of parade, its depressing effects are lamentably felt by those long exposed to it. In the time of the Grand Duke Constantine, a regiment of horse was marched from Strelna to St Petersburg, a distance of twelve miles and upwards. He marched at their head at a foot pace all the way. He had well wadded himself, and smeared his face over with oil. It was the gratification of a whim to expose the soldiers to a great degree of cold. They arrived at the square before the palace, and were dismissed to their barracks. The following day one-third of the regiment was in the hospital, attacked by nervous fever, of which many died. There was no stimulus of necessity in this case, but the moral feeling aggravated the physical suffering. The soldier is much better taken care of now-a-days in Russia. Cerebral affections are a consequence of reaction when the nervous system has been too much exhausted. I have mentioned elsewhere the case of the bishop of Nicolai, who died in a few hours of brain fever from exposing himself to severe cold during the performance of a religious rite.

We find that, when the nerves which supply a limb have been divided, the temperature falls, and that it is again raised by galvanic power. Mr Earle found a paralyzed limb to indicate only 70°, the sound one 92°. By electricity the former was raised to 77°.

Berzelius adopts the opinion, that the nervous influence not merely in connexion with respiration, but in other organic processes, contributes to the production of animal heat; and Müller coincides in this idea, founded upon the spontaneous generation of heat under the influence of passion,—the sudden rush of heat to the face, which is not a mere sensation,—the increase of warmth to the body amounting to perspiration. On the contrary, the equally rapid diminution of temperature. *The coming all over in a cold sweat* is an expression of the effects of sudden fear; and sudden sensations of cold are not uncommon consequences of depressing moral emotions.

The power of maintaining an equable temperature is in a direct ratio with the health of the individual. It is greatest in youth, and decreases with age. Nervous people are peculiarly subject to chilly feelings, and we know how much more the body is liable to catch cold when exposed to drafts or currents after some degree of fatigue. It has been a very great mistake in the treatment of the insane to suppose them less susceptible of diminished temperature than those in a sound mind. It is just the reverse, those who are in this lamentable situation requiring more warmth than under ordinary circumstances. The whole of the evidence which can be brought to bear on this subject will tend to place this vital function under the most especial direction of the nervous influence; and this is not a little corroborated by the circumstance of that which approaches nearest to it in power, viz. Galvanism, being capable of exciting heat in a paralyzed limb.

PART II.

THE BLOOD.

THE name of John Hunter is as intimately associated with the properties and functions of the blood, as that of Harvey with the discovery of its circulation. The great lawgiver of Mount Sinai did not estimate it so highly, when, denominating it the "life thereof," he poured it out in sacrifice, as do some modern physiologists, who sacrifice all to it.

In following the footsteps of an idolized predecessor, we sometimes make a stride too far, and inadvertently place ourselves in the foreground; we take the lead ourselves, and pursue the shadows of objects which have been of our own creation.

It was precisely this which led the late Mr Abernethy astray, in the tribute he wished to pay to the talents and merits of this great physiologist. So anxious was he to do all justice to his doctrines, and render to him all that was his due, that he finally gave to him more than his legatees were willing to claim. When Mr Abernethy broached the opinion that life and electricity were synonymous, he did not take the merit of the discovery to himself, but sanctioned it by the name of John Hunter; whilst those who did not adopt these opinions, protested that, in all the works of that physiologist, nothing could be found to sub-

stantiate the idea that John Hunter had ever dreamt of the like in all his reveries;—not a word of shoulder knots was there in the testament.

Now, surely it is not doing justice to any author to treat him in this wise; and, attached as we are to the memory of that great physiologist, we do not consider that it is honoured by the modern school of medical Puseyites, who, under the sanction of his name, preach the doctrinal exclusiveness of "flesh and blood," and sink the more refined influence of the nervous power.

John Hunter insisted upon the vitality of the blood, and his opinions upon this subject may be considered as established and recognized facts; and, since his day, the blood and vital fluid have become synonymous terms; but he nowhere asserted that it possessed more vitality than the other component parts of the system, nay, he only laboured to prove that it possessed as much. He based his theory upon the following rational grounds:—If all living structures are allowed to be formed from the blood, at what precise period in their transition from the fluid to the solid state is this vitality transmitted to them? Is it not rational to suppose that this principle should be as inherent in the forming as in the formed structure? This is all that John Hunter maintained, and there are few who do not subscribe to the truth of his opinions upon this matter. But admitting the fact, recognizing the vitality of the blood, as far as the term can be understood, still the question is to be mooted as to the source of its vitality.

The processes of digestion and assimilation supply

this fluid to the system, and it may be abstracted almost to its last drop, and again be renewed by these functions; and as we find that these are under the control of the nervous power, and, if it be not in full vigour, they are performed imperfectly, so we may ask at what period the chyle becomes vital in its admixture with the blood, from which, if it receive, to it also doth it impart, vitality.

All the arguments brought forward by the most zealous partizans of the Hunterian doctrines in favour of the blood's vitality, do not attempt to prove more than that it enjoys this with other structures, neither more nor less in degree, nor of a more subtile or intellectual kind.

If John Hunter succeeded in establishing the vitality of the blood, as a moveable fluid, the changes which take place when at rest, whether confined in its vessels or removed from them, add strength to this opinion—we allude to its coagulation. This is attributed to the stimulus of death by Hunter. Mr Travers has styled it the last act of its life, in his neat and classical Essay on Inflammation and the healing process. The mechanical and chemical arguments wholly fail in attempting to account for this singular process. It must be referred to the influence of that great effort which the fluid still makes to move in its usual current; but, baffled in its attempt, it is thrown into an eddy, and losing by degrees its nervous power, not without leaving marks of the death-like struggle, stiffening as it cools, it yields to the superior influence of its chemical antagonist.

It has often reminded us of that passage in Mon-

taigne, where he describes a combat between two warriors, and the struggles which the vanquished made to the last:—" Jamais homme n'a vécu si long-temps dans la mort, jamais homme n'a tombé si debout."

Now, as regards this phenomenon of coagulation, it is as much proved to be vital by negative as by positive evidence, and vitality cannot be implied independently of nervous influence; for when this death-struggle—this last long flickering flame is not sustained by nervous influence, which still clings to it for a time, although removed from its channels, as the heart pulsates for a while when removed from the body; when this influence is too suddenly withdrawn, as when the nervous power is crushed by the thunder-bolt, or exhausted and spent, as in the hunted hare, then the testamentary evidence of the last living act is not apparent; for, in such instances, coagulation does not take place;—the blood is found in a fluid state.

It will be in harmony with the subject before us to inquire how much of this fluid may be abstracted without causing death. We shall first speak of hemorrhagy from rupture of blood-vessels, and shall find, at the threshold of our inquiry, that nature often intervenes in arresting it, and this she does through the agency of the nervous system. The heart, deprived of its stimulus ceases to pulsate with sufficient force to propel the blood as before, and the ruptured vessel is closed by the coagulated plug. This is effected by the loss of nervous power, not total but partial, causing coagulation, which is the termination

of a vital process, where exhaustion of nervous power has not been too rapid. The swoon and the fainting fit are the agents by which the life apparently lost is in reality preserved. Now, this singular phenomenon, which preserves the life of the ex-sanguine, is accomplished through the nerves negatively. It is by robbing them of their power that this effect is produced. Deprived of their food, they fall into a state of exhaustion, which very state does, by its consequences, prevent any farther waste of nutriment.

This swooning may be accomplished by means of a more subtile kind. Joy, grief, fear, the passions and affections of the mind, may so overcome the nervous power as to produce it. In these cases, the blood is not the controlling but the controlled power. The same may be effected by direct injury to a nerve; any sudden pain may, nay, the treading on a corn shall be sufficient to, prostrate the strongest, and rob the body for the time of all semblance of life.

In the state of swoon the blood acts but a passive part; if it coagulate in the divided trunk, it does so from its being in a state of rest, and perhaps some atmospheric influence may assist; its propelling power is withdrawn; and, when this is restored by the renewal of muscular action, it flows again at a rate commensurate with the force it feels. It is by direct application to the nerves that we endeavour to rouse the fainting man into life; we dash cold water in his face, on the sentient extremities of a large expansion of nerves, and these outposts transmit the impression to the brain; reaction takes place, the respiratory muscles are called into play, the chest expands, the

blood passes through, the pendulum moves again, and the life of the swooner is restored in much the same way as it is called into action in the new born child. Let us give to the blood its due in restoring the heart's action. In its retreat from the brain it is choked up in the citadel, congested in the extremities. It cannot overcome the laws of gravity, having lost its *vis a tergo*; and, as the difficulty is increased by the erect, we seek relief mechanically by placing the patient in the recumbent posture, that the blood may flow more freely in a horizontal line. This disposition to swooning in an erect position, from robbing the brain of its usual quantity of blood, is illustrated satisfactorily in the following case:—"A lady, past the middle age, was so subject to faint when in the erect posture, that she was, although otherwise in good health, confined to her bed and sofa; as soon as she attempted to rise she felt faint or even swooned. The cause of this phenomenon for a long time baffled the skill of her medical attendant, till, by some accident, he discovered that she had immensely varicose veins in both legs; and in the erect posture these became reservoirs for the blood, which accumulated too much in them to be propelled forward; hence the balance of the circulation was deranged, and the brain, robbed of its usual quantity, manifested symptoms of its weakness. By the application of proper bandages, which supported the vessels in an erect posture, this distressing affection was overcome."*

When we consider the importance of this fluid, so necessary to life that it has been identified with life

* Dr Wilson.

itself, we are surprised at the enormous loss which the system is enabled to support.

We look with horror on the bleeding soldier and parturient woman drained to the last drop, pale, ex-sanguine, pulseless, motionless, cold to the feel, bedewed with the insensible perspiration converted into sweat, and yet a spark remains. How is this ember to be kept alive? How gently fan the flame or replenish the fuel without extinguishing the spark. Drained of its vital stimulus, where are we to look for a substitute? Is it our object to replenish it by direct transfusion, about which so much has been said and so little done? We resort to the nervous system, that it may assist the heart to continue its action in its debilitated condition, until time be afforded to convert other materials into new blood. We act upon the nerves by applying stimulants to the stomach, which become thus diffused throughout the system, and what remains of the vital fluid is propelled, and its quantity restored at each pulsation. Here we see the mutual dependency of the systems on each other's efforts. The brain and nerves, deprived of their natural stimulus, become exhausted, and unable to carry on their functions; but it is only by rousing them that the fluid can be supplied which is necessary to this purpose. This is the peculiarity of the nervous system,—it cannot act without the food which it must itself supply.

In speaking of the quantity of blood in the system, great discrepancies exist in the opinions of physiologists upon this subject,—a difference allowing of a range from eight to thirty pounds. Sir Astley

Cooper estimated it at an ounce per pound of solid. Now, seventy ounces of blood have been taken from the arm, one-fourth of the whole of the vital fluid, without causing complete exhaustion, and the system has rallied again under such a loss, which, if the nervous energy be not too much impaired, will be in time replenished.*

It is impossible to calculate how much blood has been lost by parturient women, or how much in cases of menorrhagia, where it streams away daily for weeks together, it is our object merely to insist upon the difference with which the system supports the abstraction of these two powers. We cannot measure or weigh imponderable matter, so that we can have no idea of quantity as regards the nervous or electric fluids; but we can judge of injury done to that form of matter with which their power is identified; and we know that if the chord through which it passes or vibrates be offended, the whole system may be thrown into convulsions. The blood may be abstracted to more than a fourth its quantity without making any very marked difference in the system for the time being. The man of Herculean strength shall bare his arm, and lose with impunity a fourth of the vital fluid. To some it is a pleasurable sensation; but if, in the operation, some nervous twig be mutilated, such shall be the shock to the sensorium, that it shall fail in its functions, and the colossus shall fall prostrate on the earth.

* Dr Parry estimated it at 20 lb. *Note.*—A woman died of hemorrhagy, losing 26 lb. From a full blooded young woman, who was beheaded, 25 lb. were collected.—*Wrisberg.*

If we pass in review the effects of injuries upon the nerves from the prick of a thorn, to those resulting from concussion and compression,—if we regard the moral and physical consequences from the slightest to the greatest injury, we must acknowledge how much more importance has been assigned to the nervous system by nature than to any other components of the living mass; over the blood it has a decided superiority. We can abstract a very large portion of the latter from the system,—we can exchange it by transfusion, and still life goes on; but all attempts to supply nervous power beyond a momentary galvanic shock, which gives motion to the muscles, but cannot propel the dead clot or restore its vitality, have hitherto proved fruitless.

Here we see, however, the mutual dependencies of the systems on each other; the fibre may be made to contract without the assistance of the blood; for, when wholly deprived of this fluid, contraction will take place from irritation of nerve. The butchers' shambles furnish us with proofs. The muscles of the ox may be thrown into contraction hours after the eviscerated animal is stretched upon the hooks. The blood plays no part here; it has flowed into another channel, but the nervous survives the sanguiferous power. In all the experiments made upon dead bodies, where muscular contraction has been produced, no change producing anything like the semblance of life has occurred in the blood when coagulation has already taken place. It is the first to part with its vitality, which never can be restored; for chemical action asserts its prerogative,—as soon as

the vital power yields, the chemical predominates. This death of the blood soon involves that of the muscle and of the nerve. Neither can maintain its privileges in a divided state, either physiologically or even anatomically. We cannot drain away blood from muscle, or tear filament from fibre, without compromising the existence of all three; for that which cannot perform its wonted functions is, *de facto*, no longer the same.

In losing its adjective, constituting shape, it is not cognizable in a substantive form. The mummy cannot be said to possess muscle or nerve. These are not represented by chords and strings, nor does the putrid clot in the barber's shop afford any distinct idea of that once scarlet fluid which, propelled into the muscle by nervous influence, gave beauty to the features. How is the contrast drawn between life and death in the three systems by Ovid in his Moribund :—

> " In vultu color est sine sanguine, lumina mæstis
> Stant immota genis, nihil est in imagine vivi.
> Ipsa quoque interius cum duro lingua palato
> Congelat, et venæ desistunt posse moveri,
> Nec flecti cervix, nec brachia reddere gestus,
> Nec pes ire potest."
>
> *Ovid's Metamorphoses.*

PART III.

Muscular Motion—Circulation—Nutrition—Secretion.

MUSCULAR MOTION.—CIRCULATION.

Le Gallois confesses, that in his experiments to ascertain the influence of the brain upon the circulating system, he made a horrible sacrifice of animal life. Dr Wilson Phillip, not satisfied with Le Gallois's views, performed more experiments of the same nature, and perhaps a score of experimental physiologists have pursued the same system of torture to prove, after all their trouble, that the heart has an action independent of the nerves, which, however, influence its movements under ordinary circumstances. It is, as has been justly observed, the business and work of a life to know what is true upon any physiological subject. Doubts, contradictions, and discrepancies, no where exist to a greater extent than on the subject of circulation. When Harvey laid down the rails, he little dreamt of the squabbles which would exist concerning the nature and mode of starting the locomotive. It will be sufficient to quote one paragraph from Dr Elliotson to satisfy us on the point of nervous co-operation in influencing the action of the heart:—

"The great influence of the nerves over the heart is demonstrated by the size of the cardiac nerves, and by the great sympathy between the heart and most

functions, however different. A convincing proof of this is the momentary sympathy of the heart during most perfect health with all the passions." He further adds, "Since a supply of nerves and blood is requisite to the action of the voluntary muscles, it has been inquired whether these, both or either, are requisite to the heart also."

In alluding to the influence of respiration on the heart's action, we get immediately into a field of controversy. Thus, when I was in Paris, I had an opportunity of witnessing the late Sir David Barry's experiments, by which he seemed to prove that the venous circulation is performed by means of pressure, and that during inspiration a vacuum is formed in the thorax by expansion, and during this time the venous blood is propelled towards the heart, whereas during expiration it remains stationary or retrograde.

Dr Bostock, who published his system of physiology a little posterior to these experiments, observes: —"In natural respiration there is no effect produced upon the circulation, and consequently no alteration is felt in the pulse. With respect to all experiments, this great objection exists, that respiration must always be in a forced state from the pain produced, which invalidates the proofs." Müller adopts the same line of argument, as it is difficult to separate the simple act from the effects of the changes which it produces in the nature of the blood, and the chemical and nervous influence accompanying it.

"Another phenomenon," says Müller, "which distinguishes the heart from other muscles, is the persistence of its rhythmic contractions in their regular

order in the different cavities, even when removed from the body and emptied of its blood. This cannot be explained otherwise than by supposing the heart, under these circumstances, to retain, with its nerves, some specific nervous influence."—P. 203.

This is proved to be the case by galvanism exciting the heart to contraction after its removal from the body, a statement which has been confirmed by recent experiments.

Le Gallois learnt, during his prosecution of this subject, that the brain and spinal marrow had great influence over the heart's action, and that although this might be continued for a certain time after their removal, it was much feebler, nor was circulation perfectly performed, for Nasse measured the height of a stream of blood flowing from a divided artery, and then by injuring the spinal chord, found it decrease in altitude in direct ratio with the injury.

Harvey declared the heart's action sufficient for the circulation ; and notwithstanding the many assertions to the contrary, the German physiologists still adhere to this opinion, and maintain that the circulation in the capillaries is wholly dependent on the heart's action, as the most feeble contractions of the heart in a frog, much exhausted, are perceptible in the capillaries. Dr Bostock considers the arteries to possess muscularity, but asserts that contractility can be effected without the intervention of nerves. This applies only to the involuntary muscles, which are not excited by galvanizing the nerves which go to them. Dr B. considers the cause of contraction as a property *sui generis*, and not accounted for by any

hypothesis hitherto known. Others refer contraction entirely to the nerves of both kinds of muscle.

As far as is necessary for our purpose, it is sufficiently evident that the influence of the nervous system is very considerable in promoting and maintaining the circulation of the blood. Its self-propelling power is satisfactorily disproved by Müller. All the apparent motions and flickerings observed in the capillaries are due to mechanical causes acting upon the sides of the vessels, or by the attraction exerted on the blood by the solid walls of the vessels.

Dr Elliotson substitutes the term myotility for the irritability of Haller. It is necessary to consider here the influence of the nerves in producing muscular contraction.

"Every part of the muscles is amply supplied with blood and nervous threads. The latter appear to deliquesce into an invisible pulp, and unite intimately with the muscular fibres."* This is most important to those who can trace the effects of the blood, under peculiar circumstances, to this cause, without ascribing them to offence in the blood itself.

Any stimulus applied to a muscle, or to its nerves, excites contraction; but if this deliquescence of nerve through the muscular fibre maintains, it must, in all cases, be an application of stimulus to the nerves. Blood and nerve, then, are inseparable from muscle in its normal state; and sensibility and contractility are due to their influence.

The two phenomena of sensation and contraction are not seated in the same nervous fibrils, as stated

* Elliotson.

in the consideration of sympathy. The property of contracting is retained by a muscle for some time after death by the application of stimulus, chemical or mechanical. The muscles of the flank of an ox are seen to play in this way after it has been eviscerated and stretched out upon the hooks; and if the part be touched with the point of a knife, strong contractions are produced in the muscle. I have often witnessed this in my younger days, and amused myself with the experiment.

It is proved that this contractile power is diminished where animals have been destroyed by immersion in carbonic acid gas, or by poisons injected into the blood. This involves the question, Whether it is the blood, as Dr Stevens maintains, which is killed by the poison, or the nervous deliquescence with which the blood comes in contact in the muscle.

"The poison itself is the remote, but the vitiated state of the blood produced by the poison, is the immediate, cause of fever, as certain as that narcotic poisons, when injected into the veins, can instantly destroy the vitality of the blood, and cause death, without producing or leaving the slightest trace in any of the solids."*

With respect to the first position, that the vitality of the blood is destroyed, there can be no objection, because the nervous influence of the blood may be destroyed in the fluid simultaneously with the nervous deliquescence in the muscle, into which the blood penetrates.

Although our means of ascertaining the injury done

* Stevens on the Blood.

to the solids be not so complete as to demonstrate any lesion, still we judge by function that such must be the case, for we find that narcotics applied directly to the muscles destroy their irritability, and, if applied to the nerves, deprive them at the point acted upon of the property of exciting muscles to contraction; and this is caused to a greater degree by local application of poison in a concentrated state than when introduced into the veins. The experiment of introducing strychnine into the veins, and dividing the nerve of an isolated muscle, when this muscle alone shall be quiescent, is conclusive that the solids are affected by poisons, that the injury to the nerves is the cause of contraction, and that where sudden death is produced, it is not the vitality of the blood alone which is destroyed, but of the flesh, simultaneously.

The poison of the rattlesnake introduced into the veins is instantaneous death, whereas poisons taken into the stomach are inert, according to Dr Stevens' ideas. This but proves what nobody disputes, that there is no medium of diffusion equal to the circulating fluid; but whether it be this primarily that is so affected, is more than doubtful. A drop of highly concentrated prussic acid placed upon the tongue is as instantaneous in its effects as the bite of the rattlesnake, and much more so; but this is not caused through the medium of the circulation, but by immediately getting to the brain by volatilization; and there is no death so instantaneous from the injection of poisons into the veins, as that the brain shall not, by medium of the circulation, be affected by the injury.

The presence of blood, and of decarbonized arterial blood, is necessary to the healthy contraction of muscles, as the little muscular power of those affected with the blue disease proves; but muscular contractility does take place where all the blood has been washed out, and the heart removed.—P. 896, *Müller's Physiology*.

Dr Elliotson combats the opinion that muscular contractility is due to the nervous system; and still he allows that so much is dependent upon it, that but a fraction is wanting to make it a whole. He does not ascribe it to the blood, however, but says that "the power of contraction is their own," which coincides with Dr Bostock's ideas.

That detached muscles contract under the application of all stimuli would only argue that nervous power is still inherent in them. Where the trunk of the nerve has been divided which supplies them, this contraction is found not to take place. An experiment of Sir Benjamin Brodie's tends to prove that the trunk of a nerve when separated from the brain and spinal chord, retained for a considerable time its faculty of exciting the muscles to contraction when irritated.

Müller, who places Sir Charles Bell's experiments on a par with Harvey's, adopts a kind of middle course, but still comes to the nerves for assistance. "Irritation of the gustatory branch of the fifth excites no contraction of the lingual muscles, nor does irritation of the infra-orbital nerve any motion of the nostrils and lips of animals. The fact proves that mere nervous influence, as a general property, does not act as a stimulus for muscular contractions in the manner of other stimuli, but that for the excitement of muscles to contraction,

a specific action of a special class of nerves is necessary.

The extinction of the muscular irritability, after a time, when the nerves have been paralyzed by division, and their accidental union prevented, is the most conclusive argument in favour of the opinion, that for excitement of muscular contractions, the integrity of the nerves ramifying in the muscles is necessary, and that the muscles themselves are not susceptible of the direct action of stimuli . . . . . Yet it is evident that the contractility must be a property of muscles themselves, and that the nerves cannot, even during life, impart to them a power which they do not possess themselves. But the manifestation of the contractile property of muscles pre-supposes a concurrent action of the nerves."—P. 900.

Of the influence of the mind upon the voluntary muscles, sufficient will be found under the head of Mesmerism. As to the involuntary, it is difficult to say where one usurps the functions of the other. Dr Elliotson relates many interesting cases of the mind controlling the supposed involuntary movements.—P. 484.

As regards the share the nervous system has in their functions, it is, from whatever sense it may be derived, as great as in the voluntary.* Colonel Townsend's case is well known. The possibility of self-destruction by holding in the breath, was, I re-

* The application of a stimulus to the nerve before it has reached the muscle, has the same effect as irritating it in the muscle itself. This is a fact well known with regard to the cerebro spinal nerves, but that it is true of the organic or sympathetic nerves also, has been more recently discovered.—*Müller*, p. 909.

collect, positively denied by Sir Astley Cooper. The following proves the contrary if it can be depended upon:—A robber, named Coma, when taken before the consul Pupilius, is said, by Valerius Maximus, to have so destroyed himself. Let others, says the historian, sharpen the sword, mix the poison, &c., "nihil horum Coma, sed, intra pectus inclusa anima, finem sui reperit."—Lib. ix. cap. xii., extern 1.—*Elliotson's Physiology*, p 492.

NUTRITION.—SECRETION.

The influence of the nervous system upon the processes of digestion and assimilation, presents us with many striking facts of a moral and physical kind. It has its usual share of labour in this department of organic life.

Dr Wilson Philip's experiments bring us directly to the point. When the eighth pair of nerves is divided digestion ceases, and by the application of galvanism to the divided extremities of the nerves, it is completely restored. Thus a rabbit is enabled to digest parsley by this substitute for nervous power. These experiments have been confirmed by others, so that the triumph of the nerves over this function is complete in its physical demonstration.* This applies equally, whatever may be considered to be the means of performing the function. Dr Bostock argues the assistance of chemical fermentation, and does not

* Dr Carpenter cavils at this conclusion of Dr Wilson, but I do not think upon good grounds.

consider the gastric juice sufficient of itself; and Dr Prout reduces it into two operations: reduction of the food into a homogeneous pulp, and secondly, conversion of the staminal principles into substances similar to those which enter the blood;* still the controlling power is the nervous. Since the process of digestion has been studied in the living man, it will be unnecessary to make more experiments on animals, we must refer to those of Dr Beaumont on the Canadian. These experiments, so interesting in themselves, and so rich in their application to practical pathology, prove that febrile commotion, as well as sudden emotions of mind, occasion an almost immediate change in the vascular appearance and condition of the inner surface of the stomach, and also in the secretion and sensible qualities of the gastric liquor. Whatever disturbed the nervous system of Martin also disturbed the villous coat of the stomach and its secretions.

When St Martin suffered from any febrile attack, with a quick pulse and dry tongue, the secretion of the gastric liquor was suspended, and any food which was swallowed in such a condition of stomach, remained undigested for upwards of twenty-four hours, and consequently, naturally aggravated the general symptoms of disease.†

Digestion is always imperfect in weak and nervous people; but the process, in its most healthy state, will be suspended by moral emotion, which will also cause vomiting.

* Both these processes are chemical, and are styled primary and secondary assimilation.

† Sir A. Crichton, p. 121.

The subject of secretion embraces a large portion of the science of physiology, and offers much room for speculation. We have no fear of finding that the nervous system will lose any ground, as regards its superintendent powers over this function, as over all the others. It is here, however, that the blood assumes all its dignity. A combination of the elements of fluids producing a new arrangement of their parts, and the formation of a compound differing in its nature and properties from the mass out of which it is composed, may be said to form the process of secretion. This mass is the blood, which supplies all the material for all the different fluids which are eliminated from it. The product of sugar, which is very abundant in disease, proves that, as healthy blood contains no particle itself of this matter, it can only be by resolution into its elements that this substance is produced.

In the process of digestion the principal agent is a secreted fluid, the gastric juice. This formation is suspended by lesion of nerve, and restored by the nerve's substitute, galvanism; so that, upon the outset of inquiry, we recognize the ruling power. In the processes to which it is subjected in its resolution into elements, the blood must necessarily part with its vitality; but as we find some of its products endowed with this principle to the same extent as itself in its normal state, we must look for this new endowment somewhere, and we can only find it regenerated by the nervous system.

The secretions bear no proportion to their organs as regards mass, and Haller maintained that no particular structure was necessary for any specific secre-

tion, but that any structure might, under certain circumstances, usurp the functions of another. This, however, is not strictly correct; the suspension of a natural secretion is not remedied by another organ usurping the function of its associate, but by absorption into the blood where the natural exit is impeded, and the absorbed fluid is discharged by exudation. The vicarious secretions are never complete. Dr Wilson has called the attention of the profession to this subject, as regards renal affections, but we shall speak of this hereafter.

If the ureters be tied, or the nerves supplying the kidneys be paralysed, the effects are manifested on the brain. The blood is no doubt the offending agent; for, although the experiments of Darwin, instituted to discover a high road between the stomach and the bladder, which led him to tie the ureters, were productive of effusion into the ventricles, yet in the cases of renal affection mentioned by Dr Wilson, apoplexy was produced without any physical lesion, or any effusion. The offence was sufficient, of blood not fit for the purposes of life, when not deprived of what the urine takes away from it.

One secretion may, however, be supplied by another, so as to prevent detriment of life; if the urine is very scanty, the perspiration has a strong urinous smell. Of the suspension of urine in cholera, I have ventured the opinion that the serous evacuations compensate for it, and that there is no disorganization of the kidney.—*Observations on Cholera Morbus.* St Petersburg, 1832. Between the skin and the kidney there seems to be a mutual understanding; where the

function of one is suspended, the other is constantly increased in healthy circumstances. The disease Ischuria Reralis presupposed a paralysis of the nerves of the kidneys; direct experiments of destroying the renal nerves, as performed by Müller and Peipers, prove the fact.—P. 516, *Müller's Physiology.*

If we apply to the influence of mental emotions on the secretions, we shall find that there is not a secretion or excretion that is not changed in quantity and quality by moral causes.

The Saliva.
The Gastric Juice.
The Bile.
The Milk.
The Fat.
The Tears.
The Perspiration.
The Urine.
Menstrual Fluid.

These all, and severally, are influenced by nervous impressions.

Saliva.—Whose mouth has not watered "at the savoury teal either before his eyes or from recollection? Whose mouth has not suddenly been parched by unwelcome news? Is not the rabid state due to nervous influence on this secretion, of which we have furnished an example in the case of hydrophobia?"*

The Gastric Juice loses its solvent power, and is suspended by moral emotions.

The Bile.—"Difficile bile tumet jecur," says

* It is said that inoculation of the blood of a rabid animal produces this disease in others.—*Hertwig.*

Horace. It is well known that this secretion is much influenced by the passions. A fit of bile is a common expression for anger, producing diarrhœa and bilious evacuations. Jaundice is sometimes produced suddenly by a fit of passion. "Segur relates that when Murat, in his retreat from Russia, was informed of the conspiracy which had taken place at Naples, he became jaundiced suddenly from head to foot."

The Milk.—The rush of milk to the human mother's breast, and the sight of the foal distending that of the mare, are sufficient proofs of moral emotion upon this secretion. A fit of passion so deranges it that it is not fit for the child.

The Fat.—This secretion is decidedly influenced by moral causes as well as physical. It is generally the inheritance of indolence, and Swift affords us a very singular instance of the accumulation of this secretion upon losing his mental powers. He was, as Falstaff would have said, as thin as a shotten herring, till he became insane, when he grew as fat as the knight himself.

Parts, which lose their powers, and which, in a normal state, possess no vestige of adeps, accumulate it, as it has been found in the scrotum of those who have lost all virile power.

That cheerful people are, for the most part, more disposed to obesity than the morose and fretful, is generally admitted. Washington Irving draws the parallel between the two governors of New York. Walter the doubter sat for sixteen hours in his chair smoking and sleeping, till he grew too big for it; whereas William the Testy, from his turbulent and

fidgetty disposition, could not be found after his decease; he had fretted himself all away, so that there was nothing left to bury.

Some will grow fat in spite of all. Beaumarchais says, "On s'engraisse par la misère," which is perhaps a plagiarism upon Falstaff's Pshaw upon sighing and grief, they blow a man up like a bladder.

The Tears.—It is unnecessary to do more than mention them as instances of moral emotions affecting the secretions.

Perspiration.—To come all over in a cold sweat is an expression indicating the effects of fear upon this excretion, as before mentioned.

Urine.—There is, as before mentioned, a great consent between the skin and kidney, and both are influenced by fear and moral emotions.

It is not our intention, in the present work, to adduce more than has hitherto been done, or swell the volume with the labours of others. A few of the most important physiological facts have been brought forward to prove the influence which the nervous system has over all vital functions; more than this is not contended for. There are, no doubt, as Dr Elliotson has observed, fancied functions of the nervous system, and the latter does not make up the whole of life; but we do believe it to be the most important link in the vital chain.

PART IV.

Sympathy—Phrenology—Mesmerism—Sleep—Dreams.

SYMPATHY.

When Falstaff said he knew the Prince by instinct, he solved a very difficult problem. We are often in the same predicament, without being able to extricate ourselves so satisfactorily as the worthy knight. Where ideas fail we can sometimes, as Mephistopheles said to the student, substitute a sonorous word; at other times ideas are more redundant than our means of expression.

John Hunter has been criticised for his "stimulus of necessity," as an unmeaning term, yet there is something very instinctively intelligible in the idea it conveys.

Some physiologists have denied sympathy, but have furnished us with no better word for a multitude of effects, which cannot be otherwise explained than by the use of some conventional term.

We cannot better explain the effects produced by moral causes, or the influence of one part upon another, between which there is no apparent connexion, than by some expression, which implies a general consent of parts, and sympathy supplies this term.

We have to deal with it in two ways, as physically and morally affecting the system. A pinch of snuff acts upon the muscles of respiration to effect a sneeze, as does the sunbeam coming suddenly upon the eye; an affection of the liver is indicated by pain in the shoulder; these are sympathies not exactly definable, at first sight, by communication of nerve.

In the moral sense we see the effects still more strongly manifested. The cry of the distant child will cause a rush of milk to the breast, and an erection of the nipple. It requires great muscular exertion to produce a yawn, and yet a whole company may be set yawning by one open mouth.

Although many sympathies cannot be traced to direct nervous communication of parts, still, as motion is always implied, the brain and spinal marrow, as the seat of these, must eventually come to our assistance in the explanation of the phenomena.

In relation to the share which the nerves have, and their mode of action, Müller's views seem lucid and explanatory. He states, that the impressions made on the sensitive fibres of nerves, which put in action the motor fibres, are not by reflex action of the two sets of fibres on each other, but by direct communication with the brain and spinal chord, and by them communicated to the motor fibres.—P. 731.

This helps us out of considerable difficulty, for we find the brain or spinal chord alone concerned in sympathetic motions of the nerves. "If a mixed nerve (motor and sensitive) be divided, and the portion in connexion with the brain be irritated, the

animal will prove, by its movements and cries, that pain is so caused; but the motor fibres coming off from the irritated branch, will not be excited to action, as no contractions will take place in the muscles to which they are distributed."—P. 756. The spinal chord is the bond of union in all cases of reflected motions, general or local, and no muscular action takes place in which this centrifugal propagation of the brain to them by the motor nerves is not implied. These views, if correct, appear to simplify the subject very considerably. In all these reflected motions the sympathetic nerve can play no part, if primitive nervous fibres are incapable of communicating any influence to other fibres, which merely lie in contact with them. "The old term of *sensorium commune* is not misapplied to the contents of the skull. The action of light or snuff, then, as before mentioned, is accounted for by direct communication with the brain, as any irritation of the mucous membrane throughout its whole length is capable of exciting all the respiratory nerves to action, and producing convulsive movements in the muscles." This part of sympathy, therefore, is disposed of and reduced to nervous communication, however eccentric the motions may appear to be. This reflex action from a common centre accounts for all the spasms, contortions, and convulsions which are caused by irritation of a nerve, and they will be in direct ratio with the degree of irritation.

The sympathies which are traceable to physical causes so explained; we may see if the moral sympathies may not be reducible to the same causes; and

whether, in fact, the whole of these phenomena, by whatever name they may be called, are not all the offsprings of nervous influence—

> "Si vis me flere, dolendum est
> Primum ipsi tibi."

Here, then, is a moral sympathy; the feeling of another's woes, who does not feel them himself, and whose *make belief* is convertible into reality in another mind. This is a strange state of things, and proves there is more in heaven and earth than we have dreamt of in our philosophy. The hireling on the stage shall cause the eye to weep, the breast to sob, shall produce loss of sense and motion, cause the image of death in the spectator of his assumed grief. This is not only applicable to the nervous and highly sensitive being, but it is the privilege of the boor as much as of the boarding-school miss. A boor in the pit of a theatre, not forgetting that he is there—for, as Dr Johnson has observed: "The spectators are always in their senses, and know from the first act to the last that the stage is only a stage, and the players are only players,"—may be thrown into hysterics by sympathy. Dr Blair has given us a beautiful analysis of these sympathetic feelings in his essay on the effects of tragedy. Johnson comes to this conclusion: "If there be any fallacy, it is not that we fancy the players, but that we fancy ourselves unhappy for a moment; that we rather lament the possibility than suppose the presence of misery, as a mother weeps over her babe, when she remembers that death may take it from her. The delight of tragedy proceeds

from our consciousness of fiction. If we thought it real it would please no more."—*Johnson's Preface to Shakespeare.* Thus the boor is made to do what he never did before, because he never was made to feel that such a thing could happen to him. It is with him the creation of a new feeling. He sympathizes with himself. Now what may not be, strictly speaking, morally real, is so, physiologically.

Whether the passion be real or not, the tears are substantially so. Weeping may be voluntarily or involuntarily; the secretion takes place; and as we cannot deny the influence of the nerves in the first, why should we in the second instance? In this action we witness the transition from the one state to the other, so that we cannot separate them. A person may shed tears by the influence of his will, but may not be able to refrain from doing so when they have begun to flow. All the efforts he can make shall not force out a drop sufficient to lubricate the globe; all his efforts to command them shall not prevent their flowing down his cheek. How are the mental emotions producing increased secretion of the lachrymal gland,—how is this weeping sympathy to be accounted for physiologically? Truth may here be said to spring out of fiction.

It must be remembered that perceptive sensation is in the brain, as proved by the existence of local pain and sensations in parts long removed; and as Mr Travers has observed, that the operation of dividing the fibrils of nerves for neuralgic affections is of no use; and this must always be the case if the trunk of the nerve which communicates with the brain be

affected; for, as Müller states, the trunk contains in itself all the primitive fibres distributed in the branches of the nerve to the skin. The division of a nerve will only give relief when the disease is seated in the branches, not in the trunk of the nerves.—P. 744.

The knowledge of this circumstance has come rather too late in the day for those, and they are not few, who have allowed their faces to be mutilated again and again by the surgeon's knife. It affords us the greatest encouragement to prosecute our inquiries into the actions of the nerves in health and disease; and is a justification, to a certain extent, of experimenting upon living animals, but none for repeating them from mere curiosity.*

In the functions ascribed by different physiologists to the uses of the sympathetic nerve, there is great discrepancy of opinion. The subject, as Müller observes, is involved in great obscurity. He, however, applies the same laws to it which govern the action of the cerebro-spinal nerves, and advances the hypothesis:—"When, in consequence of impressions on sensitive nerves, secretions take place in distant parts, the brain and spinal chord are probably the medium of communication."

As regards sympathy it is evident that, in a physical sense, it is not the sympathetic nerve which is alone concerned. The circumstance of the wide-extended connexions of this nerve, by means of its ganglia, &c., forming, as it were, a nervous web, the meshes of which communicate with all the other

* See Appendix.

nerves, has given countenance to the idea, that all nervous affections, morally and physically, might be thus explained. Now, as regards the secretions, we may observe, that this sympathy may be accounted for in three different ways; and all reducible to one action on the sensorium. Thus, the palpable impression made upon the sensitive nerves of the tongue, shall produce an instantaneous flow of saliva into the mouth; and this can only be caused by an increased secretion from the glands, which must imply an increased mass of blood in their structure, to be so worked upon and eliminated; and this again must be produced by the reflex action of the sensitive on the motor nerves of the brain.

It is not necessary for this secretion that the sensitive nerves should be mechanically made subject to impression, because the same effect is produced by the impression of sight, for the mouth will water when the eye beholds a dainty morsel. The assistance of this even is not necessary,—recollection is quite sufficient to produce the same effect.

It has before been stated that the cry of the child causes a flow of blood to the mother's breast, for the blood must be there before the milk can be elaborated. "Every part of the body has its proper seat of representation in, and chain of connexion with, the brain; thus, to a certain extent, we can call up sensation by imagining it."

Müller observes, "The female mammary gland receives its nerves, not directly from the sympathetic, but, as it appears to me, only from the third and fourth intercostal nerve." And he states, that the

cerebro-spinal, as well as the sympathetic, appear to have the function of regulating secretion.—P. 517.

"The organic system of the great sympathetic nerve on the one hand, and on the other, the cerebral and cerebra-spinal structure, with its nerve, their boundaries and blendings, their direct and reflex functions, forming the system of animal life, of perception, sensation, and motion,—involve the harmonies and sympathies which are, more or less, auxiliary to life in every possible variety of circumstances; and if not indispensable to existence, the intellectual faculties of which they are also the seat and instruments, are among the most powerful agents, as they are the most characteristic interpreters, of human maladies."—*Travers' Inflammation*, &c. p. 18.

In the innumerable varieties of moral and physical effects which present themselves in our present state of existence, and in its relations with the things which surround us, and which, for want of a better term, we impute to sympathetic influence, we can but recognize the direct influence of the nervous power, and refer the phenomenon to its control.

It is under precisely the same direction, that if the sensitive nerves of the eye are offended by the presence of a grain of sand, the lachrymal gland pours out tears for its relief, as in a moral sense:—

> "When I did name her brothers, then fresh tears
> Stood on her cheeks."

That definition of sympathy, "the affection of one part of the body directly by the affection of another,

through vital agency alone, independently of physical," cannot be correct.

Sir Pertinax Macsycophant said that he could never stand straight in the presence of a great man,—he bowed, as it were, by instinct; still the bowing was a voluntary act of the brain by some unknown or indefinable impression made upon it. The brain may have the privilege of directing its powers in any way it pleases. If a pinch of snuff offend the nose, or the glare of the sun the eye, the impression is still made upon the brain through the medium of the nerves. It is an offending agent, and it is at the discretion of the brain, in which perceptive sensation resides, to put such powers into action as shall best get rid of the offending agent. In the effort of sneezing, the eye and nose are both relieved. Now, the force of habit conquers this very sensation. The habitual snuff-taker no longer sneezes, the snuff is no longer an offence, and the brain takes no cognizance of it, beyond the agreeable impression of its odour, and the stimulus it affords.

In the remote sympathies which pathology affords, there seems to be no real contradiction to the law, that all true sympathy is effected by nerves, as Dr Elliotson maintains: "If we cannot explain the occurrence or absence of sympathy by nervous distribution, we must remember we are imperfectly acquainted with this."

In the affections of the parotid gland we find the testes of one sex, and the breasts of the other, sympathize. This merely proves that the parts of the brain, receiving impression from the sensitive nerves

of the gland, transfer that influence to other glands, for the tumefaction of neither can occur without the direction of this organ in distributing more fluid to the part; so that, directly or indirectly, the nervous system must be implicated, and Müller ascribes this to the principle of reflection in this instance.

There is positive evidence of sympathy being seated in the nerves. "In sympathetic muscular movements the sympathy is not between the excited part and the muscles, but between it and the nerves of the muscles; wherefore, if the nerves of the muscles be divided, the sympathy still exists, but ceases to be manifest, because the muscles are no longer influenced by the sympathizing nerves."

"The iris ceases to contract when the third pair is divided, though light glares on the retina;" nor will it contract if the latter be insensible by disease.

So many proofs are afforded us of sympathies traceable to physical causes, and to direct or indirect nervous communication, and the laws of reflection, that our imperfect knowledge of this complex system at present may be fairly argued to be the only barrier to reducing all to one and the same cause.

Dr Marshall Hall's view of the sympathies merits due attention, and must be read with great interest; but it is impossible to make works of this kind duly appreciated by a few extracts.

The whole bears upon every part; but each single part conveys no accurate idea of the whole.

PHRENOLOGY.

"The brain is the mansion of the mind, and the index of its powers." The shape of the head has been looked upon in all ages as indicative of mental faculties. It must be borne in mind that the skull is modelled by the brain, and not the brain by the skull. Every protuberance, every indentation, corresponds with the shape of the cerebral mass within, and this is not always confined to the adult period. The same power of exercise which developes the muscular fibre will act upon this nervous mass, and extraordinary occupation of the mind will change the form and increase the size of the skull long after what is termed the full period of growth. Napoleon offered a striking example of this phenomenon. "On peut en citer un exemple, le plus connu qu'on a observé, dans la personne de Napoléon, dont la tête peu volumineuse, dans sa jeunesse, avait acquis depuis, quelques années un developement presque enorme."—*Dict. des Sciences Medicales.* The shape and size of the head are not infallible guides, but they have the experience of ages in their favour; and Mr Abernethy has observed, that a Greek sculptor never placed the head of a philosopher on the shoulders of an athlete. It will be long before phrenology can be ranked amongst the sciences, for there must be a crusade in all parts of the globe, and the examination of thousands of skulls, and a knowledge of the moral characters of their owners, before the basis of this theory can be solidly established.

Lavater is too much forgotten in the present day. His facial angle cannot but persuade those who study it carefully, that they can read the man in his physiognomy. There is nothing repulsive to religion or morality in these doctrines. The same Almighty power which created the whole may have assigned different functions to its parts. We are not all created with the same moral or physical powers: St Paul has said that some enjoy gifts which others do not. But all phrenologists are not agreed as to the seat of the organs of specific moral qualities; and so long as there can be any doubt upon such a point, the whole science must dissolve as the baseless fabric of a vision. No doubt exists as to the seat of sound in the auditory, or of sight in the optic, nerve; and the demonstration must be as complete as regards the endowment of certain portions of the brain with respect to the moral functions, as to the physical. Mr Travers has well observed, "Cerebral regions and cerebral agencies, are as indispensable to the production of local physical sensations as to the operations of the mind. The phrenological system, I may here remark, owes its existence to the countenance which it derives from a twilight of truth, though only sufficient to serve as a beacon to the absurdities with which it is enveloped."—*Physiology of Inflammation*, &c. It is sometimes objected to phrenology, that it is an apology for immorality and crime, and that the vicious may screen themselves under its cloak. This objection, however, cuts both ways, for if our actions or propensities depend upon organization, then to do good or ill is not voluntary on our parts. We should

not have more power to do ill in one case than of refraining from it in the other. That certain states and conditions of the brain do influence moral actions, is beyond all doubt. Not only do the various forms of insanity prove it, but also the unconquerable propensities manifested by some who are still reputed of sound mind. The disposition to steal is not unfrequently innate, where no plea of want can justify it. I knew the son of a Polish nobleman who had this propensity, —nothing could cure him. All means had been tried, the mildest and the severest, but to no purpose. There are few shopkeepers in London who cannot point out persons of rank who will readily lay out £100, yet, if they have an opportunity, will steal a yard of lace. It is useless to multiply similar instances. Accidental circumstances coincide in giving great weight to the opinion of physical cerebral derangement influencing the moral man. The most pious have been made reprobates by a fall from a horse. I, myself, knew an instance of a highly gifted youth becoming a dull, foolish man from this very cause. He laboured under convulsions for some time, and recovered all but his senses.

Dissection does not always afford us sufficient physical evidence. Our senses are too obtuse to identify these subtile conditions, but we have sufficient moral proofs that something does occur,—that some change in the balance is effected, some disorganization of the nervous mass; for we find friends and relations, with whose well regulated conduct we have been all our lives conversant, launch out at once into the most extravagant course of life, sometimes without apparent provo-

cation, while at others we attribute it to some very unsatisfactory cause. I do not allude to temporary delirium or febrile excitement, but to genuine mania; not evanescent as the former, but permanent for the rest of life. These effects must have their cause somewhere, however inscrutable they may be. It is not in the blood that we are to look for them. An inflamed condition of this fluid may produce temporary mental derangement, which will subside when the exciting cause has been removed; but it is not in the circulation that we can trace any clue to the state in question; yet how common and mischievous has been the practice of bleeding under these circumstances. It is not, perhaps, too much to say, that this state has been perpetuated by such practice, when a diffusible stimulus, a dose of opium, might have cut it short. We must refer such states to a change in the condition of those parts by which the passions are expressed. Dr Gall has related the following case in point:—"A young man who was trepanned for an injury of the head, lost a portion of the upper surface of the brain in the operation, the wound healed, and he recovered. From this period he evinced the most unconquerable propensity to steal. In spite of the severest chastisements, he carried this practice to such a pitch, that he was at length condemned to the gallows. He expressed himself pleased at the circumstance, for he was convinced of the impunity of his proceedings, and said that he had no hopes of ever being able to correct himself."

The subject of phrenology is one of too much importance to be discussed in a cursory manner, or by

the *non idonei*. It was impossible, however, not to touch upon it in discussing our present subject. Although, I believe, I have mentioned it elsewhere, still I must relate the following instance of Dr Spurzheim's skill in ascertaining the moral and physical characters of a patient, who was long under my care, from a simple examination of the head.

I had the charge of a child five years of age, whose brother and sister had died about the same age of hydrocephalus. I requested Dr Spurzheim to see her. She was in good health at the time, but was considered to be threatened by the family disease. I had made some changes in the plan of treatment, both moral and physical. The child was subject to headaches and debility, and her mind was so lively to any impression, that if a fairy tale were told her by her nurse at night, she would dream of it, and act it in her dreams. She would sit up in her bed, and perhaps get out of bed, and walk and talk in her sleep. These symptoms being considered as indications of approaching hydrocephalus, she was kept very low, and calomel purgatives continually administered, by which the debility was naturally increased. Taking a different view of the case to that which had been taken by my predecessors, I ventured to change the whole plan of treatment. If a day had passed without the bowels being moved, a dose of calomel was always given, and then, after its effects, constipation would recur, and again the same remedy. Her diet was confined to soup and vegetables, and exercise in the open air was proscribed as too much for her strength. I had many prejudices to overcome before I could persuade to a

different plan of treatment, and my responsibility was very great, for the child was motherless and in the hands of menials, her father not being able to reside with his daughter for a long time together. Considering air and exercise essential to the well-being of childhood, I put a donkey and very large Chinese parasol in requisition, by which means an hour's exercise round the town could be obtained at any time of the day without fatigue or annoyance from the sun. The diet was changed. Soup and potatoes were dismissed from the board, and mutton and poultry, in moderate quantities, were allowed daily. This, with baked fruits, constituted the dinner meal. Very weak tea and milk, with bread and butter, were the breakfast and supper repast. Some ripe fruit was permitted in the afternoon. As regarded the torpid state of the bowels, I avoided medicine, and my great difficulty was to break through this habit. Common enemas, however, answered the purpose; but so rapidly did an improvement take place under the change of diet and exercise, that the bowels acquired a proper tone, and performed their functions without interference. The moral education required as much attention as the physical. Ardent, irritable, and impetuous, impatient of control, and highly susceptible, all this was to be overcome, or rather she was not to be placed in the way of excitement. I requested that education, or such as consists of reading and writing, should be dispensed with, for at least some months; and as an improvement had taken place physically, I had gained confidence enough to be allowed to regulate the moral system. No books but picture-books, no

cards, no draft-boards, were allowed; nor did I permit, after a certain time of day, any histories or stories to be recited or read to the patient; an improvement was as soon visible in the night as in the day. The sleep became more tranquil, and the talking and agitation less, not suddenly, but by degrees; as the body waxed in strength, so did the mind. It was after a six months' trial of this plan that Dr Spurzheim saw her by chance. I told him merely what the fears were as regarded the tendency to hydrocephalus, which was hereditary in the family. He could have known nothing of her history. Upon examining her head, he said you have nothing to fear, she will do very well, but avoid all moral excitement; her brain is weak, and she must not be pushed beyond her powers at present. When the physical substance is stronger, the external impressions will do less harm; but let her run wild, leave her education alone; let her amuse herself as she likes; don't contradict her. She is irascible, impatient of control; this will improve by degrees, but do nothing to call it forth; humour her. He drew her character to the greatest nicety in every particular. I then explained to him the treatment I had adopted, and what had been adopted previously. It is her only chance, he replied, and you have hit the mark; continue all you are doing, and you will carry her through in triumph.

As far as I can recollect, these were his very words. The improvement was gradual, but solid; and as she got stronger, her education was commenced *paulatim*, but she was not permitted to *study* till she had attained her tenth year, when all predisposition to

disease vanished. I had, by request, kept a journal of the medicines which she took during the five years she was under my care; this had been done by my predecessor, and, on comparing the two, it was found that more calomel had been administered in any three months previously, than during the whole of the five years. She had been treated for a disease which did not exist, but which was anticipated; and the means employed to ward it off, would most probably have brought it on.

She had but one severe illness during the whole of this period. She was suddenly attacked, when riding on her donkey, with a pain in her head, followed by severe headache-delirium, great constitutional fever, which, however, yielded to common antiphlogistic treatment. In the commencement, she was very subject to slight but sudden attacks of pain in the head, which would occur without any assignable cause, and were, for the most part, of very short duration, but always left her very languid. These seemed to warrant the employment of calomel.

In detailing this case so minutely, and perhaps unnecessarily for those who have met with many such, it must be remembered that it was one of great responsibility, and upon which all my future career hinged. To those who have practised twenty years it offers nothing new, but young practitioners may be placed in the same situation as I was at that period, when all their knowledge is derived from books, and to such it may not be uninteresting, as proving how much may be accomplished by measures which apply to the general health only, and how much is to be feared

from precipitate medical interference, where disease is rather threatened than existing.

When in Edinburgh, I was clinical clerk to the late Dr Rutherford, with whose memory are associated most grateful recollections, and from whom I received most marked kindnesses. His practice was considered by the students, who know so much, or think they know so much, as puerile and inert, and his visits drew but few followers into the wards. Cases, which seemed to us to demand the most active treatment and a free use of the lancet, were treated by a saline diaphoretic mixture and a foot bath, and got well under such treatment. He once said to me, with a smile, my practice differs from that of my colleagues; but it is my object to let the students see how much nature will do in many instances, and how patients recover under the most simple treatment, and by the removal only of all exciting causes. It is too common with you all to ascribe every thing to the medicines you administer. The very active treatment you employ relieves the symptoms, and you take great credit to yourselves for your decided practice; but you forget that long convalescences follow, and the constitution is shattered and impaired by such abstraction of its powers. You will find that patients who have been apparently cured by large bleedings which have conquered pain in the first instance, remain eventually longer in the wards than those who have not been so speedily relieved; moreover, you will find them return again, after their dismissal, with dropsy and chronic affections. As regarded bleeding, the Doctor never took away more than from eight to

twelve ounces at a time; and now, after a period of twenty-five years, his views of things, and those of his colleague, Dr Gregory, seem to have been correct; for, as the latter has beautifully expressed it, "Nam ut sanguis semel missus nunquam in venas redit, sic neque vires cum illo amissæ in variis morbis unquam refici possunt."

The change in this part of the treatment of disease has undergone great modifications, and practitioners no longer boast of their bleedings, *ad deliquium*, which they did formerly. This *decided* practice, as it was styled, and which usurped the claims of confidence, is now proved to have been decidedly bad.

I am indebted, perhaps, to the admonitions and example of the discoverer of Nitrogen for the success with which my treatment of this case was happily crowned.

MESMERISM.

This subject must be considered physiologically and morally. In the latter sense it surpasses anything which can come within the cognizance of our senses, and, at all events, is out of the pale of medical inquiry. The exhibitions which we have daily made before us, if true, can only be referred to the class of miracles. It may not be amiss to warn the public how far, and by what complication of machinery, systematic imposture may be carried on. We refer to the Appendix for an extract from M'Cric's Life of John Knox.

Considered physiologically, it may be asked what is true, and what is new in these histories? and whether, in this view, the whole be not reducible to excited nervous influence, which has at all times prevailed under particular circumstances, without usurping any specific name or term?

There is nothing new in the discovery, that pain may be suspended by moral impression; the number is, perhaps, comparatively few of those who have not proved this in their own persons. The pain of toothache is recognized to be as severe as any to which flesh is heir,—the stoutest are knocked down by it. The celebrated Tom Crib was deprived of all his muscular force during a fit of it; and yet this agonizing pain, this torture which often makes a man run his head against the wall, is entirely dissipated, not merely for the moment, but for weeks;—not by oils and opiates, not by the extracting iron, but by the simple rap at the door of him who is supposed to have the irons in his pocket. The fear of incurring a momentary pain still more severe than the one in operation, is sufficient to expel the latter. We require no name for this phenomenon; we speak of its effects; and we see, in this instance, that moral causes can operate upon the nervous system, and suspend physical action; the pain in question being referable to irritation of the nerves. If the passions of the mind, of which fear is one, be still more wrought upon, the sentient condition of the nerves may be so paralysed as to allow the tooth to be extracted, or the limb to be amputated, without causing pain to the patient. I see no reason to doubt of the veracity of these wit-

nesses; I can find no object in deception, no reason to suspect collusion, because there is nothing more extraordinary in the effects of the will directing all its powers to the consummation of one object, than that this should be effected by the operation of one passion. It is the *faith* which removes mountains. This is a word which seldom finds entrée to medical levées; it sits at the gate like Mordecai, and it is sure to triumph. It will finish by hanging its foes, Scepticism and Credulity. It is the same that cured the woman of hemorrhagy, and the man at the pool of Bethesda. Why should we suppose that its reign is over? It is as paramount in the present day as in times gone by. It has existed from the beginning of time, and will endure to the end. It is a part and parcel of our moral existence. It represents a great power equal to a host or army, exercising its influence over our moral and physical being. It is not at our own disposal; it is not in the power of all to believe; but those who do, and do in right earnest, often reap the fruits of what some would style their weakness.—How strong in their weakness. None are so well acquainted with it as those who found systems upon it, which last as long as they can fan the flame; for it will sometimes go out, and may not be rekindled. We appeal to the Homœopathists to tell us what they have accomplished by knowing how to avail themselves of this power. We return to the influence of the will over the physical man—over the muscular system, and we shall find that, by continued effort of this will directed to one object, the distorted arm—the contracted leg, have been restored to their normal

state; as has been proved in our own experience. We see the muscles only through the nerves; the older physiologists believed them to be expansions of the latter. Mr Hone, in his Every Day Book, relates the following instance of extraordinary muscular exertion:—A man with a wooden leg was leaning against a high gate, when he was suddenly alarmed by the sight of an enraged bull coming full speed at him down the lane. There were no means of escape, and death or horrid mutilation seemed to await him. Under this excitement of fear he made a violent effort, leaped over the gate, and escaped from his foe.

Some soldiers in the late wars, under the full excitement of victory, stormed and took a fort. The following day, upon seeing what they had done, they could hardly believe it possible; they doubted their own achievements. Their commanding officer ordered them to renew the attack in a sham fight; not a man could mount to the point where he had placed his foot the preceding day. It was a sham fight; the stimulus of reality was wanting to assist the will.

A man has been confined to his bed by a fit of the gout, and so perfectly helpless as to require the aid of several men to move him from one side of the couch to the other. In the middle of the night he has been suddenly alarmed by the house taking fire, when he has, without any assistance, jumped out of bed, run down stairs, and gained the street.

It is useless to multiply cases of this nature. It may be allowed to draw a parallel between them and some of those effects attributed to mesmerism, and see in what they differ physiologically.

The most striking instance on record of the power of the will over muscular motion, is presented to us in the case of Colonel Townsend, who could, by voluntary effort, suspend the action of the heart for a considerable time, during which he lost all appearance of life.

Is there anything in all the distortions and monkey tricks, which we see those exhibit who are said to be under this mesmeritic power, so wonderful as this? the suspension of the heart's pulsation by voluntary effort?

I witnessed, when in St Petersburg, some children exhibit a great many pranks when mesmerized by a female magnetizer of the name of Tutchanienoff. These children had all some physical defect; one had a hump on his back, a second, a distorted spine, a third, a contracted limb, &c. She promised to put all things straight by the power of her eyes. She was of middle stature, very dark complexion, with piercing black eyes. She exhibited in public. She was seated in a corner of the room, wore a dark blue riding habit, and had a black velvet cap, with gold tassel, on her head. The children were admitted. They had sallow complexions, were meagre, and in bad condition. They were told to approach her. She avoided looking at them for a time, during which they remained quiet. She suddenly turned her head towards them, and gave a piercing look; and at the same instant they commenced their antics. The boy with the hump back took up a folio book, holding a lid in each hand, and throwing it over his head, thumped the hunch with the body of the leaves. Some muscular power was

employed, but the thumps were not hard enough to hurt him. The contracted arm was pulled by two attendants, one holding the body, whilst another pulled at the arm, and the child vociferated krepka, krepka—pull harder, pull harder. The shortened leg was served much in the same way. This continued for about two minutes, when the exhibition ceased. As soon as the magnetizer turned her eyes from them, the children were powerless. Several of my colleagues were present, and we all agreed that a greater piece of imposture was never attempted. No good was done to the children. This woman continued to perform her miracles for a long time in St Petersburg, patronized by the nobility. Amongst other feats, she was said, by her look, to have caused long thread-like bodies to issue from the digital extremities of a child, which, from some vibratory motion which they manifested, were said to be living worms.

Still all is not imposture. It is but fair that I should relate the following case as coming under my own cognizance, and that of most of my colleagues. A lady, the wife of a physician, met with the following accident:—Her foot having slipped in mounting the steps to her door, she fell down the area, and concussion of the spine was the consequence. She lost all power of motion in the lower extremities. Various means were resorted to: blisters, setons, frictions, with tartarized antimony, galvanism, and, finally, she suffered the excruciating tortures of seven moxas burnt upon the sacrum, at different periods,—all without effect. She remained a cripple, without any power of moving her limbs, and this for the space of twelve months.

She was carried in a litter to the steam-boat, which took her to Paris by Havre. Upon her arrival there she was treated by Recamier. He introduced a series of setons from the nape of the neck to the sacrum, but with no better effect. She was a woman of great moral courage. *Nil desperandum.* She resolved on trying magnetism. A female treated her, and in six weeks she was going the rounds of a gay Parisian life, with her limbs perfectly restored. This was called mesmerism. Let us instance a case where no such power was employed :—

In the town of Southampton lived a shoemaker who had a short leg; he walked upon the point of the toe with the help of a stick, and was nicknamed "Hoppy." He had been in that state for years, and was known to the whole community. The days of acupuncture arrived. What has become of it?

One of these operators visited the town and blew his trumpet. He performed many cures. "Hoppy" presented himself. He undertook to make him walk straight. He pushed pins and needles into the foot, and in a short time the man left off his high shoe, the sole of the foot rested flat upon the ground, he walked without limping, and without the help of a stick. His cure, however, was not of long duration. This was acupuncture. It may be difficult to account for such things, but to deny the evidence of our senses in such instances, is tacitly to give ourselves the lie. In neither of these two instances could there be a question of collusion; the acts were performed, no matter by what means. In neither of them do we see more than has been recognized in the cure of

toothache by fear, in the wooden-legged man jumping over the gate, or the gouty man quitting his bed. In all we must admit a moral influence which, for a time, sometimes longer, sometimes shorter, predominates over and controls the physical powers. This influence is, perhaps, always voluntary; for, as regards muscular motion, it must be borne in mind that the voluntary muscles act independently of the manifestation of the will. Sleep-walking cannot be instanced in proof of this, for it is by no means clear that the will is not active in this state. Dr Whytt observes that many of the bodily motions are performed when we are insensible of the power of the will excited in their production. We are not aware that the eye-lids are kept open by the will; but when drowsiness and sleep steal upon us, we find it requires a considerable effort to prevent the falling down of the upper curtain.

In a physiological sense, all these apparently wonderful phenomena are true, but they are by no means new. Of the rest of mesmerism, as far as the operations of the mind are concerned and its knowledge of things, these are new; it will require undeniable evidence to prove them true. If they be, they rank with miracles, and are without the pale of physiology. See Appendix.

SLEEP.

In the few observations to be made upon a subject which has given rise to so much speculation, it will be evident, whether sleep be considered as a function

of the brain, or as resulting from an exhaustion of nervous power, it is this organ which is principally concerned in the process. In no function of the system does the blood play a more important part than in influencing this phenomenon. If it flow too freely, or its momentum be too great, (from whatever cause, moral or physical, this may arise,) it is fatal to sleep, and this effect is mechanical and independent of any change in its constitution. Some maniacs will resist sleep for days and nights together, if the nervous system be in a great state of excitement. Where the circulation is weak, as when the body is exhausted by fatigue, so irresistible is the power of sleep, that the culprit at the stake, and the mast-head midshipman, cannot resist its influence.

Of the direct effects of the circulation on this function, proofs are afforded us by compressing the brain, and large vessels which furnish it with blood. If the carotids be forcibly compressed, a state of sopor is induced. Sir Astley Cooper used to relate the case of a sailor who had been trepanned, the pulsations of whose brain were visible through the bony ring, which was covered only by integument; and if the thumb were pressed upon this spot, sleep immediately followed. The state and condition of the blood must not be lost sight of in these matters; for, as an increase of momentum in the arterial blood will cause insomnolency, so will a diminished circulation, retarding the return of the venous blood, produce sopor and coma, and often apoplectic symptoms. Asphyxia is so produced. If a *marchande de modes* be crossed in love, she shuts herself in a small room, places a pan

of lighted charcoal on the floor, and lies down to sleep the long sleep.—This is asphyxia.

If the mind be excited at the usual time of repose, it is often preventive of sleep; there is an increased vascular action; and the Germans have a very forcible term for that tossing and general restlessness of body accompanying this wakeful state, "Das Blut ist in Wallung." As long as this irritability is kept up by physical or moral causes, sleep will not be induced.

John Browne, whose essay upon this function is the *chef d'œuvre* of his writings, insists upon a due balance between the exciting powers and the excitability as necessary to sound sleep. It is upon the principle of subduing the latter that opium acts as a diffusible stimulus. *Me Hercle*, he exclaims, *opium non sedat.* Feeble doses of this drug, far from producing the desired effect, only increase the irritability of the system, and prevent sleep. I have often been surprised at the very small quantity of opium which German practitioners employ with a view of inducing sleep, not at the disappointment they experience. Physical and moral causes, as they are in due proportion or in excess, will induce or counteract the process. We understand the expression of an agreeable degree of fatigue, which invites to this state, as an excess of the same prevents it. Moral influences act precisely in the same way; grief and anxiety repel, as the thoughts of anything pleasurable court, sleep. But these have also their limits, and sleep will at last conquer in spite of the aggravated torments of mind and body. When witchcraft was punished as a crime, it was the great object of the torturers to keep the poor sufferers awake,

which they did by running needles into their eyes. Sleeplessness is a characteristic symptom of insanity; it often precedes it, and is one of the first of the many harbingers of this approaching malady.

"If I do not get sleep I shall go out of my senses," is not an uncommon expression from those exhausted by long watchfulness. I have known some persons subject to confusion of intellect and waking dreams, who recover their mental energies by a five minutes nap. The force of habit, together with all the innumerable causes which operate through the influence of external impressions on the sensorium, the rustling of the leaves, the bubbling brook, the warbler's notes, the fairy tale, the more mechanical influence of the friction of the skin, will not allow us to doubt of the nervous power as one of great importance in the performance of this function.

I have a patient at present with an affection of the heart, who is lulled to sleep by the nurse taking his hand in hers and tickling it. The child will not often go to sleep without the thumb in its mouth. In the language of Shakspeare—

"Our little life is rounded by a sleep."

But, nevertheless, it is not the image of death, nor is there any analogy between the two. Every function of life is performed during sleep. Respiration, which of all others is the most characteristic of life, so that to cease to breathe is to die, is never so well performed as in this state. As to the mental functions, they are, I believe, always awake. Memory may not assist us to recall what has passed, but it fails us in

many other circumstances. Some do not recollect that they have slept at all, and maintain the point in spite of credible witnesses to the contrary. I knew a lady who insisted that she never slept, and drank Burton ale when she went to bed to produce sleep. Being in the habit of waking up very often, she would not be convinced, even by the testimony of her husband, that she slept great part of the night. A gentleman, who was hurried to Paris by the distressing news that his son was dying, took a courier with him for expedition. They left town in the evening. The man informed him that he never slept in all his journies by night. In less than ten minutes he was fast asleep, and only awoke at the different stages. On arriving at Dover in the morning, he maintained that he had never closed his eyes. It is not logical to say that the mind is unemployed, because we cannot recollect what occupied it; for we find memory very treacherous. The state of the somnambulist does not argue that the mind is asleep. The nervous system is awake; for the muscles are controlled by the will, and there is a determination in the exercise of it. There is a decided object in view, for the movements are directed to some one point. There must be some degree of vision. The man on the roof top does not walk over the parapet, and seldom comes to harm, unless some foolish attempt be made to awaken him. Then there may be fear of his losing his senses and his life at the same time. Lady Macbeth was morally awake when she exhibited this phenomenon.

There is nothing more capricious in its visits than

sleep. It treats rich and poor, the happy and unhappy, alike, as regards its favours. Some, in the enjoyment of good health, are most indifferent sleepers. "Mr Good gives us a singular instance of a man who never slept, and yet enjoyed a very good state of health till his death, which happened in the seventy-third year of his age. He had a kind of dozing for about a quarter of an hour once a-day, but even that was not sound, though it was all the slumber he was ever known to take."—*Medico-Chirurgical Observations.*

The people of northern latitudes sleep more than those of the south. The Russians boast that they can sleep at all times of the day or night; and this, with the common people, is the case. Most part of their unemployed time is spent in sleep.

The influence of sleep upon the faculties of the mind is different in different individuals, as is the refreshment which it affords physically and morally. The author of the Waverley novels has stated, that his powers of authorship required seven hours of total oblivion for their full energy; he was good for nothing if he had not so much sound sleep in the twenty-four hours.

I knew a gentleman of very nervous character, who was never so nervous, nor seemed so much exhausted, as after a night's sound sleep. The theory of Brown respecting the diffusible stimulus of opium, is not applicable to morphia, which indeed invalidates the theory. "That opium contains two principles, the stimulant and narcotic, is not now matter of speculation; as they have been separated chemically, and

the narcotic part, morphia, can be used to produce sleep without the stimulant. The stupor from opium was said to be the sedative effect subsequent to, or produced by, the exhaustion of the stimulus; but this is not the case; for, the stimulant part being taken away, the morphia produces sleep as certainly; thus realizing the long-sought desideratum of an unstimulating opiate."—*Billing's Principles of Medicine*, p. 87.

ON DREAMS.

Lord Brougham has hazarded the opinion, that dreaming is confined to that period which exists between the sleeping and waking state; and that, during sound sleep, people do not dream at all. Although, upon rising in the morning, we may imagine that we have been dreaming all night, yet if this state has prevailed, it has been by continual successions of transits from sleep to wake; and as all standard as to time is lost under such circumstances, so the whole of the dreaming period, which may appear to us to have occupied hours, is in reality accomplished in a few seconds.

It appears to us that the author has not made out a clear case, and that facts are opposed to this theory.

The late Dr Cullen observes, in his Physiology of Sleep, that the body, as well as the mind, may be in any state of waking; and as the latter does not go to sleep all at once, but by degrees, so it may awake in the same manner.

As regards the amount of dreaming comprised in the shortest period of time, the idea is not new, however true it may be, for Dr Darwin has advanced the same supposition in his Zoonomia.

"The rapidity of the succession of transactions in our dreams is almost inconceivable; insomuch, that when we are accidentally awakened by the jarring of a door, which is opened into our bed-chamber, we sometimes dream a whole history of thieves or fire in the very instant of waking."—Vol. i. p. 295; sect. xviii. 11.

In the process of sleep the senses take their departure seriatim. The eyes, covered by the relaxation of the muscles, which hold up the curtain, are no longer conscious of the real forms of objects presented to them, although light be not altogether excluded. They enjoy as much visual power as some animals do at all times, and it is some time before the halo is quite extinguished.

The ear is long sensible to sound after the functions of the eye have ceased; and the tongue can still babble out some inarticulate words. The muscular system does not become torpid all at once, sometimes a leg or arm will take precedence of its fellow, fall asleep, or wake up without consent of its partner; hence the sensation in a limb as if it were dropping through, when we first fall asleep, or when anything suddenly rouses us.

In the process of waking, the ear is the first of the senses which regains its functions, as it was the last to lose them in that of sleeping. It is susceptible of the impression of sound long before the eye is able to

distinguish objects, or the muscular power so much awake as to be able to lift up the curtain.

This explains the phenomena to which Darwin alludes, of the dreams which take place in this intermediate state between the awakening and the broad awake conditions of the sensorium; and as Cullen has advanced the proposition, both body and mind may be in any state of waking.

As the senses, physically, are not able to perform their functions correctly if entirely isolated, but each requires, for the perfect performance of its own special duties, the co-operation of its associates, and runs into error when their correcting influence is suspended, so is the sensorium all abroad and dreaming, when deprived of the combined influence of the external senses. The thieves and fires vanish, therefore, as soon as the eye has the power to correct the error caused by the insulated impression of sound made upon the ear.

It is not to this period alone that dreaming is confined. It occurs during the soundest sleep, of which there are sufficient demonstrative proofs.

If it were confined to this period, the slightest power exercised by a second person would be sufficient to awaken the dreamer, but this is not the case. Many who give sufficient evidence of their state of dreaming by the agitation of their features, and by vocal expression, require a good deal of external force to be exerted upon their bodies before they can be made to awake; and we have known some of the hardest sleepers to be great dreamers, although upon awakening, they are not conscious of having dreamt at all. With many the dreaming state may be thus

recognizable to a bystander, and yet the dreamer shall have no recollection of what he dreamt, nor can be persuaded that he did dream. Instances are not uncommon of persons waking in a dream by the effects of some external cause, and continuing the same dream when relapsed again into sleep, which proves that dreaming is something more than a succession of ideas crowding upon the imagination, during the period of moral and physical struggle between sleep and wake.

Has not many a sportsman had opportunities of proving, by ocular demonstration, that dogs enjoy the pleasures of the chace in their dreams. Has he not observed his spaniel, after a day's shooting, stretched out upon the rug before the fire, exhausted by fatigue, and enjoying sound repose,—and has he not heard him whine and groan, and, finally, give tongue in full cry, and yet so far from the transition state, as to require a hard kick before his dream could be dispelled. This faculty of animals has been beautifully described by Lucretius, in the following lines:—

> "Venan tumque canes in molli sæpe quiete,
> Lactant crura tamen subito, vocesque repente,
> Mittunt, et crebro reducunt naribus auras,
> Ut vestigia si teneant inventa ferarum;
> Expergefacteique sequuntur inania sæpe
> Cervorum simulacra, fugæ quasi dedita cernant;
> Donec discussis redeant erroribus ad se."
>
> *Lucret.* lib. iv. 990.

"Spurzheim has observed, that some do things in their sleep of which they are incapable when awake. Dr Good relates the case of a clergyman who had

deeply cultivated music, to which he was passionately attached, who composed during his sleep a very beautiful ode of about six stanzas, and set the same to very agreeable music; the impression of which was so firmly fixed in his memory, that on rising in the morning he sat down and copied from his recollection both the music and the poetry."

It has been asserted that men have solved problems in their sleep which puzzled them in their waking hours, and, shouting out, Eureka! they have awaked.

PART V.

Vision—Hearing—Smell and Taste—Feeling—Voice and Speech.

THE FIVE SENSES.

THAT these faculties depend upon the perfect integrity of the nervous structure, is a fact too well understood to require any comment. In tracing some of those curious histories which result from various degrees of derangement and disease, the importance of its sound state will be best illustrated. This, however, opens a very wide field of inquiry, over which our limits will allow us to skim but lightly; a very curious phenomenon here first presents itself, in the circumstance, that a certain relation and dependency exist throughout the whole of the systems of created beings, and that even here the perfection of one sense is sometimes due to the co-operation of another. Thus, the eye corrects the sense of touch, which again is sometimes requisite to correct vision. "The senses are not," as Spurzheim observes, "of themselves sufficient, independent of the internal operations of the mind. It is said that the senses correct each other, and they do so in a certain degree, but they do not correct the functions of the senses. Thus we see objects reversed, but the touch assures us they are not so, yet, having been convinced of this by the touch, we do not see

them otherwise than as before. Some other power of the mind is necessary for this."

The organs of the five senses which connect us with the external world are subject to lesions of different kinds, by which they are no longer susceptible of impressions, or by which the impressions which they receive do not convey just ideas of things to the sensorium. These erroneous impressions allow of every variety of perversion, and are often productive of most unpleasant consequences. They may be often traced to mechanical injury; and where this is not evident, still we must judge by derangement of function, that such must exist, although not cognizable by our senses. In the convalescence of fevers, we find that the senses which had been annulled during the disease return to their perceptive state by slow degrees, while some are more acute than in a natural state.

It is long before the eye regains all its vigour. Taste and smell are obliterated or changed from what they should be. Deafness is of long duration, and the sense of touch does not recognize objects presented to it with the same degree of accuracy as in a healthy state of the system.

The mental powers long feel the injury done to the sensorium; until it becomes fixed and steady the mind will continue wavering. Memory is sometimes lost for weeks. These effects will be found, in general, to be in a ratio with the severity of the disease, and its mode of treatment; in both cases it is the loss of nervous power, which is to be deplored.

In those cases of general ill-health which are, according to Macculloch, ascribable to obscure inter-

mittents, this morbid state is found to prevail very greatly. He traces it to direct influence on the nerves themselves.

"Nor is that consequence a secondary one, originating in false or perverted moral views, or in an aberration of the reasoning faculties; since it appears on the contrary, where that does or does not exist, and to be absolutely an insensibility or a primary disorder in the nerves of those organs of sense which are the mediums of pleasure."

Thus, some have complained, "that beautiful objects, such as pictures, natural scenery, and so forth, which, when in health, had been most pleasurable or engaging, seemed to make no impression at all upon the sense. So those who, as musicians, were accustomed to delight in music, not less from science than feeling, complained that they seemed to suffer under a positive insensibility as to what used to be a source of the most refined delight, although labouring under no affection of the temper, nor any of those sensations commonly called hypochondriacal; and thus have others complained that the most grateful things had ceased to give pleasure,—that the scent of a rose was not only powerless, but produced absolute pain, by reminding them of what it once was, while every attempt to revive the former association connected with this and other similar objects of delight was unavailing."—*Macculloch*, vol. i. p. 324.

The effects of derangement of the nerves are illustrated by the fact, that "external agencies can give rise to no kind of sensation which cannot also be produced by internal causes exciting changes in the con-

dition of our nerves." A constant action may thus be going on internally, and keeping up impressions which distress the hypochondriacal; and although arising from within, are as real sources of uneasiness, as if visibly exerted from without. The senses of seeing, hearing, smelling, tasting, and feeling, may be all excited by internal causes without any exciting external agent. An increased determination of blood to any of these parts will increase their susceptibility, and excite sensations. Moreover, all these things are accomplished in our dreams; and the direction of the mind to any one physical ailment will increase it as much as the influence of external impression.

If it be established that each organ of sense is capable of but one kind of sensation only, and not of those proper to the other organs of sense, and that one nerve of sense cannot take the place and perform the function of the nerve of another sense, "Still a strong impression made upon a nerve of sense will, by reflex action through the sensorium, excite other senses. There is, however, no power of transposition of one nerve's function to another. The eye cannot hear, nor the ear see, nor did Miss Macaulay ever see with her fingers; but the power of any one sense may be so increased by exercise, as in some measure to compensate for the loss of another by increase of its own function, without in any way performing that of the lost one. This is very important as regards the supposed power of those who see through the skin in the mesmeretic state."

VISION.

The integrity of the optic nerve is necessary to vision; but many circumstances may prevent light getting access to it; or light may reach it and make no impression upon it if it be too much disorganized. It wastes away for want of use, as other parts of the system are found to do. It is of some disordered functional states, and not of organic lesion, that any mention is to be made at present. These states may arise from physical causes, which may be either sufficiently evident, or so obscure, that we cannot recognize them. A certain definite time is necessary for the impression of objects to be transmitted through the nerve to the brain, and there be painted in their real form. Hence the explanation of all jugglers' tricks, that motion is quicker than vision. This is the explanation of all the rotatory toys; however distant the objects may be in the disk, the rapidity of motion so blends them together, that they form but a single impression on the brain.

Seeing double implies some physical derangement. It may be transitory, as when produced by too free potations, and wearing off as the fumes of the liquor evaporate. The story is well known of two able statesmen of former days going to the House of Commons after a banquet. On taking their seats, one said to the other, why, I can't see the speaker; not see him! said his friend, I see *two*. But this state may be more permanent. I attended an old gentleman in St Petersburg who laboured for three weeks under

determination of blood to the head, during the whole of which time he saw everything double when both eyes were open.

It is when the brain and nervous system have been shattered by moral causes, or by the sequela of physical ones, that the most curious phenomena occur, as regards the visual powers. The author of the Diary of a late Physician has published a ludicrous paper of the spectre dog which followed the man wherever he might be; he could not shake him off, either in his walks, or in his bed-room, or in the stage coach; the dog was always there. I know not whether this story be founded on fact or not, but a case very similar occurred in a gentleman, who related it to me:—In great distress of mind, he had taken a quantity of laudanum with the intent to poison himself. It did not accomplish what he intended, but was productive of most distressing nervous affections. Among others, as soon as he was in bed at night, he saw a dog lying at the foot of his bed upon the floor. He got out of bed to verify it, the dog vanished; when he returned to his couch there was the dog again. The most singular item in the history was, that his mind could not rectify the error; the visual impressions overcame the rational powers. He would leave his bed two or three times in the same night to be shamed by a phantom, and this lasted for full six weeks. At a subsequent period, and previously to his death, which was a melancholy one, he was haunted night after night by a chess-board with men upon it.

That ghosts and apparitions have appeared to people cannot be doubted. Carlyle has alluded to the history

of Luther and the blue-bottle fly, and referred it naturally to that imperfect state of the sensorial powers when debilitated by physical exhaustion or moral causes. It is not true that there are ghosts in substantial forms, paradoxically expressing it, but they are visible to the mind's eye. It is nowhere recorded that two people ever saw a ghost at the same time and in company. It might so happen, that of two men walking down a lane at night, one should fancy he saw a ghost and point it out to the other, whose fear might persuade him that he saw something; but no two men at the same time, and in each other's company, ever saw the same spectral form before their eyes.

It is true that Shakspeare makes the ghost of Hamlet's father appear to Marcellus and Bernardo, and afterwards to Hamlet in their company; but this may be accounted for under circumstances as when—

"Time is out of joint."

The best ghost story of modern times is to be found in Southey's Life of Wesley, to which I can only refer, as it is a very long one; but it is evident that the author placed implicit confidence in the truth of the whole history.

Dr Ferriar was one of the first to give some rational explanation of these seeming wonders.

It is reducible to physical certainty, that the impression of some bodies on the sensorium lasts long after the object which caused them is removed from sight. After looking at the sun for some time till we are blinded, for, as Lucretius observed,

"Sol etiam cæcat, contra si tendere pergas,"

we see the globe of fire a long time. In cases, therefore, where the mind has long dwelt or has been forcibly impressed by any circumstance, it forms the subject for a night's dream; and, as this dreaming state is performed sometimes in a semi-waking state, and when vision may be in some measure in function, so almost any object may substantially represent the mind's picture; and this illusion may be more complete and permanent, as a certain degree of fear with the timid may prevent them from verifying the object by actual examination. The following will go far to prove how such things have occurred and found their explanation by close examination, and will also suggest the idea, that, for want of this alone, many semblances have been recorded as realities.

"A traveller, benighted in the remote Highlands of Scotland, was compelled to ask shelter for the evening at a small lonely hut. When he was to be conducted to his bed-room, the landlady observed, with mysterious reluctance, that he would find the window very insecure. On examination, part of the wall appeared to have been broken down to enlarge the opening. After some inquiry, he was told that a pedlar, who had lodged in the room a short time before, had committed suicide, and was found hanging behind the door of the house, and to convey it through the window was impossible without removing part of the wall; some hints were dropped that the room had been subsequently haunted by the poor man's spirit. The traveller laid his fire-arms, properly prepared against intrusion of any kind, by the bedside, and retired to rest, not without some degree of apprehen-

sion. He was visited, in a dream, by a frightful apparition, and, awakening in agony, found himself sitting up in bed with a pistol grasped in his right hand. On casting a fearful glance round the room, he discovered, by the moonlight, a corpse dressed in a shroud reared erect against the wall, close by the window. With much difficulty he summoned up resolution to approach the dismal object, the features of which, and the minutest parts of its funeral apparel, he perceived distinctly. He passed one hand over it, felt nothing, and staggered back to the bed. After a long interval, and much reasoning with himself, he renewed his investigation, and at length discovered that the object of his terror was produced by the moonbeams forming a long bright image through the broken window, on which his fancy, impressed by his dream, had pictured with mischievous accuracy, the lineaments of a body prepared for interment."

Now, many would have put their head under the clothes from fear, and the following day related, with every semblance of truth, that they had seen the corpse of the pedlar.

The power of the clouds in reflecting images, and the beautiful and wonderful phenomena of the mirage, only remained to be made intelligible to explain many apparitions which were supposed to be supernatural. The Hartz mountain has been robbed of its mystic wonders. It is probable that the cross which Constantine saw in the air was also some image reflected from the clouds. These belong to substantial physical delusions; for clouds, in the scale of matter,

are very dense bodies compared with gases. Matter is not always gross enough to be visible.

It is more in harmony with our present subject, to trace the causes of illusions in disturbed states of the nervous powers, to which these physical realities serve as introductory prefaces. "That forms of objects, which have no external prototypes, are exhibited to the mind in certain states of the brain," is advanced by Dr Ferriar; and we need not quote the instances which he brings forward, having mentioned the case of our friend who was haunted by the spectre dog.

"When the brain is partially irritated, the patient fancies he sees animals crowd into his room. These impressions take place even while he is convinced of their fallacy." This was precisely the case in that instance. The person knew that no dog was in the room, and yet he got out of bed to verify it.

There is something very expressive in the statement of Cullen, that the body may be in any state of waking. It may be equally said of the mind, which may be in every state of soundness, from the slightest aberration to complete insanity; or in any state of sleep, from restless dreaming to perfect unconsciousness.

There is a *waking dream;* and there is no better definition for a state of mind which occurs when the physical man is wide awake, and when the system is performing all its functions. This state implies every degree of disturbed sensorium. The recollection of images in this state converts them into real forms, and gives them a local habitation and a name,—supposes them the faculty of speech. It is no imposture,

but self-deception, arising from physical causes; all the faculties of the sensorium not being fully awake, and still sufficient rational power existing to perform the common offices of life. In the following, where we acknowledge physical causes, we trace nervous derangement very clearly:

"Sauvage mentions, that a woman subject to epilepsy saw, during the paroxysm, dreadful spectres, and that real objects appeared magnified to an extraordinary degree; a fly seemed as large as a fowl, and a fowl appeared equal in size to an ox. In coloured objects green predominated with her, a curious fact, which I have seen verified in other convulsive diseases. A very intelligent boy, who was under my care for convulsions of the voluntary muscles, when he looked at some large caricatures glaringly coloured with red and yellow, insisted that they were covered with green, till his paroxysm abated, during which his intellects had not been at all affected."

The impression was too strong for him to discredit what is styled the evidence of his senses, and yet such evidence often proves very equivocal, as we find that we cannot always trust to one sense exclusively; that one corrects the other; and it may happen that all the five senses may mislead, if the *sensorium commune*, or common sense, be impaired. We find that all and each of the five senses do, under certain circumstances, communicate wrong impressions to the brain; and this may arise in various ways from physical obstruction in the part or in the whole. When a man, having taken poison with the intent to kill himself has failed, and is tormented afterwards by

ocular spectres, apparitions, &c., we think there is nothing so astonishing in it; we refer it to a morbid condition of the brain; words stand for ideas, without knowing at all what that condition is. But when in apparent health, and no known cause has intervened, then we are lost in wonder and astonishment, and cannot account for it. Now, we know that passions and affections of the mind are just as capable of producing diseased states of the brain as physical causes; and by whatever means they operate, either by too much pressure upon one part, or by exhaustion of another, the nervous equilibrium is lost. We cannot, by thinking it is true, add a cubit to our stature, but we can very easily raise up a giant before us; and that which is invisible to others, is as real to us as if present in body corporal. "From recalling images by art of memory, the transition is direct to beholding spectral objects." If we can so readily account for this where we recognize physical causes, why seek for other interpretations, where, if we do not directly see the cause, we judge, from function, that some must exist? Once let the imagination be wrought upon, and all the rest will follow. Those who see figures and apparitions will easily be convinced that they hear them speak, and will put words into their mouths, which will be reflected back to themselves; and thus divination is, in many cases, to be accounted for;—so much also for prophecy. It is wrong to treat all such as impostors; they really are not so; if they deceive others, it is because they are too often deceived themselves. But it is still more strange, that others ascribe powers to them which they do

not claim themselves; and it is by adulation and worship that they are made to believe themselves to be what others tell them they are. It is not difficult for a man to repeat a story till he believes himself to be the hero of the very tale which he has borrowed from another; and so may the reveries of a disordered sensorium be received with such attention and veneration as to be recognized as prophecy,* and the body physical, from which they spring, be canonized on earth. It is not difficult to prove the truths of such inspiration. We mark when we hit, as Lord Bacon has observed, but not when we miss. This is the history of all second sight and presentiments, which latter I have myself often watched and recorded. The fulfilment of one shall produce more faith in their reality than the failure of a thousand. The same holds good in regard to the singular coincidences which are perpetually occurring in common life, of people being admonished of the death of their friends by noises in the night, by dreams, and even by seeing them at noon-day, of which I remember a remarkable case when I was at Dieppe in 1826. A young woman said she saw her brother in the room where others were present, and spoke to him, to the astonishment of all. She could not be convinced but that he was there for some time;—by the next post she heard of his death. If these cases be scrutinized, it will be found that the same people have had the same presentiments many times in their lives, and have never seen them fulfilled. As to the ocular demon-

* Here only is the question of deluded people who have believed themselves so gifted.

stration, it proves nothing in the last-mentioned case; because, upon questioning the lady about her brother's appearance, she described his dress, which differed in nothing from that of other men. Now, though the time at which the form appeared, and that of his death, tallied, there is still this inconsistency,—he died undressed in his bed.

Dr Ferriar's is now an old book, but it is a very good one,—the work of a gentleman, a scholar,—a physician of the olden time. His analysis of characters, as those of Hamlet and Don Quixote, is quite original.*

"There are beauties in the character of Don Quixote which can only be understood by persons accustomed to lunatics. The dexterity and readiness with which he reconciles all events with the wayward system which he has adopted,—his obstinacy in retaining and defending false impressions, and the lights of natural sagacity and cultivated eloquence which break frequently through the cloud that dims his understanding, are managed with consummate knowledge of partial insanity, though it is sometimes hardly perceptible to the general reader."

The physical condition of the optic nerve must not be lost sight of in these observations, which are of more general application. The subject of *muscæ volitantes* has been lately much elucidated by the experiments of a gentleman upon himself. It was introduced by Dr Budd of Bristol, in his Retrospective View of Physiology, delivered at Northampton on the twelfth anniversary of the Provincial Medical and Surgical Association.

* Theory of Apparitions, p. 112.

HEARING.

The auditory nerve is liable to very disordered states, arising from mental affections. Nervous deafness is a complaint to which many are liable. It is, however, probable, that the labours of Mr Toynbee will throw much new light upon this subject, as his examination of the tympanum tends to establish the fact, that many of these cases are due to disease of its structure, and to modifications of inflammation of this membrane.

The influence of the mind upon the sense of hearing is very considerable; hence the term listening, which implies a voluntary act, and direction of the mind to the sound, which is not specially recognized but by this act. Thus, when we are asked if we heard what was said, we often reply,—No, we were not listening; yet half the force of the voice would have been heard by us if the mind had been directed to it.

Falstaff would not allow that he was deaf, but said "it was the disorder of not listening,—of not marking, that he was troubled withall." So that many sounds perfectly audible, when the mind is awake to them, are not so when it is absent. On the other hand, a sound may remain in the ear long after all impression, as far as physical means are concerned, has ceased; but it is kept up by the nerves. An expression exemplifying which is, "That same noise is still buzzing in my ears."* It may be the clacking

* It is probable that this was very instrumental in causing Martin to

of the wheels of a mill, or the noise of a falling hammer, or the screaming of a ballad-singer, the impression lasts long after the impressing cause is removed.

Of double vision I have afforded illustrations,—of double hearing I know of none, though Müller asserts that it is possible. The circumstance of deaf people hearing common tones of voice when a stunning noise is created near them, is of ordinary occurrence. The deafest hear what is said in a low voice, when rattling over the pavement in a carriage; whereas those who hear well on common occasions do not do so under these circumstances.

Neither the physiology nor pathology of the ear is so thoroughly understood, but that much still remains unsatisfactory both in regard to the knowledge of the relative powers of the different parts of this minute and very complicated structure, and the remedial means of deafness or of morbid susceptibilities of the impression of sound.

I knew an instance of most painfully acute hearing towards the fatal termination of a very protracted illness. A young woman of twenty-five died from chronic stricture of the intestines, and for the last three or four weeks suffered most acutely from this affection. It was almost incredible from what long distances she could hear the least rustling of her nurse's clothes. The slightest sound, not to say noise, was like an electric shock passing through her ears. This was more painful to her than all her other sufferings.

set fire to York Minster. He was evidently in a morbid nervous condition, and influenced by fanatical zeal to do some great work worthy of canonization, he was kept in continual remembrance of his vow by this buzzing of the organ of which he so much complained.

Dr Good mentions the case of a young lady in whom this morbid state sympathized with vision.

"A noise affects my eyes so much, that I am obliged to darken my room when at any time I am under the necessity of hearing any thing like a voice. A loud sound affects my eyes, and a strong light my ears. They seem to act reciprocally."—*Good's Study of Medicine.*

SMELL AND TASTE.

There is a certain relation between these two functions. Taste may exist without smell, but flavour does not. If the nerves which supply the mucous membrane of the nose have been destroyed, the latter faculty is lost. In states of catarrh, we commonly say that we can neither taste nor smell, and in this instance the olfactory nerves may be supposed to be much more influenced by the morbid condition of the membrane than the gustatory. These two senses offer a wide field of inquiry for such as diligently prosecute inquiries into the powers of the nervous functions; all rests here upon impressions made upon nervous papillæ, and the communication of these to the sensorium by larger trunks. Idiosyncrasies play a distinguished part in this comedy. The aversion of some persons to the taste and smell of different objects is not imaginary but real. It is not to be disguised. The late Lord Selkirk told me that one of the most robust and indefatigable of the North-west Company's agents could not sit in the room if salmon

were upon the table. He had been known to faint under such circumstances. "Die of a rose in aromatic pain," expresses sufficiently the effects of such aroma upon the nervous system. A near relative of my own, a medical man, evinced in his own person the truth of morbid susceptibility of the olfactories to the scent of flowers. He was a pious man, and I have known him almost faint in church, and often complain of severe headache for the rest of the day after sitting out the service in summer-time, when the neighbouring pews have been garnished with bouquets. A lady arriving in the evening at a country-house, was immediately seized with unpleasant and uncomfortable feelings, as she sat with the family upon the lawn. She said that it would be considered ludicrous, but she felt persuaded that a hare must be nigh, and that the smell of that animal always made her ill. The shrubberies and lawn were scoured, but none could be found. She still persisted in the assertion, and remained faint and languid. Upon further search, a basket of game containing a hare was found in the larder. In disordered states of the system, the sense of smell is impaired, and, in severer conditions of disease, lost. Its return is not a proof of approaching convalescence, but of the progress to complete recovery. I recollect attending a gentleman who had been convalescent for some time; but who could not shake off, as he styled it, all his uncomfortable feelings. He ate, drank, and slept, but still was not well, a state of things which I have observed to prevail in northern latitudes. One day he said to me, I shall do now,

doctor, for I can come to my snuff again. It was the crisis to the remains of his disease.

The hay asthma affords a very good instance of the peculiar susceptibilty of the nerves of the Schneiderian membrane to the impression of the pollen of flowers floating in the air. A botanist told me it was caused by one species of grass, and by that only, when cut and dried; but the following case proves the contrary:—A gentleman residing in the south of England was annually troubled with this affection to a tiresome degree, and finding that nothing relieved him but avoiding the causes, he migrated to the seaside at this period of the year. He avoided going into the fields, and confined his walks to the seashore. Upon one occasion, when he had congratulated himself upon defying the enemy, he began to sneeze very violently, and was unable to ascertain the cause, till he discovered a solitary black thorn in full blossom. He discontinued his walks till the flowering was over, or at least kept to windward of the shrub.

I have noticed the case of a relative who was morbidly affected by the smell of flowers. It is singular that his mother was occasionally annoyed by a salt taste. She was a healthy old lady, who lived to eighty, and was subject to slight attacks of gout in her hand. These attacks were generally preceded by a saline taste in her mouth. So strong was this, that she could eat eggs without salt. When the gout was fully formed in her hand, her natural taste returned.

Some complain that every thing tastes sweet to

them; but all unnatural tastes, and the mouth being out of taste, which is a very forcible expression, imply a morbid condition of the sensitive papillæ of the nerves.

I knew a gentleman engaged in commercial concerns, whose mouth was *out of taste* for many months. He consulted several medical men, with no relief; and as he was otherwise in good health, his friends laughed at him, but that made him no better. His nervous system was, during this time, much influenced by the state of his affairs; for the sudden death of his predecessor had left him a deal to wind up, and he was very anxious to establish himself in the business. In this state he was obliged to go to England, where, having found every thing to his satisfaction, his taste came round again.

There is a certain relation between taste and smell, and the simultaneous mixture of the two adds to the pleasure or disgust of certain liquids. The aroma of the fine wines is twice tasted by the gourmet, who applies the glass to his nose before he drinks the contents. The child is told to hold his nose tight before he swallows his senna tea.

The sense of taste is improved by cultivation, yet is lost by long use. Hence it is said of French artists, after a certain time, Il ne vaut plus rien; son goût est trop usé, il a perdu son goût. It is the cook's taste which regulates the culinary laboratory.

Some maintain that substances excite a different taste as they are applied to different parts of the papillæ of the tongue.

The term *arrier gout* of the French, certainly seems to express this forcibly, and to justify the idea of a

physical cause, for some things which taste very pleasantly in the first moment leave an unpleasant taste behind.

The sense of taste leaves its impression long after the substance which excited it has ceased to act upon the nerve, and this interferes with other substances afterwards applied to the tongue. If different kinds of food or wines are presented to a person whose eyes are covered, it is difficult for him to distinguish one from another.

TOUCH.

We have to say a few words only upon the sense of Touch, to prove (what cannot be disputed) that, as regards the five senses, and their nerves, there is not much real difference in the meaning of the terms. That the senses depend upon the integrity of the nerves for their perfection, is demonstrated by evidence so conclusive, that more time need not be occupied in repetition.

The effects of a cold, which sheathes their sentient extremities from the impression of matters impinging upon them, or even arrests undulations, rob us of three out of the five senses at once, and leave nothing but sight and touch to connect us with the external world.

The nervous papillæ of the tongue, which are concerned in the sense of taste, may be rendered more sensitive of impression by use and education; and those distributed to the ends of the fingers may, by

the same means, render touch infinitely more exquisite. There is a certain degree of idiosyncrasy in this sense, as tickling implies, which to some is a most painful operation. Why the nerves of the soles of the feet should be more alive to it is not easily explained. It is a privilege which Shylock claims for the Jew as for the Gentile. There is, I believe, a great deal to be done, in a medical sense, by mere rubbing, if well performed. In many instances, it is the best means of soothing, and induces sleep as sure as an opiate. In many female obstructions, constant rubbing with the flesh-brush will do more than steel and myrrh pills; but this must not be trusted to the patient, for then it is never done effectually, either from forgetfulness, fatigue, or the intervention of a hundred other causes. A steady old nurse should perform this operation. In the mesenteric affections of children, the same system is most efficacious. In chronic diarrhœa I have found it most beneficial; and in that half and half kind of gout which sometimes makes its appearance, and threatens worse attacks for the future, this will often effect wonders.

When I was at Dieppe in 1826, a case of this kind occurred to me. A captain in the navy was laid up with a swelled ancle, and was unable to walk. Not being in good health, he was in the constant habit of taking medicine. There was not much pain or redness in the limb. After taking some cooling medicine, the local inflammation soon subsided, but the ancle remained stiff and swollen He had been subject to the same thing before.

I recommended him to rub it night and morning

for half an hour. Not satisfied with his manipulations, I begged him to employ a fish woman to rub it for him; and this was done regularly for a fortnight, after which period it was discontinued, the ancle being reduced to its usual dimensions. He had no return of his complaint for years,—I believe, never since; and, moreover, he left off all medicine, by which his general health was much improved.

Rubbing is a soothing, pleasurable, sensation, in many cases, and the whole system sympathizes with it; therefore, time is gained in more general affections; and, if long continued, it may afford time for the secretions to become more natural by degrees. It is unfortunately of too simple a character to gain much faith, and yet it is a stronger dose than anything ever exhibited from a homœopathic laboratory.

A gentleman complained to me, that he had had an attack of the common cholera some months previously, and that his bowels had since been in so disordered a state as to interfere with his pursuits, thus being a source of great annoyance to him, and rendering him irritable. I told him to buy a flesh brush, or a pair of hair gloves, and rub himself night and morning. He told me, some weeks afterwards, that he had found the greatest benefit from the rubbing system.

It is questionable if the hair shirt of catholic penance might not be useful in some of these chronic cases of diarrhœa.

In some states of disordered nervous functions the nerves of touch get out of order also. Bodies do not make the same impressions upon them as heretofore,

and that which, under most circumstances, is most delightful, becomes unpleasant in morbid conditions of the system :—" A gentleman deeply in love, but labouring under a neuralgic fever, received no pleasure from the grasp of his betrothed's hand, but even a sense of disgust." This is instanced by Dr Macculloch as one of the consequences of that morbid state when every sense is found to be affected.

As applied to the skin, the sensations of heat and cold, to which hypochondriacs are subject, even when the thermometer indicates no change in external temperature, can be referred only, as Müller has observed, to change in the condition of the nerves. In some cases, heat and cold render precisely the same sensation. To a blindfolded man, a red-hot ball, or one of frozen mercury, would produce the same degree of pain.

It has been before observed, that perceptive sensation is in the brain. The direction of the sensorium is necessary to the perception of an impression, as before instanced with respect to hearing, and an impression is either greatly increased, or may be wholly obliterated, as the mind is directed to or from it.

Dr Holland has made some interesting observations on the effects of mental attention on bodily organs, or the direction of the mind to any one point. I shall only extract the following note :—

" It may be reasonable to refer to the same principle some of the alleged facts in homœopathy, especially the long train of symptoms catalogued as proceeding from infinite small quantity of matters, which are inert or insignificant in other manner of use.

The attention, urged to seek for sensations, has no difficulty in finding them. They generate one another, and are often actually excited by expectation of their occurrence."—P. 68, *Medical Notes and Reflections.*

A circumstance in illustration of this came to my knowledge soon after I had read Dr Holland's interesting publication. I was mentioning it to a medical friend, who was much struck with the fact. "This," says he, "is in precise confirmation of what has occurred with ——. He has been attended by Dr——, a Homœopathist, who gave him some powders to take, and told him that he would probably *spit blood* in so many days after he commenced their use. He begged that this might not alarm him, for it would prove critical to his disorder. It did annoy him, however, and his mind was pre-occupied with the idea during the whole of the interval, and on the day specified he did spit blood in the morning. This raised the system of Homœopathy to the standard of evangelical truth—in his mind." Of the truth of this position, Dr Holland has instanced many examples.

It is questionable if some of those neuralgic affections, which have their diurnal paroxysms, are not long kept up by the mind being habitually directed to them, and to the hour of their arrival. Many must have heard some such observations as the following from patients so affected?—"The palpitation—the spasm, did not occur yesterday at its usual time; for, to tell you the truth, I was so very much occupied with a pressing affair that I had not time to think of it."

An increased current of the blood, or increased momentum, as Dr Parry observes, as noticed in

Tinnitus Aurium, will excite periodical sensations in the organs of sense; but these will occur without any mechanical causes, and from nervous irritation only. Persons complain of a periodical ticking in the ears; and the influence of the mind alone will excite all the pleasurable and disagreeable sensations to which the senses are liable. Thus a whole company may be made squeamish on board a vessel, by the example of one individual who is sea-sick, and the thoughts alone of tickling will cause laughter.

I question if some nervous affections are not made periodical by the influence of the mind alone. It occurs to some to have what they style a good and a bad day; and impressed fully with the idea of having an intermittent disorder, they create it afterwards by looking for the bad day. I have known some so very well on the good day as to guarantee them against the bad one, if the mind had not been so prepossessed; and it has happened that something of extraordinary interest has occasionally caused the bad day to be overlooked, and, by thus breaking the periodic character of the complaint, has restored the patient at once to health.

In the treatment of such cases it would be well, where change of air, &c., are recommended, to make the patient occupy himself with the preparations for his journey on the bad day. This would perhaps convert the bad into a good one, and the following day being the good one, two good days would come together, and this would at once relieve the mind from the spell of periodical disease, which, with the idea of the change of air, might at once effect a cure.

THE VOCAL ORGANS.

If it be allowed that the inner man is made manifest in the outer, through the medium of nerves, we must also contend for the exercise of their influence on the organs of utterance. To be struck dumb by fear, by joy, or by any mental emotion, is a phrase of common acceptation, founded on daily experience; but between this annihilation of the voice and the various modifications of its tones, as influenced by nervous energy, there is every degree of variety. The "*vox faucibus hæsit*" implies the effects of fear in a greater or less degree, which prevent distinct utterance, as long as the moral cause remains unconquered. "The virginity of oratory" is often embarrassed, and even old and hackneyed debaters, under particular circumstances, experience a difficulty of enunciation at the outset, which wears away by degrees as they warm with their subject, till finally the powers of rhetoric assume their sway, and the will triumphs over all impediments. In his satirical criticism of oratory, Goëthe has observed—

> "Und wenn's euch ernst ist was zu sagen
> Ist's nösthig Worten nachzujagen?"

Still this embarrassment exists as long as a certain power controls the will; and when we observe speakers in this situation, we say that they are nervous; and, moreover, we are often made very nervous ourselves by their hesitation.

Some sing well in private who cannot face an

orchestra. The fear of the many robs them of that confidence which the few inspire. Others require all the stimulus which crowded benches afford them; they gain confidence where others lose it; such cannot sing in private.

The act of inviting renders some mute, who will sing of their own accord till we wish them dumb. "*Injussi nunquam desistunt.*"

The larynx is recognized as the seat of the voice in man, and the inferior larynx in birds. Sounds are also formed in the mouth.

If an aperture be made in the trachea below the glottis, which contains the vocal chords, the voice becomes extinct, as long as the aperture remains open. Operations performed upon the human subject for the extraction of swallowed coins, or to prevent suffocation from the closing of the air passages in disease, have established this fact beyond all controversy.

If the nerves supplying the apparatus that regulates the conditions of the vocal chords be injured, the voice becomes indistinct; if the recurrent nerves be divided, it is altogether extinct.

Thus, physically and mentally, we have proofs of the operation of nervous influence over this function. Speech is considered as man's prerogative. There is a line to be drawn between speech and language; for all animals possess the latter. The peculiar shriek of the hen tells her chickens that the hawk is hovering over them, but this does not imply all the rationality of speech. It is when speech is swamped in language that we say, He talks like a parrot, or chatters

like a monkey, *who* does not talk, as Dodart observes, solely because *he* has nothing to say. Dr Elliotson, upon the authority of Locke, who had it from Prince Maurice, instances a parrot, who not only pronounced words, but held a rational conversation. Of this singular exception it may be said, as of some few things of the same nature, that we can only account for it by doubting the fact. If it were true, and speech were proved not to be man's sole prerogative, it would add a sting to Beaumarchais' satire on our species :—"Boire sans soif et faire l'amour en tout temps, il n'y a que cela, monsieur, qui nous distingue des autres bêtes."

Speech is under the immediate control of the voluntary muscles, which may be so influenced by nervous power, as to correct the impediments to which some are liable. Under the influence of mental excitement stammerers will speak most fluently, but it requires a strong dose for this purpose. If we attempt to help them with words, we only embarrass them, and render them more nervous by making them conscious of their impediment. If Arnott's opinion be correct, that this depends upon spasm of the glottis, then Diefenbach's barbarous operation was wrong on principle, when he divided the nerves of the tongue. In exercising this piece of cruelty, he actually excised the organ in one poor boy, who died of hemorrhagy. The defect has been overcome by long perseverance in the exercise of the voluntary muscles. I knew a young lady who was cured by reading aloud eight hours daily; but upon relaxing in her practice she relapsed into her former state. The circumstance that

stammerers can sing more readily than speak,* either invalidates Arnott's opinion, or proves the triumph of the nervous power in the greater effort which is requisite to perform this function.

The decay of the voice is in direct ratio with that of the nervous energy. The vocal chords get unstrung, as we find in some nervous affections, and the tone of the voice changes with time, as exemplified in the seven ages :—

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

The impression of cold air has considerable influence upon the voice. The Italian female singers complain of the cold of St Petersburg injuring their vocal powers in the winter season; and we send aspirants to the south in early life to ripen the voice.

Nightingales do not inhabit cold regions, and perhaps they would not sing as they do in the south if they did. Whether birds confabulate or no, Rousseau must determine; but that their song is given them as a compensation for language cannot be doubted, and with some for a specific purpose. It is during the time of incubation that the male nightingale sits on the bough and charms his partner with his song. When the eggs are hatched, the mother regains her liberty, and requires nothing more to amuse her than

* I know a singular instance (which in fact came under my own observation) of a gentleman who could not speak two words consecutively without the greatest pain, apparently to himself, and assuredly to those present, giving a most beautiful imitation of John Kemble's delivery of Hamlet's Soliloquy.

the care of her brood. The male not only ceases to sing, but he loses his sweet notes and croaks like a frog. Here then the nervous system is in full force. This is a beautiful insight into the bounty of the All-wise in providing enjoyments for the minutest of his creatures. It is not only existence which he has given, but the means of enjoying it to the fullest extent.

Those who maintain the ascetic doctrines, that life is a bill of pains and penalties, must in vain look for justification of such ideas in the manifest intentions of Providence. Those who construe good into evil are more morally cruel than the *durus arator*:—

> Qualis populea moerens Philomela sub umbra
> Amissos queritur fœtus, quos durus arator,
> Observans nido implumes detraxit ; at illa
> Flet noctem ramoque sedens miserabile carmen,
> Integrat et moestis late loca questibus implet.
>
> *Virg. Geo.* iv.

I met with a complete case of aphonia in a Russian general, who returned invalided from the siege of Varna. His voice was perfectly extinct. He remained some time at Odessa, and received no benefit from anything that was tried to restore it. I gave him bark, ammonia, and valerian. He was a very nervous man. The Emperor desired him to return to St Petersburg. Upon his route to Moscow he suddenly recovered his voice in an instant, and did not lose it again for years afterwards, as I had an opportunity of knowing; but he was a martyr to other nervous affections. A circumstance in his case is worthy of note; soon after his return to St Petersburg, and not long after he regained his vocal powers, he was affected with a painful induration of the sper-

matic chord, which troubled him for some time. As I did not treat him for it, I do not know what measures were employed. It made the more impression upon me at the time, as Dr Macculloch mentions a neuralgic affection of the testicle; and the sympathy which exists between these parts in early life made it still more impressive.

PART VI.

Influence of Blood upon Nerves—Nervous Complaints—Headaches.

INFLUENCE OF BLOOD UPON NERVES.

When Gil Blas told the bishop that his sermon smelt of the apoplexy, he proved himself more conversant with the animal economy than his master, Sangrado. The practice of the latter is most justifiable in this affection, but the removal of the offending agent does not remove the injury which it has perpetrated; nor is it from *post mortem* examinations that we can always judge of the nature of these injuries. In the Appendix will be found a case of what the Germans style *Nerven Schlag*, where the appearances were not sufficient to warrant the sudden death of the patient.

The brain may receive a shock, or be injured by noxious matter, so that the nervous system shall be completely paralyzed without any organic lesion being demonstrable, as before observed, *e. g.* in such morbid states of the kidney as prevent them from performing their purifying offices. Here the blood becomes the direct cause of offence, as certainly as when it conveys adventitious matter introduced into it by way of experiment. In saying that no lesions exist, it can only be understood that none are found, recogniz-

able by our senses. The blood may be the cause of injury to the brain, either from morbid constitution, or abnormal circulation, for which the brain may in some cases have to thank itself; for physical effects arise from moral causes.

That the blood has great influence in the production of a numerous class of diseases which are generally denominated nervous, cannot be denied; but the question remains to be solved, what the nature of its influence really is? Are we to look for it in a change of the condition of the fluid itself, or to change in its impetus and momentum, or, in many cases, to a combination of the two causes? It is perhaps going too far to adopt all the views of the late Dr Parry upon this subject, but that there is a mass of evidence in his favour, in very many instances, is highly probable. In the mechanical views, which he takes of the causes of many diseases, there is much more probability of truth, than in attributing these to chemical changes in the blood itself. If inquiry be made as to the causes productive of the disturbed balance in the circulation, they must often, in the first instance, be referred immediately to derangement of the nervous system.

Epilepsy offers a good illustration, for it is frequently produced by some irritation of a local nature, which throws the nervous system into convulsions by indirect action through the sanguiferous system; and it is more probable that the epileptic fit, which ushers in some of the exanthemata, is rather due to deranged balance of circulation than to morbific matter in the blood. Dr Parry observes—"Epilepsy is also most apt

to affect young persons, who are well known to be most liable to diseases accompanying the nervous temperament, and of these, more especially females, who have not yet reached the period of fully established menstruation.

"At a more advanced age, it chiefly attacks those who have long been constitutionally nervous, or who have lost the accustomed excessive sanguineous determinations of gout, hemorrhages from the nose, hemorrhoids, ulcers, eruptions, &c., and in all these cases the pulse in the carotids is habitually stronger than natural. It is often one modification of that increased determination to the head which attends dentition, and not rarely comes on in that stage of the cold fit of agues, and before the eruption in certain other fevers, when the blood is accumulated about the heart and large vessels. I have seen it form one link in the chain of excessive determinations following scarlatina, of which articular inflammation, hemorrhage from the kidneys, and anasarca, constituted the preceding links.

"It frequently follows hysteria or mania, or alternates with them. In several instances I have known, in the same patient, paroxysms occur at different times in all the intermediate degrees between common hysteria and the severest epilepsy. Lastly, it often terminates in or is exchanged for sanguineous or serous extravasation in the brain, and consequent hemiplegia or apoplexy, whether hemiplegic or otherwise."

These observations only tend to prove that existing causes, which increase the determination of blood to the brain, or the force with which the blood is pro-

pelled, produce such an impression upon the cerebrum, already predisposed, and in a previously irritable condition, as to excite the convulsions of epilepsy. A sudden passion or emotion of the mind, and, indeed, all those causes which influence the heart's action, being able to effect this, it is evident that it is not the quality but the quantity of the blood which is in fault. And the same applies to many cases of simple fever, which are kept up by irritation of the brain, from increased determination, rather than from any deleterious quality of the fluid itself; because we often see an attack of fever cut off at once by a judicious bleeding.

It is well known that the quantity of blood, which is no more than requisite to health, may be superabundant in disease; and the same argument may be applied to its momentum, just as the weak eye cannot bear the light, neither can the irritable brain support the influence of the same quantity of blood as in its normal state. The symptoms arising from this state of the circulation, as headache, throbbing noise in the ears, sleeplessness, have all been suspended by mechanical causes interrupting the flow of blood to the head, as by pressure of the carotid arteries; and a sudden hemorrhagy or loss of blood will, as Dr Parry observes, sometimes cure a long existing and intractable disease. I had an opportunity of witnessing this in a patient of my own, a young man of delicate constitution, who had been long troubled with severe headaches, which interrupted his course of studies. His horse having run away with him, and fallen at full speed, threw him with great violence against a gate post. He was taken up

insensible, and I was sent for; as some hours had elapsed before I arrived, a practitioner in the neighbourhood had been called in, who bled him from the arm and applied leeches, one of which biting a branch of the temporal artery, caused a considerable loss of blood. He remained from the Friday to the Sunday evening speechless, when, opening his eyes, he said, "Put the horse in the stable." This was the point to which the mind returned after forty-eight hours oblivion. He recovered eventually; and, since this accident, has had no return of his headaches.

The idea is too prevalent, that nervous diseases must be all attributed to a weak condition of the nerves, and that bark, and wine, and valerian, are the agents which are alone applicable to the cure of such. This is as absurd as to suppose that all fevers spring from a vitiated state of blood. If many of these complaints are relievable by abstracting the causes which excite them, are they the less nervous on that account? The nerves are as liable to impression from the circulation, as the bones or muscles, and they are subject to every degree of irritation. The only difference is this, that they often generate their own diseases. It is, therefore, a matter of great importance and nicety to determine, not what is the nature of the disease, but what causes it; and he who resorts to stimulants for all nervous affections, must find himself often thwarted in his plans of relief.

The terms nervous, and nervousness, are too sweeping, inasmuch as by such is generally implied a certain *modus medendi*, which is often most inapplicable. Dr

Wilson has made some very valuable observations on this head.

The referring of deafness to this cause has proved a great stumbling-block hitherto in the treatment of that malady. It is often the deafness which makes people nervous, and not nervousness which causes deafness; and hence the opportunity is often let slip of alleviating this complaint. It is nervous in the strictest sense, for when inflammation is set up in the membrane of the tympanum, the nerves are immediately acted upon, and the impression is communicated to the sensorium. The irritation of a nervous twig will produce a host of distressing symptoms, which, though of secondary occurrence, become so predominant, that the primary cause is lost sight of. In this way the delicate membrane becomes disorganized, and, as it occurs generally in one ear only at a time, it is neglected or unheeded, till the same series of symptoms commencing in the sound one, some medical relief is sought for. Mr Toynbee informs me that he frequently does not see patients till they have lost their hearing on one side.

"There is a common species of deafness, of which Dr James Sims has spoken, if not first, at least best, in an excellent memoir read before the Medical Society of London. Like many other disorders of circulation, it is usually called nervous. It seems evidently to arise from obstruction in the Eustachian tube; accordingly, when it is simply of this kind, the patient can hear well when the tube is distended by strongly blowing with the nose,—mouth and cheeks closely shut. He can usually, also, at all times hear acute

sounds, but not the more grave ones. In this case there is so far from being any real paralysis of the nerves, that acute or very loud sounds are even painful; and what demonstrates that this is a disease of increased vascular fulness or impetus, and not of nervous insensibility, is, that I have known it, first, removed on the occurrence, in the respective examples of hepatitis and hemiplegia, and return as those complaints were diminished; secondly, entirely cease in two instances, forty-eight hours before death; and thirdly, completely cured for more than a year of the remainder of life, by an accidental hemorrhage from the humoral artery. This species of deafness is very commonly produced by colds in the head, in which it is evidently owing to a communication of disorder from the mouth and nose along the membrane, which is continued into the Eustachian tube. It is probable, however, that, on many occasions of deafness, the malady is not confined to this part; but it is worthy of inquiry, whether, in such cases, the effect does not originate in a similar excessive impulse of blood acting on some other essential part of the organ of hearing."—*Parry's Elements of Pathology*, p. 176.

The numerous dissections which Mr Toynbee has made of the ear, have convinced him that the seat of deafness is almost always confined to the tympanum, and is the result of slow, long-continued congestion in the vessels of the membrane, finally destroying the nerves, and becoming itself opaque.

It is generally observed that deaf people are irritable and nervous, and it is not to be wondered at, when, by this malady, they are cut off from the mental

world. Did not they too long mistake cause for effect; and, instead of considering that their deafness arose from nervousness, attribute the latter to the former, they might often prevent the loss of this sense. Here again, we see cause and effect reacting on each other: the irritation, from the local cause, creates general irritability of the nervous system, which again increases the very cause which has produced this state.

It is not in this affection alone that we trace the operation of nervous influence, for headache, noise in the ears, dimness of sight, and vertigo, may all be induced by mental emotion, or the too strong direction of the mental powers to any particular study. The blood may be propelled with too much or too little force to the brain, and equally produce disorders of the nervous system.

In all these disorders, so styled nervous, consequent upon deranged circulation, it is a question merely of mechanical influence, and not of vitiated quality; for so necessary is the healthy state of blood to the well-being of the system, that when it is really altered in quality, we find it productive of the most fatal consequences. It matters not whether the prime cause of offence be in the blood itself, or whether this be brought about by deterioration of nervous influence, the effects are the same.

It may become corrupted by degrees, as in cases of fever, and no longer afford the stimulus to the nerves which is necessary to life. If the blood be materially altered in its constitution,—if it be charged even with those matters which should have been separated from

it by the secreting organs, or if any cause or impediment prevent their due operation, so that it be not purged of matters which are incompatible with its healthy state, then we see the disastrous consequences, and nowhere better than in those cases of sudden death, proceeding from the suspension of the urinary secretion, either in Ischuria Renalis, or in certain morbid conditions of the kidney. In such cases no organic lesion, no effusion, are visible, but the matters contained in the blood are applied to the brain, which thus becomes poisoned. This is effected not by injury to the blood itself, for of this there is no proof, but by injury to the brain from contact with noxious matter. It is upon this knowledge, therefore, that we may presume that many of the diseases caused by the circulating fluid are rather to be attributed to the mechanical influence of impetus and momentum, in excess or in deficiency, than to any change of quality in the fluid itself. I can only refer to Dr Parry's work for a numerous list of those diseases which he attributes to increased determination of blood.—P. 320.

Among these will be found headache, vertigo, sleeplessness, common nervous affections, mania, delirium, convulsions, hysteria, epilepsy, catalepsy, &c., all of which are not the less nervous, because an exciting cause is made evident.

It is a very great mistake, too often made, to neglect seeking for the real cause of nervous complaints. The term nervousness is sufficient to occupy our attention without further examination. It implies generally every thing with which we are really not

acquainted. To believe that a patient is only nervous is sufficient to stop farther inquiry. He is then without the pale of rational medicine. Now, there is often as palpable a cause for this state as for any other morbid condition of the system; and these sweeping clauses bring the profession into disrepute, whilst they allow quacks to triumph. The author of the Bath Guide was hardly too severe upon the profession, when, after the consultation of physicians, the patient is made to say in his letter to his mother—

"I'm bilious, I find, and the women are nervous."

So it is even in the present day; and the two complaints are associated with valerian and bark, or blue pill and black dose, by which treatment, in many cases, the evils are aggravated tenfold. I have now an opportunity of knowing, that a gentleman affected to a most uncomfortable degree by nervous deafness, under which he laboured for years, has been perfectly restored to hearing by such treatment as was scientifically adapted to chronic inflammation and increased determination of blood to the tympanum.

In St Petersburg hemorrhoids prevail to a very great extent. Of this there is often sufficient ocular demonstration; but they are supposed to exist internally much more frequently than they are found externally, so that if there be the least obscurity attending the state of a patient's disorder, it is attributed to hemorrhoids. In my own practice I have known a discharge of pus from the bowels in mesenteric affection, denominated a hemorrhoidal abscess. The patient died of marasmus. A calculus passing

from the kidney to the bladder, and sliding down the ureter by degrees, so as to create the most painful nephritic symptoms, at several periods during a journey of ten months, was denominated a hemorrhoidal colic; but the calculus made its appearance in the urethra and was extracted. This case I published in the Medical Gazette.

A valet of the Count ——, with whom I lived, was long affected with hemorrhoids, till examined by a skilful surgeon, when he was found to have an abscess in the perineum.

Spitting of blood is a common hemorrhoidal affection, as are most affections of the eyes not attended by inflammation.

The late Mr Tyrrel was consulted by a Russian nobleman for an affection of the eyes, which he was told was hemorrhoidal. He laughed heartily at the idea.

This generalization of complaints must give way to the more scientific views of the present day; but it is not all eradicated; and if a large class of ailments do come under the definition nervous, which is tantamount to confessing our ignorance of their causes and seats, still a great many, upon careful investigation, will be found to depend upon positive affections of the nerves.

The great difficulty lies in administering to these affections. We cannot get at an individual nerve but through the medium of the circulation, so that the dose we apply to it must be very small, and, at the same time, we are subjecting healthy parts to discipline which they do not require. Even in such cases, as where we can subject an individual nerve to experi-

ment, we often gain nothing by it, for if this nerve have its roots in the brain, it is useless to operate on its twigs.

There are cases where the whole nervous system is affected by irritation of a part, as where lancing the gums has arrested the convulsions which often arise from teething. I have known a whitloe attended with pain in the chest and dyspnoea. The pain of toothache drives a person mad, in common phraseology. These are *come-at-able* nervous affections; but how are we to get at those situated internally, producing distressing effects, and so operating by sympathy upon other parts of the system, as to be lost themselves in the crowd of other affections to which they give rise.

Many of these depend entirely upon abnormal circulation, and are attended with periodical paroxysms of pulsation when the system is under the influence of exciting causes. An affection of this kind is sometimes met with in the pylorus. A gentleman laboured under a complaint of this kind for many months. It was treated as a nervous affection, to which its periodical return lent a degree of probability. It regularly occurred just two hours after his dinner, and continued for several hours. All the anti-nervous medicines which he took tended only to increase it. He submitted to the *hunger cure*, by which he was permanently relieved, though he was reduced to great debility by the experiment. Here, then, was a case of diseased nerve, and not of nervousness, and a proof that the nerves when affected are not to be treated upon one and the same plan. It was evident

here that the distension of the vessels from determination of blood during the digestive process, was the cause of the evil; and, by cutting off this process, or reducing it to no more than was necessary for the mere purposes of life, the nerves were allowed to regain their healthy state.

We have pathological proofs of the conversion of insensible into sensitive parts by the influence of disease, as in affections of the serous membranes, which, in health, are hardly susceptible of pain from injury; but when once inflammation is set up, they become, by reflex action, most highly sensitive, nor is it till this condition is effected, that *inflammation can be said to be fully formed.*

In the treatment of membranous inflammation, local bleeding is perhaps, in this country, too much neglected. On the Continent it is seldom dispensed with. Full bleeding from the arm is accompanied by free applications of leeches to the part affected, and many a repetition of the general bleeding is in this way prevented. In cases of peritoneal inflammation, it is not uncommon for the patient to complain of severe pain after the first bleeding, which is relieved by a second, or still more by the adjunct influence of topical abstraction. A dull heavy pain is converted into an acute lancinating one from partial depletion.

The cause is evident; the larger vessels being relieved without the same relief being afforded to the capillaries, the action of the heart has greater power in forcing the blood into them, as the vessels most contiguous to them admit, by being unloaded, of greater distension; so that the relative momentum, as

regards the capillaries, is greater than before, and hence the nervous expansions are more tortured than previously; but when the general momentum is diminished, and the capillaries are allowed to unload themselves by topical abstraction, then the nervous irritation subsides gradually. I may say that I have never seen inflammation otherwise treated on the Continent, but by conjoint use of general and topical blood letting.

In many instances free application of leeches supersedes venesection; nor can we well account for the relief experienced, which is sometimes immediate. This may be understood where we act upon anastamosing vessels; but this is not always the case, for, as John Hunter has observed, there is no connexion between the vessels of the scrotum and testicle, and yet there is no more certain way of relieving that painful affection, Hernia humoralis, than by topical bleeding. This same argument applies probably to some affections of the synovial membranes and cartilages of the joints, viz. that all the good is not done which might be done by a continuance of the depleting system. It is not persevered in long enough, nor is the depression sufficiently long maintained to allow the minute vessels to recover. It is a *hunger cure* which they require; and the stimulants and rubefacients which are employed, sometimes by the external pain which they create, disguise the real state of mischief going on beneath. Hence long continued chronic inflammation may proceed to disorganization of these parts. A moderate but long continued abstraction of blood would restore them more certainly to

their normal state than one copious abstraction followed up by counter irritation.

It is here the question, as must be evident, of decided inflammation acting upon the nerves, and not that neuralgic state which often occurs in the knee, and which would be aggravated by such treatment.

HEADACHE.

It would be one of the most important discoveries in our art, if we could arrive at such a knowledge of the causes of this cruel torment as would enable us to pursue some rational mode of treatment.

It is here that we have the most cause to complain that we have very bad eyes; could we look into the skull, and see what is going on there, we might perhaps arrive at something like rational practice.

We have advanced but little in our knowledge of the matter when we are told, that the headache is nervous; the value of that phrase has been already discussed; but even when we know, as in these cases, that the organ of the brain is affected, we do not know in what precise manner; hence, nothing is more empirical, nothing more unsatisfactory, than the means adopted for its relief, and, for the most part, unsuccessfully.

Patients who have suffered long under these affections, and have gone what they style the round of physicians, with little or no benefit, give up all hopes; and to use a phrase of a Russian whom I

treated for this tormenting complaint,—"I must live with it."

Lord Byron, who was a martyr to it, used to exclaim, as he placed his hand upon his brow,—"This head of mine was made to ache."

It is the nerves which suffer in this, as in the many disorders already instanced, whatever may be the exciting cause. Increased determination of blood to the vessels of the brain is one of the most common, and this may arise from a variety of circumstances. Moral influence plays an important part in these affections, and they are the inheritance of the philosopher, the poet, and the statesman. The consequence of abnormal circulation in the first instance, they subsequently are the permanent effects of diseased organization. The vessels, from continual distension, lose their tone, and chronic inflammation is the result of such injury. Hence these affections get worse and worse, lead to derangement of intellect, or fever is set up in the system, and is of fatal issue. It may be idiopathic from nervous lesion, or the susceptibility of impression being increased by pernicious effluvia, find the ground prepared for their reception. This was probably the history of our great bard's fate.

These affections are difficult to treat in all their stages; but they would be remediable, if those who suffered from them would make the same effort to get rid of them that they do to render them permanent. It is the continued dropping of the water that wears away the stone; the impression is long before it is perceptible, but the basin is hollowed out at last.

Mental excitement, however rapturous, must be followed by exhaustion; the materials of which we are composed are evidently not intended for eternal duration. There is a limit to our mortal existence. There is a natural period of decay; the house may be propped up for a long time, but it will fall at last. In a ratio with the demand made upon it, the energy of the mind will be found to decrease, provided that this demand lead to excitement, and influence organic structure. It is the "restless and unquiet thing" to which we particularly allude, the man of passion and of strong imagination, who is exhausted by excitement, morally and physically. Byron and Southey have offered two illustrations. The men who cannot, or will not, control their passions,—who sacrifice all to mental intoxication. It was so of old times, and it will be ever so. The abstract studies may be pursued with safety, and the mathematician numbers a long series of years. The statesman and bard,—how many reach threescore?

If physical power is exhausted, there is no longer manifestation of moral powers; they die away, or go out of the right road. I must lean to the opinion, that mental aberration in excitable beings is a consequence of a disease which the mind has itself created. It has been lately stated by Mr Barlow, that the mind may control matter even after disorganization has taken place. Of this there can be no positive proof; and the circumstance of injury to the brain from accidents permanently disturbing the mental powers, would argue against it; but it is often within our power to prevent this physical state by controlling mind. It is

not when the man is restless, tossing about on his couch, his hand burning, his head throbbing under the paroxysm of fever, that we can say to him, "Lie still,—be calm,—go to sleep, and the fever will leave you." It is not till the latter has left him that he will compose himself; and so it is with the functions of the brain; if these be disturbed by local injury, from whatever cause, and from none more readily than from moral causes acting upon the physical organization, the healthy moral state will not be manifest till the exciting cause be removed. It is in the early stages, therefore, where function only is concerned, and organic deterioration has not taken place, that hopes of alleviation can be justly entertained. It will depend, however, even in this extremity, upon the amount of injury done, whether it may not be remediable. The membranes of the brain are under the control of medical agents, as are other membranes of the body; and if all exciting causes can be removed, and they are not sufficiently deranged in structure as to become themselves a permanently exciting cause, so that cause and effect are continually operating to effect injury, the evil is not irremediable.

The source of many headaches is to be attributed to that state of excitement, which determines a greater quantity of blood to the brain than it can bear with impunity. Of this there is sufficient evidence on record; for a sudden loss of blood from accidental causes has liberated those who have suffered for years under such affections. It is not often, however, that medical aid is demanded, till a certain degree of mischief is done. People give themselves credit for great

discrimination in these matters; they distinguish between a sick headache, which is caused by repletion, and that kind of nervous headache, for which they think there can be no cure if Hoffman's drops are not equal to effect it. The literary man understands the cause of his ailment, but is content to put up with it as long as it is not intolerable; when it is so, it is too frequently irremediable; and the expression of such must be familiar to many medical men:—"If you wish to do me any good you must give me a new head, for this one is worn out." The nervous female endures it for years, and is persuaded that there is nothing which can relieve a nervous headache; and she is confirmed in this opinion by not finding any relief, when she has applied too late for it.

I wish I could assert that my success in the treatment had been in any ratio with my opportunities of being conversant with these affections, which are so very prevalent in the north, for reasons already stated.

If increased momentum, or determination of blood, be the primary offending cause in many of these cases, it must be remembered also, that the effects which they produce will, after a certain time, generate a condition which will be aggravated by means that might, in the first instance, have conquered the enemy.

General and local depletion are as unadvised, when a chronic state of inflammation is set up, as stimulants would be at the commencement of the malady.

I have, in these so called nervous disorders, which occur periodically in many, and are attended with threatenings of mental aberration, prescribed the shower-bath with the most happy results. A gentle-

man of very irritable temper, and about the middle age of life, liable to be put out by any untoward domestic circumstance, was subject to periodical attacks of headache, accompanied by great nervous irritability, and such loss of temper, as to make his state rather alarming to his friends. His health was in other respects very good, his circumstances were easy, and there was no moral cause in apparent operation. I recommended him to try the shower-bath as soon as he quitted his bed; he felt immediate relief from its use, and afterwards, (for he discontinued it when the affection had quite subsided,) whenever he had the least threatening of an attack, resorted to it, and always with the same success. It is some years since it was prescribed for him, and he has never had a paroxysm, such as he before experienced, since he commenced its employment.

A clergyman, subject to periodical attacks of headache, accompanied by hypochondriacism to a great degree, had found the only relief to his paroxysms in this remedy. In a village where he was staying, he was attacked by one of his usual paroxysms, and not being able to procure a shower-bath in the house, rode daily to a gentleman's seat in the neighbourhood to benefit by this application.

A lady who was subject to constant headache, was greatly relieved by the use of the shower-bath. She was very delicate, had borne many children, and was subject, after each parturition, to uterine hemorrhagy. She had received a blow upon the breast, which caused her great inconvenience, and she experienced periodical attacks of pain and uneasiness at the menstrual period

more particularly. She was so much annoyed by the pain which the cold water caused, as it trickled over the breast, that she was compelled to abandon the use of her bath. Her headaches returning, however, she resorted to her old remedy, and used to cover her chest with an oil-skin cape, which allowed her to continue it as usual, and with the same good effects.

I have found it equally beneficial in cases of hemicrania.

On the medical treatment of nervous headaches I have but little to state that is satisfactory. Arsenic is often useful when there is decidedly an intermittent tendency; from quinine I have experienced less success, and, where it is used, it should be combined with some purgative, for an open state of the bowels is always a source of relief, although purgatives do but little good if given alone. The medicine which I have often found useful is Griffith's mixture, combined with a blue pill once or twice a week.

Very much is to be gained by attention to diet; and as regards rules upon this matter, it would be well to direct that patients should resist the temptation to take what disagrees with them, and all know that by experience. Upon the point of wine, however, there may be room for discussion, and patients may honestly require advice upon this head; for many to whom the taste of wine is disagreeable take it medicinally; some take it too freely, but upon medical recommendation; for the faculty is divided in opinion upon the subject. I have never found it of service in nervous headaches, although these might arise from direct debility, if it produce heat and flush-

ing of the face. The home-brewed bitter malt liquor is preferable in these cases. Having advocated Father Mathews' cause when disease really exists, I would reprobate it under other circumstances; for I hold that a generous diet and the use of wine will often be the best preventatives to disease. If, as I have mentioned in another place, a change of life from the redundant to the extreme abstemious be sometimes attended by disastrous consequences, so symptoms which were aggravated by a mistaken forbearance from the good things of this world, are wholly relieved by adopting a generous mode of life.

This was the case with a relative of my own, who was very subject to low spirits and hypochondriasis. His medical attendant *felt his liver* so often, with the view of discovering if there were no disease there, that he at last made the patient believe that something was wrong, for the side from touching became sore to the touch. The patient put himself upon a very abstemious plan, lived chiefly upon fish and boiled meat, and being much interested in politics, read Cobbett's Register. He did not improve under such discipline; he was nervous, irritable, subject to headache, and all the train of symptoms which accompany this state. This continued for years, when his attendant persuaded him to try the Cheltenham waters. Previous to doing this, he resolved on consulting the late Dr Baillie, who, on being asked his opinion as to the patient's going to Cheltenham, replied in the affirmative; or, he added, anywhere else where he would best amuse himself. He changed his plan of diet, took wine in moderation, and in a little time was

restored to perfect health, which he has now enjoyed for the last five and twenty years, and for which, I believe, he is wholly indebted to his change of regimen.

Dr Macculloch has much enlarged upon an ascetic principle, as he styles it, in our natures, a self-denial of things which are more beneficial than otherwise when used in moderation.

These nervous headaches are more frequent in the female than the male sex, and are often consequent upon exhaustion from rapid child-bearing, periodical evacuations, and a mode of life which society prescribes, and to which they must submit. The circulation is languid from want of exercise, with which their domestic callings often interfere.

Tea is a favourite beverage with them, and there is none more pernicious, particularly if there be any green tea in the infusion. At all events, it should never be taken in the evening. Light cocoa is better for a morning beverage than tea. Coffee is less pernicious, and a strong cup of it will sometimes dissipate a nervous headache. As to all that can be said as regards social enjoyments, it is as well to be mute, or to say of them as of regimen, all know how far they can trespass; and it is not the want of the knowledge of their effects, but the want of courage to resist the temptation, that is the point in question. It is here that homœopathy triumphs. The practitioner of this quackery has every thing in his favour but his medicine. The sensualist, the votary of pleasure, think nothing of the sacrifice which they make when he commands it; but they turn a deaf ear

to the entreaties of a regular practitioner. It is not that these affections are cured by homœopathy, for it is negative for good; but they are avoided by the circumstance of non-exposure to such causes as produce them.

Under the term of nervous headaches, may be included such as are the result of exhaustion, which are more or less constant in their attacks. Sometimes enduring for days together, at other times visiting at irregular periods, they are generally confined to the fore part of the head. They may occupy a single point, or one side only. They attack and quit instantaneously. I witnessed an attack of this kind in a female, past the middle age of life, who was sitting at the tea-table, when she complained of a sudden shot through her head, and felt hardly able to sit upon her chair, from the vertigo which it occasioned. She resorted, as usual, to Hoffman's drops, but without benefit, and the whole of the head ached violently for at least three hours. I begged her to apply a large sinapism to the neck, and this afforded her some relief. As suddenly as the first attack manifested itself, so suddenly she exclaimed that the pain had entirely left one side of the head, but was equally severe on the other. I recommended her to take a dose of laudanum. She retired to rest, and hardly had she got into bed when the headache entirely left her. She did not take the opiate. She has been subject to headaches for years, but said she never was attacked so severely or so suddenly before. Upon the presumption of these being the effect of debility, she had been in the habit of drinking a deal of porter.

Wine was hardly at her command. She went into the country, and from some cause gave up malt liquor, and with evident benefit to her health. I saw her afterwards, and prescribed Griffith's mixture, which was of the greatest service to her, and she has been freer from headaches than for a long period previously. In this case, the digestive system was greatly deranged. She suffered from dyspepsia, and could only digest mutton, fowl, and game. Fish of all kinds, veal, pork, and every kind of pastry, were as so much poison to her.

These headaches, and many more of the same kind, depend upon some state of the nervous system, which is often too obscure to allow us to say what that condition is. They are hard to bear; but hundreds do go through life with such inflictions entailed upon them. They are chiefly the inheritance of females, who bear suffering more patiently than men, and whose physical lives are sometimes a continued state of pain and penalty.

In the rheumatic headache we have something more tangible. If we do not succeed in relieving it, we seem to set about the task with more confidence. It is the most painful perhaps of all the kinds, but it is sometimes remediable. It often begins in a point over the eye, or in the temple, and then gains the whole head. A full dose of cotchicum, at the commencement, will sometimes cut it off, and with this a dose of calomel and opium at night. A lady whom I treated for this affection, was relieved by a mixture of decoction of bark and guaiacum, in equal parts, of which she took a dose three times a day. With her

it proved a specific, and she wrote to me for the prescription sometime afterwards from Italy, as she had found nothing else relieve her.

For that species of headache which commences a day or two before the menstrual period, and continues throughout the same, there is perhaps no means of relief. I have known it attended by the most excruciating pain, the patient confined to bed, with the head under the clothes, and almost distracted for the time.

There is another kind of headache, the treatment of which our continental brethren understand better than ourselves. It is the hemorrhoidal. It manifests itself by dullness, heaviness, and sense of weight in the head, causing inaptitude to all mental exertion. It is with some almost periodical; and, for this affection, leeches to the fundament are a specific. *La tête est degagée*, is the expression of all who are thus treated. I have seen the good effects of such practice many many times.

Of bilious headaches the cause is sufficiently clear to point out the treatment. Resolution to avoid the evil is the desideratum.

There is a species of headache to which children are subject, and which is alarming as a sympton which threatens hydrocephalus. Spunging the face, forehead, and back of the neck with cold vinegar and water, often relieves it. Ice to the head is too strong an application, and perhaps may do mischief, by keeping the whole of the membranes of the brain too full of blood. In these cases, if they are obstinate, and in girls, the Germans put an issue in the arm till the menstrual period is formed.

There is an epispastic much used abroad, which I think would be advantageously introduced into British practice. It is the pommade vegetale de Swisse, a preparation of the bark of the mezereon, which, when rubbed on the skin, produces immediate vesication, without causing the same irritation, and never accompanied by any of the unpleasant symptoms which are sometimes produced by the blistering fly. It is employed generally to produce vesication behind the ears, and particularly in the affection we are speaking of. A small portion, rubbed strongly in, raises a blister in a few hours, and the surface may be made to discharge for any length of time, by smearing it over with the same preparation. Where a large blister of the lytta has been first applied, this preparation answers much better than the savine ointment in keeping it open. I have not been able to procure it in any of the druggist or patent medicine shops in this metropolis. In cases threatening hydrocephalus, the Germans apply it behind the ears, and keep one side in a state of exudation for years consecutively, where they do not insert an issue.

Counter irritation is the favourite practice of the German school for a host of disorders. If it do all that is attributed to it, which is saying too much of any preventive measures, (for we must always ask the question, whether such have been really so,) it has a great disadvantage even in this view of the subject. It cannot be permanently employed. People in good health will be disposed to do without it, after a certain period of endurance. Yet there is no affection, of whatever nature it may be, nor at how distant a

period soever it may occur, after the closing of a fontenelle, that is not immediately attributed to that unhappy circumstance. In investigating the history of most diseases, it is a leading question, whether some local discharge has not been dried up.

It remains to speak of that species of headache which, for the most part, is, I believe, the result of moral influence, and is caused by an increased determination of blood to a brain which is constitutionally irritable. This is the inheritance of the unquiet spirit. It may terminate in phrenitis, mania, or fatuity.

"It appears," says Dr Parry, "that a certain determination of blood to the brain is absolutely necessary for the support and continuance of all its functions."

If the circulation be too weak, there is a corresponding diminution of physical and moral power. Syncope and death may be its consequences.

"If, on the other hand, there be an increase in the momentum of the blood, sensation is increased, thought is more rapid, and sleep is almost always wanting; or, if, after some long interval, the patient for a moment forgets the surrounding objects, horrid images present themselves to his sense of seeing, so exactly mocking realities, that he starts out of his sleep violently, and for a while hardly believes that he was in a dream."

These are the extremes of a state of things of which there are all degrees, and of which headache is the premonitory affection. We must quote again from this author:—"This momentum producing excessive impulse on susceptible parts, seems to be one of the

chief causes of what may be called idiopathic pain in the animal frame."

An attentive perusal of the elements of pathology will convince the reader that Dr Parry does not at all embrace the views of the humoral pathologists. It is a question not of quality but of quantity, which is agitated; but undue quantity may eventually, by its influence on the nervous system, deteriorate the quality.

Deep thought occasions headache, as all who have thought at all, or, perhaps, I should say, all irritable and susceptible persons, must have experienced. This momentary sensation may be relieved by a temporary cessation from thought, for thought is under the power of the will as much as muscular motion.

In the "Travelling Physician," I have cited a case of confusion of intellect from directing thought to any one subject, however insignificant or grave it may be. It produces a sort of reverie which passes away upon seeking quiet.

There is much truth in the parody of Childe Harold, in the Rejected Addresses; for in such circumstances,

> "Thinking is but an idle waste of thought."

This state is, I believe, owing to decrease of blood on the brain. It is consequent upon some cause which impedes the circulation through the heart, for it is accompanied by a sense of fulness, which is relieved by frequent gaping. It may be what is termed purely nervous, and accounted for in this way:—The loss of the thread of reasoning, which would be but momentary

in many instances, excites alarm in a very susceptible constitution, and this as much as pain diminishes the action of the heart. The moral first acts upon the physical, which reacts upon the moral, and the very endeavour to get out of the labyrinth becomes a cause of failure.

I have known this state occur after great anxiety of mind. It is momentary, and is dissipated by the horizontal posture and the free return of blood through the heart, as the gaping indicates. Nothing so much resembles the waking dream as this state while it lasts.

There is a common form of headache, arising from deficient circulation in the brain when the vessels are emptied of their blood too rapidly, or when, from congestion in other organs, the balance is destroyed. The case of varicose veins, as before quoted, is highly instructive in acquainting us with the immediate effects of abstraction of blood from the brain, causing syncope. This headache is found mostly in females who have borne many children, or have been liable to large periodical discharges of blood. It is a constant affection; the head is seldom free from pain; but the paroxysms are sometimes more severe than at others. In these cases the hair generally falls off early in life, the feet are generally cold, and the hands and fingers benumbed.

The blood is in undue proportion in the viscera; and this state of things is generally accompanied by constipation. Now, although the indication here is to rouse the nervous system, yet I have not found that wine is of much service. The shower-bath is decidedly

in many cases useful, and should be followed by warm hand rubbing. The patient should also be cased in flannel; and the use of the flesh-brush, well applied by a good assistant, is highly beneficial in such cases. As far as medicine is concerned, it is difficult to make choice of a tonic which has not some drawback, from the disposition to constipation being increased under its use.

A combination of blue pill and colocynth twice a week will generally be necessary, in conjunction with bark and steel. The vegetable bitters do not seem to have any decided effect in these cases, and arsenic is never indicated in such. The hygean method is more to be relied on than any specific plan of treatment. Exercise is of great importance in conducing to a regular distribution of the circulating fluid. It should never be excessive nor carried to fatigue, but it should be persevered in constantly, and in all weathers. I think that it was a saying of George the Third, that there was not a day in the year in which he could not take a walk; and much as it has been a fashion to abuse our climate, there are few which allow of so much exercise in the open air as does that of England. Warm clothing in winter, thick-soled shoes in damp weather, and change of apparel, defy all weathers. It is the perseverance in finding health that is wanting, whereas many will persevere too long in losing it, not deceiving themselves either, but sinning with their eyes open; for none endowed with common sense will plead ignorance of the pernicious effects of indulgence in the table,—late hours, heated rooms, and the penalties of society.

The headaches consequent upon want of proper circulation in the brain depend upon the loss of that tone in the nerves which is imparted to them by the blood. It is probable that the capillaries become debilitated, and that the circulation is not free in these vessels, from a deficiency of the *vis a tergo*. Mere congestion is not inflammation, although it may eventually lead to it. I have known these headaches entirely relieved by excitement. I have known ladies leave their couch when suffering from violent pain in the head, and lose it in the ball-room. The pleasure and exercise of the dance have relieved this state for the time. It has naturally returned with increased force.

The headache, from increased determination of blood to the head, which commences by slow and insidious degrees, is of the most dangerous and irremediable kind. It terminates in the different ways before mentioned.

This is not the species of headache characterized by being confined to any one point or region, by returning periodically and disappearing instantaneously; but it occupies the whole head, and is seated in the membranes of the brain. It is always present, but subject to great fluctuations as to the amount of pain. Paroxysms may occur which border on insanity. Long endurance of pain, not sufficient to produce this excitement, leads to loss of memory and fatuity. Of this an example has occurred to my knowledge in a most worthy and estimable colleague, whom I often met in consultation at St Petersburg. He always complained of headache, became absent by degrees; his memory gradually failed him; and, of

course, his practice, which was very extensive, began to decline. He finally lost his intellect for a time. I am not aware whether he has recovered it. There is a rapidity of thought and increase of intellectual power, caused by increased momentum of blood to the brain; and so distinct is the impression left by this state on the writings of poets and authors of this class, that we can recognize at a glance, in different passages of their works, what has been written during excitement and during exhaustion. They betray, in the characters of their heroes, their own feelings. I should say that Byron's death-bed scene of the Caloyer in the Gaiour is a true picture of what he had himself suffered in life :—

> "I only watched, and wished to weep:
> I could not, for my burning brow
> Throbb'd to the very brain as now.
> * * * * *
> I would not, if I might, be blest—
> I want no Paradise but rest!"

We recognize in this the tortures of those headaches to which this noble author was a martyr; and the last line contains no profane idea, but simply an expression that rest would of itself be a sufficient Paradise without any positive enjoyment. If the physical condition of this great genius had been better understood, he would not have been treated so harshly; but it has been his fate, as it has been of others, to be known and appreciated more and more as we recede from the period in which he lived. There is a much milder spirit manifested towards his Manes than was shown to him in his life. Few can say what Scott did upon

his death-bed :—"It is a comfort to me to think that I have tried to unsettle no man's faith, to corrupt no man's principle; and that I have written nothing which, on my death-bed, I should wish to have blotted."

The same cause operated in different ways to extinguish these two lights. Byron and Scott fell sacrifices to mental excitement, operating, just as we might suppose it would, in beings of so different temperaments. The spark, too quickly blown upon, kindled a fire in the one which quickly consumed itself. In the other the spark became exhausted by slow combustion, without kindling into flame.

It is said that Lucretius wrote his poem, de Rerum Natura, in the lucid intervals of reason and sense, during a fit of delirium; and no one who is conversant with that production, can doubt of the state of mind under which it was composed. The opening of the second and third books,—"it would be profane to call it inspiration,"—but still, "it is not of this world."

Men like these generate organic disease by pursuing their occupations to excess, and the completion of the mental offspring is fatal to the physical organs in which it was nurtured. Post mortem examinations discover thickening of the membranes, ossific deposits, congestion of the vessels, serous effusions,—in some instances, abscesses in the brain.

In the treatment of the studious man's headache, or that which is derived from mental occupation, of whatever kind it may be, provided it be attended with excitement, there are few means of relief to be expected from medicine, as long as the cause is allowed

to operate. The preventive is the only effectual system, and this is difficult to accomplish; for the man who writes for his bread cannot, the one who does so for his gratification will not, sacrifice to what is at first but a trifling headache, the intoxicating pleasure of his mental labours; but it is the *principiis obsta* which should be borne in mind. The cause acts by slow degrees in the beginning; the increased momentum of the blood produces in the commencement but an increase of mental function, and this is pleasurable to the individual; but in the course of time, and by continual distension, the vessels lose their tone, and congestions follow; these may be in any degree of severity, and removable by fresh impulse; but this state leads to disorganization of membrane and of brain, and the whole nervous system is implicated in the consequences.

Study and application should never be continued when they produce decided headache; and if the mind cannot be idle, its occupation may be varied by lighter work. By such precaution the foundation of many a disease may be prevented. There is always time enough for the accomplishment of wholesome labour, and that which exceeds this point is criminal; it is voluntary and gradual suicide, unjustifiable under any circumstances. The midnight oil is too willingly consumed by the studious, because there is, as the Germans state, a kind of hallucination in the system, and, moreover, the mind feels more at liberty to work when it is secure from interruption. The charm of midnight composition consists in the certainty that the train of thought shall not be disturbed by

external causes. Neither the postman's rap nor the milk-woman's ring is expected at this hour in the great streets of the metropolis. The conversion of night into day is most pernicious to health, and those who spend nights in dissipation or study bear the stamp of it in their front. To add evil to evil, green tea is often the beverage of the midnight book-worm, of which the trembling morning hand and the morning headache are but too true vouchers. There is but a shadow of difference in the state of him who has passed his night in a tavern, and of him who has passed it in his study. When the excitement of the night is over, morning exhaustion is alike in both; the nerves in both are still reeling from intoxication.

Collingwood used to complain of his evening cramps and spasms, and of his morning headaches, states no doubt induced, in that most meritorious officer, by long continued mental anxiety. The nervous system attacked at its source, every fibre must respond; and patients themselves are sufficiently aware of the causes and effects of such headaches.

If on examination of symptoms which manifest themselves, we judge there is deranged structure, still relief may be afforded by medical means. A gentle but long continued use of mercury, with a moderately nutritious diet, and the most courageous moral conduct of the patient in resisting all temptation to over excitement, will produce a cure. The membranes of the brain may be thus disgorged of their contents, and even their adventitious coating dissolved, as is the case with congestions in other parts, by the absorbent power; but this can only be expected in

incipient stages of disorganization. Quiet, abstraction of all excitement, early hours, moderate exercise, well regulated diet, avoidance of too much artificial light and heat, and the courage to accomplish all this, may work wonders even in aggravated cases. In this form of headache, I should not think of recommending the shower-bath; the shock and reaction are opposed to the quiet enjoined; but sponging the head with vinegar and water may be beneficial.

The obstinacy of some headaches in another class of patients, has been attributable to the irritation of some bony excrescence, and, under such an idea, patients have been trepanned. I remember a case in Guy's Hospital, where a woman, under the care of the late Dr Currie, was subjected to this operation. The circle of bone removed was perfectly smooth internally, and Sir A. Cooper strongly reprobated the operation. Dr Good quotes some cases in which it proved successful.

In attributing many affections, commonly styled nervous, to the direct influence of the blood upon the nerves themselves, the question of its quantity rather than its quality has hitherto been agitated; but the latter is not to be lost sight of in its operations, when these are in force, as a first cause. The blood may be deteriorated in quality by the absorption of offending agents from the glandular structures, from the cavities of reflected membranes, from the inner coats of the intestines, &c., and produce many injurious effects to the system.

Some of these have already been noticed; among others, the bile, and, as the Germans maintain, the

milk, which, when absorbed into the blood, is a cause of puerperal fever, mania, and phlegmatia dolens.

The blood may be vitiated by the absorption of the bile, and require a long time for its purification; hence many of these jaundiced affections drag on for indefinite periods. It is probable, also, that the cholera of this country is attributable to the absorption of morbid secretions or unwholesome matters into the blood. When the latter is affected, it is not long before it manifests symptoms of the offence, and this irritating the nerve in the fibre, produces spasm and contraction; nor can it be doubted that many of the spasmodic affections and cramps of the stomach may also be due to quality of the fluid, which acts upon the nervous system and sets up disease, but it can only do so by its influence over the other systems; its condition as to itself is passive to itself in most affections of this nature.

The blood is the food of the system, and this will be maintained in a healthy state only when it is nourished by provender, proper in quantity and sound in quality. It is rather in respect of the former than the latter that the blood for the most part sins, not absolutely, but relatively; when undue quantity and deteriorated quality are combined, the effects are proportionally severe on the living solids.

In all that has been stated, we trust there will not be found anything so uncanonical, as a desire to "forbid the banns between flesh and blood."

PART VII.

Epilepsy—Hysteria—Palsy—Catalepsy—Hydropohobia—Trismus Traumaticus—Delirium Tremens—Hooping Cough—Chorea.

SPASMODIC DISEASES.

Dr Wilson maintains in his work upon Spasm, Palsy, and Languor, that "It is from what offends the blood in the fibre that spasm is produced for the most part in the voluntary muscles. The blood entire is sensitive as the individual nerve of external impression, instantaneously and simultaneously perceived through all its distributions." These views are chiefly grounded upon the effects of poisons upon the blood. Although Drs Addison and Morgan deny that poisons are thus introduced into the system, still let it be admitted that the poisons thus circulate and produce their effects through the medium of the blood upon the brain. If a muscle be laid bare, and the filament of nerve with which it is supplied be irritated by the sharp point of any instrument, the fibre is thrown into contraction, and spasm is produced. This is at all times demonstrable; but if it be asked whether the injury done to a single nerve by lesion or by poison, shall be as manifest in the system in the same space of time, or as universally, as when this is

effected through the circulation, as is supposed to be the case where strychnine is injected into the veins, it must be answered in the negative. It cannot be expected otherwise; for how can the part so soon affect the whole as the whole the part? In the first instance, the offence is transmitted through the sensitive nerves, along one line of route, to the brain and spinal marrow, which take cognizance of it, as the motor nerves bear evidence. In the second, where the blood becomes the medium of communication, the whole of the system is affected at one and the same time through the muscular fibre to the nervous filament, and so to the brain and spinal marrow directly and indirectly. That it is the nerve which alone is offended, and that the blood is passive in the business, is proved by the following experiment:—If a muscle be isolated, and the trunk of the principal nerve which supplies it be divided, then this muscle is not thrown into contraction by the injection of strychnine into the blood, although the whole muscular system be, with this exception, convulsed. It must be considered, in this respect, that the offence is in the blood which circulates freely through the isolated flesh; but the nerve is wanting to express its sorrows.

It cannot be allowed, I think, with due deference to the rebel author before quoted, "that the blood is sensitive as the individual nerve of external impression, instantaneously and simultaneously perceived through all its distributions." Its derangement is only made manifest in the flesh, not in itself by any recognizable evidence; and we see the flesh takes no cognizance of it, where no nerve is present. The

experiments of Müller, moreover, prove, that the nerves are paralyzed by direct application of poison to them.

"Certain as it is that the general effects of poisoning depend on the absorption of the poison into the blood, nevertheless the action of poisons on the nerves cannot be denied. . . . . The most obvious case of local paralysis of nerves by a narcotic poison, is the dilatation of the pupil and loss of contractile power of the iris consequent on the application of a drop of solution of *extractum belladonnæ*. In this instance the poison reaches the iris and the ciliary nerves, which are distributed to it by imbibition. It is evidently a local effort, and not in the slightest degree the result of absorption into the blood, for the pupil of the other eye is unaffected . . . . I dissected out the ischiadic nerve in a frog for a considerable extent, and let it hang in a solution of acetate of morphia; after a little time, I found that the end of the nerve had wholly lost its excitability."—P. 679.

Upon what is the assertion grounded, that the blood is offended in the fibre? It seems most probable, that the latter is offended by coming in contact with the noxious fluid, of which the nerve takes cognizance: For what proof have we that the blood is offended? We ask for evidence in the blood itself. If so, why not manifest some evidence of the misdemeanour? Why are we to look for this in the fibre rather than in the blood itself? The blood should be thrown into contraction and spasm, and this, too, at the point where it is most immediately injured, the point of contact with the poison; but of this we have no evidence;

nay, we have proofs to the contrary; for its current would be thus impeded, and this would prevent the diffusion of the poison throughout the system. If drawn from the body in this condition, does it evince proofs of being under poisonous influence? Does it coagulate more or less rapidly than under ordinary circumstances? The blood is not sentient of the noxious effects, or they would be first manifested in it. No effect is apparent till it is poured into the fibre,—till the nerve supplying that is offended, then contraction and spasm are induced, as we see when we bare a muscle and irritate a nerve by the prick of a pointed instrument. The blood can only be looked upon as a vehicle in the operation. Could we isolate a part, drain away every drop of blood from its vessels, and fill them with water impregnated with poison, the same effects would be manifested as where the blood is the vehicle, upon granting, merely for argument sake, that this is the case.

Some few instances are upon record, where the injury to a nerve is followed by immediate effects upon the spinal marrow, causing tetanus. Dr Gregory used to relate the case of a waiter who divided the fleshy part of the thumb in lifting a heavy dish off the table; the piece between the finger and thumb breaking off, he was immediately seized with spasms of the muscles, and died in less than an hour.

When I was doing duty in the Edinburgh Infirmary, a man was brought in whose thigh had been gored by a bull; there was not much injury to the flesh, but several branches of nerves were exposed and lacerated. He died of tetanus within forty-eight hours.

I had an interesting case of cholera during its prevalence in St Petersburg, which illustrates the influence of the circulating fluid on the muscular fibre and nervous filaments. An old lady had long suffered from numbness in the whole of the left arm and hand, which, though not amounting to paralysis, rendered the limb almost useless. She had tried all kind of stimulants and rubefacients without benefit, and had desisted from any farther attempts, as she said at her advanced age it was not of much consequence. She was attacked with spasmodic cholera in its most painful form, and all the muscles of her body were tortured by spasms. She weathered the storm, however, and, to her great surprise, entirely recovered the use of her arm. There was a very general feeling of dislike in that city, and among a certain class, to allow that their friends died of cholera,—a certain odium was attached to the word as to the plague. If a patient resisted a few days, and died of its *sequela*, the common parlance ran,—Il n'est pas mort de cholera mais le cholera, a developé une maladie, que l'a tué.

This was perhaps the only individual who could boast of proving this disease to be a remedial agent for other evils. In this case, the blood itself was in a poisonous state, and became the offending agent. It is immaterial in what way the nerves were affected. The impression was made upon them generally. It is true that the influence of some poisons upon a nerve, is as great, and as instantaneous, and as general through the whole system, as if the entire mass of nerves had simultaneously been subjected to the impression through the medium of the circulation;

but this is not always the case. Müller asserts that the action of poison on a nerve is limited to the point of contact, and does not extend to the branches of the nerve. This, he says, accounts for the slow propagation of the injury to the sound parts, and the time which elapses before constitutional symptoms are manifested, which, when the blood is the medium of communication, are instantaneous, affecting the whole nervous system at once.

It cannot be doubted that the blood may become poisoned by impression made upon the nervous system, without resorting to the supposition that the poison is first introduced into the system by the blood; for nothing can be more instantaneous than the general effects of the single point of contact of some poisons, which imply as ready transit to the brain as can be effected through the circulating system. It would perhaps tend to clear up the matter, if we were to dilute the dose of poison with the quantity of fluid with which it must be mixed previous to getting to the brain, and inject this into the carotid of a living animal. This might decide whether the impression were made upon the latter, by primary offence to the nerve in its concentrated state, or by means of circulation in its diluted form. There is, I think, room for more experiments upon this matter than have hitherto been attempted.

There is no reason why both these means should not be available in the system.

Three powers are concerned in the formation of spasm—the nerves, the muscle, and the blood. Two of these are absolutely necessary to its existence,

muscle and nerve. It is the irritation of the latter which thus manifests itself in the former. Muscular contraction cannot exist without the assistance of nerve. It is essential to it, and any experiments made upon muscle cut off from the brain, which may seem to prove the contrary, only proves that nervous fluid is still inherent in the nerves, supplying sufficient power to the muscles to make them contract. The blood contributes much to this effect, but it is not essential to it. Muscles drained of their blood, and washed out by warm water injected into their vessels, still contract when their nerves are stimulated. Blood may act in two ways in producing spasm, either by morbid influence on the muscle, through the nerve, or by mechanical excitement, through increased momentum. A case in the Philosophical Transactions for 1811, p. 89, is related of a "constant twitching of the fore-arm, which was suspended by compression of the carotid artery on the opposite side, while it was not diminished by pressure of the carotid on the same side."

Although many poisonous substances seem almost inert when introduced into the system by the stomach, others affect it almost as rapidly in this way as when applied to the nerves of a part exposed, or injected into the blood. I have known an over-dose of strychnine produce immediate and fearful consequences.

A patient had been taking small doses of this poison in a solution by tea-spoonfuls. I forget in what menstruum it was dissolved, but the nurse in attendance finding that the patient was purged, concluded he was taking a cathartic; and, as she required a strong dose

herself, took what there was in the phial. She was soon convinced of her mistake. I was sent for to treat a person supposed to have swallowed poison, for her cries alarmed the neighbourhood. She rolled upon the ground, and every fibre in her frame was convulsed as if by electric shocks. She was vomited and purged most furiously. She ultimately recovered, but she was in a state of tremor for months afterwards. As far as I can judge, she might have swallowed about two grains of the extract.

EPILEPSY.—HYSTERIA.

These two diseases have been sometimes confounded with each other; and when the latter has occurred in the male, it has been considered as epilepsy, although deficient in many of the characteristic symptoms. By whatever name it may be called, precisely the same train of symptoms sometimes show themselves in both sexes. If we adopt the French term, *attaque des nerfs*, there will be no room for cavil.

A young collegian returned to see his friends in Russia, and was placed under my care. He was about nineteen years of age, of studious habits, high moral feeling, and most amiable disposition. He had been attacked at college with extraordinary symptoms, and was reported to have had one or two fits. I observed nothing particular about him at first, except a degree of wildness about the eye. He was in good bodily health, but had been recom-

mended to pass a long vacation in the country, as it was considered that he had been over studious, and was subject to partial loss of memory. Some time after his arrival, as he was sitting at table, he was observed to be rather absent, not to reply when spoken to, and to have his eyes fixed. As his friends were upon the *qui vive*, no notice was taken, and he slid off his chair under the table. His eyes were turned up, his fists clenched, with much convulsive movement of the mouth, but no foaming nor biting the tongue. He was stiff and motionless. In this state he was removed to a sofa, where he slept for some hours, and when he awoke remembered nothing that had passed. Nothing was said to him, for I was acquainted with what had transpired upon my arrival, and took no farther notice of it. I recommended air, exercise, and the use of the shower-bath.

Some days afterwards a similar paroxysm manifested itself, but accompanied by more ludicrous antics. He crawled round the room on his hands and feet, tried to climb up the walls of the room, and performed all kinds of tricks,—rolling himself into a ball, &c. He knew nothing of what he had performed when he returned to himself. He was now seen by two English physicians, in company with myself. We agreed completely as to the nature of the case,—did not look upon it in a serious light,—recommended sea-bathing, amusements of all kinds, and travelling. We did not think it worth while to prescribe any medicine, and we all referred it to that condition which Sydenham speaks of in his chapter on Rheumatism,—Οις γονυ κλωρον. He started

for Hanover, where he was addressed to some eminent physician, who took a totally different view of his case,—said it was a confirmed case of epilepsy, and gave him large quantities of indigo, which naturally did no good. He returned again to college, where he was subject to the same attacks occasionally; but the following year he relaxed in his studies, formed an early matrimonial connexion, and has never since had the slightest return of his complaint.

We were thus confirmed in the belief that both our diagnosis and prognosis were right, and had no hesitation in giving the disease the name of Hysteria.

I should have mentioned, that copious secretion of limpid urine accompanied all these attacks. I have never met with a similar case, though I have frequently seen hysteric paroxysms in youths, but never in the same degree.

Dr Wilson has mentioned a feature in the history of small-pox, viz. that the disease is often ushered in by an epileptic fit. The same observation has been made by Cullen in his Outlines, and was much dwelt upon by Dr Gregory in his Lectures. It can hardly be a proof of the poison in the blood acting upon the nerves. It is a curious fact, but the whole of this disease is involved in so much obscurity, that it is difficult to draw any certain conclusions from it. Worms in the intestines will equally give rise to it. A lady, the wife of my late colleague, Dr ——, was attacked in three successive pregnancies, about the period of quickening, with a single fit of epilepsy; at no other period had she ever showed the least disposition to a renewal of these attacks.

Laennec, who inclines to favour the humoral pathology, considers the state of the fluids to be the cause of convulsions and epilepsy from spontaneous congestions. The blood, in such as have died of these affections, resembles that found in those killed by electricity. It may be as reasonable to suppose, that the shock given to the nervous system has been sufficient to kill the blood, decompose it, and, by arresting the circulation, give rise to these congestions.

This is precisely what takes place in death by lightning; the nervous system is annihilated, as it also is by a severe blow on the stomach, causing instant death, and the same appearance in the blood. It is deprived, by the absence of coagulation, of the testamentary evidence that it has ever lived.

Epilepsy is a very common disease in Russia. I have seen a great many cases, but never known any relieved permanently.

I had a lady under my care for some years, who was seized for the first time in her eleventh pregnancy. The child was born at the natural time, and lived. The mother was ever after subject to slight attacks. She bore no more children. She was about forty-five when this first occurred.

There was nothing worth recording in the case, except the very singular way in which she experienced warnings of the approach of an attack. She was a most amiable woman, and felt distressed at the state of her mind at these times. She never knew that she had epileptic fits; this was always kept from her knowledge. She supposed herself subject to fainting fits. She one day complained to me that she did not know

how it was, she could not explain it, but nothing seemed right; the month, the week, the day, the season, the house in which she lived, her children, nothing seemed as it ought to be. These were her very words, and she burst into tears. Some similar moral condition preceded every attack. In the paroxysm she bit her tongue and foamed at the mouth, so as to leave no doubt as to the nature of the disease.

I have seen epilepsy, in very aggravated forms, lead to imbecility of mind. A young lady of twenty years of age, after suffering from childhood, and that to such a degree as never to be considered safe when alone, being subject to paroxysms which lasted two and three days and nights, requiring the manual aid of several attendants to control the force of such muscular power, as was hardly credible, was cured permanently by removal from the country. She has had no return of her complaint for years, and is so improved in looks and in mind as to seem a different being.

There was nothing left untried, and many were consulted upon her case without any benefit to herself. Emigration cured her.

Dr Baillie said, in his day, that palsy was upon the increase. I have been much surprised, since my return to England, at the number of people whom I meet in the streets dragging a leg along. I cannot speak comparatively upon this subject, as I do not recollect what proportion this state bears here to what it did in former times. It is but too evident that the nerves, when once injured, are not so easily restored to their healthy condition, and their importance is made manifest in their derangement. How

few of such cases ever completely recover. It is not improbable that the universal system of blood letting upon all such attacks, and even threatenings of them, has converted remediable into incurable diseases. Paralysis has sometimes immediately followed the depletion intended to prevent apoplexy; and where this plan has been persevered in for the relief of flow of blood to the head, it is not an uncommon consequence. Dr Holland has commented very freely upon this in his Notes and Reflections:—"I have known cases of this kind where bleeding has immediately been followed by convulsions of epileptic character, occasionally by amaurosis, or deafness, more frequently still by rambling delirium, and where wine or other cordials have as speedily abated these tendencies."

Sir Charles Bell has stated, I think, in some of his earlier surgical productions, that when a man is taken up in the streets apparently lifeless from the concussion of a fall, the nurse gives him a dram, and the surgeon bleeds him; but the nurse is right. As Dr Holland observes, "The use of the lancet is easy, and gives a show of activity in the practitioner at moments when there appears peculiar need of this promptitude. Current opinions and prejudices are wholly on the side of bleeding, and the complexity and danger of cases tend to obscure the results of the treatment. The physician needs all his firmness to decline a practice thus called for, where the event is so doubtful, and where death may be charged upon his presumed feebleness or neglect."

The whole body medical might be appealed to if they have not, particularly in their early career, had

to contend with such popular feeling. They have felt their reputation at stake, they have been thoroughly convinced that every blame would be attributable to them if they did not immediately bleed their patient; by doing so they would place themselves on the safe side; and, as Dr Macculloch has justly observed, whatever might be the consequence where copious depletion has been used, the friends will always express themselves, "that every thing was done that could have been done."

This we see again and again with the same results; we hear daily of paralytic seizures where medical aid was immediately at hand, so that the patients were bled, but still to no good purpose.

I was strolling along the quay in St Petersburg, and seeing a crowd at the door of the principal banker, I walked into the house. I was immediately requested to bleed a gentleman who had fallen from his desk in a fit. I knew the patient; and, from his appearance, and previous knowledge of his habits, it appeared to me that his nervous power had failed him. I hesitated, therefore, in spite of the pressing demands of the friends, to bleed a man in apoplexy. In this dilemma I was fortunately relieved by the timely visit of the gentleman's medical attendant. He was authority in the case, and a cordial was administered, which soon revived the patient, who had been long in a nervous state of health.

Upon another occasion, I was sent for, very early in the morning, to see a patient who had been suddenly seized in the night with inflammation of the lungs. He was in great pain, as I was informed,

and could not breathe. Upon my arrival, I found a basin and tea-cups, with bandages, lying upon a table, by his bed-side. All was in readiness; but it was a case of gout in the stomach, and was immediately relieved by a full dose of brandy and laudanum.

I think I have seen good effects from strichnine in cases of paralysis, when steadily continued. I remember a case treated by the late Dr Birkbeck, at the General Dispensary in Aldersgate Street, by the powder of nux vomica. The woman, whose leg was palsied, made a better walk of it every time she attended. I cannot say that a perfect cure was effected, for I lost sight of her; but the doctor was so much satisfied with the progress which she made under this treatment, that he made mention of it at a meeting of the Medico-Chirurgical Society. The value of this medicine is fully recognized in palsy from lead, and mentioned by Dr Marx of Göttingen. Tetanus and Paralysis afford us the strongest pathological proofs of the importance of the nerves, and of the extreme difficulty of restoring them to their normal state, when affected by disease. As I am now writing, I am informed by letter of a former patient who, by a paralytic stroke, has IRRETRIEVABLY lost the use of her left side. This is a forcible term, but one too easily understood. We do not call the case *irretrievable* when the blood is in a morbid state. In the very same family, I have known a parturient female so exhausted by hemorrhagy in many of her confinements, that there have been moments when life has been almost judged extinct, yet this was not an irretrievable state.

In the treatment of Palsy and Tetanus, the field is still open, as we may hope, for great and useful discoveries. When I was at Wildbad, in Germany, I heard of many cases which had been much benefited by immersion in the hot springs which gush from the rocks. The supposed advantage of these baths over others, is the equable temperature which is maintained during the whole period of immersion. The hot water continues to flow over the surface of the same degree of heat, and always renewing itself from the same source. The body leaves the bath with the same impression which it received upon entering it. The water is, in this case, continually renewed; whereas in others, the temperature lowering, fresh heat must be applied; and this can never be so arranged as that some difference of sensation be not experienced. This is the sole advantage which the baths at Wildbad boast; for no active ingredients are found in the waters. The question has been agitated, and upon rational grounds, whether these natural reservoirs of caloric do not possess some chemical electric principles, not to be developed in the artificially heated cauldron, which did not bubble—bubble till the witches had thrown their charms into it. We must not refuse evidence till we have more knowledge than we at present possess of nature's chemical combinations.

The arteries which supply a paralyzed limb beat with less force than previously, and animal temperature falls as a natural consequence, both evidences of diminution of nervous power.*

* The French term is very expressive, *un bras refroidi*—a paralyzed arm.

In cases of what the French style *apoplexie foudroyante*, and where blood is effused into the cerebellum, there is a symptom sufficiently indicative of the precise seat of the lesion. The grasping motion of the hand which I once witnessed in a patient who lived about twelve hours after the blow, was the only sign of voluntary action which remained till his death. It was incessant, and distressing to the bystanders in every sense. The nerves alone must bear the shame of such excitement.

The following case may deserve the title of slight catalepsy; it is the only one I have ever seen:—

A lady, fifty years of age, and of most nervous temperament, who had been an invalid for years, subject to constant headaches, never free from cough with copious expectoration, her hands and fingers always in a state of tremor, her temper very irritable, and the alvine secretions continually out of order, was suddenly seized with a fit; such was the account the messenger brought me.

I was in the immediate neighbourhood, and saw her in less than ten minutes after the attack. She had fallen off the bed upon which she had been reposing, about six o'clock in the afternoon. She was replaced upon the couch; her face was much as usual, perhaps a little paler, the eyes were semi-closed and immoveable, the pulse was quite natural, or a little slower than usual; one arm was raised towards the head, bent, and the fingers clenched; the other was stiff and straight by her side; the animal heat was natural. She was perfectly insensible to the impression of noise, nor did she feel, apparently, any

effort made to straighten the arm. She remained in this state for nearly an hour, during which nothing more was done than bathing her head and face with cold vinegar and water, and occasionally a few drops of æther, were poured upon the scalp. She returned to the normal state by degrees, first opening the eyes, and relaxing the arm. She could not speak for a long time, but became thoroughly conscious. At length she said "I am coming round;" the pulse became quicker and smaller, and a moisture appeared on the surface. She was allowed to remain quiet, and got some refreshing sleep.

I remained the night with her. When she awoke she was not in the least conscious of any thing that had passed. She was feeble and much depressed. Strong cathartic enemas opened the bowels. Camphor and ammonia were given internally at short intervals. For some days afterwards she was much inclined to sleep, but the drowsiness did not amount to coma. Her usual copious expectoration was much diminished. She then began to have a good and bad day alternately; and upon the bad day there was evidently a chill in the morning for some time. She got warmer and better as the day wore on. My colleague, Dr Handyside, who saw her repeatedly, was convinced with myself that there was a decided intermittent tendency. She had never been able to take bark, as it caused constipation, and we gave her Fowler's solution, but the prejudice was too strong against it, and we determined upon employing quinine, combined with purgatives. She recovered rapidly under its use.

For several years afterwards she had no return of this affection, whatever name it deserves. She was always, however, subject to nervous derangement.

I must here observe, that we incurred the highest censure for not bleeding her. The practice was stigmatised as puerile and inert, and if she had succumbed we should have been held responsible for our want of energy. I am convinced that if we had bled her, and even paralysis had followed, nothing but approbation would have greeted us for having done all in our power.

Some physicians, perhaps, have met with the following case :—

A gentleman, past the middle age, who has been in the habit of living freely, has taken some whim into his head, either that he was getting too fat, or that he should enjoy better health (having in reality no fault to find with his actual state) if he entirely changed his mode of life. He leaves off wine and malt liquor, takes strong exercise to fatigue, and lives upon tea and toast, with little animal food. After some time of such probation, he is attacked with paralysis. I knew a country squire, a fox-hunter, who pursued this plan, and with this result; and I believe that very lately a celebrated vocalist, under the impression, that by changing his mode of life he might prolong it indefinitely, has fallen a victim to his experiment.

I shall be surprised if many who take Father Mathew's pledge do not fall into the same snare. The nervous system will not tolerate these sudden changes with impunity. An excess of abstemiousness

is dangerous to the man who has, perhaps, sinned in the other way, and particularly at a certain period of life. If he be wisely determined to reform his habits, let him do it gradually, and he will do so safely,—Chi va piano va sano, va sano va lontano.

HYDROPHOBIA.

The following circumstances, which occurred in St Petersburg before I inhabited that city, were detailed to me by persons who were eye witnesses of the facts. The case occurred on the premises of an English merchant, and the victim was a young Englishman, one of the counting-house clerks. He had been in the constant and foolish habit of teazing a large dog, chained to his kennel in the yard. The animal was so enraged with him from being pelted with stones, and flicked with a long whip at a distance, that he made constant efforts to seize him, which, one day, by sudden snapping of his chain, or disengaging his head from his collar, he was able to accomplish. He bit him in the hand. No particular notice was taken of this at the time, but a few days afterwards the young man was attacked by symptoms of the disease, of which he died, with all its accompanying horrors.

This case offers matter for consideration, and presents a double proof of the nervous influence in forming the malady, and in its reproduction by inoculation. That hydrophobia can be thus generated spontaneously by the influence of passion upon changing a natural secretion, or concocting one *sui generis*,

there can be no longer any doubt. The animal had not shewn any symptoms of disease previously. He was made mad literally, not figuratively, by irritation and torment. Whence the secretion might have been derived which produced such dire effects on the human subject by inoculation, its morbid state was engendered by the influence of nervous excitement. It is as evident that the poison was generated under this state of phrenzy, as that the milk of a woman's breast is changed in quality by a fit of passion.

As regards the disease, when developed in the human subject, its whole history and course refer it to the neuroses. I have never had but one opportunity of seeing a hydrophobic patient. It was in Guy's Hospital, and prussic acid was largely administered, but with as little effect as all its predecessors. The patient was a master carpenter, an intelligent man, who seemed to wish to give information as to his wretched state. It was not a dread of water, but of fluids, which agitated him; and as he lay in a corner of the ward, he was so convulsed by the trickling of the rain down a spout on the outside, that he was removed to the centre of the ward, where he could not hear it. His nervous irritability was appalling. I can never forget his countenance. His friends insisted upon removing him, and it was impossible to prevent them. Two men carried him out on their shoulders; as they descended the steps leading down to the outer quadrangle, he made a sudden spring and fell dead upon the pavement. Whether it was the last struggle of life, or whether the concussion from falling with

such effort on the pavement, caused immediate death, may be doubtful.*

There is a similar case related by Dr Good, vol. iii. p. 275, of spontaneous lyssa, reported by Mr Zitman.

Is the generation of the poison which is fatal to the human subject by inoculation positively so to the animal itself? If there is a suspicion of the dog, he is immediately killed; but have not people gone mad who have only been reminded of having been bitten by the appearance of the disease long afterwards; and in such cases are there always proofs of the dog's having died after biting the person?

TRISMUS TRAUMATICUS.

I have seen this produced by the application of a blister in scarlatina. The patient was a child of eight years of age, to whose chest a blister was applied to relieve dyspnœa. The wound sphacelated, and gave rise to trismus, which lasted two or three days, and the child sank. In the same family, a blister applied to the neck of a young woman of twenty, attacked by the same disease, ran into gangrene in twenty hours. She died in fifty hours from the first symptoms of the eruption.

* Since writing this, a letter from St Petersburg informs me of the death of a respectable Englishman, who died from fright. He was snapped at by a dog running through the streets, and the dog seized the tailof his coat, but did not bite him. He was so prepossessed with the idea that he should die of hydrophobia, that he fell a victim to his fear. —23*d July* 1844.

DELIRIUM TREMENS.

This is a very common disease in St Petersburg. It is found only among the lower orders, and hence being an hospital disease, practitioners in private have not much opportunity of seeing it. The higher class of Russians are very moderate livers, and indulge but little in wines or spirituous liquors. I have met with this disease several times amongst the counting house clerks, who carry out the bills, &c., termed artelcheks. Cold has certainly much to do with it, for it encourages drinking of spirits; and when once this class of people take these to intoxication, they continue to do so for days and weeks afterwards. I have, in another publication, described what is technically styled a Zappoi. There is nothing peculiar in the delirium tremens, so produced, to require further comment. It always proved fatal in the cases which I treated. In the naval hospitals, where it is very prevalent, opium and musk sometimes succeed in saving the patient.

In a numerous class of spasmodic disorders we require nothing more than moral excitement to demonstrate their nervous origin. It matters not by what means indeed they may be produced, and by none more generally than by changes in the balance of the circulation; it is the nerve which speaks, the nerve which suffers. This system may, from its great intricacy, its reflex action, sometimes lead us astray; we may get upon a wrong scent, but when we have threaded its mazes and labyrinths, we come to earth

there. Muscle can no more be thrown into contraction without nerve, than a hare can run with its legs broken.

Singultus is a troublesome spasmodic affection of the diaphragm and respiratory muscles. It may be caused by increased determination of blood irritating the nerves of the stomach, but we know that any thing which excites the moral feelings immediately suspends it. We check it in children by fear. Hooping cough is a disease of a spasmodic character, and I believe the brain to be more or less affected in this disorder. Its nervous nature is proved by the habit which the system acquires under its influence, and which continues long after the essence of the disease has been destroyed.

I may here mention the treatment which we find most useful in northern climates. We have not the advantage of changing the air for a long period, so that the complaint is often of formidable duration; but as soon as the febrile stage has subsided, which generally takes place towards the end of the third week, doses of musk seem to have a specific influence. I have seen the most happy effects from its use, both in the general practice of my colleagues, and my own, in St Petersburg. A grain of musk three or four times a-day, will, in general, arrest the most convulsive species of coughing in a few days.

I have generally, in the early stages, experienced great advantage from the application of leeches to the temples; for I believe that there is very often congestion in the brain, and that the latter, if not previously, is often secondarily, affected.

It has been stated, but it may perhaps want more confirmation, that it is suspended by vaccination; but does it not return again after the local irritation has subsided? In this respect its nervous character is only more strongly indicated, for these affections are especially relieved by setting up new action in the system, or by metastasis from one mucous membrane to another, of which, in convulsive cough, simulating pertussis, I have known instances.

The force of habit is very considerable in influencing such affections, and reproduces symptoms of the original disease when its specific character has been destroyed. Thus, pertussis may be apparently cured for months, when, upon the accession of a catarrh, the convulsive cough returns, for which the same treatment would no longer be available. This is not confined to this species of irritation alone, for some are subject to habitual cough, observing certain periods, and subject to renewal from the slightest causes. These spasmodic affections require very different treatment; they are nervous affections, to be relieved only by removing the exciting causes to the nerves, which may be plethora on the one hand, or debility on the other. Hence we treat some by digitals,—antimony,—others by stimulants, of which ammonia is the most powerful. In some cases, the moment of changing a line of practice becomes very critical. In the advanced stages of pneumonia the cough and expectoration suddenly cease, and the pain, which had been subdued, as suddenly returns. Here depletion would be instantaneously fatal; and it is only by rousing the nervous system, to excite the bronchiæ to expel accu-

mulated secretion, or to stimulate the vessels to renew this, if it be suspended by a fresh access of inflammation, that life is preserved.

In the advanced stages of ptysis we often find the cough subdued and the expectoration diminished, affording hopes to the patient, who, by this very circumstance, is placed *in extremis*.

CHOREA.

Dr Depp, chief physician to the Foundling Hospital in St Petersburg, acquired a great and deserved reputation for his success in the treatment of this disease.

His plan was almost wholly confined to the use of the shower-bath at all seasons of the year; and as soon as the weather permitted, he removed his patients into the country, selecting as elevated a position as possible, that they might enjoy the advantages of a bracing atmosphere. He insisted also upon the hair being cut close, and the head spunged with cold vinegar and water at several periods during the day; the shower-bath to be employed as soon as the patient left the bed, or rather hard mattress, which he also insisted upon. He prescribed few medicines, and nothing usurping the name of a specific. The bowels were to be regulated by the mildest purgatives, but the shower-bath seemed to supersede the necessity of these.

I saw but few cases of this singular affection, but a very aggravated one was most materially relieved by this treatment.

PART VIII.

Cholera Morbus—Scorbutus—Diabetes.

CHOLERA MORBUS.

I HAD, during my residence in St Petersburg, some opportunities of seeing this disease in its most murderous form; for the deaths in the city averaged more than a thousand daily at its onset. I published the results of some of my experience, and now, after a lapse of fourteen years, I must subscribe to the truth of Dr Holland's assertion, as expressed, page 568, in his Notes and Observations:—"That strange pestilence of our time, which, while affrighting every part of the world by its ravages, has seemed to put at nought all speculations as to its causes, or the laws which govern its course;—a disease, nevertheless, which, by the mystery of its first appearance, its suddenness, inequality and fatality, and the failure hitherto of every method of treatment, may well excite the inquiry of all who are zealous for the extension of medical science." The idea of its originating in insect life was adopted by several German professors very soon after its first appearance. The eccentric movements of the malady, its zigzag direction quitting the broad line of route, flying off at a tangent to appear in a widely distant point, would all argue certain atmospheric currents wafting their

poisonous contents in regions, beyond our powers of arrest.* Dr Prout's observations, proving that there was a constant increase in the weight of the atmosphere, deserve much attention in our future investigations, for this may not have been a casual coincidence; its constancy during the whole prevalency of the disease militates against this opinion. Freely confessing that what we professed to know about this plague, when in the heat of the battle, was but mere presumption, we still pertinaceously adhere to the belief of its non-contagious character; and we repeat, in the words of our former little treatise, "As far as my practice is concerned, both in the quarter allotted me, and also in private houses in different parts of the town, I have no proof whatever that the disease is contagious. In one case I attended a carpenter in a large room, where there were at least thirty other workmen, who all slept upon the floor among the shavings, and though this was a very severe and fatal case, no other instance occurred among his companions. In private practice, and amongst those in easy circumstances, I have known the wife attend the husband, the husband the wife, parents their children, children their parents, and in fatal cases too, where, from long attendance and anxiety of mind, we might conceive the influence of predisposition to operate, yet in no instance have I found the disease communicated to the attendants; . . . so that, as far as proof can be drawn from my own limited experience, I have none to offer in favour of contagion." In the

* This would equally apply to Malaria, which is transportable in this way, as proved by Dr Macculloch.

history of its prevalence in St Petersburg, it is certain that the anti-contagionists did increase with the increase of the disease; and its spread over Europe has considerably increased their ranks, and the number of those has much diminished who contributed at one time to excite so much alarm among the people.

This is, perhaps, all the knowledge we have gained upon the subject, and the evidence has been sufficient to convince most that the disease has nothing in its form or features, nor in its mode of propagation, which can entitle it to rank amongst those of a positively contagious character. Even negative evidence may become positive in certain circumstances, and of this the town of Odessa has furnished convincing proofs at two separate periods since the retreat of the cholera from Europe. It was found that the strictest military cordons did not, in any country whatever, arrest its progress. It stole its way through them, dodged the sentries,—defied the point of the sword and bayonet.

It is said to have reached Sunderland by a ship which left Hamburg before it was recognized to exist in that city, where its appearance, some days afterwards, was sufficient, with some logicians, to prove that it was imported from thence. It must be recollected that none of the crew were attacked by it on the voyage; and here we may quote Dr Holland:—"Nor will previous communication, though certainly concerned in part in the transmission of the disorder, resolve these singularities." It was not human contagion that operated in this instance. Still this distinguished physician observes, "Man becomes an agent in the diffusion," p. 577; and, again, in his hypothesis of insect life as

a cause of this disease, he observes, "But also possessing the power of reproducing itself, so as to spread the disorder by fresh creation of the virus which originally produced it."—P. 574.

To return to the Hamburg brig which discharged her cholera cargo at Sunderland, and might then, as far as her crew was concerned, have got a clean bill of health, it is still an anomaly, that she should transport a disease from a town where it did not exist when she left the port, when so many more ships could not effect this which left infected ports. This was the case with Elsinore, where upwards of five hundred vessels touched, all chartered in the port of Cronstadt, where the cholera raged furiously. We do not know that up to the present day this town was visited by a single case, although its *vis a vis* across the Sound, the Swedish town, where no vessels touched, suffered severely. This is one of the inexplicable frolics of this disease.

Now, with respect to the negative evidence, which becomes positive. The plague has twice been imported into Odessa from Turkey within the last few years, and several have died of it; but by means of rigid quarantines and cordons, and the energy which Count Woronzoff displayed in arresting its progress, such as hanging a Jew who was about to violate the laws established, not a single death occurred without the city; the plague never got out of the gates.

Why should not the same observances and precautions, for they were the same, have succeeded in both cases. The cholera has never been arrested by human means in its progress—the plague often.

When the former has located itself in a country, it will be easy enough for those so disposed to find evidence of its human communication and propagation from one town to another. A man may take it by railroad from Liverpool to Manchester, at least be supposed to do so; but have we evidence of its first invasion in this way wherever it has appeared? Has any landsman, any sailor, made his appearance in any place with the disease upon him, and first communicated it to the inhabitants of town or village? It was not so propagated in Sunderland. It was not so in St Petersburg. Hundreds came into the latter city from Moscow, where it raged eight months previously, not a soul was affected on the whole line of route. When it did appear, the same anomaly was presented as in the Hamburg ship. It was said to be brought down by the tallow barks from the frontiers of Siberia, though not a single bargeman had been affected during the long transit. The man who was said to be first affected was not so till after his arrival in St Petersburg. In three days every quarter of that wide spreading city was grievously punished by the disease. The man died in the suburbs of the town amongst the lowest class of the inhabitants, none of whom could directly, or indirectly, have communicated with the higher orders. Many locked themselves up in their rooms as soon as the disease was announced, and died isolated from human communication. There was no more proof that the bargeman brought it than that he found it at St Petersburg. It is the argument *ad absurdum* to say that it should take a tortuous route of three thousand miles to arrive there, when it was

raging for seven months at Moscow, a distance of five hundred only, and with which there were all the time daily communications.

A fact well worthy of note is the circumstance, that of the eleven medical men who fell a sacrifice to it in St Petersburg, they were almost all practitioners who had the least to do with it—men practising in private, and not those who were attached to the great hospitals, of whom I do not recollect that more than one perished; and precisely the same observation was made by one of our colleagues who practised in Dantzic.

As regards the nature of the disease, Dr Wilson has observed:—"Epidemic cholera is the result of an atmospheric poison, or other vice in the blood." I had two opportunities of seeing its attack—of recognizing the first symptoms of its presence.

I observed a labourer who was walking in the street stagger, reel, put his hand to his head, and fall down. I thought he was in liquor, and overcome by the heat of a burning sun. Upon approaching him, I found him attacked by cholera. He was removed to the nearest hospital. I do not know his fate. A director of one of the cholera hospitals was presiding at a committee where I was present. In discussing some matter with one of the physicians, he suddenly put his hand to his forehead, and complained of a shooting pain through his head, which he attributed to having taken a pinch of strong snuff.

It increased, however, in the evening. It was the commencement of the disease, which carried him off on the fifth day. In these two cases it would appear

that the brain was first attacked. In some few instances it hardly deserved the name of spasmodic, to judge from the outward manifestation of spasm. I have known it kill in six hours without much pain in the muscular fibre, but here the injury done to the nerves was more manifest. The derangement of all those functions under their control,—as the loss of animal heat, suspension of secretions, conversion of insensible perspiration into clammy sweat, the almost involuntary pouring out of the contents of the stomach, all proved how much the great vital power was paralysed. Of the offence to the blood, there can be no doubt, and of the reaction of this diseased fluid again upon the nerves; but it is questionable if the poison first creep in through the blood. Supposing the poison to be in the blood, the spasm and cramp are in the muscles, and this in a ratio with the virulence of the poison.

As regards the use of opium, it was found, as Dr Wilson has stated, to be followed by very deleterious effects. Low nervous fever was the result of its employment in repeated doses; and if the disease were thoroughly formed, it was never arrested by the use of this drug; but I must add, that for those uneasy symptoms, which threatened a commencement, a dose of laudanum, combined with an antispasmodic, stood me in much service in my practice. In many, probably in most cases, there was no other disease to combat than the effects of fear, where this antidote proved useful. The patient, attentive to every little pain and ache, was rendered more susceptible of the malady, and the immediate relief afforded him by this diffusi-

ble stimulus dispelled his fears of future consequences. John Brown, one of the brightest but most eccentric meteors that ever illumined the medical horizon, has observed, that no man, however disposed he might be to commit suicide previously, would ever think of doing so after a dose of laudanum, at least while under its intoxicating influence He ranked it amongst the most powerful stimulants. I therefore put all who were in the habit of consulting me, in possession of a "sovereign remedy," in case of need, and I had no reason to repent of so doing.

In the treatment of decided cholera, there is at present nothing to fall back upon. The saline practice was not more successful than any of the other modes of treatment. Two cases occurred in the town, and two of the worst that I met with, more than a twelvemonth after the malady had made its retreat. The one was a government courier, an Englishman, who was seized on the road, a day's journey from St Petersburg. He died with all the severe symptoms of the malady.

The other occurred six months afterwards. It was the severest case that I ever knew recover. Here the vomiting was the most distressing symptom. The spasms of the diaphragm were terrific, and the efforts to vomit seemed to tear the patient to pieces. Iced water to drink, and ice applied all over the region of the stomach, seemed to afford him the greatest relief.

I am not aware of any other case occurring in the city subsequently. I was requested by the police to certify that these were not cases of cholera, for fear

of creating alarm with the public from the re-appearance of the enemy. None of the numerous attendants upon these two cases had any cause to repent of their charitable exertions; but the fear of contagion had been pretty well rooted out of the public mind before this period. My friend and colleague, Dr Markus, had worked wonders in this respect. Still more conducive to this end was the conduct of the Emperor, who exposed himself at the very acmé of the disease to quell a riot, caused by the idea that poison was mixed with the food of the people. His presence on this occasion was more than the tower of strength in a king's name. His manly, intrepid conduct, is worthy of a better chronicle than mine.

Several causes conspired to aggravate the panic, which the invasion of a mortal and hitherto unknown disease must, under all circumstances, produce in the minds of uneducated people. Hecker informs us that the first appearance of many of the fatal epidemics which have from time to time invaded Europe, has been associated with the idea of poison, and hundreds of innocent people have been put to death in former times, at the instigation of constituted authorities, and by *Lynch law*, upon presumptive evidence, of exercising powers which were the prerogative of the diseases alone in question.

In the present epidemic, it was not peculiar to Russia that erroneous ideas possessed the people's minds. When they saw their friends and companions fall suddenly from a state of health into the jaws of death, when they found them attacked at the same time by vomiting, excruciating pains in the bowels,

and watery evacuations; when this was accompanied by a sudden and indescribable change of countenance, their bodies becoming of a blue leaden cast; and all this within the space of a few hours, such things having never been seen before, it is not surprising that the people were suspicious as to the cause of these strange sights. It happened at this time, however, that the disturbances took place in Poland, and as a mortal hatred exists between the Poles and Russians, many of the lower orders believed that the Polish population were wreaking their vengeance in this way, and this opinion was not confined to the lower orders. As few who were transported to an hospital, survived many hours, the dread of being carried there was extreme; and as the police had peremptory orders to convey all who were attacked with the complaint immediately to these institutions,—an arrangement which led to great abuses on the score of bribery, some who were ill with other complaints being forced away from their houses against their wills; others, by means of fees, allowed to remain when they ought to have been removed, and, above all, the injudicious *autopsies* in the hospitals,—all these things combined, worked up the wrath of the people to the highest pitch. It was believed by many that the doctors were in collusion with the police, and that they shared the bribes, which were given by those who either were not cholera patients, or, if so, would have given their last piece of coin to escape the hospital. This was proved to be the case in one wretched instance, where a Jew doctor did exercise such a trade, and being detected in the fact, laid violent hands upon himself.

A coach driving towards the hospital in the hay market, was stopped by the populace, owing to the cries which proceeded from within. A man jumped out and exclaimed that he was as well as ever he was in his life, and that they were taking him to the hospital by force. Exasperation was now at its height, and the populace made an attack upon the building. They laid hold of the principal physician, *pitched* him out of the window, and so maltreated him that he died. Another physician escaped by hiding himself under a mattress; and God knows what might not have been the consequence, but for the timely arrival of the Emperor, who, as soon as he heard of the disturbance, mounted horse, and dashing into the midst of an infuriate populace, addressed them in some such terms:—"What is the meaning of this, do you call yourselves Russians? You are more like ——. On your knees, this moment, rebellious subjects, implore the pardon of the Most High, and propitiate his wrath for your ingratitude." This operated like magic. A whole multitude of furious men were prostrate in an instant. The lion became the lamb.* He then consulted the best authorities for information, and as those were times when men dared to speak the truth, he immediately forbade all future interference of the police, and placed the responsibility into worthier hands.

This was the termination of all disorders, and no breath of poisoning was afterwards whispered. It worked still farther good, for when the sovereign

* I have, since writing this, seen nearly the same statement in Fraser's Magazine.

himself was seen to issue more purified from the furnace, the fear of contagion was greatly diminished; and as it was impossible to shrink from that which he had braved, the higher orders were found at their posts, visiting the sick, and encouraging the faint-hearted. The nervous system certainly has much to do with cholera.

SCORBUTUS.

Dr Stevens has rescued salt provisions from all blame in the production of this disease. It is the loss of the succulent matter in the salted provisions which produces the evil. This view is no doubt correct, and the experience of the Canadian fur-traders proves that the absence of vegetable food is not sufficient to produce scurvy, for Sir George Simpson informs me that the boatmen live for months together upon fish and flesh, without tasting bread or vegetables, and enjoy the best health. They are not always furnished with salt. Of animal food they consume an enormous quantity in the cold weather. The late Lord Selkirk, who took a number of Highland labourers to his settlements on the Red River, informed me that they ate to the amount of *seven pounds* of buffalo flesh per diem per man. The use of flesh had previously, perhaps, been unknown to them in the Highlands. The scurvy, which is considered a disease of the blood, *par excellence*, seldom manifests itself in the system till the nervous power be greatly depressed, of which the Russian expedition to Kiva furnished sufficient proofs,

for not a man was affected by it till he was dispirited by retreat, when it made great havoc among the troops. The want of vegetable food is not alone sufficient to produce it; but as mixed food is evidently conducive to the health of an omnivorous animal, this privation may act amongst other predisposing causes.

In the nature of all fevers, we witness the effects of the *morale* both in warding off their attacks or carrying the patient through. In the malignant fevers of the West Indies, it has been observed by one of our naval officers, that the crews of vessels most kindly treated by their officers are those among which there is the least mortality. When the men are vexed, and harrassed, and punished, for trivial offences, they invariably fall sick. Nothing is more conducive to the health of a crew than keeping them in good humour. Collingwood proved to our navy what could be done by kindness, even consistently with the maintenance of the strictest discipline. So generally was this allowed in the fleet, that it was a saying with the officers of other ships, when they had a refractory subject, We must send him to Collingwood, he will be able to manage him.

It is the duty of us all, in as far as we can, to study kindness in the management of our patients. They often require it; and a cheerful countenance, a good humoured address, and a certain method of encouragement, are not without their beneficial effects in the treatment of disease. "The very look of him does me good," has been often said of a late eminent surgeon by many of his patients; and life may be in the

balance between hope and fear, as inspired by the conduct of the attending physician.

SCURVY.

There is no better description of this disease than that given by Commodore Anson in his voyage round the world. After mentioning the hopeless state to which his crew was reduced by storms and tempests, and the probability of total destruction, he proceeds to describe the breaking out of the scurvy. Chapter X. . . . . "However, though it frequently puts on the form of many other diseases, and is therefore not to be described by any exclusive and infallible criterions, yet there are some symptoms which are more general than others, and therefore occurring the oftenest, deserve a more particular enumeration. These common appearances are large discoloured spots, dispersed over the whole surface of the body, swelled legs, putrid gums, and, above all, an extraordinary lassitude of the whole body, especially after exercise, however inconsiderable; and this lassitude degenerates into a proneness to swoon on the least exertion of strength, or even on the least motion.

"This disease is usually attended with a strange dejection of the spirits, and with shiverings, tremblings, and a disposition to be seized with the most dreadful terrors on the slightest accident.

"Indeed it was most remarkable in all our reiterated experience of this malady, that whatever discouraged the people, or any time damped their hopes,

never failed to add new vigour to the distemper, for it usually killed those who were in the last stages of it, and confined those to their hammocks who were before capable of some kind of duty, so that it seemed as if alacrity of mind and sanguine thoughts were no contemptible preservatives from its fatal malignity."

DIABETES.

Louisa Subiron, aged fifty, of a naturally good constitution, and inclined to corpulency, was subject to frequent nervous attacks, which rendered her melancholic. She consulted me respecting a disease, which she had concealed for some time, and which the great inconvenience to which it subjected her compelled her at length to reveal. She complained of excessive thirst, which she could not quench; she drank from ten to twelve pints daily of different kinds of cooling beverages; she slept ill, and whenever she awoke, her tongue felt so dry, that she could not articulate till she had moistened her mouth. The skin was dry and rough, without the slightest moisture, which she could not excite by any of the ordinary means. The bowels were constipated, the digestion weak, appetite bad, and the nervous system much shattered. She was subject to vertigo, and her eye-sight failed her. The preceding winter she had suffered much from pains in her loins. . . . . .

Upon comparing the quantity of fluid which she drank with that which was voided, I found the latter to be a sixth part more abundant than the former.

She passed about fifteen pints of water daily, which, when analysed by M. Chevreul, was found to contain a quantity of sugar. There were no longer doubts as to the nature of her complaint. I decided upon bleeding her in spite of her nervous condition,—the pains in her loins seeming to justify it.

Twelve ounces only were taken from her arm; but she felt much relieved from it; slept better than usual, and was more gay, and felt lighter; the thirst was diminished, but the skin was as dry as before. I put her upon animal diet, allowing only a small portion of bread and milk, and lime water for drink. Ten grains of Dover's powder were given at bed-time, and she took a warm bath every evening. The urine decreased to twelve pints, and all the symptoms diminished for several days; but recurring again, although with less severity, I decided upon taking away twelve more ounces of blood. It coagulated more rapidly than upon the former occasion, the crassamentum was firmer, and the serum clearer. She felt immediate relief, and expressed surprise at finding herself stronger after bleeding. Two days subsequently, the urine was diminished by a third part. It was of dark colour, had an ammoniacal odour, but still contained much sugar. As the functions of the skin were not restored by sudorifics, or the warm bath, and as all hopes of cure were founded upon the restoration of this function, I decided upon employing the vapour bath, and keeping up the perspiration, which I trusted to excite by this means, by violent exercise.

She was subjected to a vapour of 45° Reaumur, for the space of half an hour. She perspired pro-

fusely, and changed her linen three times during the evening. She found herself better the following day, but weak. She walked the distance of a mile, warmly clad, and perspired freely. The urine was now reduced to five pints daily. As bad weather prevented her from taking exercise in the open air, and the skin became dry again, the vapour bath was repeated. She could not remain so long in it as on the former occasion, owing to the profuseness of the perspiration. She was feeble for some days afterwards, and perspired freely without exercise. From this period all the symptoms of her disorder gradually subsided, and the functions returned to a healthy state. She went into the country, where she completely recovered. She once complained of pains in her loins, to which succeeded a diarrhœa, upon the cessation of which she required no more medical interference. Upon analyzing the urine three months afterwards, no vestige of sugar was found.—*Abridged from Magendie's Journal of Experimental Physiology, Paris, November* 14, 1824.

In republishing this case I have had two objects in view, viz. to prove that this affection may be much influenced by nervous derangements, and that such are not always to be cured by nervous medicines; and to state, that in this case the cure was permanent. I was enabled to procure every information respecting the patient for ten years afterwards, and I saw her again in 1837. She never had the slightest return of her disease up to this period, and died of hydrothorax, in her sixty-third year, in Poland. It is

true that I lost sight of her for the two last years of her life. Dr Bright observes, that the most severe instance of pleuritis which he ever witnessed was in a case of diabetes, where the inflammatory disease carried off the patient in two days.

PART IX.

FEVERS.

It would be a laborious task to bring into any moderate compass all the different views which have been maintained respecting the causes of fever; it will suffice at present to touch upon such doctrines as seem to be at present reviving and threatening to produce a change in medical opinions. Some works have appeared during the last ten years which savour strongly of the humoral pathology, and none more so than that of Dr Stevens' upon the blood, which, happening to be produced at a time when the cholera was marching through Europe, excited general and deserved attention; and we think with the author, that there is not anything derogatory to the dignity of the profession in looking back and halting in our march, or returning again to a belief in doctrines which have been laid aside, provided we have reason to be dissatisfied with those which have been adopted in their stead. "To arrive at truth we must lay aside all previous prepossessions, and look calmly but closely at the disease itself." If we meet with error and uncertainty in the mazy paths of metaphysical enquiry, there may be little assuredly to excite our astonishment, but to find *palpable* errors handed down from generation to generation, does seem to imply that even common observation requires a certain time for

its maturity. If we seek for the greatest number of such we shall find them among the long recognised and well established facts which have stood the test of time and experience. But let us proceed merely into the physical world, and we shall find that such as required but the use of two eyes for their explosion, have been inculcated by divines, philosophers, and poets, as undoubted truths, and received a sanction which it would have been deemed irreverent to question.

We mount not to the stars for illustration. We trudge along the road side—our foot stumbles upon an ant hill. It is painful to be undeceived, and yet all the lessons of our youth, all the moral of the tale, prove but a fable. We have sung hymns to his praise,—we have enjoyed the wit of the little hero, who, in consciousness of his own thrifty and precautionary virtues in laying up store for the future, tells the famished and suppliant grasshopper to dance through the winter as he sang all the summer. I believe Reaumur to have been the first to point out this error, though it has long survived him. Yes, says that most acute of all observing naturalists, "Malgré, les belles choses qu'il *ne* dit a la cigalle," the ant does not hoard up grain nor make provision for the future, about which he is as reckless and careless as the dancing chirping grasshopper.

It required no effort of genius to make a discovery as available to the clown as the philosopher; yet from lack of that legitimate curiosity, which consists in the ascertainment of facts, this error has prevailed from time immemorial. The naturalist may have blushed

to have been made wise only at the eleventh hour, and the comparative anatomist have reproached himself for remaining in error when anatomical inspection should have demonstrated that the mandibulary organs argued the carnivorous nature of the insect.

The nerves were formerly considered as tubes which conveyed a subtile fluid too fine to be recognisable by our senses; still the doctrine of a nervous fluid was long prevalent, and was only abandoned as being untenable upon demonstrative evidence; for neither could the naked or assisted eye discover this tubular structure. The doctrine of vibrations replaced that of undulations, and the nervous animal was compared to an Æolian harp, the nerves being mere chords like strings of cat-gut.

It was not upon demonstrative evidence that the one theory was maintained, as it has since been proved; Was it upon demonstrative evidence that the other was adopted in its place? Our demonstrative evidence, therefore, about which so much is said is but relative after all, nor do we sit safely or even long together upon this stool. If demonstration placed us there it pushes us off again.

To reject what is not demonstrable to our senses is but poor philosophy, seeing that we are often led astray when we trust to their guidance.

We now find that the nerves are really tubular, for our eyes being better assisted, they can see farther into things than they did before.

It must be remembered, however, that it was upon microscopical evidence that we decided against the doctrine of a structure which we now recognise to be true.

In fact we may consider ourselves still upon our journey; we have been twice unable to proceed in our route. In the first instance we were in the right path, but the way was so obscure that we could not proceed safely. In the second, an *ignis fatuus* led us astray—took us completely out of the narrow way, which was as usual also the straight one. Some steadier star has conducted us once more into the old track; whether it will remain stationary and afford us light enough to carry us through, or fall meteor like, and leave us in the dark again, is still to be seen.

We can seldom say more than this in all such inquiries. We have seen as far as our present means will allow us to see. We cannot say that further means shall not be afforded us. We have a great deal of curiosity, and still our eyes are very bad.

The nerves are again recognised as tubes, and found to contain a fluid, so that we return again to our old schoolmaster, nor do we blush to do so; and if other antiquated ideas turn out to be correct, none ought to hesitate to reinstate them in the ranks from which they have fallen back. "If we gain by going back, the sooner we return, the better it will be both for the sake of science and the cause of humanity."—*Dr Stevens.*

The original and very valuable researches of Dr William Stevens, on the physiology and pathology of the blood, supported as they are by experiments and practical results, will constitute an era in the history of medicine. The almost forgotten experiments and observations of Boerhaave, Huxham and Haller, have thus been incidentally revived, and clothed with a new

and important interest, by the aid of modern chemistry. A spirit of liberalism is the offspring of enlightened science, and weighs the value of discoveries by their intrinsic worth, from whatever quarter emanating—allows for the errors of persons unversed in the technicalities of the schools, and honestly and carefully separates valuable facts from trivial inaccuracies. Such a spirit, while it conduces to the progress, regulates the march, of truth, and preserves us from the danger of relapsing into the solidism or humoralism of our predecessors. With every appreciation of the claims of Dr Stevens, it is impossible to overlook the fact, that his views of the importance of the blood in the economy, lay him open to the danger, if not the charge, of exclusivism, which he so much deprecates." —*Travers's Inquiry into Constitutional Irritation*, p. 217.

"As a general rule," says Dr Stevens, "fever or febrile diseases may be divided into two great classes. First, into those which do not arise from any of the aerial poisons, but depend entirely upon other causes; such, for example, as cold-checked perspiration, long continued excessive heat, local inflammation, &c. Secondly, into those which do not arise from any of these causes, but are produced entirely by the introduction of some deleterious poison into the system. These two classes are totally separate and distinct from each other."

Notwithstanding this difference, the fevers of the first class assume, under peculiar circumstances, all the malignity of the latter, as the typhus wards of hospitals too frequently demonstrate.

As regards those which are the result of poison to the system, Dr Stevens observes :—"The most concentrated poisons never produce fever in less than forty-eight hours—there is not one single exception to this rule—even the poison of cholera, never less than two days from the time it is taken into the system." All those cases, therefore, of "deadly fevers being kindled up in the course of a few hours, proving that the nervous system is the first to feel the influence of the cause of fever"—all such histories are treated by Dr Stevens as mere "romance, and as untrue as the Fables of Æsop."—P. 232.

If this applied exclusively to the fevers of the West Indies, our experience would not be of any avail upon the point; but in limiting the poison of cholera to two days, if this be proved correct, it is fatal to the doctrine of this disease being communicated solely by animal contagion, for our own experience and observations can warrant the assertion, that in the city of St Petersburg it appeared in the most wide spread quarters of the town, within twenty-four hours from the first recorded case, by which it could not, therefore, either directly or indirectly have been propagated.

"The cause of all malignant fevers is attributable to a poison decomposing the saline matter of the blood, and all consequences upon the solids produced by diseased blood itself. The objection to nervous impression as a cause of fever is this, that all impressions upon the nerves produce an immediate effect; thus, when light strikes the eye, the impression is immediately conveyed to the brain; whereas, these poisons may lie dormant days, weeks, and months, before they

produce fever, and create the cold stage which is caused by the loss of power in the heart, poisoned by the blood."*

This reasoning can only hold good upon the supposition that all the authority extant for the belief of fever being caused by sudden influence upon the nervous system, is to be treated as romance, and as a fable of Æsop's.

"A vitiated state of the blood producing functional disease in all the solids, derangements in all the secretions, and sudden variation of temperature, not merely of a part, but in the whole system, is, as I believe, in every instance the very essence of fever."

This is applied by Dr Stevens to fevers generally, and not to those peculiar to the West Indies. Dr Billing, in his Principles of Medicine, maintains opinions diametrically opposed to those of Dr Stevens. In idiopathic fever, the lesion of the nervous system is, in fact, the local disease. It is, in my opinion, the nervous system itself, which, being injured, produces synocha or inflammatory fever, as it arises in hot climates, and in this country in the heat of summer, in labourers exposed to work under the heat of the sun, or some times from the opposite cause of excessive cold, combined with deprivations, excesses, depressing passions, or other causes of injury to the nervous system, by infection or epidemic influence, as is the case in the *synocha petechialis*."

There is some thing to us much more intelligible in this theory, more consonant with the whole train of symptoms, as they usher in the disease; more con-

* See Appendix.

sistent with such as develope themselves during its progress; more explanatory of those causes which predispose to it, as of those which may be said to be morally prophylactic; more certain guides to the forming a prognosis of its issue, and more indicative of a rational mode of treatment, than in the supposition of the blood being the primary offending agent.

In the first place, a sudden shock to the nervous system has produced fever *instanter;* and Dr Copland, who is well versed by experience in fevers of other climates, states—

"When the infecting agent is intense, as when a concentrated animal effluvium, or an accumulated emanation from the bodies of the sick, is directed upon a susceptible person, then the effect may be *instantaneous* as *electricity*, as well as most intense. In some rare cases of this kind, as in plague and in other pestilential maladies, life may be destroyed in a few hours by the morbid impression which it has been quite incapable of opposing, and against which it has been unable to re-act. I have seen the emanations from typhus fever, from yellow fever, and from pestilential cholera, immediately produce sickness, vomiting, pain, sinking, and anxiety at the epigastrium; faintness, oppression at the chest, remarkably weak pulse, headache, and general vital depression, with pale countenance and shrunk surface, and from these the patient has never rallied, the symptoms increasing in severity, and others supervening, until death has occurred in a few hours."—*Copland's Medical Dict.*, p. 355, Part VI.

In further illustration, regarding the manner in

which infections invade the economy, and their immediate or direct effects, the same author observes,—"That certain infectious agents impress the organic nervous system directly and chiefly, is shown by the suddenness of the effects, by the sensations experienced at the time of exposure to those agents, especially to emanations conveyed in the air, by the sense of constriction and oppression produced in the chest, by the frequent and forcible efforts made to dilate or fill the lungs, as if the impression of the infectious emanation had impared the vital resiliency of these organs, by the offensive odour frequently perceived at the time of infection, by the sickness, fear, and alarm instantly afterwards felt," &c.

We must all have had opportunities of hearing patients say, and particularly students in fever wards, that they knew when they took the fever,—they *felt it at the time.*

It is evident, therefore, that the nervous system is the first affected; and in the progress of the disease, its powers becoming less and less, the blood no longer receiving the same stimulus from it, is affected subsequently. "It is difficult to ascertain the state of the blood at the commencement of these fevers, for most of them preclude its abstraction. In some few cases, where blood has been submitted to examination in the early stages, its appearance indicates rather the vital conditions, derived from the organic nervous system supplying the vascular system and vital organs, than any change in its chemical constitution."

The blood's vitality is due to the nervous fluid, (a term which recent experiments allow us again to

employ); but this vitality is necessary to stimulate that very system to due action which supplies the means, and hence their mutual dependency. The blood is no longer nutriment to the nervous system when deprived of its invigorating principle; and it degenerates, *pari passu*, with the loss of nervous energy, till it becomes a noxious decomposing mass, as it is found congested in the organs. "The exhaustion in these diseases arises from, 1st, The previous excitement; 2d, From the changes induced in the course of this stage, especially at its acmé, manifestly depressing the organic nervous influence, the tenacity of the vascular system, and the action of the heart itself."

The power of certain salts, particularly the muriate of soda, the nitrate of potash, the tartrate of potash, &c., as well as of the alkaline carbonates, to render the nervous blood florid, and to effect its fluidity and coagulating powers, was long since demonstrated by Verhugen.—(Vol. ii. p. 29.)

It is upon the decrease of saline matter in the blood that Dr Stevens founded his practice of administering the alkalies in the treatment of these fevers. "The fact, however, upon which it is based, has not received that confirmation for which there have been time and opportunity." "The characteristic phenomena of the last stage, the hemorrhages and discoloured blotches, are manifestly owing as much to the exhaustion of organic nervous influence, and of irritability, as to the attendant changes in the blood." These changes are attributed by Dr Stevens to the loss of saline matter, and "the basis of the pathology and treatment is the

relation subsisting between the colour of the blood and the saline matter contained in it." But granting that the colour of the blood is changed to its healthy state by these salts, it does not follow that they shall be absorbed into the circulation during the advanced stages of this fever, or that they shall have the effect of rallying the exhausted powers of life. As to both these circumstances, the sanguine expectations of Dr Stevens require confirmation."

"The curability of any given case is in a great degree determined by the amount of their primary actions on the brain. It matters not in a practical point of view, whether the brain and other vital organs are primarily or secondarily affected; that is, whether contagion acts immediately on the nervous system, or mediately through some preliminary contamination of our fluids, the result is the same."—*Sir A. Chrichton*, p. 120.

A convincing proof that the blood is not the first offended in fevers is the condition of the blood itself; for if it be drawn in the onset of many fevers, it is not so much altered as to manifest any change commensurate with the effects already produced. It is always in precise ratio with the deterioration of the nervous energy that the blood developes its morbid state. "The occasions on which the blood seems to be more immediately contaminated by infectious agents, are, first, when a specific virus or morbid secretion is inserted into a wound, or beneath the cuticle; and, secondly, when putrid or septic matters are similarly applied. The period which elapses between the inoculation of a specific virus and the development of

the constitutional affection, however, by no means shows that the immediate operation is upon the blood, and that this period is required for the production of morbid changes in it. That the organic nervous system is the chief channel by which the first change induced in the part is communicated to the whole body, is shown by the circumstance of the constitutional effect being frequently as great whilst the local change is slight, as afterwards when it has become fully developed."—*Copland*, p. 357, Part V.

From local injury to nerves, as in cases of amputation, fever is sometimes set up, and assumes a typhoid form. How it progresses in local inflammation is well expressed by Mr Travers.

"The setting up of fever is gradual. It is not established under many hours more than local inflammation; so is the alteration in the properties of the blood which induces it, so are the changes to which it gives rise. Whether the first morbid impression and action be upon the nervous system, transmitted by the nerves of the part injured, or inflamed to the nervous centre, and thence to the organs of circulation, is a moot question. To my mind, the pathognomic signs, as well as the facts of physiology, are in favour of this opinion. The premonitory symptoms, viz. headache, lassitude, disquietude, nausea, chilliness, and rigour, are indications of the more or less troubled condition of the nervous centres; to these the alteration in the measure and force of the circulation, the permanent and sensible changes upon the internal and external surfaces and their secretions, succeed, viz. quick pulse, hot skin, dryness of mouth and fauces-furred tongue,

vitiated and scanty excretions, &c. Of the changes that ensue in the parts which are the seat of inflammation, we shall speak in another place; but that the action of fluid and solid is reciprocal in the production of inflammation and fever, as it is in the functions of health, and that it is inconsistent with all we see and know of the animal functions; to imagine the possibility of either being exclusively in fault, is a proposition which scarcely needs to be exemplified."—*Travers on Inflammation and the Healing Process*, p. 62.

The poison of malaria may remain sometime in the system before it manifests its effects. It may be in the blood, which is doubtful; but when it passes from a latent to a free state, its first offence is to the nerves. These fevers are styled by the Germans masked intermittents; and as they prevail, which they do very much, in Vienna, the German practitioners are very cautious about bleeding in the first stages of synochus, lest the mistake should prove fatal, and the fever unmask itself. I had a very marked case of this kind in St Petersburg.

A gentleman whom I had often seen and attended, arrived as courier from some of the swampy districts of Turkey. He sent for me in the evening, and, observing him to be in a very nervous state, and much agitated, which, however, I attributed to a very forced march, I ordered him a warm bath, and a sedative. The following day he was somewhat calmer, but there was an indescribable something in his manner, which I could not understand. He said he thought his liver was out of order, and felt his side, and walked very quickly up and down the room. I prescribed some

colocynth and calomel, and left him for the night. I was sent for early in the morning by the people of the house, who informed me that the gentleman was out of his mind. I found him in the state they described, and had leeches freely applied to his temples. The whole of this day and the following he remained much in the same state, more quiet, but talking incessantly about his family and his affairs. He took a large dose of morphine in the evening, and the following day he was more composed. About eleven o'clock A.M. I was sent for to him, as he was supposed to be dying. I found him as black in the face, and as cold to the touch, as in the last stage of cholera. His teeth chattered in his head, and the very bedstead shook under him. I immediately recognized his malady, gave him a tumbler of hot brandy and water, and ordered him ten grains of quinine every four hours. He rallied, and at night took a grain and a half of morphine. The next day another fit, about the same time, but less violent, attacked him. I plied him freely with bark, wine, and opium, and in a week he was convalescent. I have had the pleasure of seeing him since I returned to England, and he tells me he has enjoyed excellent health since. Now, I have little doubt, but that he brought this malaria with him from Brailoff.

It must be remembered that Dr Stevens maintains that poison in the blood is the cause of *all fevers*. It is not to those of the West Indies that he confines himself. Now, we cannot recognize it in those we have seen in this country, not in the one which attacked us so severely in the fever hospital of Edinburgh, when we dreamed for nights and days that we

were rowing in a boat; and when, during convalescence, neither country air, nor exercise carried to fatigue, would allow us to close our eyelids for weeks. We were in a state of nervous tremour all this time not to be described, but of which the recollection will never pass away. During our Russian medical campaign, in the fevers which we treated, in which, for the most part, cold and the abuse of spirituous liquors were the exciting causes, we found no reason to abandon old ideas upon the subject, and we can subscribe to the assertion of Dr Billing.

From the very nature of fever, which I have described to be a disease essentially affecting the nervous system, it follows, that the functions of the viscera must be disturbed; and though, as just pointed out, sometimes disease of one organ predominates, sometimes of another, yet every organ suffers more or less congestion in every fever from the loss of nervous influence. . . . . .

The phenomena of idiopathic fever show that the nervous system is first implicated, debilitated by a morbid poison from the first; and Dr Billing asks the question, "But how is it to be known when the fever was gone?" which he answers, "By referring to its essence the loss of function of the nervous system. The fever is gone where the nervous system begins to regenerate nervous influence,—when the intellect becomes clear and volition free, however weak, ... for subsultus may still remain, and other marks of great debility, and there may be debility of brain, amounting to childishness, but delirium is gone, and the eye follows objects. Patients themselves can often refer

to the exact time of the fever passing off."—*Billing's Principles of Medicine*, pp. 179-186.

Most have had opportunities of sympathizing with patients under this latter circumstance,—the very look is sufficient, on approaching the bed-side, to convince us that the fever is gone. There is often a beautiful expression of the eye,—a tear steals into it. We would almost judge from the look that it is one of gratitude to a supreme power.

I was once much struck with this when attending some invalids during the siege of Varna, who had come to Odessa, where I was staying. A Russian general, who had been ill for about a fortnight with continued fever of no very severe kind, exclaimed, as I opened his bed-room door in the morning, Doctor, my fever is gone, it went away in the night, and I went to sleep. He was convalescent from this time.

We cannot altogether pass over the influence of moral causes in producing and aggravating fever on the one hand, and rendering the system insusceptible of it, and carrying the patient through, on the other.

Mrs Quickly, in alluding to Falstaff's fever,* for it was one of which he died,—he was "shaked by a *burning quotidian tertian*," traces its origin to this cause,—

"The king has killed his heart."

Here was the fatal blow,—the sorrow that worketh unto death,—wearing the system out by slow poison to the nerves, and degenerating into fever. The gra-

* In this view Falstaff is not an imaginary being. The man living upon the smiles, and pining away upon the frowns, of court, is a sad but not single reality, and, as such, worthy of pathological inquiry.

dual loss of the nervous power is traced with graphic accuracy. We find it failing physically. His friend Bardolph's nose, studded with carbuncles, misled his failing visual powers into the belief, that a flea was sticking upon it. Then the mental powers failing him, he (the ruling passion still strong in death) talks of sack, but "After I saw him fumble with the sheets, and play with the flowers, and smile upon his fingers' ends, I knew there was but one way with him; for his nose was as sharp as a pen, and he babbled of green fields."

The occurrence of fever in a sporadic form leaves room for conjecture, as the term predisposition offers matter of controversy, for we cannot tell *à priori* that predisposition exists; and not until the disease has manifested itself do we conclude, at least in many cases, that it did. In passing a regiment in review previous to marching it over the Pontine Marshes, we should not be able to pick out the men who would be attacked by malaria, presuming all to be in good health at the time, for one disease invites to another, and whatever renders the nerves weak renders them susceptible of impression; yet, as soon as the man falls down, we say he was predisposed, though we were unable to say so before hand, and, if we had passed judgment in the case, might have erred as to the individual. It is a façon de parler, and is often an instance of the substitution of words for ideas.

In adopting the views of those who place the first stroke of fever in the nerves, it is much more easy to understand the term predisposition and its consequences; for, in this view of things we have a chain of

moral causes continually operating, which act upon these organs. We have seen that moral emotions change the healthy states of the secretions throughout the system, for which the integrity of the nervous influence is requisite. A stronger dose of this moral poison prostrates the man and engenders fever; now, whether it be possible for a man to fret himself into a fever is a question which many will perhaps dispute, but there is no cause or impediment against such an occurrence. Moral causes continually acting upon the nerves deprive them of their energy, and the blood and secretions by degrees feel this deterioration, become more and more unfit for the purposes to which they are destined, and losing their vital properties cease to impart them; hence they become offending agents, and may be themselves the causes of fever. There is physiological as well as moral truth in those lines of Byron, alluding to blighted ambition and reverses of fortune. It has been the lot of many, as of our fat knight, to be

"The sword laid by
That eats into itself and rusts ingloriously."

"This fever at the core" does prey and prey upon the system till all healthy action ceases, and morbid conditions arise which finally threaten feverish exhaustion. We may suppose Falstaff a real character, and find no better illustration of these views than in his whole history.

Broken hearted, disappointed, removed from the scenes of all his former joys, hopeless of their return, finding him upon whom he had rested the broken

reed, deserted by the man whose frown was now death, as his smile had been life, to him, banished even from his atmosphere, rusticated upon a pension granted him with the galling moral that he might have wherewith to live and not be tempted to do ill, he was left to himself to brood over his misfortunes, to recognize his impotency, to find no sympathy, to be pointed at and held up to shame, to be trodden under foot. He was as morally dead as Yorick was physically. He had no courage left, no moral energy, and then his physical nervous powers would fail him by degrees. The sack would no longer rouse his spirits though it might drown his cares for the moment. His heart was killed. Here, then, we might presuppose predisposition, and what more likely than to find his death in an aguish fever.*

Of all predisposing causes, in the general acceptation of this term, whatever depresses the nervous energy is by all considered as the most important, whether from the physical effects of heat and cold, fatigue, hunger, or the moral effects of anxiety.

Of all the prophylactics none is equal to moral energy and moral courage. Of this the plague affords us the most striking examples. Nowhere are the fatal

* Agues often arise from cold damp air, and now and then from a cold east wind alone, and often from great and sudden distress of mind alone, of which *I have seen two cases*, and more are mentioned in the annals of medicine.—*Sir A. Chrichton*, p. 126.

In a patient labouring under severe symptoms of incipient fever, showing itself in extreme heat of the skin, of the head and neck, a very quick and full pulse, and a violent headache, I have seen all the symptoms nearly removed in a few seconds by the moral operation of fear.—*Parry's Elements.*

effects of fear better or more beautifully recorded than in the plague of Athens by Lucretius :—

> "Illud in his rebus miserandum magnópere un um
> Ærumnabile erat, quod, ubi se quisque videbat
> Implicitum morbo, morti damnatus ut esset,
> Deficiens animo mœsto cum corde jacebat
> Funera respectans, animam inmittebat ibidem."

The plague of Marseilles furnishes us with an instance of individual heroism, which contrasts well with the above. So dreadful was the mortality, that the dead were left to bury their dead. No one was found with courage enough to drag away the corpses, till an opulent citizen boldly sallied out, laid hold of the bodies with his own hands, and by his example inspired courage into the souls of the most timid, who rallied round his standard, and cleared the ground of the putrid carcasses ; nor is it recorded, that any one thus inspired was infected by the disease.

It is difficult to understand, by any other rationale than a certain degree of courage or confidence in the individuals, the dogma that exposure to disease renders the exposed less susceptible of its influence. This is decidedly a sophism. If the same susceptibility exist the frequent intercourse with the diseased can only increase the danger; but the fact is, that fear being conquered by the first escape, the susceptibility of impression is diminished. Physicians and nurses do fall victims to infectious diseases, but not in any ratio with the amount of their exposure; and although the average of medical life is very low in the scale, still it is high in consideration of the degree of exposure, if there were not a controlling power which diminishes impression; we find it in the moral acting upon the

nervous. Thus the dread of evil is sometimes greater than the evil itself. Of this the cholera afforded us a good illustration. When it was raging at Moscow, we of the faculty greeted each other in the streets of St Petersburg with very lengthened faces; but as soon as it came among us, and we plunged in *medias res*, there was no fear apparent. The stimulus of exertion to vie with each other in finding some remedial means, became a buckler to ourselves.

The fever in Edinburgh in 1818, to which I have alluded, afforded a very striking evidence of the effects of moral depression upon one individual, who was superintendent of the Queensberry House Fever Hospital. He was the most active man in the institution, and escaped the fever, when all the medical inmates, myself among others, had passed through the ordeal. He seemed proof against its influence. But he wrote a book upon the subject,—a large volume, and embarked all his little means in the speculation. It turned out unfortunately for him, and preyed upon his mind. He took the fever when the wards were almost cleared of it, and, though he struggled through it, he died of its consequences.

I think that such information as the following has saddened the heart of many, upon inquiry after old acquaintances:—"He got wrong in his affairs, was harassed by domestic misfortunes, got into a low nervous state, caught cold, which terminated in fever, of which he died."

Sporadic fever generally singles out the nervous and irritable. The following case, which was one of great interest throughout its whole course, occurred to me in St Petersburg:—

A gentleman of very nervous temperament, and for some time previous in a state of irritability from a variety of depressing causes, having but a few months previously suffered very severely from spasmodic cholic, and whose digestive organs were seldom in good order, awoke in the morning with sense of weight in his head, and a general feeling of languor and debility. He was determined to make an effort to shake it off; and after an early dinner, set out to take a long walk. Upon his return he felt his headache much increased, he was cold and chilly, and went to bed. I saw him the same evening, and prescribed an emetic. It did its duty, but did not relieve him; he passed a restless night, and the following morning I found him feverish; his tongue foul, and pulse quick, but rather feeble. I prescribed a brisk dose of calomel and colocynth, and gave him salines, with nitrate of potash and antimony. The bowels were opened, but there was no marked relief; and when I saw him in the evening he complained of intolerable pains in his loins, causing him to groan. His *morale* was already much depressed, and he augured ill of himself. Twenty leeches were applied to the lumbar regions, and a considerable quantity of blood was lost. He had some sleep during the night, and in the morning the muscular pain was much relieved. Saline purgatives were continued; the urine was scanty but limpid; the skin and pulse not changed. The body was sponged with vinegar and water, and some leeches applied to the temples; the headache was only severe upon moving it from the pillow. On the fifth day he became incoherent, and slightly comatose, with some twitching in

the muscles of the hands, as he was drowsy and unable to lift up the eyelids. The heat of the skin was increased, the pulse quick but feeble; the bowels had been freely evacuated. I requested farther assistance; and Sir William Chrichton met me on the sixth day, when small petechiæ appeared all over the surface. The delirium was on the increase. We prescribed a warm bath, with ice on the head during the immersion of the body. This was accomplished without producing any decided effect. A mixture of equal parts of infusion of valerian, and camphor mixture, with spt. of mirdererus, was given every three hours; the sponging of the body was continued, and no change was made in the practice, nor did any occur in the state of the patient for two or three days. He seemed always dosing, and was quite deaf; still he could be roused to take his medicine, and he motioned for the urinal and bed-pan. The petechiæ increased in size. Upon the tenth day we commenced by giving him champagne every two hours, and he took a bottle in the twenty-four. The nervous symptoms rapidly increasing, fine old sherry was poured down the throat, and this alternated with bark and ammonia. Upon the fourteenth morning, I observed for the first time a slight cloud in the urine; towards evening the lower jaw fell, and his mouth was thrown into continual contortions; there was great *subsultus tendinum*. Musk was forced down the throat with some difficulty. The animal heat still kept up. Sinapisms were applied to the calves of the legs. His friends left him in the supposition that he was in the agony of death. I had observed in the morning that he had made a rotatory

motion with one hand round his head. The respiration became more laboured as the night advanced, and all the symptoms aggravated. Towards four o'clock in the morning of the fifteenth day, the nurse came to me as I was lying upon the sofa in an adjoining room, and told me that, in some effort which she had made to move him, he had suddenly opened his eyes and spoken. Upon going to him, I found perspiration on his brow, the respiration was more calm, the motion of the jaw had ceased, but there was much twitching of the buccinator muscles. He was asleep. I remained with him for some time, when he again opened his eyes; he recognized me, called me by my name, and asked me where he was. I gave him some more wine, and he again slept. He woke into convalescence. He recollected nothing that had passed for the last ten days. His cure was slow, being protracted by large sphacelus of the back and nates.

The impression of my colleague and myself was, that if we had bled him from the arm, he would not have recovered.

There was no fever in the town at the time. Whether it be considered that the brain or ganglionic systems were offended, the case must be referred in its accession and in all its course, to lesion of the nervous system.

"In the symptoms which usher in fever, the languor, lassitude, decreased muscular power, in the moral effects which predispose to it or resist its attack, in the train of symptoms which develope themselves in its progress, in those which precede its termination, when this is fatal, or in those cases where we see it sud-

denly disappear or gradually dissolve away, we seem to recognize its nervous character."

As soon as the brain is enervated to a certain degree, by the action of contagion, or of any of the common causes of typhus fever, the heart, stomach, liver, and all the organs of secretion and excretion, are also disordered, though at first in a slight degree in general, when compared with what takes place in the course of the disorder.

These affections of the heart and other viscera, do not follow each other like a series of causes and consequences, as is the case in the subsequent stages of fever, they are at first simultaneous phenomena, showing their dependence on one common cause.

Upon this view of the subject, Sir Alexander founds his plan of treatment :—"Keeping in remembrance the facts previously enumerated, that the chief action of the common causes of typhus fevers, is on the brain and nervous system; and knowing by experience, that we do not possess a remedy by which we can restore its lost energy, except through the medium of the heart's action and the functions of the digestive organs, we ought to direct our chief attention to them in the first instance."*

In the effects of lightning we find the blood killed by the shock, yet this is through the nerves, and the same effects may be produced in the same way from the injection of poisons. Still the death is never so immediate when this means is employed—there is time for the transmission of the poison through the

* Commentaries, Sir A. Chrichton, pp. 105, 123.

whole nervous system, whereas the immediate death of the blood must cause instantaneous cessation of the heart's action. Sir Alexander Chrichton has, in his late work upon fevers, fully maintained the doctrines of nervous influence, and his long and successful career entitle his opinions to full consideration. There is great truth, that sporadic cases of fever are quite as severe as those traceable to infection—and these may be produced by causes which admit of no primary poison. "To attempt an explanation of the nature of nervous energy, or to conjecture how it is formed, accumulated, or renewed, by living medullary matter, is perfectly idle in the present state of our information; but so much we know by observation and experience, that it is a motor force to other living organs of the body, and that the functions of such organs depend on its regular supply; that they are active and healthy, when it is abundantly and freely supplied to them, that they are weak when it is scantily distributed, that they are interrupted, when it is interrupted; and, finally, that they terminate when it ceases to be formed or distributed."

It is not to be denied that the fluids and the blood are implicated in the progress of fevers; and Dr Stevens has called the attention of the profession to the morbid state of the blood, to which he directs his treatment. The solids do not enjoy the prerogatives of vitality alone, nor are they alone offended in disease—for as Müller has observed, these solids contain a great portion of fluid in their composition, viz. four-fifths. We cannot suppose that vitality is imparted to the solid at the moment of its separation, or

in its transition from the one state to the other, as John Hunter has long since made evident.

From what we know, however, of the nervous system, seeing as we do, that the slightest local lesion will be followed by constitutional fever, and as we find that direct application of poison to a nerve, is productive of more decided action than when the same is introduced into the blood, except when this carries it to all the system at once by means of the circulation; and finally, when it is proved that a muscle whose nerve is divided, does not participate in the spasm of its colleagues, when this mode of operating is adopted, sufficient evidence seems to be afforded, that all the effects produced upon the blood result from primary injury to the nervous system.

It is not evident that the blood is killed by the injection of poisons, till it has carried these into the muscular and nervous tissues, when the latter may be so injured that the blood shall participate in the injury.

PART X.

Ill Health—Nervous Coughs—Blood to Head—Ague—Moldavian Fever—Local Diseases of Nerves—Sciatica—Iritis—Knee—Earache—Affection of Jaw.

MALARIA.

The late Dr Macculloch has considered this poison to be a more prolific source of disease than most of his contemporaries are willing to admit; but that much more is attributable to it than meets with general belief, is, I think, demonstrable. I have seen malarious disease in its most severe forms, and in its milder; but, as far as treatment is concerned, in its more obstinate character, baffling the skill of medical interference, and yielding to nothing but migration from its locality.

The first steam-boat which leaves the Neva upon the breaking up of the ice, affords an annual proof to the faculty of St Petersburg, that a great number of patients who have defied their skill for months, will shake off their diseases in the voyage, and most of them will not require any more medical assistance as soon as they have put foot on another soil.

Situated in a bog, surrounded by marsh and peaty

formations on every side, the city of St Petersburg rises a monument of the triumph of art over nature. It was as great a feat for Peter the Great to erect his capital in such a situation, as for the Roman emperor to conquer the sea by his bridges. It was determined by the savants in Paris, when they discussed the causes of the *black death*, that if the disease had occurred in Sardinia, not a soul would have been left alive, so much did they attribute to local influence in the creation of that epidemic; and were it not for the hard frosts in winter, malaria would probably destroy the population of St Petersburg.

Whether the cause of intermittents be attributed to a specific poison, or may arise from other circumstances, it will be referred by most to a baneful impression upon the nervous system. If there be any disease, both from its mode of attack, and through its whole course, especially as regards its treatment, and the innumerable means which have succeeded in curing it, that can be denominated nervous, this is the one par excellence. Previous to coming to this point, it will be permitted to make some general observations on a state of ill health and local affections which circumstances of situation allowed me to witness, and which I refer, with Dr Macculloch, to the pernicious influence of malaria. The protean form which diseases arising from this cause assume, was then made known to me practically; but it was, unfortunately, a knowledge of the causes upon which they depended, rather than of any successful mode of treating them. Of some of these I shall now speak. To many, probably, I have nothing new to offer. I detail

merely the experience of fifteen years' practice in different parts of the Russian empire. It will be for others to determine whether it presents anything so novel as to be worthy of special record.

"The disorder may be found, and not unfrequently, with scarcely any marked symptom, except mere muscular weakness,—a debility on any attempt at exertion which seems unaccountable, inasmuch as it occurs in persons even in youth, and apparently strong, and is not very obviously accompanied by any proper febrile symptoms. At times not even the appetite seems affected; and here, almost necessarily, the result is to suspect the state of the patient's mind, or his moral dispositions, rather than his health, to suppose, for example, that a soldier is shamming, that an opulent female is indolent or affected, or a studious or professional man hypochondriacal."

This is the character of the slow fever, the fever on the nerves, which lasts for years, with certain intermissions, but never allows the patient to enjoy good health. It has occurred to me after having in vain essayed to relieve this state, to find that the patient has suddenly been seized with an ague fit, and the character of the fever has thus become developed. There is an observation, also, which applies to these cases, and to others of the same family, and especially nervous spasmodic coughs, which I remember to have seen confirmed by Dr Holland, viz. that the disorder wears away as the day wears on, and in such cases (the sequela of influenza), where there was even pain in the chest; but where the pulse permitted it, Dr H. told me he prescribed quinine with the best effect. Dr

Macculloch observes, that midnight is the nervous patient's holiday.

Although it is generally admitted that no patient with real organic disease feels better at night, the reverse being almost always the case, yet this general nervous derangement is an exception to this rule. The Germans insist, that in a state of health, there is always at midnight a revolution in the system, productive of a degree of nervous excitement.

It is decidedly true, as regards these complaints, and hence the little compassion which nervous people meet with, and the construction put upon their complaints, as whims, vagaries, nervousness, being synonymous terms with many, because these people are found to enjoy society, to be brisk in the soirée, to play their rubber, or enjoy the opera. How can they who seemed so well last night be credited when they are found groaning under a load of nervous oppression in the morning? This state, which permits still of alleviation from social means, might otherwise become more aggravated, and other symptoms arise, which might lead to the conclusion that caprice was bordering upon insanity. "Whatever be the causes," says Dr Macculloch, "it is a fact well worth recording or recollecting, that some of the most remarkable suicides have been committed on rising in the morning and in a certain paroxysm of fever, which many persons who have felt and checked that inclination, have described as attended with confusion of thought, thirst, tremor of the hands, and other unequivocal symptoms of fever."

If it be asked how far autopsy assists us in the recog-

nition of these diseases of the nerves, we must answer that our means of detecting alterations in structure are not sufficient in our present state of knowledge to permit us to recognize any physical alteration. The severest and long protracted torture of a facial nerve shall leave no signs of physical affection.

Dr Wilson has brought forward several most interesting cases of fatal apoplexy arising from renal disease, where there was "no lesion of the brain, and no effusion on its surfaces or into its ventricular cavities. The fits and all other symptoms in this case terminating by death were, in my opinion, consequent on disorganization of the kidney, urine was not secreted, the blood was not elaborated, and so by circulation not life but principles fatal to it were in the end conveyed to the brain as to every structure of the body." —*Wilson on Spasm*, &c.

If, therefore, such infliction of injury to the brain shall be sufficient to annihilate its functions, and leave no trace of its *modus operandi*, what are we to expect from the examination of the nervous organs under other circumstances.

In many cases we may ask what do we gain from an examination of the blood. Do the circumstances of its possessing more or less serum, forming a more loose or solid coagulum, possessing a buffy coat, fully explain to us all we look for to account for effects. How often are we not deceived in our expectations; and if we are not disappointed in appearances, we are doubly so in the effects we had anticipated; all the symptoms of inflammation shall be manifest, and yet the disease shall not be conquered; whilst on the other

hand, a bleeding shall prove of the most infinite service, and the blood shall exhibit nothing abnormal.

Dr Richter relates that a consultation of physicians decided upon bleeding the Empress, consort of Peter the Great, who was supposed to have some internal inflammation, but upon examination of the fluid, to their astonishment it presented the characters of debility of the system.

It is not upon such tests that we can always hope to find our views confirmed. Why is the blood of a pregnant woman always buffy? Why is this appearance influenced by the rapidity with which it is made to flow—the size of the orifice—the direction into the centre or sides of the vessel.

These disorders are the inheritance chiefly of the opulent, and of such as have no active employments, or who have to live or die upon the smiles of court. These are the circumstances which allow disease to take root, and throw out branches of the most eccentric kind. I have stated in an Essay on Thermal Comfort, that no people are less tormented with cough than the inhabitants of Petersburg during the winter season; but spasmodic obstinate coughs in the spring, which wear the patients out with long paroxysms, and the perspiration which the muscular efforts cause, are not infrequent. These coughs were formerly mistaken for phthisis, and those who went away to die got fat upon their journey; but the economy of these coughs, if one may be allowed such an expression, and their resistance to every species of medical treatment, lead me to refer them to the ranks of malaria. They are most capricious in their attacks, sometimes leaving

the patient for forty-eight hours, and he congratulates himself upon their departure, when a sudden convulsive fit, simulating pertussis, convinces him of his great mistake. This will torment him incessantly for a whole day and night, when another respite will increase his hopes, or sometimes the cough will seem to subside gradually for some days, and then begin *de novo*. I have twice been attacked in this way myself, and twice has it endured for three months successively, nor yielded to anything but change of air. In both attacks, however, there was a sudden departure of the cough preceded by local pain. In the first instance, after coughing most violently and being almost exhausted by paroxysm, I ate a plateful of raspberries, and drove out into the country. I had not been absent from home above half an hour when I was seized with violent spasms of the stomach, and was obliged to return. I was bent double almost with the pain. I took, upon going into the house, a basin of hot tea. It was scalding hot, and as soon almost as I had swallowed it my spasms ceased, and with them the cough entirely left me. It had lasted three months. On another occasion, after precisely the same history, I was attacked by a sudden pain in the coccyx, which lasted thirty hours, and consisted of continual shocks, as if from electricity, and so severe as to make me start from my seat. When this subsided, my long harrassing cough also quitted me. In two other attacks I got well as soon as I left the country. Now, there is something in this so similar to neuralgic affections proceeding from the influence of malaria, that I must attribute it to this cause. From the nervous state

which these coughs produce in delicate females, from the perspiration attending them, from the fever occurring of an evening, construed into hectic, and from the wasting of the body, when these symptoms have been put together without being duly analyzed, such cases have been referred to the class of phthisis. As far as I have had opportunities of seeing such, I have generally found that there has been some decided local affection, either toothache, pain in the cheek, rheumatism of the jaw, or eyebrow ague. These cases get well as soon as the patients leave the Gulf of Finland; nor are moral effects to be lost sight of in the cure of these diseases, and in throwing light upon their nature. The promise—the faith in the cure which change of air and scene is to effect when the time of migration arrives, are fulfilled at the time.

There are few females in St Petersburg who are not subject to nervous headaches. These are, I think, attributable in a great measure to the heat of the rooms and the close air of the apartments, which are useful only as preventatives of phthisis, but are far from conducive to strong health; these affections of the head are accompanied by varieties of uneasy feelings, loss of appetite, sleeplessness, vertigo, and more or less of fever. They are not relieved by country air nor the admission of free air into the houses, nor by the removal of the double windows at this season, because with the circumstances that permit of these operations, others arise. The emanations from the decayed vegetable matter which were kept under by a coat of snow and hard frost are now let loose, and it is in the spring season that all these affections are most aggra-

vated. This is the season of the greatest mortality; and the breaking up of the ice, and its departure from the Neva, are most dreaded by those who have long been ill. Il s'en ira avec le debacle, is a phrase in the mouths of all the Mrs Quicklys in St Petersburg. It is the turning of the tide with them. To those, however, who are able to get away, it is the speedy return to pristine health. Those who are robust by nature brave this climate with impunity; those whose lives are active, and employments sufficient to occupy their time, enjoy the best of health; but, to the ailing and nervous, it is a species of martyrdom. Hypochondriacs abound, and I have known such quit the country for fear of worse consequences in a mental sense, and return again in a few months to laugh at their own folly.

Dr Macculloch ascribes this state of ill health, and all these symptoms, to which others might also be added, to that poison of malaria, which generates obscure and chronic remittent. Whether a long residence in St Petersburg would lead most to adopt his theory as to the cause, I know not, but I am sure that he would have been strengthened in his views, by what he would have himself witnessed.

A young lady of very full habit, was suddenly attacked with violent pain in the head, which threatened of apoplexy. She lived at some distance from town, and some hours elapsed before I saw her; when I did arrive, she begged me to bleed her or her head would burst. I found the pulse very full and compressed, and I took away sixteen ounces of very dark coloured blood. I was requested to remain the night, and during this, as the symptoms were not sufficiently

relieved, I took away ten more. In the morning she was better, and I did not see her again till late in the evening, when I was induced again to bleed her, and took away eight ounces.

The head affection was from this time relieved, but the following day she complained of burning pain at the epigastrium, which was painful upon pressure, and thirty leeches were applied. The inflammatory symptoms were then conquered, and this is the largest quantity of blood which I ever took from one patient during the time I practised in Russia. A day or two after the application of the leeches, I was sent for in a hurry, and was informed that she was dying. Upon my arrival, I was told that she had had a fit, and the attendants supposed her *in extremis*. She had rallied before I arrived. I was requested to pass the night and following day there, and about the same hour the next day, she was attacked in the same manner. Violent spasms of the limbs, accompanied by a shrill cry—convulsive twitchings of the mouth—the eyes turned up in their sockets. There was no rigor. It was decidedly a form of hysteria. I gave her a very brisk dose of calomel, which brought away much offensive matter. The following day the fit returned much at the same time, but less severe; the calomel was repeated. She was removed to town, and finally recovered, after what the Germans style a long masquerade des Nerfs. Dr Macculloch attributes these hysteric affections to the influence of malaria. The attack occurred in the autumn, in the rainy season, and in a marshy situation; and though I do not attribute the first blow to it, still, it is probable, that the

depletion made her susceptible of some influence of this nature, which remained in her system for some months afterwards.

Rheumatic fevers, and local affections of the intercostals, are very prevalent. Where these are treated upon the supposition of pleurisy, they are very much prolonged, and sometimes aggravated. I have known fever of a typhoid type supervene to these depletions. Under all circumstances, they are very tedious, and, in general, perfect recovery is not effected till the season of migration arrives. It must be borne in mind that convalescences in these countries are very protracted.

There is a disease of convalescence, if it may be so styled. This arises from the circumstance of in-door confinement and heated rooms. It is too great a risk to expose the patient to the rigours of the atmosphere, upon recovering from illness, and nothing but fresh air will complete the recovery; so that if a person be subjected to any serious illness in the month of November, he is sure to be a prisoner till the following April. This does not prove merely a passive evil, it becomes active, and generates a nervous state, which harrasses both patient and practitioner; hence the great migration of convalescents which I have mentioned, at the breaking up of the ice in the Gulf of Finland. These cases occur more frequently, and are more obstinate, where much depletion has been used. Large bleedings never answer in these latitudes; the vital powers are too much exhausted by them. Even in inflammatory cases, where they cannot be dispensed with, small, but repeated bleedings,

are more suitable than one large one. From ten to twelve ounces, is as much as should be drawn at a time.

From what has already been said upon these nervous complaints, and their origin, it will be evident that little is to be expected from any other source than that which shall remove the offending agents, or restore the nerves to their normal functional condition. That this state is much aggravated by indiscriminate quacking, and by the constant use of blue pill and black draught, cannot for a moment be questioned. This has been fully exposed by Dr Macculloch; and Dr Holland, in his Notes and Observations, has added strength to these opinions. "In many instances," says the former, "the change of place, which leaves the medicine chest behind, cures the disease."

How far the health of families is preserved, or the rising generation rendered vigorous, in consequence of the maternal medicine chest, or the daily visits of the apothecary, is amply evinced by the fact, that in such families, and in such individuals, and often through a long life, sound health is as unknown as a perpetual state of disease is common. . . . . I must here notice the effects of this practice in producing what are called nervous diseases.

"The patient was a single lady of thirty, of a vigorous and healthy family, and, to all appearance, of an originally vigorous constitution, without organic affections, and who had never known any real disease beyond the usual disorders of infancy in their more slender forms. Every nervous affection enumerated in Whytt's formidable catalogue had been, however, her torment almost from childhood and on making

inquiry respecting her own practice, which experience has taught me to place among the first, the answer was, that she had taken salts or calomel almost every day since she was eight years of age, and was surprised that she should still be ill, and not in the least degree better."—*Macculloch*, Vol. I. p. 465.

TREATMENT OF AGUE.

If it were to be asked, What will cure a fit of the ague? it might be replied to by the question, What will not do it? It is curable by every moral emotion, by every drug that acts upon the imagination.

Now, those who have passed through the cold stage of intermittents will not be persuaded that it is no reality. The strongest are unnerved by it,—death is sometimes caused by the shock.

> "He had a fever when he was in Spain;
> And when the fit was on him I did mark
> How he did shake: 'tis true this god did shake.
> His coward lips did from their colour fly;
> And that same eye, whose bend doth awe the world,
> Did lose its lustre;—I did hear him groan."

Now, this was not a matter of mere imagination to Cæsar, but he might have been cured of all this by a cobweb, by a live spider taken internally, by an abracadabra tied round his neck; what similar means have not prevented a fit of ague? "The simplest remedies," says Dr Macculloch, "are those which act upon the mind, or through it. . . . . In whatever way these remedies act, the fact itself is

an important one, as relates to the theory of the disease, since that action and the mode of it, also the suddenness, among other things, go far to prove that it is situated in the nervous system, or in the brain and nerves; and that to influence that system directly and solely is the cure, and probably the end to be arrived at by every remedy."—Vol. i. p. 434.

"In enumerating the different remedies which act in this way, either from disgust, or the opposite effect, we must not omit the sight of a beautiful woman as having, from the testimony of African travellers, produced a cure. Fear, the sudden necessity of exertion, hope, joy, unexpected success, or sudden grief and disappointment, enter into the same category."—P. 437.

"As regards the remedies of a domestic nature, which are given with this intent, and are considered stimulants, under whatever form they are given, alcohol, opium, and spices, represent the whole."

It is not, however, of the treatment that we have to speak in this essay, except to prove that it is directed to the nervous system for the cure of a nervous disease. If it be objected to this, that none of the so called specifics will cure many cases of ague, it must be remembered that these diseases soon produce other consequences, which demand other treatment. Thus, the use of mercurials is directed to the chylopoietic viscera, which are impaired by the shock to the nervous system. It is only in the commencement of the disorder, therefore, that we must look for success in the use of these remedies, when to cure a fit is to terminate the disorder.

The blood and secretions may be secondarily affected, but they are not the prime movers of the disease.* Moreover, mercury has a peculiar action on the nervous system.

I had some opportunities of becoming acquainted with the Moldavian and Wallachian fevers, when I was in Odessa, and found Sir A. Chrichton's observation, that bark alone was seldom sufficient for their cure, perfectly true; but I found it equally apply to the agues in St Petersburg. Dr Baillie has observed, that where bark fails to cure an intermittent, a grain of calomel at bed-time, for a few nights successively, will generally accomplish the object, and with this I generally commenced the treatment. The following case occurs to me:—A lady of

* Dr Stevens observes, "The mind has an influence over the motion of the blood, and there are many reasons for believing that the nervous, like the electric fluid, can produce a sudden change in the quality of the whole circulating current. Excessive grief, violent pain, &c., may derange its physical properties, and this derangement of the blood is probably the immediate cause of the fever which sometimes follows; for, often where such cases are fatal, no appearance can be found in the solids to enable us to explain the cause of death, while the blood is invariably found to be dark in colour in a fluid state, with little disposition to coagulate either while in the vessels or when exposed to the air."—P. 260.

Now, if all these changes can be immediately effected in the blood by a fit of passion, through the agency of the nervous fluid,—effects which resemble those from the influence of a specific poison,—why should the latter require so long a time before its operation is manifest? and why should it not, when applied to the brain, produce the same consequences as those effected by moral emotions? Why should not the shock to the nervous system, which is capable of thus changing the blood, be the cause of the fever, as it in reality is, and of which the deterioration of the circulating fluid is an effect?

It is surely quite as romantic to attribute fever to an instantaneous derangement of the nervous fluid from the effects of passion, as to a dose of malarious or other poison to the brain.

middle age, and very full habit, with eruptions on the skin, had been long in an indifferent state of health. I can find no better term for it. She was never laid up; but she was never well; headache, toothache, chronic rheumatism and flying pains, loss of appetite, &c., had harrassed her for months. She at length was seized with an ague fit, for which her German attendant immediately prescribed bark. It did her no good. She felt its influence, but it did not relieve her from her painful and nervous condition. An English practitioner was requested to see her; he recommended a dose of calomel, to be repeated two or three times before having again recourse to the bark. His views met with decided opposition; but he was attended to, and the patient was radically cured in ten days. Upon the authority of the late Dr Baillie, I generally prescribed a grain of calomel for several nights before I used the bark, and I was seldom disappointed. I have succeeded by this plan when others, by commencing immediately with the specific, had failed. In some instances there was not time for such practice, as in the case of the courier, before alluded to; the fit would be so severe as to threaten danger on its renewal; and in such cases I must state what I had an opportunity of doing in the Medico-Chirurgical Society, that a very large dose of quinine was the only way of securing success. I mentioned that I had often failed in the commencement of my practice by giving under-doses, and that attributing my failure to the bad quality of the drug, I imported some quinine from England. The failure was the same. I then prescribed it in ten grain doses at three inter-

vals during the intermission, and I was much more successful. Dr Gregory confirmed my views by relating similar occurrences in this country, and urged the employment of full doses in the commencement. When the snake was thus scotched, it was necessary to resort to mercury, in the shape of calomel, in small doses, to complete the cure. The muriate of ammonia was most serviceable in this stage of treatment. The following was the usual form :—

℞ Ammon. muriat. ʒ j.
Ext : Taraxac ℥ ss.
Aquæ : Petroselin, ℥ vji.
Cujus sumat æger cochlear ampl. duo ter de die.

This, with one grain of calomel at night, for four or five times, and then every other night for as many more, seldom failed in ordinary cases. I must state here, that after some, nay, many trials of the blue pill, I was obliged to abandon its use in that latitude, both in the treatment of visceral affections and in the venereal disease. I know not what may be the cause, and I wish some one more able than myself would take up this subject ; but medicines do not act in the same way in all climates. The blue pill constantly baulked me. I latterly employed calomel, and the bichloride. In the case of intermittents, I have to mention a singular anomaly. It is positively fatal to a medical man's reputation, to prescribe arsenic to the higher classes—they will not hear of it. There is no means of disguising it. I did succeed, for some time, by writing *Solutio Fowleri*, to which the eye-

brow ague yields in general sooner, than to any other medicine; but it was discovered, and I could not persevere. It is usual, under all circumstances, for a patient to send to the druggist's for a copy of the prescription in the vulgar tongue, and this is submitted to a council of friends before it is taken. There is no means of escape.

Now, it is positive that the people take this poison in very large doses. An old lady, who lived in the country, and whose kindness to the poor was unbounded, spent a deal of money in the purchase of quinine, by which she cured a great many gardeners, who, living among the enormous cabbage plantations in the neighbourhood of the city, and often lying down to sleep on decaying vegetable matter, are very subject to agues in the spring, when they come from their villages to work in these plantations. She once told me, that an old woman in her neighbourhood, cured the ague much better than she could, and robbed her of her practice. I was curious to ascertain the *modus medendi*, and found that she sold bottles of beer for this purpose. The effects were violent vomiting and purging, severe cholics, &c., but the disease was cured. Arsenic was the remedy, and the answer as to the quantity put into the quart of beer, was *as much as will lie upon a sixpence.**

I have no doubt, that some were sacrificed in the experiment, but hundreds were cured by this means. In a paper published in the Lancet, on poisons, I have mentioned the precautions taken by government, to

* The coin Grœveuz is as near the size of sixpence as possible, it is worth fivepence-halfpenny.

prevent abuses, by placing all possible difficulty in procuring deleterious drugs from the druggists shops. It is absolutely true, that a person, who cannot buy a grain in this way, can purchase a hundred weight at the wholesale venders without difficulty, even in St Petersburg.

LOCAL AFFECTIONS.

A gentleman, with whom I was in the habit of associating daily, suffered from attacks of rheumatism, which invaded him at all seasons of the year and times of the day, and without any warning. In the midst of health, at table, in the drawing-room, he would be seized with sudden twitches in the knee or instep, sometimes on the inner side of the leg, which would soon amount to pain, and, in the course of an hour, render him unable to walk across his room without assistance. The following day he would suffer from constitutional fever, and these attacks generally lasted two or three days; the pain would gradually leave him, or sometimes instantaneously, as it had commenced. It would occasionally fly from one leg to the other, but was always confined to the lower extremities. The parts were hot to the touch, seldom discoloured, and never swollen. Meteorical changes seemed at times to be the most traceable causes of these attacks. Nothing was of any service either in arresting the seizure at once, diminishing its course, or preventing the usual periods of its return. This state of things had continued for years. He quitted St Petersburg during my residence there, and went

to England, whence I learnt that he had no return of his complaints.

Sciatica is a common affection in Russia, but not more obstinate than in other countries. The most effectual plan of treatment, when taken early, consisted in full doses of colchicum, calomel, and opium at night, and blisters to the part affected.

The latter might often be dispensed with. I have known the tibial nerve the seat of the disease, and causing great pain, particularly at night. This, in one case, was soon cured by calomel and opium. The following plan was adopted for the cure of a very obstinate case of a sciatica, in a young man of my acquaintance, whose complaint had baffled all the ordinary means. Needles were pushed deep into the part affected, and heated red hot by a spirit lamp. The cure was permanent after one such species of firing. I do not remember who proposed the operation, nor whether it came from the faculty. I can testify that there was no return of the disease for years, and, I believe, never since that period.

The brow ague, as I have observed, yields more readily to arsenic than to any other remedy; but I have found that one application of leeches always expedited the cure. It was only possible to employ the former with English or Germans.

The pes anserinus is subject to become affected, and always, as far as I could trace it, from exposure to cold, and to a sudden impression of it. It is not uncommon to see people rub one cheek. It is not very severe, and often yields to opiate liniments.

Iritis is a very common disease in St Petersburg,

and, from its very obstinate nature, I have reason to think that malaria has something to do with it. I have witnessed several cases; and have observed that those subject to it were rheumatic and gouty subjects. It is also not uncommon for it to fly to the other eye, when one only has been affected for some time. It is a very common sequel of ill treated syphilis. The treatment has appeared to me unsatisfactory; but in this, as in many other cases, the plan of continually changing remedies without giving any thing time to effect that for which it was first prescribed, appears to me the chief error of German practice. Upon none is the maxim of Hippocrates more necessary to be inculcated than on the Germans in this respect, and it is rather an anomaly in their character, for, in most matters, they are a most patient and persevering people.

Mercury is not given to affect the system in this disease. A few mercurial purges may be prescribed in the commencement. Leeches are employed; but in their application the law is to apply them as far as possible from the part affected. Sinapisms to the feet, the brow smeared with mercurial ointment very gently, and the hydriodate of potash in ten grain doses, form the basis of the treatment. A rag dipped in laudanum is hung as a curtain before the eye, and this alternated with a bag containing aromatic herbs. The most rigid abstinence is enjoined, and a dark room. I have seldom known the affection subdued in less than six weeks. Relapses are very common; and, in the cases which I can now call to mind, vision has never been completely restored; a haze sweeps before the

eye. The active treatment which is adopted in this country at the commencement, is often deferred till late in the disease, and then makes but little impression.

Epidemic opthalmia has frequently made great ravages among the troops.

The *Knee* is subject to malarious affection, of which I have seen several cases. The first which occurred to me was in the commencement of my career in the north; and I am certainly indebted to Dr Macculloch's essay for the success of my treatment. A young man of particularly nervous habits, and who had led a gay life, sent for me the day after his wedding. I found him quite lame, unable to walk, suffering considerable pain, and in a general state of tremor. He could hardly speak distinctly. He told me that he was subject to such attacks occasionally, but this was more severe than usual. He was very nervous. There was neither redness nor swelling, but the patella was exquisitely sensitive. I gave him frequent doses of camphor, valerian, and ammonia, and a grain of opium at night. The following day he was considerably better, and in the night the attack entirely left him. He died of nervous fever some years afterwards.

A much more obstinate case was that of a young woman, who suffered from violent pain in the knee, and who went through the severest treatment for months, without any alleviation. She was subjected to repeated applications of leeches and blisters, and other stimulating applications. Finally, several moxas were burnt upon the knee, but all to no effect. There was a symptom in her case, which should have led to a different plan from that which was so futilely prac

tised; an intermission, viz. of pain for hours daily, the worst paroxysm occurring towards evening. No change in the size of the joint was at any time visible, but it was warmer than usual during the time of pain. I was consulted in the case, and recommended quinine, but it was not persevered in, and I could not countenance the severe methods of local treatment which were proposed.

An old woman persuaded her to tie a string of bottle corks upon the thigh, an hour or two before the wonted paroxysm, promising that it would act as a charm. Faith was placed in her words, and it did so. She missed the paroxysm for several evenings; as the faith, however, decreased, the pain returned again. Had any thing more of the same kind been adopted, I believe it would have succeeded. This circumstance confirmed me in the idea of the real nature of the disease, and that it belonged to painful neuralgia, from constitutional causes. She migrated in the spring, and since her absence from Russia, has not suffered the slightest inconvenience.

I shall add but one more case of neuralgia, which occurred, though not in my own practice. It was one of a young girl of twelve years of age, who suffered every evening from lancinating shooting pains in one ear, often so severe as to cause her to cry out and become almost distracted. It resisted various remedies, and finally yielded to mercury. The place of her residence was a peaty soil, and the neighbourhood never free from fevers of the remittent kind; and it was here that I met with all the worst cases of scarlatina.

With respect to the use of quinine in all these local affections, as far as my own experience is concerned, I have found it of very little service. Arsenic, where it could be given, has seemed more beneficial; from calomel and opium, there has often been speedy and positive relief afforded; but change of air and locality, are the sovereign specifics for these, as for the more general manifestation of constitutional symptoms, from one and the same cause.

Now, what has been said concerning the treatment of constitutional fevers, is equally applicable to local neuralgic affections. The same moral emotions, the same charms, the same quackery, which cure the ague fit, will drive away the toothache. It is the triumph of faith, the influence of belief in both cases.

The following case occurred to me early in life, and I believe the first after obtaining the warrant "Universis et Singulis." I had just arrived in London from Edinburgh, and met with a friend whom I had known some years before in the country, where he was employed as an officer of engineers upon the trigonometrical survey. After exchanging a few words, he said to me, Do not you perceive what is the matter with me? I replied in the negative. Why, he continued, I cannot open my jaws, and am half-starved. I then found that he could not open his mouth wide, without causing great pain in the articulation of the jaws. He informed me that he had been upon the survey in the Shetland Islands, where he had been exposed to all kinds of weather, and had thus got locked jaw. Upon finding that he had been, as he styled it, par-boiled in hot baths, and had taken bark and arsenic without any

effect; and, moreover, finding that there was a good deal of pain upon pressure, I told him that I could cure him, and that he should be able to eat a biscuit in a week's time. He shook his head, and doubted much of such a possibility.

I begged him to let me try, and told him as the means would be very simple, he need not be afraid. He consented to allow me to put on leeches the same evening, and while they were still attached and bleeding, he exclaimed, good God, I can open my jaws—before they were all removed, he said the pain was gone, and the movement of the jaw was quite easy to him.

He slept better that night than he had done for months, and the following day was surprised to find that he could masticate his food without difficulty—there was, however, still some degree of stiffness. I advised a second application of the leeches, to which he readily consented, and from that time he was radically cured. I have stated this case just as it occurred, for I know I shall be pardoned for that self-confidence, which is the portion of a Tyro, and this was one of a Tyro's lucky hits.

It is interesting, however, as regards the affection itself, and a proof that diseases resembling local neuralgia are not to be treated under all circumstances by nervous medicines. I consider this to have been a case of inflammation of the cartilages of the jaw, and not of the nerves. Some years after, the same patient was affected with iritis, from similar exposure to cold.

PART XI.

Homœopathy—Instinct and Reason—Memory.

HOMŒOPATHY.

ALTHOUGH nervous disorders arise from local circumstances, and the removal of these sometimes cures the complaint, still they demand medical attention, and are prolific sources of revenue. It is here that the homœopathists have unfolded their banner opportunely, and marched triumphant over the field.

It is as easy to prove that hundreds of nervous affections have been allowed to get well under this treatment, as it would be difficult to decide that any diseased organic structure has been thus restored to its normal state. This system is, in the truest sense, the "art of amusing the patient whilst nature cures the disease."

I have elsewhere endeavoured to analyze, in some measure, the claims of this new species of quackery, and I shall reproduce the arguments here as not out of place in the consideration of a variety of affections, which are proved curable by moral influence.

According to the principle laid down by the author of the system, it implies the doctrine, that deranged animal functions are remediable by the application of such agents as would, if administered in the normal

state, produce similar derangements. This is asserted on the authority of Hahneman, who, in the observation that fire draws out fire, instances the application of his theory in the practice of Dr Kentish; and the difference between homœopathy and allopathy is this, that one goes along with the disease, the other wars against it.

We shall not enlarge upon the various coincidences which seem, *à priori*, to justify this statement, but shall state our belief, that a definite combination of atoms is as necessary to produce specific action in the animal as in the chemical laboratory, and that a specific disease is not the result of indefinite combinations, as gases are not formed by indefinite mixtures of certain ingredients. If we take the combinations of oxygen with nitrogen, we have an opportunity of examining several compounds which differ from each other in colour, in smell, and in external characters, as they do more essentially in the effects which they produce in the animal economy. It may be stated, therefore, that chemical combinations are the result of elective affinities, without which election matters do not combine chemically.

It is more than probable that such elective principle is active in the formation of specific diseases, for we believe in these and in their appropriate remedies. Organic chemistry seems to confirm these ideas. We choose for illustration, that affection, which is particularly brought forward by the homœopathists to prove that certain agents applied to the body will produce morbid action in a state of health, and that the normal state will be restored by the application of the same

agents,—we instance scarlatina. If belladonna berries be swallowed inadvertently, nausea, vomiting, fever, and a scarlet eruption will ensue. Hence belladonna is employed as the natural remedy for the cure of scarlatina. It is used, also, as a prophylactic against its contagious influence. We have known whole nurseries put upon a course of this drug, where a child has been labouring under the disease. This is a comprehensive style of practice,—a kind of medical trinity, recognizing, in the same agent, the power of creating, annihilating, and preventing, a particular malady. But to come to the point. Is a scarlet skin, accompanied by the aforementioned symptoms, sufficient to constitute the specific disease, scarlatina?

We have seen enough of this disastrous complaint to prevent us from regarding it as merely an eruptive fever of a common kind; but to induce us to believe that we recognize in its mode of attack, its progress, its fatality, or in its sequela, some specific morbid poison not producible by a dose of belladonna, the effects of which are no more comparable to those caused by the real disease than is the redness of the flagellated schoolboy to the efflorescence of the same eruptive malady. Let us trace the progress of the two affections through all their stages before we admit their identity.

Does belladonna produce a scarlet eruption in all individuals to whom it is administered, or does not this effect come under the category of idiosyncracy, as we see it results from eating salmon, shell-fish, mushrooms, &c., in peculiar constitutions? How many deaths are upon record of the disease produced by

belladonna, where it has not been taken in sufficient quantity to act as a sudden poison?

When its influence has been sufficient only to simulate scarlatina, what proportion of mortality is there in the simulated and real disease? Do patients affected by the former sink in the course of forty-eight hours from the outset, often with little suffering, slight fever, scanty eruption, slight derangement of sensorial powers, but with difficult breathing, livid fauces, difficult deglutition, and with swollen purple fingers, as they do but too frequently in the latter.

Is the desquamation which follows in the one case, where the patient survives a slight furfuraceous, peeling off the cuticle? or does the skin come away from the arms and hands like a leather glove? Is such ever the case in belladonnic disease? Are ulcerations of the tympanum, exfoliation of the bones, violent inflammation of the eyes, morbid secretions from the lachrymal passages, swellings, abscesses of the whole chain of glands in the neck, dropsical effusions into the cavities, hydrocephalus, are these ever the sequela of irritation from belladonna? Is the affection produced by it communicable by contagion?

If these symptoms have never coincided in the progress of the two diseases, there are no grounds upon which to establish their identity. If they are not the same diseases they are not produced by the same causes, nor are the remedial agents the same. Genuine scarlatina can no more be produced by a combination of belladonna with the animal secretions, than a specific gas can be formed by the mechanical mixture of uncombinable elements.

It is again stated that mercury will produce all the symptoms of the venereal disease, hence the true homœopathic *rationale* of administering it for the cure of syphilis. That it does cure this complaint is beyond doubt; but no justification of its use is to be founded upon the bare circumstance of its causing an eruption which simulates those of secondary symptoms; for as twenty grey horses will never make a white one, so a variety of merely similar symptoms does not constitute identity of disease. If, then, the diseases be not the same, the argument falls to the ground,—the principle fails upon which the whole scheme is based, and there is no medical signification in the term Homœopathy.

Take another view of the subject. Supposing that the remedy which we apply for the cure of a malady should be capable of producing the same, if administered in the normal state, what principle warrants the conclusion, that by adding fuel to fire we can control a furnace?

If a disease be characterized by a variety of distressing symptoms, is there any philosophy in adding to their number or intensity by the employment of similarly exciting agents? Can we subject life to the laws of inorganic matter, and, upon the principle that similarly electrified bodies repel each other, generate a positive morbid electricity, in the hope, that when the already positively electrified morbid pole shall be brought in contact with the similarly electrified artificial end, the two will fly off from each other? We might, upon such principles, recognize the unity of disease,—"the chronothermal principle, the electric

state of the brain, and class love and pregnancy among the varieties of intermittent fever."

The term Homœopathy is lost sight of in the practice of the system, just as the name of Butler is lost in his hero Hudibras. In its general acceptation, the public only recognizes the infinitesimal dose system, which, with that same public, constitutes the great charm of homœopathy.

It is rightly conceived by those who hold their burnt children's fingers to the fire, and keep them there as long as the increase of pain can be tolerated by the sufferers.

The principle is directly opposed to the ancient belief, "*chaque mal est gueri par maladie contraire*," the idea upon which the old King Charles acted when he invoked the aid of Joan of Arc to remedy the disasters accruing to the state from his amours with Agnes Sorel.

We do not deny that advantages are to be derived from infinitesimal doses of medicine. Much mischief has been generated by long and protracted drugging with powerful remedies in chronic disorders, many of which would have been benefited by rare interference, or, which comes to the same thing, by homœopathic treatment.

"It can do no harm." This is its rock of salvation. This swells the ranks of Hahneman; but if such nonentities be negative for harm, can they be positive for good? Is the drowning man, whom physical exhaustion incapacitates for saving himself, more indebted to the one bystander who will not lend him a helping hand than to the other who makes

great efforts to save him, although he may fail in the attempt.

But in reality this practice does effect positive good, inasmuch as by that part of it which inculcates abstinence, regularity of diet, sober hours, the avoiding of all physical and moral excitement, great assistance is afforded to the vis medicatrix naturæ;—add to which the faith in the remedy which works such wonders over all disorders likely to be influenced by it, viz. the nervous.

It is only ascribable to the perverseness of our natures that we implicitly conform to particular regulations, when they are associated with something new, although we should never comply with them if prescribed under other circumstances. Would patients but do one half for an ordinary practitioner that they do for an homœopathic one, they would soon be able to dispense with both. In all cases of a nervous and chronic character, where little is to be gained from medicine, and much from moral treatment from the removal of existing causes, from the stimulus of novelty, and from faith in nonentities, this system is invaluable.

I had one fair opportunity of testing homœopathy. General ——— slipped in the winter season and bruised his shoulder; he thought it was dislocated, and sent for me to examine it. I found that there was no luxation, but very severe contusion. I ordered thirty leeches and fomentations. The following day the tumefaction had much subsided, but he still complained of a good deal of pain. He said to me half in joke, how long will it take to cure this by the ordinary mode of treatment. It is not so easy to say I replied.

You will long feel the effects of such a blow, and probably you will not use your arm freely for a week or two. He paused, and then said, my lady is at present under the care of an homœopathic doctor, and she is very anxious that I should let him treat me; have you any objection to meet him here to-morrow. I replied that I should have the greatest pleasure in doing so, as I was anxious to test the practice, and this was a good opportunity. (I must observe that he had himself great faith in it, but did not think it good for a bruise.) The following day we met, and my colleague examined the arm and was fully acquainted with what had been done, nor at the time did he make any the slightest objection to my practice. I informed him of the conversation which I had had with the General, and of my statement, as to the probable time required for the cure in the ordinary plan of treatment. I told him I was willing to put the case entirely into his hand if he could promise greater expedition. Yes, he assured me, "Uber-morgen," the day after to-morrow, all will be right. He applied a lotion of arnica, and gave a powder of arnica at night. I saw the patient the following day; the arm was no better, but he had passed a good night. Upon meeting the doctor the day after, and finding things no better, I reminded him of his promised cure. He shook his head and said, "Had you not applied the leeches it would have been the case." But you did not say so at first, I replied, although you were aware they had been applied. He continued his treatment for some days, when I was again applied to, as the plan had failed,—the pain and weakness yielded to the ordinary means.

Even in this case I think the operation of the nervous influence is to be traced. The powder produced the rest at night, because the faith was sufficient in the commencement to quiet the nerves; but this charm vanished as soon as the homœopathist pronounced that the previous treatment had interfered with the results to be expected from his plan.

In the apology which we offer for the influence of the nervous system, we find that this homœopathic quackery holds an important place.

We shall not pursue the subject farther at present, as enough, we think, has been brought forward to rescue the nervous system from the submersion which threatens it by the revival of the humoral pathology. These doctrines are again reviving, and there is, doubtless, much in them worthy of consideration; but it is the misfortune under which all systems labour, that their advocates, carried away by intoxicating potions of adulterated liquors, find the flavour of the genuine *juste milieu* too mawkish for their tastes.

In such paragraphs as the following, we cannot recognize the spirit of calm research which should guide us in the pursuit of inquiries where the broad path leads to a precipice, and the narrow path is so entangled with intricate underwood, as utterly to impede our progress.

Those beautiful prairies of the far west, whose carpets are bedecked with the richest flowers, which ask for the hand to gather them, whose forests dotted about like islands in the sea, are not encumbered by thorn or briar, but allow of ready and uninterrupted transit throughout, without entangling the traveller's

foot by a single snare,—these are not the regions of the physiologist. It is a mazy path which he has to tread, with but little light to guide him, and that little often proving an ignis fatuus.

"Self-moving, self-producing, maintaining its own fluidity, arresting its own current by self-coagulation, the blood, in its wide range of capacity, is affected directly and at once by the countless agents of vital impression. . . . .

"The blood entire is sensitive as the individual nerve of external impression, instantaneously and simultaneously perceived through all its distributions."

We cannot subscribe to such opinions; and those, perhaps, who do, may with equal justice object to such as those with which we terminate these observations, as too exclusive on the side of the question which we have embraced.

In the language of the late Dr Macculloch, than whom few ranked higher among scientific men, "Nor can physiology and physic well forget their offices,—forget that it is not the circulating system, that system which has almost drawn all favour to itself even in their minds, but the nervous system which is the prime mover: the cause even of all circulation, of all motion, of life itself; that it is the life; that the nerves are the man—the animal; and that every thing else, the whole animal structure, in all its parts, is a mere machine and a chemical laboratory, as purely subservient to the nervous system as is a steam-engine to the intelligence of man. Without a nervous system there is no animal,—there can be none; without a circulating one there are myriads."

INSTINCT AND REASON.*

Much has been said, and great are the pains which have been taken, to draw the line between Instinct and Reason, and the whole seems to resolve itself into the conclusion, that what is denominated instinct in the brute is dignified by the title of reason in the man, and *vice versa*. If the latter were a simple faculty, such might hold good, but if it be considered as a compound one, then the totality of all the component parts is alone the privilege of the human species.

The one, as much as the other, is dependant upon organization. Instinct is not the same at all periods of animal life any more than reason. It is matured with the development of the organs. Young animals are said to be foolish, as are young children. What meaning is attached to the saying, that old birds are not to be caught with chaff? It can only imply that they know better, and this includes mental education. Many of the reasoning faculties are comprehended in this species of knowledge.

Dr Bostock, in his Elements of Physiology, has allowed that instinct has the preponderance over reason in animals, and that the instinctive faculties are weak in the human subject; but he does not deny rational faculties to brutes. It will entirely depend upon the meaning we attach to the word reason, in order to prove in what the difference consists between it and instinct. Many of the wonderful feats related of animal sagacity are, I think, referable to instinct

* See p. 10, Part I.

only. On the other hand, it is not true that this said faculty, whatever it may be, is the attribute of any exclusive species. It is the property of the whole race. All animals are capable of education,—all are not equally so,—all do not possess the same quantity of natural talent.

It has been said by some, that education can only be carried to a certain extent with the lower order of animals, *e. g.*, that after teaching the elephant a certain number of tricks, his education is finished,—he can go no farther. I very much doubt this assertion; he goes as far as his keeper wishes for the purposes of his hire.

Animals are said to have no idea of the uses of fire, nor how to supply it. Thus, a monkey sitting in the corner of the chimney, with logs of wood around him, will let the fire go out and shiver with cold, and yet never put a bit upon the embers; still I have known a dog to open the door of the stove with his foot when he found it shut, and this he did regularly when he came into the parlour previous to lying down before the stove.

Again, it is argued, that in the construction of the honey cell, it is an instinctive faculty which has led the bee to economize space: this is certainly true, but it is not proved that the insect can make no other arrangement. On the contrary, if the work be partially destroyed, the bee will restore it as it was before; but if, in consequence of continual depredation upon parts of it, it is easier to complete it upon another plan, it will abandon the original instinctive model and change the style of architecture. It is difficult to suppose that animals can dream upon mere instinctive powers, and yet, as we have instanced in the chapter

on dreams, there is no doubt of the fact. Memory is one of their attributes whether sleeping or waking.

The effects of liquors upon the animal senses are the same as upon the human, though it is only the pig which seems to take pleasure in this species of recreation. The passions are all in full force among them, —love, hatred, revenge, jealousy, are of daily observance. I once saw the effects of the latter upon a quail, that literally died of chagrin. A young lady had a pet quail that lived in her room, and which she fed and caressed. A squirrel was introduced, and on the young lady paying more attention to this new guest than to her old favourite, the bird ran about the room distracted, whining and crying, would not touch food, and died on the second day.

How far animals are capable of laying down plans for the execution of their purposes, when revenge is their object, the anecdote related of the monkey in the Penny Magazine affords an astonishing proof.

"A monkey tied to a stake was robbed by the Johnny Crows (in the West Indies) of his food, and he conceived the following plan of punishing the thieves. He feigned death, and laid perfectly motionless on the ground, near to his stake. The birds approached by degrees, and got near enough to steal his food, which he allowed them to do. This he repeated several times, till they became so bold as to come within the reach of his claws. He calculated his distance, and laid hold of one of them. Death was not his plan of punishment. He was more refined in his cruelty. He plucked every feather out of the bird, and then let him go and show himself to his compa-

nions. He made a man of him, according to the ancient definition of a "biped without feathers."

It is difficult to say, therefore, in what the difference consists, if we look to the two only in the sense of powers resulting from organization; and that these two powers, or these modifications of the same power, depend upon it, cannot be doubted; for they grow with the growth, and strengthen with the strength of the latter, and are impaired or annihilated in the physical injuries which it sustains.

The difference is only in degree, but this is so great as almost to constitute two distinct powers. If the dog be capable of availing himself of the comforts of a stove fire, he will never, by any stretch of his mental powers, be able to invent a safety lamp.

If, however, the higher powers of reason be denied to animals they are not, on the other hand, chargeable with some of its less noble attributes.

It is doubtful whether they possess that species of sophistry which allows man, under certain circumstances of self-deception, to make evil appear good,—and of necessity a virtue.

If a dog were caught by the leg in a trap or gin, would he find such means of consoling himself as Hudibras did when his feet were fast in the stocks? It was then, and not till then, perhaps, that the knight understood the value of his spiritual half—the unconfinable part—the free agent:—

> "Quoth he,—Th' one half of man, his mind,
> Is *sui juris* unconfined,
> And cannot be laid by the heels,
> Whate'er the other moiety feels."

It was by dwelling upon the advantages of one that he lost all feeling of the other, as others have done before him. Here then, as he himself expresses it, the *rationalia* have advantages over the *animalia*, and pursuing his system still farther, sophistry allowed him to believe that his valour was increased by his defeat.

The rational faculties of Ralpho were of a much less noble order, and mark the difference between the man and the philosopher. His mode of reasoning approaches, or rather hardly soars above, that which the dog would have manifested under similar circumstances:—

> "Quoth Ralph,—How great I do not know,
> We may by being beaten *grow*,
> But none that see, how here we sit,
> Will judge us *overgrown* with wit."

The sophistry of Hudibras allowed him to glory in his captivity,—his mind soared as his body became debased. Ralpho's inferior soul was downcast and mortified,—he regretted the want of that wit or cunning which (had he possessed it) might have preserved him from his disgraceful imprisonment.

The dog might feel as much in a similar case. We say of animals that they go mad,—that they lose their senses. We say the same of our species, but we say also that they go out of their *minds*.

This is not said of animals. There seems to be some difference between the two, if we may judge from what language implies. We never say that a man goes out of his soul,—to lose one's soul has a totally different signification.

Soul implies, therefore, more than mind or senses;

and is not the union of mind, sense, and soul, the power which constitutes human reason?

MEMORY.*

It was in the gardens of the Tuileries that I met with an old college friend. He was promenading a young lady, who seemed to me to have some difficulty in making herself understood, and still more in understanding her cavalier. They soon parted company, and my old acquaintance came up to me, and complained of the difficulties he found in speaking the French language. "I always had a bad memory, you know, but I can remember *facts* better than *words*." I should have instantly recognised my man by this expression alone. He went by the name of "The Man of Facts" when he was at college; and it was to this alone that he ascribed all superiority. To possess more facts than one's neighbour was to have the greatest advantage over him. When asked how he got through his examination, he replied, "well enough;" but regretted that he had not so many facts as the professors who examined him; and he sighed for his want of memory.

Now, nothing can be more erroneous than his ideas upon the subject. A man may possess an immense number of facts, and yet be a very great goose. There are two kinds of memory,—the one purely mechanical, which those possess who retain names, dates, and some facts,—the other is the result of an

* From Fraser's Magazine.

impression made upon the feelings; and the complaint of want of memory is in general nothing more than the obtuseness of an important portion of the intellectual faculties. Few clever men complain of want of memory, or find difficulty in retaining those things which form a part or parcel of their intellectual enjoyments.

The lover of poetry may not be able to recollect when the battle was precisely fought, but if he have ever read Campbell's "Hohenlinden," he can never forget it. He may have read it but once, may not be able to repeat a line of it, but there it is indelibly impressed upon his feelings,—he can call it up when he pleases. It is as much his own as the author's. The man without memory or without susceptibility of impression, which is almost synonymous, may have read it many times, and yet know nothing about it; his eyes have passed over it, but it has not passed through those portals to be indelibly stamped upon the sensorium. His ear may, perhaps, again recognise the sound of the words, but still the thing itself has escaped his memory, and from the best of all reasons—that it was never there. The want of memory, of which such complain, may be compared to Falstaff's deafness, "Rather out, please you. It is the disease of not listening, the malady of not marking, that I am troubled withal."

He who has summed up every thing, and placed all things in their true light, has not been wanting in the true definition of memory. When the Ghost says to Hamlet, "Remember me," he replies, "Yes, as long as memory holds a place in this distracted globe."

Here is precisely what we contend for, viz. that

true memory is made up of impression. Such is implied in the tone of Hamlet's reply, that it would be impossible to forget it, that nothing less than the dissolution of the moral and physical world could prevent him from remembering the scene which he had just witnessed. It became hereafter no matter of will with him to do so. To tell him to forget it or to remember it, would be synonymous. It formed from that time a portion of his moral existence, inseparable but by general dissolution. It is precisely the same in other matters; that which has made a very strong impression is never forgotten; it may not always be at hand, but it is still there: circumstances may again call it forth, fresh as it was deposited in the storehouse of the mind. The man without memory is the man whose mind is not organized to receive such impressions as excite those sensations which guarantee durability; such as read the book and lay it down, and forget where they left off; a state which may occur to all at times, when the mind may be preoccupied, but which is habitual with those who complain of bad memories. In these arguments a healthy state of body and mind is presupposed; for by nothing is the faculty of memory so impaired as by physical derangements. It may be annihilated by organic affections, or it may be suspended, or go to sleep. It may happen that the power of speech and the use of language be annulled, that all moral existence may seem extinguished, whilst the physical powers continue their functions; but when the causes operating these effects shall have been removed, then shall blessed memory return with all its force to the point

where its functions had been suspended. The following case, quoted from the lectures of the late Sir Astley Cooper, illustrates this position in a most satisfactory manner:—A sailor falling from the yard-arm was taken up insensible, and carried into the hospital in Gibraltar, where he remained in the same state for many months; he was conveyed from thence to England, and admitted into St Thomas's Hospital.

"He lay upon his back with very few signs of life, breathing, his pulse beating, some motion in his fingers, but, in all other respects, apparently deprived of all powers of mind, volition, or sensation. Upon the examination of his head, a depression was discovered, and he was trepanned at a period of thirteen months and a few days after the accident. The man sat up in his bed four hours after the operation, and, upon being asked if he felt pain, immediately put his hand to his head. In four days from this time he was able to get out of bed and converse, and in a few more days he was able to say where he came from, and remembered meeting with the accident; but from that time up to the period when the operation was performed (*i. e.* for a period of thirteen months and and upwards), his mind remained in a perfect state of oblivion."

Nothing was remembered which occurred between the periods of the infliction of the wound which caused the pressure, and the removal of the piece of bone which produced it, because nothing during that long time had made any impression on the sensorium. There was a distinct separation of animal from moral existence.

Mr Herbert Mayo has published a case of double consciousness with temporary loss of memory. It is rather complicated in a metaphysical point of view, but proves satisfactorily the power of impression. There was no loss of memory where the former had had its due influence. Some physical impediment in the circulation operated to prevent its manifestation at will; but it was there, and as soon as the obstruction was removed, memory again triumphed.

I believe, therefore, that we are not far from wrong in accusing our friend of that want of perception, and of impression, which so much limited the number of his facts, that he retained but very few; and his complaint against his memory was unjust and ill-founded, inasmuch as the food with which it is nourished must be duly digested and assimilated, before it form an integral part of that intellectual state, which seldom complains of want of memory.

PART XII.

GERMAN THERAPEUTICS.

SOME PECULIARITIES OF GERMAN PRACTICE.

German Therapeutics hold a middle rank of action between the French and the English, being more energetic than the former, and less so than the latter.

The Germans boast of a simplicity of prescription, and have a horror of contrarieties, carrying this to a ludicrous nicety, and an unmeaning orthodoxy. Thus, a solution of sulphate of magnesia in an infusion of roses, or the combination of a laxative with an astringent, meets with the severest criticism from those, who profess as much abhorrence of a *contresens* in prescription, as nature does of a vacuum. There is much to commend in simplicity of prescription; and the multifarious ingredients which formerly entered into the British recipe, have not undeservedly merited the stigma of *farrago*, applied to the latter by continental practitioners. Dr Paris long since pointed out the error, and has done much to rectify it.

The study of pharmaceutic chemistry, and the superior education of the general practitioner of modern days, have almost accomplished this *desideratum;* still, we do meet with combinations of materials, which would be better for a little sifting. To Dr Pereira we

are indebted for the most valuable information upon these matters; and the labour he has bestowed upon this subject, has been fully appreciated by the highest authorities at home and abroad. The Germans find the advantage, and it is one of some importance, of administering many remedies *per se*, which if diffused in mixtures rendered palatable by syrups, undergo decomposition. Thus, chlorine water, which is a very favourite remedy with them, is decomposed by sugar.

Colchicum, cherry laurel water, tincture of digitalis, are generally prescribed in form of drops, to be taken in water. The pure and simple influence of such remedies upon the system, and their impression upon disease, are best recognized in this shape.

An exception to this is found in their forms of decoctions, which are the essence of a large proportion of the vegetable kingdom; and in the influence of minute doses, they countenance the practice of the homœopathists. Their ideas, well or ill founded as they may be, of infinitesimal doses, are illustrated in the preparation of a decoction much esteemed for the cure of eruptions which disfigure female beauty. It is composed of sarsaparilla, dulcamara, pine tops, beet root, buds of the birch and broom, &c., but the most active ingredient is a small piece of the glass of antimony, tied up in a muslin bag, and boiled for a limited time in the decoction which is supposed to be impregnated by it, although it may have lost no weight in the operation.

A German prescription seldom boasts otherwise of more than two or three ingredients. Nothing is held inert, if it be stronger than distilled water; and if

active remedies be administered in a variety of other menstrua, the latter are not chosen indifferently, but with a specific view, and to perform a part in the operation of the whole. One carminative water cannot be substituted for another, it being granted that each has a specific action on the system.

I have known a practitioner cavil at the use of black currant jelly, in the sore throat of scarlatina.

In respect to dietetics, their views are peculiar upon some points. In the treatment of fevers, any thing from the animal kingdom is strictly prohibited; not a drop of milk is allowed,—not even a few drops sufficient to discolour the tea, and this prejudice I have found to prevail throughout the Russian empire with all classes of people. It is considered a matter of the greatest importance.

Gruel is the universal form of food alone permitted in febrile complaints, and this in small quantity. Sago is a stepping-stone to more nutritous diet. Tea, with lemon juice instead of milk, and toast and water, made by pouring boiling water upon toasted bread, and not by plunging a bit of burnt bread into cold water, as we manufacture it.

They lay great stress upon articles of diet, during the treatment of diseases of all kinds; and when it is a question of undergoing a course of mineral waters, tables are constructed and suspended in all the eating rooms of the hotels, specifying what provisions are permitted to be used. Salad is so strictly prohibited, that it is not permitted to be served at the tables of the healthy, during what is styled the *season* in Carlsbad.

It is some fifty years since an English practitioner

laid the foundation of a reputation, afterwards well sustained, by deciding upon changing the *modus medendi*, in a case of fever in a patient of high rank. He insisted upon bleeding, contrary to the opinion of a host of practitioners, all of whom, in those days, were imbued with the doctrines of John Brown, so that the Brunonian practice was the law of the land at the period alluded to. It was the late Sir James Leighton, who first ventured upon this innovation; and from the circumstance of the rank of the patient, of the times as regarded the estimation in which medicine was held, &c., he gave the *coup de grace* to the treatment of febrile diseases, as it had been conducted for many years in the North of Europe.

How long a period was employed in fully working this change, I am not enabled to say, but certainly nothing can have been more complete than the overthrow of the system, if I may judge from what is now the current practice in public andpri vate, of the present school of medicine.

The treatment of fevers is antiphlogistic in the strictest sense of the term; and, perhaps, convalescences are longer than they would otherwise be, if the depleting system were not carried to such great lengths as it often is.

There is nothing worthy of peculiar note in the nature of the remedies administered; the patients are purged freely with neutral salts, in a mixture of senna tea, a potion well known under the name of the Vienna laxative. The common saline mixture with antimony, is given very freely; and if the animal temperature is very much increased, the nitrate

of soda is generally preferred to the nitrate of potash, as possessing more antiphlogistic virtues. It is customary to keep the head cool, with evaporating lotions, and if there be much congestion and fulness of the vessels, leeches are generally applied. In the application of these, it is always the object to apply them, as far as possible, from the part affected, upon the principle that, by unloading these vessels, there is a greater influx of blood into them than before.

Thus, I have seen in cases of severe headache in febrile affections, a large application of leeches made to the loins. In inflammations of the eyes, they are applied behind the ears or the back of the neck, but the favourite treatment is to bleed from the foot. The same holds good with blisters, which are not favourite remedies, and sinapisms are for the most part preferred. These are applied in succession upon the ancles, calves of the legs, inner part of the thighs, and on the arms, and between the shoulders. They are not allowed to remain longer than to produce a pungent sensation of heat. Vesication is not desirable. The lancet is seldom used in simple cases of fever, where there is not decided determination of blood to any organ, producing pain and uneasiness. Cupping is of rare employment, and those who do perform it, are so little *au fait* at it, that I have never seen it performed in a dexterous manner.

The Germans adhere to critical days, and often use a bath upon the eve of an expected crisis. In so doing, cold water is poured over the head, whilst the body enjoys an elevated temperature. From what little I have seen of its application, I cannot speak

very favourably of the bath in fevers, when they are fully formed. The patient is generally exhausted by the operation, without any compensating benefit.

When nervous symptoms manifest themselves, then valerian and small doses of camphor form the basis of the treatment. Bark is never given as an anti-spasmodic or a tonic, unless the disease assume an intermittent tendency. If subsultus tendinum and other indications of nervous debility appear, musk is administered, and old Rhine wines in moderate quantity. I should, upon the whole, say, that the practice under such circumstances is not so bold, and active treatment is delayed to a longer period than it would be by English practitioners.

The following case will, perhaps, in some measure illustrate this. An admiral high in the service, was attacked with simple fever and pleuritic symptoms, which in a few days assumed a nervous character, but not of an alarming nature. The patient had been an invalid for years, and subject to all kinds of nervous affections, for which he had taken very strong remedies, and had often, from circumstances of situation, been obliged to prescribe for himself. He had been in the habit of taking musk and ammonia in very large doses—of the former to the amount of *thirty grains*. He ate food very highly seasoned with cayenne pepper, &c., drank strong wines and bottled porter. Such were his usual habits, and without such aid he was always in a state of depression. His mind was actively employed in abstruse studies, and having been, early in life, subject to fits, abstemious living was subversive of his moral and physical power.

He had been ill about ten days when I first saw him, and had been treated very judiciously by a German practitioner, but he was low and nervous, and wished to see one of his countrymen. His pulse was frequent but feeble, his skin hot and tongue loaded, he had not slept for several nights, and as there was some very slight twitching about the angles of the mouth, it was proposed to give him an infusion of arnica; he had been well purged previously, and had been taking saline medicines, but without producing any sensible effect. I saw him towards the evening, and from what I knew of his former mode of life, resolved upon changing the plan. I proposed that he should take a large tumbler of bottled porter at bed time. This was strongly objected to by his attendant, who washed his hands of all responsibility. I took it upon myself, and gave him the delicious draught, as he styled it, with my own hands.

The following day I met my colleague on my way to the patient's house, who addressed me, with that good nature and good feeling, which during fourteen years, I ever experienced from the faculty of St Petersburg. La maniere anglaise a triuémpho. The patient, soon after taking the porter, slept for eight hours successively, and awoke in a state almost of convalescence.

The porter was continued, and bark and wine were prescribed subsequently, and in a day or two nutritious food completed the cure.

The Germans adhere to their Rhine wines for medicinal use, and seldom use port or sherry. It did not require, perhaps, so sudden a change in the plan of

treatment as is here detailed, nor would the case, under any circumstances, have done badly, but it is probable that convalescence was thus much expedited under the peculiar circumstances in which this person had been placed by his former habits of life.

Of the cold effusion in fevers I have had few opportunities of seeing it employed in foreign practice. I have known it used in scarlatina, but not at that point when the least good could be expected from its employment,—or rather, when it could only do harm. Of this disease I can only speak in terms of horror, as I have witnessed its fatal issue in this country; and as I have alluded to it in the chapter on homœopathy, I can only say that no one plan of practice has seemed to me to be preferable to another. Whenever several members of a family have been attacked, some have always sunk so rapidly that no means could avail to make an impression on the complaint.

I should say, that in those cases which are stamped at first with symptoms of decreased vital energy, the system of stimulus,—the use of the warm bath, wine and ammonia, would offer the best chances of a happy issue; and that this plan is generally deferred too long,—that a few hours may decide upon the life of the patient; and that in cases where this disease attacks a family, the visits of the medical man can hardly be too frequent. I may state here that I have had the disease three times myself. Once in infancy, and twice I have gained it from attendance on patients. The only peculiarity in the German practice is the use of belladonna, which they invariably prescribe upon

the homœopathic principle, which I have endeavoured to prove to be a false one.

Severe and fatal as this disease is in the north of Russia, equally mild and insignificant in their consequences do the measles show themselves. I cannot call to mind a single fatal case, not merely in my own practice, but in that of any of my colleagues, during my residence in the Russian capital. It announces itself with very severe catarrhal symptoms, but the appearance of the eruption is generally the termination of the complaint.

In the treatment of fevers I have merely sketched the ordinary routine of practice, but I must add, that after Dr Stevens' visit, and his explanation of his views upon this subject, the saline practice was adopted by one of my countrymen, and that upon a very extensive scale, as he had an hospital at his command. He employed the oxymuriate of potash, the carbonate of soda, and the muriate of soda, in the same proportions as recommended by the author, and he seemed much satisfied with the effects which followed this new system. He told me that he found the tongue get cleaner under this treatment, and the disease upon the whole assumed a milder form than under the more usual method; but where the nervous system manifested much depression, it was not by any means more useful than the old plan, and that more powerful medicines were substituted. The fact is, that in whatever manner simple fevers are treated, they will, if not too much interfered with, go away of themselves with but very little assistance. The saline practice was also adopted in some of the larger hospitals, but was not found to

possess any advantage over the more established method; nor were the cooling treatment, and the use of acid potations, so grateful to the fever patient, recognised to be so deleterious as Dr Stevens has imagined. Dr Holland, in his chapter entitled, "On Points where a Patient may Judge for Himself," has advanced this opinion. In the majority of instances of actual illness, provided the real feelings of the patient can be ascertained, his desires, as to food and drink, may safely be complied with. . . . . There may seem some exception to be made for those cases where urgent thirst gives the wish for liquids of a kind hurtful to the stomach; but it is the fluid alone which is the object of desire; and when the choice is before the patient at the moment, he will usually take that which most simply satisfies this natural want.—P. 78. *Notes and Reflections.* If a thirsty feverish patient be asked what is the most grateful to him—an alkaline or acid potation—he will be hardly found to decide for the latter; and seeing, as I have done, and as it is in general a prevalent practice, that cream of tartar water and lemonade form the usual drinks of patients in fever wards, there can be nothing so detrimental in their use, if we may judge from the results as regards the numbers who make a triumphant exit. In northern latitudes, the people believe that the cranberry is supplied them by a bountiful Providence, as a corrective to scurvy and disorders of a putrescent nature; and the feverish peasant has often no other means of assistance than what this berry, soaked in water, affords him. Apples sliced, and allowed to remain some hours in water, impregnate it with a subacid flavour, and this

is a common fever drink for hospital patients. It would be in such cases probably, as Dr Holland has maintained, that the patient might fairly be allowed to judge for himself of the quality, whereas the discretion as to quantity must be left with the physician.

Grape Cure.

Those who have practised long in Russia will have been made conversant with the cure du raisin. I had an opportunity of becoming so when in the south of the empire, and in a grape country. It is necessary to state in what this cure consists, and for what class of diseases it is recommended. The latter may be dismissed at once, by stating that all those functional nervous affections, which resist the routine of treatment generally employed, are the cases which may be so benefited, seeing that the discipline is more intolerable than the disorders for which it is instituted. A lady of rank leaves her bed of down and cushioned canopy, and migrates into the country,—turns a poor family out of their habitation (not without making them an ample recompense) and becomes the tenant of a filthy hut. This is part of the cure, viz. to forego all luxury, to sleep in the peasant's crib, to sit upon his bench, and to avoid anything in the shape of comfort. The grape alone for meat—the grape for drink; a small quantity of dry bread is perhaps allowed. This is continued for the space of three weeks, and it is no wonder, if all circumstances are taken into consideration, that a cure is effected. I have known

people of the highest rank subject themselves to such discipline, and have full faith in its results. It is homœopathy and hydropathy in another shape, and as the Italians say of all the varieties of form in which they make their pastes, c'est toujours du macaroni.

As to the physical effects of the grape, which, when the only food consumed, may be supposed to be taken in very large quantities, they are laxative to a considerable degree in the commencement, so that the treatment is not altogether negative. I must here protest against the statements of itinerant temperance society lecturers whom I have met with in England, and who have persuaded their audiences that wine is not sanctioned upon scripture authority as a potion for man. They strenuously insist upon it, that the juice of the grape is the only thing alluded to. It is easy to defeat them upon this ground, for the word wine is not one of doubtful or equivocal interpretation. It means fermented liquor. As such, St Paul recommended it to Timothy "wherewith to comfort his bowels," and surely he would not have prescribed a crude juice, or one in a state of fermentation, which takes place soon after it is expressed, for such a complaint as his patient was labouring under. It was wine, and nothing but wine, of which the apostle speaks, the same which, when taken in excess, he stigmatizes as a *mocker*.

We are, moreover, told that new wine must not be put into old bottles, lest they should burst in the process of fermentation. Leather bags are of course here implied. We are mistaken also, if there be not some such phrase as that, Wine is made to gladden

the heart of man. It was not the mere juice of the grape which our Saviour supplied at the marriage of Cana, when, in its conversion,

"The conscious water saw its God and blush'd."

Nor can there be a more decided argument in favour of the use of this liquor in moderation, than this very circumstance supplies.

That a man of education should bind himself by oath not to taste of wine or fermented liquors, is to pass a sentence of libel upon his own understanding, and to misinterpret the intentions of Providence, by refusing to accept such blessings as have been so abundantly provided for him whilst a dweller upon earth.

It should be made known to teatotallers, that it is much more doubtful whether this beverage was intended for such general use as the juice of the grape, seeing that the growth of the plant is so very limited on the earth's surface, and that this infusion may be taken to intoxication, and very often does produce more lasting and deleterious effects on the nervous system than liberal potations of wine.

Those who have undergone the discipline of the grape cure for a month, are glad to come back again to the more comfortable liquor, which, when used, and not abused, is often one of the greatest blessings.

Erysipelas.

This disease is considered very formidable by German physicians, both in its immediate effects, and as leading to results of great consequence for the future.

The treatment of it, in its primary attack, is conducted upon purely antiphlogistic principles, as regards internal remedies, and to the application of dry materials alone to the local affection. The application of anything in liquid form to the part is most severely reprobated; and a practitioner who would apply a cooling lotion to a leg with erythema (in common language, the rose), would risk the censure of the medical Board of Control. There is a great and insuperable fear universally prevalent amongst German physicians of repelling anything in the form of eruption; and should this have been done, it seems sufficient to explain the production of any subsequent malady at any future period, however remote it may be.

The blood, once contaminated by the retrocession of an eruption, will require quarts of decoction to purify it.

Fevers are attributed to the use of Gowland's lotion, as surely as puerperal mania and phlegmatia dolens are ascribed to the absorption of milk into the blood. The rose is looked upon with a jealous eye, both as to immediate and future consequences; and a patient who has once suffered from erysipelas, is hardly considered out of jeopardy for the rest of his life. If any means have been used to cure the complaint by local applications, then the danger is quadrupled. Metastasis from the extremities to the head is held *in terrorem*. The treatment is confined to laxatives, sudorifics, and nauseating doses of antimony; and the parts are dusted with starch or finely levigated chalk, with a small proportion of camphor, and the whole limb is enclosed in cotton wadding.

If the head be attacked, a mask of this material is made to envelope it, apertures being left for the eyes, mouth, and nostrils, so that the patient has the look of a Spanish inquisitor.

In the plan of treatment here, the object is to divert to the extremities; and the pediluvium with mustard flower, sinapisms, and dry cupping, are resorted to; and this with increased hopes of success, if there be the slightest probability of gout in the system. I have never known bark administered in this affection, nor are opiates allowed in any stage of the disease, even after the departure of all unpleasant symptoms, and when sleep is but the one thing wanting.

In an abridged sketch of the history of medicine in Russia, published in the first or second volume of the Quarterly Medical and Surgical Review, it will be seen that the failure of Dr Leo's treatment of the son of a Czar for this disease in his leg, led not merely to his disgrace, but to his execution.

I once witnessed erysipelas attacking the scrotum, and running into gangrene in forty-eight hours. One-half of the bag sloughed away, leaving the testes quite denuded. Bark and wine in large and repeated doses, with opium, arrested the progress, and the patient recovered. He was treated by Saloman and myself.

The patient was a young man of dissolute habits, who led a hard life, and was much addicted to drinking. He had been exposed to very severe cold, after getting wet through and standing in the water. A twelvemonth after this period, he was again under my care for erysipelas of the head, from which he recovered without any severe symptoms. He was

alarmed about his health after these two attacks of illness, and left the country.

SOME POPULAR REMEDIES OF THE GERMAN SCHOOL.

Muriate of Ammonia.

Previous to my sojourn in Russia, I had never seen this remedy employed otherwise than in the form of lotion. I have, within the last fourteen years, had much experience of it as a medicine, administered internally, and have had very convincing proofs of its efficacy, or even preference, over other salts in a variety of complaints. I have stated, that although tubercular disease is comparatively rare in high northern latitudes, yet pleuritic affections, subacute, and congestive inflammation of the lungs and their envelopes, are of frequent occurrence.

These are the effects of vicissitudes of temperature on the breaking up of the winter, and go under the name of refroidissement, a term which implies something more than our English phrase of catching cold.

In cases of serous and mucous congestion, where the inflammation does not run high, I have seen this salt employed with the most beneficial effects. In pleuritic affections it is usual to combine tartarized antimony with it, and the following is the formula in general use:—

℞ Ammoniæ Mur. ʒj.
Antimon. Tartar, gr. ij.
Decoct. Glycyriz, ℥vij.
Syrup. Altheæ ℥j. Mft. haust.

A table spoonful of this is given every two hours, and continued in spite of the nausea and occasional vomiting, which the few first doses seldom fail to produce. When prescribed by itself with the same view as nitrate of potash, I should, as far as my own experience is concerned, give it a decided preference. It is hardly worthy of the dignified title of a specific, nor is its deobstruent power so great as its advocates maintain. It acts slightly upon the kidneys, and expectoration is often facilitated but not always so, and cases treated by it *progress* to cure without decided critical evacuation.

In cases of congestion of the mucous membranes in chronic sore throat, with elongated uvula, and flabby state of the tonsils and parts about the fauces, it is very beneficial.

In that condition of the mucous membrane of the stomach, caused by the action of a variety of medicines, and which gives rise to anorexia in convalescence, I have seen it employed with happy results. The tongue loses its pallor, and acquires a healthier appearance under its influence, and it paves the way advantageously for more decided tonic remedies in the convalescence after gastric fever. In some forms of uterine disease, accompanied by discharges, it is also useful. Its salt unpleasant taste is best disguised by liquorice root in form of decoction, or by a solution of the extract in water. Generally, after the first few doses, patients take it without disgust.

Nitrate of Soda.

I have already stated that the Germans consider

this salt of a more antiphlogistic nature than the nitrate of potash.

Muriate of Soda.

This, in the form of brine in which cucumbers are preserved, is a most popular aperient. A small watery seedy cucumber is preserved in salt and water, to which a very small proportion of vinegar, and some leaves of the black currant-tree, are added. Thousands of barrels are so prepared annually, and serve as salad for rich and poor during winter. The liquor, impregnated with the rhind of the cucumber and the leaves of the black currant-tree, is drunk in tumbler doses, and seldom fails in the desired effect.

Bitter Wasser.

This is more generally used in St Petersburg than any other purgative. It is imported from Germany in stone-bottles. Its action is mild and speedy. It is taken fasting, in half pint or pint doses. Its taste is mawkish. Previous to a commencement of a course of mineral waters, it is customary to administer a few doses of this to prepare the way for them. Pregnant women use it with very great advantage, for it produces all the desired effects without causing griping.

It is a Carlsbad water, and the active ingredients are the sulphates of soda and magnesia. The Pulna water is the best substitute I have found for it in this country, but it is not by any means so certain in its effects.

Phosphoric Acid.

This is given in all those cases where British practitioners employ sulphuric and nitric acid. It is prescribed in its solid form, in pills, but more frequently in the liquid state, and is considered to possess more tonic powers then the two former.

Acidum Muriaticum Oxygenat, (Chlorine Water.)

Is a favourite remedy in putrid fevers, and in cases of ulcerated sore throat, which assume a putrid form. It is useful in gargles, and I have used it with much advantage in St Petersburg, where sore throats are very prevalent, owing to the alternations of extreme cold and moisture which prevail in the spring and autumn. It is best given by itself in drops, from thirty to fifty in water. Sugar decomposes it. I have used it with decoction of bark.

Tinct. Digital. Æther.

This is a very useful preparation, and a convenient mode of administering this remedy. The leaves of the fox glove are macerated in sulphuric æther in lieu of proof spirit. The nauseating properties of the digitalis are counteracted by the stimulant power of the menstruum, and, in cases of serous effusion, where it is desirable to increase the action of the absorbents, and to determine to the kidneys, this preparation seems to combine these advantages without producing the

nausea and exhaustion which frequently accompany the use of the simple tincture.

Aqua Lauro-cerasi.

This preparation is in much and deserved esteem in Germany. Dr Malfatti of Vienna has used it more frequently than any other practitioner, and no continental physician has been more consulted in nervous complaints. I am surprised to find it so rarely employed by London medical men. It is highly serviceable in spasmodic affections, and it is what the French style a *calmant*, in the most extensive sense of the term.

It is prussic acid *drawn mild*, but it is more available in practice, and indeed is almost used to the exclusion of it by continental physicians. It is a safer preparation—the dose may be increased from ten to sixty drops, and a patient may be trusted with a phial of it. The aqua lauro-cerasi deserves a trial. It is most useful in spasmodic affections of the stomach, in hypochondriac uneasiness, in hysteria, where there is uneasiness about the uterus. The late Dr Sutoff of St Petersburg gave it in very large doses in puerperal mania, where there was manifest uterine irritation. In such cases, he considered it a specific, and gave it in table spoonful doses. In nervous palpitation of the heart I have found it most signally efficacious. It relieves the pain caused by inspissated bile, or small calculi passing through the ducts, more speedily than any other remedy with which I am acquainted. A near relative, continually suffering from this cause,

generally found immediate relief from it. He has passed very large calculi at different periods.

There is no medicine with which I am acquainted varying so much in its virtues from difference in the mode of its preparation. I have not found it of equal strength in any two chemists shops. A preparation of the bitter almond is often substituted for it, but is far inferior to it. The distillation of the fresh leaves of the Pruno lauro-cerasus is the medicine to which I allude, and I have found it no where so good as at Messrs Hudsons' in the Haymarket.

As, upon my return to England, I had not, for some time, sufficient opportunity of ascertaining whether all the effects which I had witnessed abroad from the use of this medicine, were not to be procured from the more concentrated hydrocyanic acid of Scheele, I could not state my opinion so decidedly as at present; but from the few cases which I have since treated, I may affirm that the aqua lauro-cerasi is by far the more effective preparation of the two.

In many nervous affections, as palpitation, hysteria, &c., I generally prescribe the following draught:—

℞ Aquæ lauro-cerasi, ♏ xx.
Aquæ Flor. Aurantii ʒj.
Syrup. Tolutan ʒj. Mft. haust p. r. n. s.

The French often prescribe a concentrated preparation of the orange flower in sugar and water for spasmodic uneasiness about the stomach,—for indigestion arising from repletion.

Arnica Montana.

This has been lately introduced into British practice. Whether it is held in much estimation by the faculty here I am unable to state. With the Germans it is classed among *sacred* remedies. Its virtues are extolled throughout two pages of the "Pharmacopœia Ruthensis."

I have been much disappointed in its effects, as far as I have been conversant with its use. It is generally used in cases where strychnine is indicated, but it is much more uncertain in its operation. I have known it exhibited in large doses, without producing any sensible effects.

Indigo.

This remedy I have seen administered in cases of epilepsy, hysteria, and also in all the convulsive disorders of children, from such as result from difficult dentition to those which are caused by effusion on the brain.

I have ever protested against the idea of the possibility of its doing any good in such cases, and have discontinued my attendance where a continuation of its use has been insisted upon, to the exclusion of really active remedies. It is, nevertheless, a very popular one with German physicians.

As, in olden time, the madder root was prescribed in virtue of its colour for scanty menstruation, I believe the blue indigo appearance of the mouth and face in

convulsive attacks has, upon some homœopathic principle, led to the belief that this drug would be useful in such affections. It may be said in this instance, with much truth, "Nimium ne crede colori."

Filix Mas.

This is a popular remedy for worms. A German practitioner told me that he found the male fern alone possess the power of expelling the tape-worm, and that want of success might generally be attributed to the employment of the female plant.

Extracts.

Vegetable extracts form a large item in German prescription. The two favourite ones are the ext. taraxaci, and the ext. graminis (*triticum repens*). The former is employed in hepatic affections, jaundice, dropsy, &c. The latter is used as a mild tonic and deobstruent in the convalescence of fever. Perhaps no two remedies are so frequently employed as the two in question. Their indigenous growth is one of their principal merits.

The Russians, as far as drugs are concerned, patronise home produce. They have a prejudice against taking such as do not grow in the quarter of the globe in which they reside, and question the influence of Asiatic products upon European constitutions, unless the latter happen to be resident in Asia.

The domestic medicines of the people, the roots, the herbs, the simples, are much in vogue with the higher classes, from the circumstance of their indigenous growth.

Many of these are employed in hospital practice. As a diaphoretic, the infusion of the dried raspberry, or the flower of the elder, answers the purpose very well in cases of catarrh. Juniper-berry tea, and parsely-root tea, are some of the commonest diuretics, or serve as menstrua for other powerful remedies of the same class. The flowers of the lime-tree are supposed to possess very soothing powers, Lime-flower tea is much in vogue. The *species pectoral* is composed of a variety of herbs, the violet or pansy, the borage, the coltsfoot, the horehound, &c., &c.; and in all cases of catarrh, ptisans made with these herbs are in great esteem.

Ox Gall.

If we look into the histories of past times, and analyse the views of our ancestors respecting the operation of medicines, we shall find that there is nothing new in homœopathy.

In the prosecutions by the College of Physicians of those dealers in medicines who used to adulterate their drugs, we find that sheeps lungs were often substituted for foxes' lungs, and the bones of horses' hearts for the bones of stags' hearts. As the fox is a long winded animal, and can run for a long time without being out of breath, so his lungs dried and powdered were supposed to be efficacious in the treatment of asthma and dyspnœa; and as the

stag is said to be subject to epilepsy, his heart's bone was administered against this disease.

Much of this still remains to be weeded out of German practice. In cases of prolapsus uteri it is the custom with some to fill a bag with cascarilla, make it warm, and apply it high up on the abdomen; and surely this savours of the old idea of drawing the womb up by the odour, as when it got into the throat it was the object to draw it down again into the globus hystericus; nor can I see what virtue the *fuligo splendens*, which an accoucheur considered as a specific for this affection, can have, unless the propensity which soot possesses to fly up the chimney. Upon the same principle, then, is the gall of the ox universally administered in all affections of the gall bladder, either where the bile is inspissated, or where calculi are formed. It is a powerful bitter, and may be of service as a tonic, but the idea of dissolving gall stones upon such homœopathic principles, is rather ancient. Dr Baillie maintained that there was no solvent for these in the living body. It may remain for galvanism to do something with them. Where there is a suspicion of biliary calculi, this resinous matter is very generally pre scribed.

Oleum Jecoris Aselli.

This animal substance, one of the most unpalatable in the whole list of internal medicines, has been much used of late in scrofulous cases, and is reported to be efficacious in strumous affections. I have not sufficient experience to state anything decisive as to

its merits. I have seen it given to very young children; but the dislike and disgust to its taste have generally produced more disquiet and uneasiness than any good which might otherwise have been anticipated from its use. When the horror of a medicine will well nigh throw a child into convulsions, and when this has to be repeated several times in the course of the day, little good can be anticipated from its specific powers. This is a part of German practice which appears unnecessary, viz. the constant repetition of the dose. It is common to give small quantities of active matter, and repeat the dose every hour in most cases; so that the nausea and disgust of one potion is hardly got rid of before it is renewed by a second; and is it to be wondered at if homœopathy should triumph over such practice? I made this objection once to a German physician, whom I often met in consultation. He replied to me, True, but when I order a medicine to be taken five times a day, I may hope that it will be taken three times. It is not necessary to go abroad to prove that regiments of phials are never uncorked by the patients; and it is often from the fear of being compelled to take so much, that the good which a little might do is often refused by the patient. The system certainly is fundamentally bad, as it is, or rather was, once practised in this country. When one thing is substituted for another, it is never done so with impunity. No two things are precisely alike, as no two words are perfectly synonymous. If labour and talent are to be charged upon drugs, it must follow that both patient and practitioner will eventually suffer. The former

will refuse the quantity altogether; or, in case of a second illness, will, from fear of the same system being pursued, defer timely application, when a little medicine might be of great assistance; and the practitioner will suffer in his reputation, and lower the dignity of his profession to a trade. There are few who will not uphold me as to the truth of this statement, and who earnestly desire some other method of remuneration than that, which they are almost by law compelled to exact, upon this substitutive system. This should be the basis of medical reform;—to place the profession upon the standard of truth and respectability;—to allow practitioners pecuniary remuneration for their time and talents, without being under the necessity of charging these upon a superfluous supply of drugs.

To remedy this, the plan naturally suggests itself, of separating the prescriber from the dispenser of medicines, and this would do if men were perfect; but a system of collusion may here creep in, and the patient have to pay as much for his drugs, and receive them in as large quantities from the simple dispenser as from the compound apothecary, of which I have seen too many instances abroad, where the physician does not dispense, but has a per centage allowed him for his prescriptions. The temptation is often irresistible. Nay, I have known that, in many cases where practising among a poor but respectable class of society, unable to afford a fee, he receives no other remuneration than what he takes from the druggist, who dispenses only for ready money; and thus the patient is as much nauseated by quan-

tity as by a simple DOSE OF THE OLEUM JECORIS ASELLI.

There is an art in prescribing. It cannot be doubted that many remedies would work better upon the system if they did not excite that nausea and disgust, which cannot be nugatory as regards their effects. The nerves do not bear it with impunity, and remedies are shorn of their natural powers by this very circumstance. We may instance the capivi capsules as forming this desideratum; for many a stomach has revolted against this balsam, in whatever other form it may have been prescribed. The Germans are in the habit of giving pills and powders in what is styled *oubli*. It is a paste, such as we see on the bottom of macaroons,—a kind of wafer. Little squares of this are made for the purpose. They are dipped in water, and the pills or powders folded up in them; and they are of so slippery a nature when thus moistened, that they glide down the throat without the slightest difficulty, and are perfectly tasteless. This answers better than gilding the pill; for many have the greatest difficulty in swallowing these, and thus they are half dissolved in the mouth, and when of bitter ingredients, cause nausea and vomiting. Foreigners, indeed, will not take pills unless enveloped in the way above stated. As powders may be so administered, it is hardly necessary to resort to this globular method; for a large powder may be so slipped down the throat. When insoluble substances are prescribed, there is no other way of administering them but in pills or powders. The latter must be taken in jelly; for, if mixed with fluids, not one-half of the active ingredient

is swallowed. These inconveniences are to be remedied effectually by the use of these wafers.

It is better than sugaring the edge of the cup, as Tasso has instanced.

> " Così all' egro fanciul porgiamo aspersi
> Di soave licor gli orli del vaso,
> Succhi amari, ingannato, intanto ei beve,
> E dall' inganno suo vita riceve.
>
> *Gerusalemme Liberata*, Canto I.

APPENDIX.

APPENDIX.

APPENDIX.

Venereal Disease—Cancer—Credat Judæus—Sectio Cadaveris of a Patient dying Suddenly—Disease of Kidney—Poisons — Rupture of Gall Bladder — Puncture of Intestines — Mesmerism—Plica Polonica—Experiments on Animals.—Sound.

VENEREAL DISEASE.

JOHN HUNTER long since asked the question, if a chancre would heal of itself? and Broussais would have replied to him, yes, as readily as other local inflammations, when treated upon the antiphlogistic plan.

A more important question, and a more difficult problem, remains to be solved. When a chancre heals of itself, or with the assistance of some very slight local treatment, is the constitution guaranteed from future effects?

Opinions differ much upon this head, and run into very opposite extremes.

A gentleman applied to me with a local sore. I told him to wash it with cold water and let me see him again in a day or two. He did so. I then pro-

nounced it venereal, and recommended the usual plan of treatment. Some time afterwards I met him in society, and he told me that I had been mistaken in the case, and he had got well in a few days. Six months afterwards, he came to me with secondary symptoms, sore throat and eruptions, and went through a long course of mercury. He had allowed a German surgeon to apply caustic to his local wound, which had healed. Similar cases have occurred to most who have had any practice in this complaint. The healing of a local sore will not prevent the constitutional effects of the poison absorbed into the system from manifesting themselves in various shapes.

This is not the question at issue. The difficulty lies in being able to decide upon the true character of the local primary affection. If practitioners can be found who can at once pronounce safely upon this matter, they must have very good eyes.

There is what is styled the Hunterian chancre, well defined, easily recognized; but how many more forms of wound are there which are not Hunterian, and from which all the same unpleasant consequences arise, if they are not treated constitutionally.

Dr Colles's opinions are very decided upon this subject, and very alarming; for he states that no excoriation, however slight, if healed by astringent lotions, may not prove to have been of a specific nature, and reproduce the disease in secondary forms. There is no proof whatever that a slight sore is not venereal, if anything more than cold water has been applied to heal it. Here, then, is at once a drawback to the value of the Hunterian patent.

If we now turn to the other side of the question, we shall find that not only the slight excoriations here alluded to, but that malignant and foul ulcers will heal under local treatment, and the patient will not suffer from future consequences; and we shall, moreover, find that both primary and secondary symptoms will be treated successfully by negative practice,—by the water cure and the hunger cure, and that thousands ofcases are dismissed from hospitals that have never undergone any specific treatment.

If an illustration were wanted to prove the fact, that diseases are changed from what they were when they first appeared amongst us, the venereal disease would afford the most satisfactory one. It is impossible not to observe the milder forms under which it now presents itself; and true, as it may be, that the treatment is much milder and better understood, and that many of the dreadful ravages which were formerly made upon the system were manufactured by the abuse of mercury, still I do not believe that the present treatment would have been so successful, if the disease itself had not undergone some modification as well as the *modus medendi*.

It is not to be denied that the most disastrous consequences have resulted from the indiscriminate and injudicious employment of mercury, as a medicine of universal application in this affection; and that such have been the direful consequences of its abuses, that, in the couplet of Sydenham,

> "Graviora morbis patimur remedia,
> Nec vita tanti est vivere ut possis mori."

Still all these torments were not attributable to

mercury alone; and from all that we have seen and gathered from our medical brethren abroad, both for and against its employment, we are far from being converts to the new system, and still look upon the mercurial treatment as the safest and most satisfactory method of combating the venereal disease.

When in Stockholm in 1842, we had an opportunity of visiting the large military hospital in that city, and of seeing a great number of patients treated upon the antiphlogistic system, where no mercury was used; and, upon inquiry as to the appearance of secondary symptoms, we were informed, from the statistical tables, that the number of patients so infected gradually decreased as the plan was more generally adopted, and that they did not, during the last year, average more than seven per cent.

In Berlin we found that the results were very different, and that the cases of secondary symptoms were very numerous; and Dr Diefenbach himself informed me, that he had abandoned the non-mercurial plan, as he found that it was both more uncertain in its final results, and the constitution of the patients was much more shattered by the abstraction of nourishment almost to starvation, than by a moderate use of mercury and a moderate diet.

I had, however, an opportunity, to me most desirable, of visiting the military hospital at Stockholm on admission day, so that I could judge of the nature of the local affections, before any plan of treatment had been adopted; and this at once convinced me of what I had ever presumed to be the case, that however excellent such treatment might be, it was often employed

in cases where no venereal affection really existed, and thus usurped a reputation which it could not legitimately claim. I was accompanied by Dr Smith, a most intelligent English physician, residing at Stockholm, and we saw the patients together, who were just admitted into the venereal wards.

Of these—some had phymosis and paraphymosis; others, clusters of sores round the edge of the glans penis, excoriations of the prepuce from uncleanliness, excrescences of doubtful character about the anus, and there were not more than two or three at the most, out of eleven whom we examined, who would have been subjected to mercurial treatment by any well-educated British practitioner; yet, these cases, eight out of the eleven, all perfectly tractable by baths, purgatives, and cooling treatment, for which a mercurial course would have been criminal, subsequently, no doubt, figured in the numerical lists of patients treated without mercury for syphilitic affections. The plan adopted in this hospital is much the same as in Hamburg and Berlin, or wherever the disease is treated upon this ultra antiphlogistic plan. Great precautions are taken to prevent any fermented liquors being smuggled into the wards; for, not only are the doors barred and bolted, but a lock is put upon the key hole, to prevent even a quill from being introduced, so much addicted are the Swedes to the abuse of spirituous liquors. Baths, saline purgatives, and a diet of weak tea, and a small proportion of white bread, form the whole of the treatment, and the most aggravated cases are said to yield in from five to six weeks. It is doubtful whether these most

aggravated cases do not get well sooner than those whose appearance is much more simple, for the very circumstance of a sore being bad at the commencement in its appearance, is often proof that it is not decidedly syphilitic.

It cannot be denied, however, that what bears all the character of a venereal ulcer, will get well by this plan of treatment; and the only question that remains to be agitated, Is it preferable, and in what respect is it so, to a mild mercurial one?

The advocates for its adoption, admit that the former plan is not more certain than the latter; and as to the objection to the havoc which mercury makes upon the constitution, it is admitted that patients are much more exhausted under the new, than under the old method. As to the question of secondary symptoms, it is difficult to get at the truth. Eruptions may arise from a variety of causes; and pains in the bones are rheumatic; but upon a fair investigation of the matter, it will be found that a regular mercurial treatment, well directed, is a surer guarantee against subsequent effects on the system, than where this specific is dispensed with. In the Berlin hospital, the cases of secondary symptoms are very numerous, and many of the Prussian practitioners have abandoned this mode from this circumstance.

Another and material objection to this system is, the impossibility of employing it except in those cases where the patients are wholly under the control of the practitioner. In fact, it is confined to the wards of a Lock Hospital. A debauch is more prejudicial in the uninterrupted antiphlogistic plan, here insisted

upon, than any other circumstance; and reliance cannot be placed upon individuals; nor is it to be supposed, that for the slight inconvenience under which they may suppose themselves to labour, they will adhere literally to the plan laid down for them, and not yield sometimes to temptation, where this, moreover, cannot in their minds be associated with excess.

In the opportunities I had of seeing this plan adopted in St Petersburg, I found that it was confined to a very few, and to the hospital practice only, and this upon no very extensive scale, for the lower orders are little subject to the disease; and the class which does suffer, is not one that readily submits to the discipline of an hospital. In those cases where it was employed, the same report was made of its success, as in the Hamburg establishments.

I shall not enter into any details upon this matter, as a full account of the plan of treatment is to be found in Sir Alexander Chrichton's late publication upon fevers, from which I have already freely quoted; and it is cheering to find a man, whose career was so brilliant, and whose moral character stood so high in the Russian capital, still labouring in his vocation with all the energy and ability of the maturest of his days.

It is also an objection to this new system, even under circumstances where the plan is fully maintained, that the class of patients suffer too much from its debilitating effects. Tradesmen and mechanics have not much stamina, and can ill bear a diminution in the quantity of food, of which they can hardly procure enough by their healthy labour. How are they to make up for the loss of nutritious matter when dis-

missed from an hospital, weak and emaciated, with no money at command, and no strength to work? They are placed in the anomalous situation of having no means till they gain them; and being unable to do this from lack of physical power.

On the other side of the question, we are much indebted to this system for the knowledge which we now possess, that mercury is not absolutely necessary in the treatment of Lues Venerea; for we have abundant proof, that every stage of it, from the simple primary ulcer to all the protean forms which it afterwards assumes, in the shape of eruptions, nodes, &c., is curable by simple treatment; and as we occasionally meet with those whose constitutions will not bear the impression of mercury, we may congratulate ourselves that we have other means at our command.

Upon this subject the profession has long been all abroad. When secondary symptoms appeared after a mercurial course, it was, in the olden time, attributed to an insufficient dose of this mineral, and another course of it was commenced *de novo*. Now, the very same symptoms are attributed to the modes of cure which were formerly ascribed to the indomitable character of the disease; and notwithstanding all that has been said upon the matter, nothing will prevent their appearance in some peculiar constitutions. Still, I am of opinion, that whilst we in conclave have been discussing the nature of this malady, and the various modes of treating it, the disease has taken the opportunity of changing its nature, and of losing its malignancy; nor do I attribute this to a change in the treatment only, for, be it remembered, that there are

still some practitioners of high eminence, who employ it as freely as aforetime, and who will not listen to any other doctrine than that of the mercurial.

Dr Colles of Dublin ranks perhaps foremost in this list, and prescribes a month's course of mercury for a primary sore, and insists that during three weeks out of the four, the patient's mouth should be thoroughly affected.

Nor does a scrofulous constitution, according to this author, forbid its employment, but it should, on the contrary, be pushed to ptyalism, by which alone its healthy action is produced.

We do not meet with anything more decisive than this in all that has been written in its favour; and such doctrines would, with many, be accused, if practically adopted, of producing all the dire effects which mercury has been said to do.

That these consequences are frequently unjustly attributed to the use of the latter, is a matter of occasional occurrence, and I had, myself, an opportunity of knowing an instance of such defamation.

A young man of dissolute habits had been frequently annoyed by primary sores, which he had always treated himself by caustic; and when bubo succeeded to them, he used to apply leeches very freely. He had done so for years, when suddenly he broke out all over in one mass of sores, from head to foot. He then, and not till then, applied for medical assistance. Five grains of blue pill were given him night and morning for three or four days, when he became maniacal, and the pills were discontinued, and no more of the mineral was employed. As soon as circum-

stances permitted, he was conveyed to England, almost a putrid mass. I know not under whose care he was placed, but his state was attributed to the abuse of mercury, of which he had taken, at the most, *twelve or fifteen grains*. This circumstance was notified in the history of his case, which was read to the person under whose care he was placed in England. He finally recovered, but remained a wretched object.

Before speaking of the mercurial treatment of this complaint, as practised in Russia, and it must be borne in mind that this implies the German Faculty, I may mention some points which have afforded more matter for controversy in England than in the north of Europe.

In my Lehrzeit, or the days of my medical studentship, the idea of the complaint being propagated by sexual intercourse, where no external symptoms were at the time manifest, was altogether ridiculed by the heads of the profession. Mr Pearson began to waver upon the matter about the year 1820, and finally, I believe, changed his opinions *in toto* upon this important subject. Now, what is the general idea? Not certainly that it is not the case, but a matter of wonder that there could ever have been doubts upon the subject.

Dr Colles now mentions, "Infants are infected in utero by parents, both of whom are, and have been, previous to marriage, in a sound state of health, but one or both of whom have had venereal symptoms, which they supposed to have been eradicated previous to marriage. These cases have been proved, by repeated abortions of diseased, and, generally lifeless, children;

and again, an infant affected with secondary symptoms may infect a dry nurse who handles it, and who, thus gaining sores, may infect another sound child whom she may subsequently handle. It is singular that a syphilitic infant never affects the breast of its own mother, although it immediately affects the nipple of a wet nurse. This infection may easily be propagated through a whole family, and is not less contagious than the itch."—*Colles on the Venereal Disease.*

Now these are opinions which may be supposed to savour of *ultra* notions, and would not have passed current some thirty years ago, but they are those which have ever been adopted by the German school, and the question with them is as to the time that a syphilitic taint may remain in the constitution without being wholly eradicated, and so capable of propagating its effects. I should say that Germans will prescribe no limit to such cases, and that with them the period is indefinite. Sir Astley Cooper maintained that if a patient were free from any outward and visible sign of the disease for two whole years, any subsequent suspicious symptoms which might afterwards manifest themselves, could not be attributed to the consequences of the primary affection. The Germans would lay down such a law as the following :—" Although the probabilities are much against the reappearance of syphilitic symptoms where there has been no manifestation of such for an interval of some years, still there is no standard by which we can judge of perfect immunity from such ; and the circumstance of their having lain dormant for a long period, does not negative their specific character when they reappear." The same

reasoning applies to gonorrhea as to lues, and I have known an erythematous affection of the leg attributed to a simple clap, from which the individual had never experienced any inconvenience for five or six years.

The state of health of wet nurses, is a matter of very great importance, and involves professional reputation. As regards their choice in St Petersburg, not a spot must be found upon their skins; a flea bite is equivocal, and any disease which a child might have in after life would be ascribable to a pimple, if such had really existed upon the wet nurse's cheek. Thus they have to pass through a very critical medical ordeal before they are furnished with certificates of qualification for their important offices. They are chiefly the young wives of peasants. They are well paid, clad in sumptuous apparel, treated in the kindest manner, for the Russians understand the influence of the nerves over the secretions, and do nothing that shall excite angry passions in the nurse. They naturally choose, as far as they are able, the best tempered women. The accoucheurs prefer a woman whose child is three months old to one who has just been confined, and the mother of a second child is preferable to a novice. It is, however, an unjustifiable system, for no heed,—no care is taken of the poorer offspring, who generally falls a sacrifice in the first few weeks. This is often concealed from the mother, from no particular anxiety about her feelings, but from fear that any shock to them might give a colic to the parasite.

There is no doubt, as Dr Stevens has remarked, that these diseases are communicated to children by mothers and nurses through the medium of the blood. The

lues venerea and variola afford ample proofs; and upon the authority of Dr Lind, the same author observes that agues are so transmitted. This is much more problematical.

The secondary affections are, according to Dr Colles, capable of generating primary symptoms, as ulcers on the tongue and lips create chancres in others. The following is related by the same author. "An accoucheur got a sore upon his finger in his obstetric practice. He took mercury, and the sore healed. Upon bruising his finger two years afterwards, the sore broke out again, and proved to be of venereal character, as it communicated the disease to two females whom he attended in labour."

The *post hoc*, *propter hoc*, does not seem evident in this case. The practitioner was in the habit of attending the lowest orders of females, as is evident from the statement. He gained the first sore in this way,—when his finger was bruised: what reason is there to suppose that he did not gain the second sore in the same way as the first without having recourse to the idea of the disease being again revived by an accidental bruise. This is, of course, only matter of conjecture; the authority is too high to allow us to suppose that all circumstantial evidence has not been fully weighed; but I, and I venture to say many others, have known of men being infected by females in whom no trace of the disease could be discovered. A very promiscuous intercourse may account for such an occurrence.

I shall now state the general plan of treatment pursued by the German faculty in this complaint,

where mercury is employed, and state my reasons for adopting their system to a certain extent in the general, but never in the local, plan of treatment. Much of what I am now about to reproduce has already appeared in the Lancet.

It is customary with German practitioners to apply caustic immediately upon the discovery of a local sore; and this is done very effectually, not merely touching the surface with the nitrate of silver, but burning it deeply in, so that a considerable slough afterwards separates,—and with this is eradicated the local disease. If this be done in time, it may answer very well, but it is difficult to say what is precisely the meaning of doing it in time; for however soon the local sore may have been discovered, (and this is a point also of importance, for a local sore may exist many days before its nature is suspected,) still absorption may have taken place into the system, so that the practice can never be considered as safe. This, however, prevails very generally, and it arises from the difficulty of persuading those who are so affected (for the most part military men) to undergo a regular treatment. They cannot imagine, that for a local inconvenience so trifling in itself at the commencement, they must abstain from all their usual habits; and as the mercurial treatment, where judiciously administered, is slow in its operations, and makes no impression upon the local affection for some days, they lose patience, apply elsewhere, and it is seldom that they do not pass through the hands of several practitioners in the course of the treatment. If, therefore, the local affection be thus timely taken,

it is eradicated by caustic in the first instance. If a sore is decidedly venereal, and the patient is aware of the nature of the disease, and disposed to submit to a rational plan of cure, the following mode is generally adopted.

A simple purge and a warm bath take the initiative. The black wash is used locally, and the bichloride is given internally upon the following plan :—

℞. Hydrarg. Bichlorid gr. iij.
Solve in aquâ fontan ♏ ij.
Ext. Glycyrrhiz ʒss.
Opii Puri gr. iij misce et distribue in pilulas xviii. æquales.

The patient commences by taking one pill the first night, and one the following morning. The same the second night and morning. Two pills the third night; one in the morning. The same the fourth and fifth night. The sixth night two pills, and two in the morning. Three pills on the seventh night.

Thus the dose is never pushed beyond one grain of the bichloride in the twenty-four hours, and seldom more than two-thirds are administered. If things go on well, and the disease feels the influence of the dose, this is diminished in the same ratio that it was augmented, and the plan of treatment usurps the title of the *montant* and the *descendant*.

A pint of the simple decoction of sarsaparilla is taken daily, and, in most cases, it is found that the cure is effected towards the end of the third week, or after from ten to twelve grains of the use of the

mineral. The treatment is terminated by an aperient and two or three warm baths.

In the dietetic part the patient is put upon a low diet, and but a small quantity of animal food is allowed, and white meats only. Wine and fermented liquors are prohibited by the generality of practitioners; but some allow a moderate quantity of the former upon the principle of its preventing the debilitating effects of nausea, and alleviating tormina; but this is not the general practice. Coffee is considered too stimulating, and all condiments in the preparation of the patient's food are prohibited.

As a general position, the more simply the body is nourished, the more powerfully will specific remedies act upon the disease under which it labours; there will be less chance of chemical decomposition, and this theory, rational in itself, is supported by facts.

There is a difference of opinion among German practitioners as regards the advantages or disadvantages of cutaneous perspiration during the administration of mercury. Some advise that the patient should be confined to a room heated to 60° Fahr., and combine sarsaparilla with the mineral from its sudorific properties; whereas a distinguished physician in Vienna, who has acquired celebrity for the treatment of syphilis, particularly under its secondary forms, insists upon a cool surrounding atmosphere, asserting, that if the pores of the skin are kept open, mercury loses half its power.

In St Petersburg, the former opinion prevails; and in no climate do these diseases more readily yield to the influence of mercury than in these northern latitudes, and more particularly in the winter season.

The equable temperature of the apartments prevents the patients from catching cold, and the dryness of the atmosphere allows, under certain restrictions, of moderate exposure to the open air.

It is true that the treatment is prolonged by external exposure, but it is equally true that the constitution on the whole suffers less than when subjected to close confinement.

When it is the object to introduce mercury by slow degrees into the system, either the bichloride is given as above stated, or frictions are employed; the latter are, however, gradually going out of use. When employed, a severe discipline as regards confinement to an equable warm temperature is strenuously enjoined. I must state that I was much disappointed in the effects of our English preparation, the blue pill, in northern latitudes; and the failure must be attributed to some peculiarity in the climate, and not to the preparation of the medicine, for I imported it from the best London chemists; but not finding it successful, I invariably employed the bichloride in the treatment of equivocal complaints during the latter period of my residence in Russia; and adopting the plan which I have above notified, I may say that I have had no secondary symptoms to deal with where it was conscientiously followed by the patient. I have, in some cases, where I was persuaded that the more gradual treatment would not be persevered in, affected the system rapidly and purposely, as the only way of commanding the future treatment. As soon as once the mouth is affected, the patient is aware of the dangers which he incurs by imprudence, and thus

becomes docile; but this plan is one of necessity and not choice. In some constitutions, which rebel against a continued use of mercury, the hydriodate of potash is substituted for a time. It is generally given in ten grain doses three times daily, with the simple decoction of sarsaparilla.

If the local condition of the part improve, and the constitutional irritation cease, the mercury is again resorted to for the final cure.

This constitutes the basis of treatment for secondary symptoms: Small doses of the bichloride, with the hydriodate of potash and sarsaparilla, a low diet, and confinement to warm rooms.

As regards the forms of disease, which with us usurp the title of pseudo-syphilis, the Germans hardly recognize them. They divide affections of equivocal character into sexual and mercurial. If they belong to the former class, they are supposed modifications of syphilis, and treated as such; the latter are not often met with, for mercury is never pushed to any great extent.

In syphilitic eruptions the nitric acid bath is a favourite remedy, as is the acid given internally. I have seen few ravages made by the disease in this country. Of the surgical treatment it is not within my province to speak. Buboes are generally allowed to burst spontaneously; and the general opinion is favourable to them, as guaranteeing the system against all future consequences of the primary affection. An old practitioner told me that he had once to deal with a very obstinate case of ulcer on the cheek, which would not yield to any preparation of mercury,

and he cured it by the sulphate of copper in small doses.

In the cases which came under my notice, I had little difficulty with them; and when I abandoned the blue pill and substituted the bichloride, the difficulties became still less; which leads me to think that the disease itself wears a milder aspect, and it is certainly among the number of those which is not aggravated by the influence of a cold climate.

In the employment of the bichloride, the advantage is considerable as regards exposure to the open air during its administration; but this is counterbalanced by a longer process of cure; and I am still a firm adherent to the old plan of administering mercury, where it is the object to affect the system gradually by inunction. This old fashioned practice claims many privileges, and has nothing against it but the disagreeable process of application, and the confinement which is imperative under its use. By this means the system is surely and certainly affected, almost in a given time, and to a given amount; this may be increased or diminished at pleasure. Nodes, buboes, all give way under its influence; nor are the mucous membranes of the stomach and bowels disordered in the same way as in the *genteeler* methods.

CANCER.

This disease is by no means rare in Russia, and attacks the female breast very virulently. I have seen several cases of single women thus affected, and all sank under the disease. The plan of pressure instituted by Mr Yonge, I found still in operation in the Russian hospitals, and I ventured to assert, that it had been long since abandoned in this country, for it was found that the seeming advantage arose from the absorption of the sound part of the breast, whilst the diseased structure was not influenced. I never heard of a case being cured by it in St Petersburg; and after the patient had gone through all the inconveniences of it for months, the treatment generally terminated by the knife.

As regards the subject of operation, there is a difference of opinion, but the leaning of the faculty towards non-interference, certainly prevails. My friend, Dr Saloman, told me, that he would never operate again, where the disease was fully formed, for he had never known a patient finally recover under such circumstances. In all schirrous affections, iodine is a favourite remedy, combined with conium and local applications of the same materials.

The lady of a Polish nobleman consulted me in Paris in the year 1824, for a tumour in her breast, which was hard and very painful. I requested her to consult M. Depuytrend, and to make up her mind to abide by his decision. He pronounced it to be schirrous, and it was removed. Its examination after

removal, was confirmatory of his decision. The wound soon healed. The result has been most satisfactory, the lady being still alive and in good health at the present period, nor has she suffered any inconvenience from the breast since the tumour, which was but a small one, was removed from it.

In Laennec's Clinical Wards, I remember a *post mortem* examination of a woman, who died with a cancer on the wrist. The liver was studded with scirrhous tumours. The lungs were a mass of scirrhus, and several tumours of the same character were found in the substance of the heart.—*January* 14, 1825. *Notes.*

This disease is trusted to the care of empirics, as much in Russia as elsewhere; and some of the peasants are supposed to possess the secret of curing both this and scrofula. I have known several of the nobility subject themselves to the discipline of decoctions and fomentations for many months, with particular systems of diet, and some religious performances. In one instance I did witness the recovery of a limb condemned to be amputated, in a scrofulous child, who was sent into the country and placed under the care of a peasant famous for his knowledge of simples.

This is the case all the world over.

CREDAT JUDÆUS.

From collect: academ: Jean Baptiste Ferrarius Hesperid. Lib. iii., cap. 19. In the Romanzoff Library, St Petersburg. A folio work in three volumes.

La femme d'un Meunier du Bourg de Bezendorf

accoucha a son terme d'une petite fille qui paraissoit se bien porter et qui etait tres bien conformée a l'exception qu' elle avoit le ventre plus gros que dans l'etat naturel. Cette petite fille huit jours aprés sa naissance fut attaqu de violentes douleurs de ventre dont on s'apperçut bientot par ses cries continuels et ses mouvemens inquiets.

Elle rendit ensuite par la vulve une eau teinte de sang apres quoi elle accoucha d'une petite fille vivante ce qui fut suivi de la sortie de l'arriere faix, et l'ecoulement des vindanges se fit comme dans un accouchement naturel. Cet embrion que venoit de mettre au monde cette petite fille nouvellement née etoit de la longueur du doigt du milieu et comme il etait vivant et qu' il avoit la figure humaine il fut baptisé, mais la petite accouchêe et sa petite fille moururent toutes les deux le lendemain.

CÆSAREAN OPERATION.

When I was in Prague in 1827, I saw two women who had undergone this operation. The one from deformity of the pelvis, the other for an extra uterine conception. The latter was still in the hospital, as there was a fistulous opening remaining; the other had been operated upon years before. These cases I communicated to Mr Travers, and they were read before the Medico Chirurgical Society. I am not sure that they were printed in the transactions.

A woman was operated upon successfully in St

Petersburg, but previously to my sojourn there. She again became pregnant, and was again delivered in the same way. She underwent the operation *twice*, and recovered. I did not see her, but I state this on the authority of Dr Arndt, the Emperor's body surgeon.

This same gentleman performed this operation in a case of extra uterine fœtus, during my residence in that capital, in 1839. The woman died forty-eight hours afterwards.

NERVEN SCHLAG.

The following case of what the German practitioners term Nerven Schlag, occurred to me not long before I left St Petersburg. A gentleman who had acted in an official capacity in that city, returned after an absence of many years to pay his respects to his old friends. He had been much disappointed previously to his arrival, in some government and pecuniary transactions. He was attacked rather suddenly by a fit of indigestion, after having experienced for some days previous, a disordered state of bowels. He recovered, however, apparently, and was about to embark for England, when he felt himself so suddenly indisposed with severe headache, and as he styled it, pressure on the brain, that he delayed his departure. He had a good deal of fever and heat of surface, with a throbbing pain in his head. He was bled from the arm, which greatly relieved him, and he seemed better afterwards. still the headache continued, and he got little or no

sleep. Blisters were applied to the neck, and calomel was given internally night and morning—the bowels were acted upon. The symptoms not yielding to this treatment, another physician was called in, and leeches were applied to the stomach—the calomel was continued—the head was blistered—as the fever had greatly diminished, and the pulse was almost natural; it was proposed to give him some opium to procure sleep and calm his irritability, which was very considerable.

The following day we found him better. He had slept during the night, and had a most copious evacuation after *the opium*. This was followed by bilious diarrhœa, which lasted two days, and from this time he gradually improved. His pulse, tongue, skin, and every function, were in their normal state. His sleep was not so good as might be desired. He saw his friends, and again began to make preparations for his departure. His appetite was keen, and he wanted more than I would allow him to take. His other medical attendant took his leave, and pronounced him convalescent. Upon the Sunday morning, about the thirtieth day of his illness, I saw him about one o'clock, and several of his friends called upon him after church. He was dressed, and lying upon the sofa. At two o'clock he ordered his dinner, a roast partridge, and felt angry that he was thus stinted by his *doctor*. He had written some letters in the morning. After dinner he got upon his bed to get a nap, and rang his bell; the servant not answering it he rang again; and when the man came he scolded him very violently. He rose in his bed to do something, and gave a shriek

I was immediately sent for; and must have been there in ten minutes from the time he was so seized. When I got to the house he was a corpse.

There were no symptoms which could possibly have warranted such a termination. A post mortem examination discovered considerable turgescence in the membranes of the brain; there was no lesion, no effusion. The other viscera presented nothing remarkable. He was by nature very violent and irritable. The fit of passion was consequently the only assignable cause of the catastrophe.

DISEASE OF KIDNEY.

The following case is one of considerable interest, inasmuch as it proves that these organs may be diseased in an extraordinary degree, and still perform their functions apparently so perfectly as not to attract notice during life:

A colonel in the East India Company's Service returned to Europe with an immense enlargement of the right side, which was supposed to be an affection of the liver, but to such a degree as seemed to me irremediable. Several eminent men were consulted, and all were satisfied with the nature of the disease; —the fruits of the pagoda tree. I was intimately acquainted with the patient in my early days; and he showed me his tumour when I was a student at the hospitals, telling me in joke that I might never see a finer specimen of an Indian liver. He was not much invalided by it. He took his usual exercise, rode on

horseback, and went out shooting; lived very abstemiously, and eked out a good old age. I believe he was full seventy when he died. A post mortem examination caused much astonishment to his medical attendants, for, instead of the liver being thus enlarged, it was found shrivelled up to a very small size, and a double bar kidney was found to occupy the right hypochonder. Upon putting a scalpel into it the blood gushed out to a considerable height.

Notwithstanding this abnormal state of the organs, their functions must have been sufficiently well performed as not to have created any suspicion of their integrity during life.

In my note-book I find the following:—"Kidneys ossified in woman, said to be petrified, and of the consistence of alabaster."—*Lowenheim Memoir Academique.*

They have been removed in animals without causing immediate death, and where both have been extirpated, urea has been found in the blood, according to Prevost of Geneva.

I was once requested to assist a medical practitioner in a post mortem examination of a woman, who had suffered many years from an enormous enlargement of the liver. She appeared as large as at the full period of pregnancy. Of the treatment of the case I have no record, but examination discovered the supposed enlargement of the liver to be an enormous scirrhus of the uterus. The liver was much less in size than under natural circumstances.

In the first edition of Dr Mason Good's Study of Medicine, the liver of a patient affected with dropsy

is stated to have weighed 628 lbs. I do not find this paragraph in the subsequent editions.

POISONS.

The mode in which these agents are introduced into the system, and the medium through which they act, have given rise to much discussion, and do not hitherto seem to be satisfactorily determined.

It was with a view to prove venous absorption that Magendie's apparently conclusive experiment was instituted, when he applied poison to the foot of an animal, separated from the trunk by all but two quills attached to the divided extremities of the femoral artery and vein, which allowed the blood to flow through them. When the poison of upas was applied to the severed limb, it produced its effects as under ordinary circumstances; and as all communication of nerve was cut off, it could only be by venous absorption that these effects could be produced.

Dr Stevens fully adopts the views of Magendie, as regards the action of poisons by medium of the blood. When a small quantity of the poison of the rattlesnake is inserted into a recent wound or injected into a vein, it causes death in a few minutes; whereas large quantities of the same poison, administered to animals by the stomach, produced no effect whatever.

What are we to think of the following instance of toxicological heroism?

Mr Wallace of Virginia took the whole of the poison

from the two fangs of a large and vigorous rattlesnake. This he made into pills,—*bags*, *venom*, and *all*.

These he swallowed himself, sometimes at the rate of *four* a day. "They produced," he says, "most heavenly sensations, and melancholy was quickly changed into gay anticipations; but, unfortunately, these delightful feelings were followed by a general dropsy, which continued for a considerable period." We may surely say of this experiment, that

"The love of science could no farther go."

Mr Wallace, however, was perhaps aware of what Liebig has since proved, that animal poisons, introduced into the stomach, are decomposed by the gastric juice. Some of the vegetable poisons act almost as speedily, when introduced in this way into the system, as when inserted into wounds.

The physiologist, Müller, inclines to the opinion that it is through the circulation that poisons act upon the system. He nevertheless admits, and that from experimental inquiry, that poison applied to an individual nerve produces more effect than when applied by means of the blood; and that it does not always act by absorption, is proved from the circumstance of the iris of one eye being alone affected when belladonna is applied to the parts externally, as when a solution of the extract is dropped into the eye. "In this instance the poison reaches the iris and the ciliary nerves by imbibition. It is evidently a local effect, and not in the slightest degree the result of absorption into the blood, for the pupil of the other eye is unaffected."

"The effects of the poison of lead in producing paralysis of the hands are also well known."*

The result of Dr Addison and Mr Morgan's experiments led them to the conclusion—

"That all poisonous agents produce their specific effects upon the brain and general system through the sentient extremities of nerves, and through the sentient extremities of nerves only; and that, when introduced into the current of the circulation in any way, their effects result from the impression made upon the sensible structure of the blood-vessels, and not from their direct application to the brain itself."—P. 60.

"Even where the poisons may be absorbed into the blood, it does not invalidate this conclusion; for, under such circumstances, they affect the system at large, not by their being carried to the brain by the blood, but by their direct operation upon the internal membrane of the blood-vessels into which they enter, and through which they are carried."— P. 68.

A difficulty in the theory of venous absorption, is the minuteness of the dose which produces the effect, provided that dose be mixed with the large quantity of blood, which it must be, in passing from a vein of the foot to the heart; the circumstance of the same blood going through the lungs suffering decarbonization, and then returning into the heart and being propelled by the carotids to the brain; all of which must take place before the nerves feel it.

The following experiment seems as conclusive in favour of the assertion of Dr Addison and Mr Morgan,

* Müller.

as does that of Magendie in opposition to their views, viz. "All poisons, and perhaps all agents, influence the brain and general system through an impression made upon the sentient extremities of the nerves, and not by absorption and direct application to the brain." —P. 90.

"Two dogs, weighing about forty pounds, were selected for experiment. The carotid of each dog having been laid bare on one side, and separated from its connexions with surrounding parts to the extent of three inches, temporary ligatures were applied above and below, and the arteries were divided between them. Brass tubes were then attached to the extremities of the vessels, and the necks of the two animals being held, and closely bound together, the divided arteries were, without the least difficulty, reconnected, and the circulation renewed.

One of the dogs was then inoculated on the back with a concentrated preparation of strychnine, which had been found upon other occasions to produce death in these animals, in about three minutes and a half.

In three minutes and a half the inoculated animal exhibited the usual tetanic symptoms which result from the action of this poison, and died in a little less than four minutes afterwards, viz. about seven minutes from the time at which the poison was inserted, during the whole of which time, a free and mutual interchange of blood between the two, was clearly indicated by the strong pulsation of the denuded vessels throughout their whole course.

The arteries were next secured by ligature, and the

living was separated from the dead animal, but neither during the operation, nor at any subsequent period, did the survivor show the slightest symptom of the action of the poison upon the system.—P. 90.

In reference to Magendie's experiment, the authors observe :—" Now, whether or not the poison does ever circulate with the blood through the brain, is a question which we do not think it worth while to dispute. We contend that such is not the cause of its operation upon the system; and whether or not a poison does in all cases enter the circulation, is not the point at issue ; for we have contended that if they do find their way into the veins, they affect the brain and general system by their direct operation upon the nerves of the inner coat of the blood vessel, and from that cause only."—P. 79.

If found to be correct, the principle for which we contend, will not be limited to the operation of those noxious agents usually denominated poisons, but it may probably tend to the better understanding both of the causes and cure of diseases in general.

This will justify the conclusion, that the cause of malignant fevers is attributable to the impression which the noxious effluvia makes upon the sentient extremities of the nerves, and that by this means the system is affected. The circumstance of the porters during the plague in Marseilles, dropping down upon merely touching the infected bales, has not been overlooked by the authors, nor the circumstance of local injury. " A slight lacerated wound, a burn, a puncture from a spicula of wood, or a rusty nail, seem to create little local disturbance at the time, when suddenly

symptoms of tetanus supervene and proceed, to the destruction of life."

I knew an old gentleman who died of tetanus from the effects of the thorn of a gooseberry bush run under the finger nail.

RUPTURE OF GALL BLADDER.

In the winter of 1825 I was suddenly called in the night to Count ———, and found him suffering from severe pain in the stomach, accompanied by a good deal of flatulency ; and finding, upon inquiry, that he had eaten of lobster for supper, I naturally attributed the attack to indigestion. The usual treatment was adopted, which relieved the symptoms, but as there were considerable uneasiness and fever the following day, he was bled from the arm, which was followed by perfect convalescence. This was the first indisposition from which he had suffered during two years that I had been in his family. He was very corpulent and a *bon vivant*. He told me, however, that this was not the first time that he had been so attacked, and that he was subject to spasms caused by indigestion. The following year he had a similar attack when at Moscow, where he was treated by an English physician, and again bled. In 1827 he was riding in Hyde Park, and was suddenly seized with violent pain at the pit of his stomach, and fell from his horse. The practitioner who treated him upon this occasion, again ordered him to be bled, and enjoined more abstemious living for the future.

In passing through Dieppe, where I was residing with his family, he gave me an account of his illness, and I begged him to follow the advice given him in London as regarded his diet.

He had not been a month in Paris before I received a letter from his secretary informing me that he was again ill in the same way. He had returned late from a ball, and as he was getting into bed was suddenly seized with the same symptoms as on the three former occasions. I immediately went to Paris, and found that he had been in the first instance treated by laudanum and æther for indigestion, and had been subsequently bled and freely evacuated. From this time till 1831, a period of four years, I am not aware that he had any return of his disorder, certainly not as far as I was concerned in the treatment.

It was in the summer of 1831, just as the cholera made its first appearance, that I was summoned to see him. The Count had joined a party of the Russian nobility, and retreated to an island in the suburbs of St Petersburg, in the view of avoiding all connexion with those who might be exposed to the contagion of cholera. He informed me that he had experienced a slight sensation of his old complaint, but that he had taken a dose of physic, and thought it would pass off. He complained of a sense of warmth in the region of the stomach, but of no acute pain ; and ascribed his attack to having transgressed by eating of cold sterlet soup for breakfast.

As I was occupied in making arrangements with the police regarding the cholera establishments, I left him, but returned again in the evening. He com-

plained of no uneasy sensation, but was feverish, and his pulse was full, and as he requested me to bleed him, I complied with his request.

He was immediately relieved and slept well all night, and the following day was quite convalescent, and rode out in his carriage. He took leave of me, and jestingly saying he had had his cholera, wished me well through my difficulties, as he knew that I had been appointed to a large temporary hospital, and said he should not see me again till the cholera was over.

I heard no more of the Count for nine days, when I met one of his servants in the street, who told me that his master was dangerously ill; and in spite of the injunctions to the contrary I hastened to him. He was glad to see me, but shrunk back as I approached his bed, for he was afraid of contagion. His medical attendant, an Italian, told me that since I had last seen him he had been attacked with inflammation of the liver, that he had been bled three times from the arm, and taken forty-five grains of calomel. I had hardly time to gather these particulars, when the friends who were about him begged me for God's sake to leave the house, for I had violated the quarantine, and had probably introduced the cholera among them. They requested me not to return, and strict orders were given to admit no one who came from the city.

I heard no more of the Count's state till the 30th, when I was summoned in the night, with five other physicians, as he was considered in great danger. A biliary calculus had been found in the stool of a pear shape, measuring more than an inch in length, and about six lines in its broadest diameter. Previous

to passing this, there had been a good deal of fever and local irritation, which were not relieved by the voiding of the gall stone. The mercury had produced salivation, and the parotid on one side was very much enlarged. The patient could not articulate clearly ; the pulse was quick, small, and intermitting, and he expired forty-eight hours after passing the calculus. It was almost impossible to get a *sectio cadaveris*, owing to the general state of alarm produced by the cholera, and the public disturbances at the time. I insisted upon it, however, for I had suggested that the gall bladder had been ruptured, and I succeeded in ascertaining this to be the case. The gall bladder was hardly to be traced ; a large abscess was found immediately beneath it, and the whole of the fundus of the former was ulcerated away.

The case is instructive, as far as the evidence is in favour of the frequent occurrence of the spasms of the stomach having been owing to passage of gall stones, or from the introduction of this identical one into the duct, from which it again receded.—*From the Medical Gazette*, vol. xiii. p. 711.

PUNCTURE OF THE INTESTINES.

To relieve the agony of distention in two cases of supposed internal strangulation.

The lady of an officer of high rank, had been suffering for some time with disordered digestion, when she was suddenly seized with violent vomiting and purging, and fæcal matter was discharged by the mouth.

To this succeeded constipation and tympanites—the latter being so distressing that it was resolved to puncture the bowels. Large quantites of gas escaped—the patient felt immediately relieved from her extreme sufferings. She died the same day or the following.

I did not see this case myself; but as it was attended by the same medical men, who were present in the second, and no great interval occurring between the two, it was reported to me as above.

A lady, the mother of six children, was in the family way with the seventh, and in about the fourth or fifth month of utero gestation. She had for years been in the habit of neglecting her bowels, and retaining her fæces for five and six days, and even longer, with impunity.

She complained of sudden pain in the bowels, which she took to be colicky, and used some domestic medicine. The pains increasing, and the bowels continuing locked, blood was taken from the arm, and leeches applied very freely to the part. No relief was afforded. The abdomen became very tense, and the pains returned at repeated intervals. She expressed herself thus, that she had borne six children, and that the united pains of all her labours, were not so excruciating as any one of the pains under which she suffered. All means had failed in procuring her relief. Six or seven medical men were in constant attendance upon her. Injections, warm baths, cold affusions, bleeding, opium in large doses—nothing relieved her.

It was, therefore, upon the idea only of shortening her sufferings, that it was proposed to puncture the intestines. A trocar was thrust into the colon—some

gas escaped, and she exclaimed I can breathe now—fæces soon filled up the canula—the spasms returned, but in rather diminished force. She sank in about fourteen hours after the operation, suffering to the last. In neither of these two cases, was a *post mortem* examination allowed.*

It becomes a question of moral import, in how far such an operation can be held justifiable.

It must first be taken into consideration, what would be the chances of the result of such an operation in a state of health. Would not a pointed instrument of the size of a trocar, be, in all probabilities, attended with fatal consequences. If so, in a state of disease, the chances of the patient's recovery from the operation would be diminished by the previous state in which the parts were, owing to the obstructing cause.

In the second place—is the temporary relief so afforded, made justifiable in the operation, seeing that cases of internal strangulation do sometimes recover, and that the bowels get unlocked in what is looked upon as the agony of death, but which proves to be the *janua vitæ*. As there is an eleventh hour in all matters, is it not more justifiable to await its sounding, than to make its fatal voice doubly sure. I am not sure whether such an operation has been performed in England under such circumstances, and for such express purpose only.

I was present in the latter instance, and did object to the operation, finding that it had been fatal in a similar case, not long before.

I almost question whether it would not have been

* St Petersburg, 1842.

suggested to do the like in the following case, which occurred to me since my return home, where nature relieved herself at the eleventh hour. The case was read before the Medico Chirurgical Society.

Cases of Obstruction in the Intestinal Canal, terminating favourably on the ninth day by Spontaneous Vomiting.

The subject of the present case was a little girl of twelve years of age, of a very delicate constitution, strongly marked scrofulous disposition, and with very feeble digestive powers, so that she was unable to digest fruit or vegetables. She had been attacked by epidemic autumnal cholera, which prevailed amongst children in the town where she was residing, and which yielded to the usual mode of treatment. Soon after the termination of this she was attacked by a disease of an opposite nature, and became obstinately constipated, whilst the stomach rejected every thing that was taken. Purgatives had been employed in every shape, but without effect; leeches had been applied to the abdomen, which had been fomented freely. Such was the history of the case which I received from the two medical men in attendance, previous to my seeing her on the 27th of August, in the afternoon. She was much flushed in the face, had an anxious countenance, a small, quick, compressible pulse, a cold, moist surface, the extremities being colder than natural. She suffered from distention of the abdomen, without complaining of much pain, and

she vomited continually a green bilious fluid. As no inflammation was apparent, and as more depletion was not, under the existing circumstances, indicated, soothing measures were employed. The vomiting was the most annoying symptom, from its frequency rather than from any distress which it occasioned, for this dark-green fluid was thrown up without much effort. A small blister was applied to the pit of the stomach, and small doses of prussic acid administered in almond milk. This treatment seemed to check the vomiting for many hours successively. She passed a tranquil night, but no relief to the bowels had been obtained by stool, and the abdomen was much more swollen. Croton oil was given internally and by clyster during the day, and as warm applications seemed to have no effect, bladders filled with ice were applied over the belly. The patient was restless and uneasy, continually changing her place in bed, but this arose from distention rather than from any acute pain. About midnight of the 28th, she complained of twisting and severe pain in the bowels of a colicky nature, there was also more pain upon pressure than previously, and, as opiates were administered without benefit, I applied a dozen leeches to the abdomen, with immediate relief to the distressing symptoms, which subsided soon afterwards. She got some sleep, and was free from pain when awake. I was obliged to return to London, and did not see her again till the afternoon of the following day. I learned from the physician in attendance, that she had passed the day on which I left her, pretty well, but that, at midnight, the same symptoms recurred as on the night previous,

and, notwithstanding her great state of exhaustion, he had again applied leeches with benefit. He informed me that the vomiting had returned, and that the matter brought up was evidently from the ileum, and the seat of stricture seemed to be about the caput cæci. There was no question, upon minute examination, that the matter vomited up proceeded from the small bowels. The distention was now very great, respiration was much impeded, and the little patient suffered severely. A long elastic tube was introduced into the rectum, and carried up into the colon, through which water was forced by a pumping-syringe. The operation was productive of great distress to the patient, and was ineffectual as to relief. The night was restless, and the following day the little sufferer was much exhausted. The face was colourless, the countenance anxious, the body covered with a cold clammy sweat, and she expressed herself as if about to die. The bed-room having a southern aspect, and the weather being sultry, I desired that she might be removed into a cooler room. She was carried in the arms to her bed, and, as she was much fatigued by the operation, I gave her a glass of Madeira wine, which she drank with pleasure, but hardly had she swallowed it when she made signs for the basin, lifted herself up in bed, and threw up a dark green fluid to the amount of three pints. She experienced immediate relief, and breathed more freely, and the upper part of the body became more loose and compressible. I gave her some more wine, which remained on her stomach; she had no more nausea. Constant friction was maintained over the abdomen, and injections of

vinegar and water were repeated every hour. The first was returned without being accompanied by any solid matter, but had a fœtid smell. The second was accompanied by pieces of flocculent matter, of a membranous appearance, and the fluid returned was horribly fœtid, like putrid water in which flesh had been macerated. She was enabled to compress the abdominal muscles and make an effort to go to stool, which the previous great distention, paralysing the action of the muscles, had prevented her from doing. Much of this membranous matter came away after each injection. The smell was most offensive. About four hours after the spontaneous vomiting she asked to go to the chair, when the bowels gave way, and a large quantity of solid excrement was voided. She passed more stools in the course of the evening, and then slept tranquilly. The following morning I gave her a dose of castor oil, which produced its desired effect without creating nausea, and I left her convalescent. I learned, subsequently, from my colleagues, that she had a good deal of constitutional fever for four or five days. She recovered in a short time, and her digestive powers are now better than previous to her illness. The obstruction was relieved only on the ninth day of the disease.

MESMERISM.

" A second critical remark which suggests itself in connexion with this subject, relates to the opinion that by virtue of the exaltation or transposition of sensi-

bility, it is possible for persons to see with the skin. It is a known fact that we cannot by means of the fingers recognise colours as such, although it may be possible to distinguish the corpus or grain of some colouring matters when laid thickly upon a surface, since they are uneven, and adhere to the skin which touches them.

"The necessity for an optical apparatus for the production of an image upon a percipient membrane, sufficiently refutes the notion of persons being able to see with their epigastrium, or with the fingers, when in the so named magnetic or mesmeric states. Even though the skin of the epigastrium or fingers were susceptible of the sensation of light, which they are not, the perception of objects would yet be impossible, unless there were optical apparatus for collecting the light radiated from certain points of the object upon corresponding points of the sensitive surface, and without such apparatus, the epigastrium and fingers, though they possessed the sensibility of light, would merely be able to distinguish light from darkness. Since, however, these parts are not susceptible of the sensation of light, and since no sense can be transferred from one part to another, it is quite impossible for a person in the magnetic state to have even an obscure perception of light and darkness by means of any other parts than the eyes. Moreover, when the eyes are bound it is still possible to distinguish the light and even objects, by slightly raising the eyelids, as every one well knows who has played at the game of blind man's buff, and persons lying, like the subjects of the pretended magnetic sleep, in the horizontal posture, with the eyes bound, can see

every part of the room by looking under the bandage. But what well informed physician can put faith in the fables told by the upholders of animal magnetism. It is quite in accordance with the laws of science that a person sleeping shall have ocular spectra; we experience them sometimes when the eyes are closed even before falling asleep, for the nerves of vision may be excited to sensation by internal as well as by external causes; and so long as a magnetic patient manifests merely the ordinary phenomena of nervous action that are seen in other disorders of the nervous system, it is all credible enough. But when such a person pretends to see through a bandage placed before the eyes, or by means of the fingers or the epigastrium, or to see round a corner, and into a neighbouring house, or to become prophetic, such arrant imposture no longer deserves forbearance, and an open and sound exposure of the deception is called for."—*Müller's Physiology*, p. 1125, vol. ii.

In the neighbourhood of Musselburgh was a chapel dedicated to our Lady of Loretto, the sanctity of which was increased from its having been the favourite abode of the celebrated Thomas the Hermit. To this sacred place the inhabitants of Scotland from time immemorial had repaired in pilgrimage to present their offerings to the virgin, and to experience the virtue of her prayers, and the healing power of the wonder working "Hermit of Lareit."

In the course of the year 1559, public notice was given by the friars, that they intended to put the truth of their religion to the proof, by performing a miracle at the chapel of Loretto upon a young man who had

been born blind. On the day appointed a vast concourse of people assembled from the three Lothians. The young man, accompanied by a solemn procession of monks, was conducted to a scaffold erected on the outside of the chapel, and was exhibited to the multitude. Many of them knew him to be the blind man whom they had often seen begging, and whose necessities they had relieved,—all looked upon him and pronounced him stone blind. The friars then proceeded to their devotions with great fervency, invoking the assistance of the Virgin, at whose shrine they stood, and of all the saints whom they honoured; and after some time spent in prayers and religious ceremonies, the blind man *opened his eyes* to the astonishment of the spectators. Having returned thanks to the friars and their saintly patrons for this wonderful cure, he was allowed to go down from the scaffold to gratify the curiosity of the people, and to receive their alms.

It happened that there was among the crowd a gentleman of Fife, Robert Colville of Cleish, who, from his romantic bravery, was usually called Squire Meldrum, in allusion to a person of that name who had been celebrated by Sir David Lindsay. He was of protestant principles, but his wife was a Roman Catholic; and, being pregnant at this time, had sent a servant with a present to the chapel of Loretto to procure the assistance of the Virgin in her approaching labour. The squire was too gallant to hurt his lady's feelings by prohibiting the present from being sent off, but he resolved to prevent the superstitious offering, and with that view had come to Musselburgh. He had witnessed the miracle of curing the blind man

with the distrust natural to a protestant, and he determined, if possible, to detect the imposition before he left the place. Wherefore, having sought out the young man from the crowd, he put a piece of money of considerable value into his hand, and persuaded him to accompany him to his lodgings in Edinburgh. Taking him along with him into a private room, and locking the door, he told him plainly that he was convinced he had engaged in a wicked conspiracy with the friars to impose upon the credulity of the people, and at last drew from him the secret of the story. When a boy, he had been employed to tend the cattle belonging to the nuns of Sciennes, in the vicinity of Edinburgh, and had attracted their attention by a peculiar faculty of turning up the whites of his eyes, and of keeping them in this position, so as to appear quite blind. This being reported to some of the friars in the city, they immediately conceived the design of making him subservient to their purposes; and having prevailed on the sisters of Sciennes to part with the poor boy, they lodged him in one of their cells. By daily practising he became an adept in the act of counterfeiting blindness; and after he had remained so long in concealment as not to be recognized by his former acquaintances, he was sent forth to beg as a blind pauper, the friars having previously bound him by a solemn vow not to reveal the secret. To confirm his narrative, "he played his pavie before Cleish by flyping up the lid of his eyes, and casting up the white, so as to appear as blind as he did on the scaffold at Loretto."—*M'Crie's Life of John Knox*, p. 324, vol. i.

PLICA POLONICA.

It is singular that, in the present advanced state of medical science, any doubts should exist respecting the nature of a disease which, from its circumscribed influence, has received the name of plica polonica; still, even at the present moment, the medical opinion is divided upon the reality of its existence as a specific complaint. This discordancy of opinion is not confined to strangers, or to those medical men who, not having sojourned long in the country where the disease is endemic, have had but little opportunity of investigating the matter, but the medical men resident in those parts where it is most prevalent, do not seem, as far as I could ascertain it, to have made up their minds upon the subject.

There are three opinions, however, which may be quoted regarding the nature of this affection.

The first, and a very general one, that the said plica is nothing more or less than an aggregation of filth.

The second, a very limited one, that it is a specific contagious disease, produced by a peculiar virus.

The third, and the more probable one, that it is a secondary affection, or a critical excretion from the scalp and roots of the hair, and the natural curative process of a variety of complaints.

Several reasons may be assigned for the discrepancy of opinions which exist upon this subject, and which place it among real or artificial diseases. It is in general confined to the lowest orders of society. Such excite little interest or compassion; and their modes

of life, which place them, as regards cleanliness, even below many of the brute creation, have acted as an insuperable barrier to the thorough investigation of this disease upon those spots where it is endemic.

When it attacks, on the contrary, the better classes of society, it is studiously concealed from the world in general, and often from the medical attendant; unless, having resisted all nostrums, it becomes too aggravated in its character to be trifled with any longer.

The same cause has operated in both cases to prevent sufficient attention having been paid to it in all its stages. The peasant is too filthy to be attended to; the rich man is too proud to allow himself to be suspected of labouring under the curse of that which is the fitter property of his boor. Hence it is that so little real information is to be gained from the number of authors who have written upon this subject. Each has contented himself with re-stating or criticising some preceding opinion upon the disease; few have taken the trouble to investigate the truth by observing simply with their own eyes what lay in their daily path. So we are told of the errors into which Hercules de Saxonia fell, from his too great belief in supernatural agents.

Davidson, on the other hand, is reprobated for his scepticism; Schlegel is too diffuse; Gasc too concise in his description; but the authors of these criticisms do not think of telling us what they saw themselves. To unfold a plain unvarnished tale, must be left, I believe, to the Ghost of Hamlet; for no one living seems disposed to do it. We find that not only the

real existence of the disease is a matter of contention, but its origin and progress are equally twisted, like itself, from the path of truth, by those who believe in its existence. Its name and numerous synonyms indicate a great difference of opinion as to its origin and effects.

First, as to the opinion of many, that it is only an aggregation of filth.

I have, myself, known it occur in five opulent families, where any question of uncleanliness could not for a moment be agitated; and this is itself sufficient to disprove the validity of this sweeping clause.

Having, previously to my visiting Poland, read several works upon the subject, and found them abounding in controversy and confusion, I was in hopes that during my residence in the ancient capital of the Piasts, I might gain some clearer evidence upon the matter. Being convinced, from what I have already stated, that uncleanliness alone could not account for all that I found to exist, it became, nevertheless, necessary to ascertain how far this operated as a cause, knowing that cause and effect are often so blended together, that it is difficult to separate them.

Here arose a stumbling block at the threshold of inquiry; and it was necessary to refer to popular prejudices, not as a standard of truth, but as a standard of error, from which truth may often be elicited. I found that there was but one opinion held by the people regarding the effects of the disease, how diverse soever their opinions might be as regarded its causes. All agree that the effects of the plica are most salutary to the system; and there are few earthly blessings

which are more coveted by the peasant than the formation of a plica in his hair. Two circumstances meriting attention are to be considered, as arising from this opinion—the one, that relief is afforded to the system under certain morbid states by the formation of a plica; the other, as a necessary consequence, that means will be devised to promote its formation. From these two circumstances arise also a very important subject for consideration, viz., that the methods frequently resorted to, in order to promote this effect, have tended to establish the opinion, that the disease is at all times an artificial production. It is said to be good for the ague, for the gout, for sore eyes, for obstinate headaches; and females find it good for a variety of complaints; consequently, as soon as they are afflicted with any of these grievances, they immediately commence forming an artificial plica. Of this I have positive proof in the following instance:—

I was requested to see the daughter of a person in very easy circumstances, who was affected with sore eyes, and had a defect in her vision. She was about fourteen years old, and was, when I first saw her, lying upon the bed: her hair was twisted and matted together, and the *animals* in such quantities that I could not approach her without feeling disgust. She had a speck upon one cornea, and seemed to be suffering from rheumatic ophthalmia. Upon inquiring why she was confined to her bed, and if she had the plica, her mother replied not as yet, but she was in hopes that it would not be long in coming; for which purpose her daughter was kept as warm as possible.

"For the same reason, I suppose, you do not allow her to comb her hair, or keep her head clean?" "Yes," was the reply. "And what do you expect will be the consequence?" "A plica will form in her hair, and cure all her complaints." "Will her eyes get well as soon as the plica is formed?" I inquired. "No, not immediately; but as the head gets worse, the eyes will, by degrees, get better, and when once cured, she will never be subject to have sore eyes again." "How long will this plica last?" I inquired. "About three years," was the reply. "And what then?" "The old hair will die away, new hair will shoot out from the scalp, and then we shall cut away the old by degrees, and she will have a fresh head of hair."

All this information was founded upon the experience of the mother, whose son had suffered some years previously, in the same way, and was cured by the same means.

Some days later, I visited the public hospital. In passing by one of the beds, I observed an old woman, whose head appeared enveloped in the remains of a flannel petticoat. I inquired what ailed her. The interpreter replied, *Koltun*, the name given to the disease by the people. I was anxious to examine it myself; the attendant replied, that it was not as yet fully formed, that she was encouraging it all in her power, and so wrapped up her head in flannel. I inquired why she was so anxious to produce a plica. "The old woman is a martyr to rheumatism, and this is an infallible cure for it—the universal remedy," said the young surgeon who interpreted for me. In the meantime, she had taken the wrappings off her

head, and I found the hair all twisted together, and very *lively*, as I had observed it in the other patient. The plica was much farther advanced in this latter case. The mass of hair upon the crown of the head resembled a dirty bird's-nest; but upon examining the hairs individually, I could perceive no alteration in their structure. Such a plica might evidently be produced at any time, and as easily in Cork as in Cracow. The old woman was much displeased at being obliged to undo her flannel wrapper, from fear of the exposure to the air retarding the progress of the disease.

These two cases sufficiently prove that means are resorted to in order to produce an agglutination and conglometion of the hair, for the purpose of relieving the system of some painful affection; and this forms the false or artifical plica. This is considered by many as the only disease; and when so many cases can be traced to this, and this alone, it is not singular that with many, farther investigation is not considered necessary.

The following case, which occurred to a servant girl in the family of Dr Typaldoes, an amiable Greek physician, then residing in Cracow, illustrates the relief afforded to the system by the spontaneous appearance of a plica, when no artificial means had previously been used to produce it. She had been afflicted for several months with violent pains in the head, which resisted all medical treatment. As the winter approached, the headaches got worse and worse, and during the night were quite insupportable. In the month of January, the thermometer being 22° Reaumur, she left her bed, and went down stairs to

get ice to put upon her head. She caught a severe cold by this imprudence, and a fever, with delirium, was the result. The usual means were employed to combat the fever and head affection, but nothing succeeded, till suddenly a plica formed itself upon the scalp, and she gradually got better as the plica increased.

In such a case, the old term, *vis medicatrix naturæ*, seems to establish a claim upon our attention.

It is natural to ask if the plica formed in this spontaneous way, differed in appearance from those which I have described, and which were artificial productions. I cannot reply to this from my own ocular evidence, but Dr Typaldoes informed me that it was a true plica, for that the structure of the hairs was altered; but the patient immediately resorted to the same artificial means of promoting its increase as the others had done to favour its production in their cases; so that even in this case it soon became impossible to distinguish truth from falsehood.

I shall explain what is considered to be the difference between the real and false plica, as briefly as possible; but I shall first mention a few circumstances, which may puzzle many who uselessly devote their time to read all the different authors who have written upon this malady.

First, as to the various names given to it by different writers.

A good deal is to be learnt from this variety of appellations, most of which express some supposed or real character in the complaint itself; and first, of the popular name of *Koltun*, which signifies a stake, be-

cause the hair stands out like a pole or stake. This implies no matting of the hair, as a Medusa's head; no interlacing of the hairs in meshes; but a thickening of the hair, either from conjunction of several hairs in a strait direction, or from a thickening of individual hairs; and many have drawn a distinction between the true and false plica, from the disposition of the hairs alone.

When it affects other parts of the body than the head, this is the form which it is said always to assume; and we read of cases where it has increased to such a length as to pass three times round the thigh. The vulgar name *Koltun* is not to be disregarded in the investigation of the nature of this disease.

The following name I shall quote as offering one of the many difficulties which occur in the study of the malady.

Plica judaica, Judenzopf, are commonly met with in writers, and yet I was informed by my colleagues, in Cracow, that the plica was rarely to be met with among the tribes of Israel. If such be the case, it affords negative evidence, at least, to the opinion that this malady is engendered by filth alone; for if there is a mass of living filth in human shape, it is to be found in a Polish Jew, who stalks up and down the streets in a long gown, and fur cap upon his head, nor changes his gabardine till it falls piecemeal off his body, rotted by age. His long flowing hair falling in ringlets upon his shoulders, and curling at the extremity, would seem to offer a fine nursery for plica; still, as I was informed, he is seldom attacked by this

disease, but enjoys, as a substitute, more generally diffused over his body, the psoriasis. It was not asserted that no cases were to be found among the Jews, but that there were but few, comparatively with the peasants. I recollect seeing but one Jew affected with plica, during the time I remained at Cracow.

Another name, and one indicative of its locality, is Weichselzopf; because it is found to prevail especially on the banks of the Vistula; and the popular tradition runs, that when the Tartar hordes came over the Carpathian mountains, and invaded Poland, they poisoned the sources of this river.

In the name of Mahrenflechten is expressed, that the Moravians, when enemies to Poland, had recourse to magic to conquer them, and gave them this unseemly complaint. So witchcraft is likewise expressed in the term Hexenzopf.

Thus much for nomenclature; and as to locality, I can only state what I have myself observed. This is, again, a much disputed point; some asserting that it is confined entirely to Poland, others that it is to be found sporadically scattered over Hungary and many parts of the north of Germany. Mr Russell says "it is found in Livonia and some other parts of Russia, and, above all, in Tartary."

I found it prevalent in the republic of Cracow, in the Kingdom of Poland, and in the whole province of Gallicia, along the banks of the Vistula. In quitting this river, I lost sight of the disease, nor did I find any traces of it during some weeks' sojourn in the Ukraine and in the province of Podolia, as far down as Odessa.

I have never seen a single case in Russia Proper, nor even in Finland; which all coincides with what others have written upon the subject.

Such evidence must go far to prove that filth cannot be the only source of this complaint. Some stray cases may occur in other countries bordering on Poland, but in none that I have mentioned is it a disease of the country.

Another point of controversy is with respect to the disease attacking strangers. Some assert that strangers are not susceptible of it; others, that they only become so when they adopt the costume of the country: both these opinions are erroneous. An instance of the contrary occurred in the family in which I was residing. A lady's maid, who came from Berlin, to attend the Countess ———, was very seriously attacked with this complaint; it commenced by headaches and general rheumatic pains, and finally terminated in plica. Now this young woman, from the middle class of society, had not been more than six months in the family, and had adopted no national costume. I know not what may have been the dress of a lady's maid in the time of the Casimirs, but at present, I believe, it is the same over Europe in general.

Neither, therefore, are strangers free from it, nor is it produced by dress alone.

Some have stated that the disease is contagious; but this opinion is combated by one of the earliest writers,—viz. Hercules de Saxonia, who published in 1600, and from whose book much is to be learnt. He is quite furious at the idea, and instances, in incontrovertible evidence to the contrary, that a learned

professor, of his acquaintance, was afflicted with it to grievous extent, but his barber, who shaved him and dressed his plica, did not catch the disease. This author does not believe that the plica is ever epidemic, although he has great faith in sol-lunar influence and the aspects of the heavens upon complaints in general. As to its endemic character, he can point out the spots where it is to be found at all seasons of the year.

Mr Russell has fallen into error upon this subject. He says that "it is contagious, and moreover may become hereditary. In Cracow there is a family, the father of which had the Weichselzopf, but seemed to be thoroughly cured of it; he married shortly afterwards, and his wife was speedily subjected to the same disorder, and of the three children she bore to him, every one inherited the disease."

Had the author stated that the complaints which engendered plica are hereditary, he would have been nearer the mark; but neither cause nor effect, in this case, can be considered contagious.

With respect to its affecting the brute creation, the opinion is generally in favour of this idea. Pigs and horses are particularly subject to it. Schlegel is of opinion that it is so prevalent among horses, that one out of six is attacked by it, both in Moscow and Petersburg; a privilege which the cattle enjoy over the people in these capitals. Six years' residence in the latter city, and a considerable acquaintance with horse flesh, have not yet introduced to me the disease in that animal.

In travelling from Cracow to Leopold, I observed that the manes of the peasants' horses had a peculiar

appearance, and that the pigs were much in the same predicament. The postilions informed me that it was the *koltun*. Upon close examination, however, I could not convince myself but that a comb would unravel it, if regularly applied. It is too much, however, to expect that a man should comb his horse who never as yet combed himself.

I shall not dilate more upon the controversies which are to be found in the different works upon this subject; many of the writers are not only at variance with their colleagues, but even with themselves. Few describe what they have themselves seen, or the results of their own study and observation. From what has been said, I think it will be evident that the two first opinions—viz. that the plica is nothing but an aggregation of filth; and, secondly, that it is a contagious disease, depending upon a peculiar virus—are neither of them tenable. The third, or that which allows of its existence, as a critical termination of other complaints, is alone worthy of attention. We do not say, however, that in no instance the hairs may not be affected primarily, but that the disease is not capable of being propagated by contagion, or that the virus can be communicated by inoculation, as many have contended.

EXPERIMENTS ON ANIMALS.

We do most cordially sympathize with Dr Elliotson in the anathema which he pronounces against the repetition of cruel experiments to prove what is already

known and established. It is most true also, as he observes, that the proofs afforded by such are of a most doubtful character, from the effects of pain which they produce, changing the whole economy of the animal. If the mere prick of a pin shall throw a man into a swoon, which suspends every function of the system, so that the eye sees not, nor the ear hears, nor the blood flows, is this a state in which we are to look for the performance of a function, or draw conclusions which shall amount to proof? Artificial mutilation is not calculated to afford much information. We know not how much farther the Americans may have progressed in their experiments upon the human subject. We once saw an advertisement in a Yankee journal, of incurable negroes for sale to make experiments upon. The ancients considered it justifiable to open men alive, but only malefactors. The utility of experiments is not to be doubted in the prosecution of the science of medicine. If human life is to be benefited by the sacrifice of the inferior animals, let it be so, but there are bounds to be set to the practice. The circulation of the blood, aud the important consequences derived from this knowledge in surgical operations,—viz. the cure of aneurism, sufficiently justify the principle; and as great good has already been so achieved, so more may be anticipated, but an indiscriminate abuse of animal suffering, under the hands of Tyros, cannot be sufficiently reprobated. To make experiments for experiment sake, and to make them upon some inductive principle, with a view to ascertain an important point, are two different things. The one is wanton cruelty, the other a legitimate pursuit of knowledge,

and in this case the end may justify the means; but few are capable of prosecuting this subject so as to produce any real benefit to science, and, therefore, it should be intrusted but to few. A wanton sacrifice of animal life is highly censurable. It hardens the heart, blunts the feelings, and has in every respect an immoral tendency.

SOUND.*

"On the fifth day of my journey, the air above lay dead, and all the whole earth that I could reach with my utmost sight and keenest listening, was still and lifeless, as some dispeopled and forgotten world, that rolls round and round in the heavens, through wasted floods of light.

"The sun growing fiercer and fiercer, shone down more mightily on me now than ever he shone before; and as I drooped my head under his fire, and closed my eyes against the glare that surrounded me, I slowly fell asleep, for how many minutes or moments I cannot tell; but after a while, I was gently awakened by a peal of church bells—my native bells—the innocent bells of Marlen, that never before set forth their music beyond the Blagyon hills! My first idea naturally was, that I still remained fast under the power of a dream. I roused myself, and drew aside the silk that covered my eyes, and plunged my bare face into the light. Then, at least, I was well enough awakened; but still those old Marlen bells rung on—not ringing

* See page 100.

for joy, but properly, prosily, steadily, merrily, ringing for 'church.'

"After a while, the sound died away slowly; it happened that neither I nor any of my party had a watch, by which to measure the exact time of its lasting, but it seemed to me that about ten minutes had passed before the bells ceased. I attributed the effect to the great heat of the sun, the perfect dryness of the clear air through which I moved, and the deep stillness of all around me; it seemed to me that these causes, by occasioning a great tension, and consequent susceptibility, of the hearing organs, had rendered them liable to tingle under the passing touch of some mere memory, that must have swept across my brain in a moment of sleep. Since my return to England, it has been told me that like sounds have been heard at sea, and that the sailor becalmed under a vertical sun in the midst of the wide ocean, has listened in trembling wonder to the chime of his own village bells."—*Eothen*, p. 273.

The above extract, from a most interesting and original work, Eothen, is deficient as regards the circumstance, that the author does not state whether his attendants heard the ringing of the bells as well as himself. It is material to know this before the subject can be discussed upon physical principles. His own suggestion seems to be the correct one. Some humming noise assailed him before he went wholly to sleep; and we have stated, that the sense of hearing is the last which falls into slumbering oblivion. Memory, still on the watch, recalled to him the sounds of his village bells, and then left him under

this impression. Upon waking by degrees, the sounds still remained, and the physical and moral feelings were too strong to be overcome by the simple circumstance of the visual organs being fully awake, for seeing is not always believing, in this half waking state. The time is indefinite also. We are no judges of time under such circumstances—a minute may appear an age. Still, even hours and days are sometimes not sufficient to wear out the impression of some sounds on the auditory nerve.

If others heard it as well as himself, the tactics must be changed.

The wonders of the mirage, and the revived theory of undulations may, perhaps, be applicable to sound, as well as to light. Then it may be, that the author heard his village chimes.*

* See Dr Brewster's Essays on the Mirage.

THE END.

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