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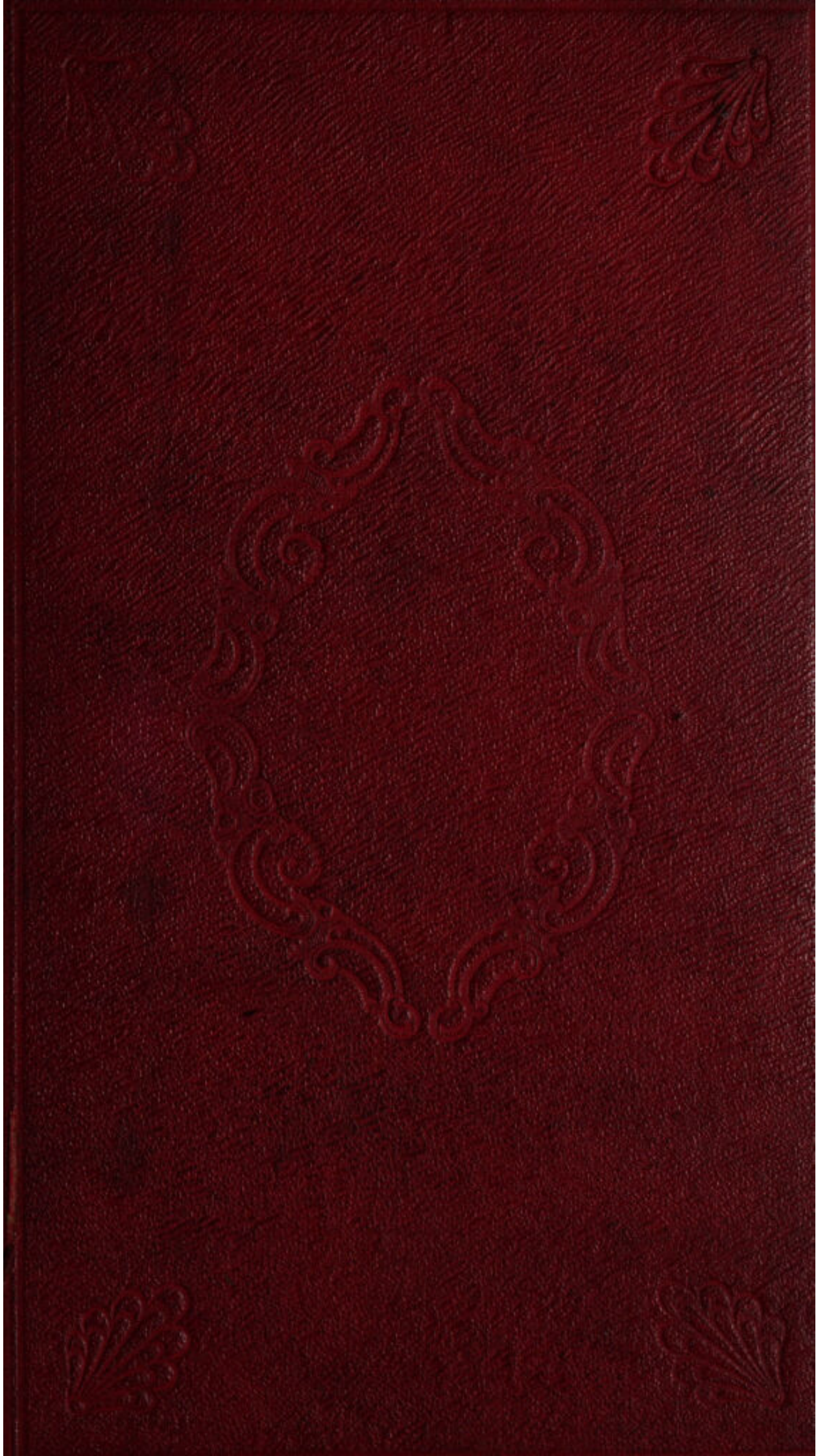
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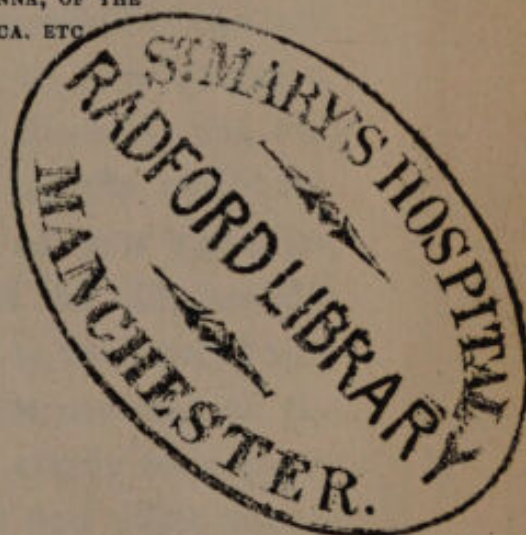
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The present volume terminates rather abruptly, because the stipulated number of pages was complete. I especially regret that I could not add a paper on other forms of *Irritation* besides those noticed in Chapters XLVI and XLVIII. It is a subject known in practice, but little treated of in books. In a recent case, the ligatures inserted in an operation for lacerated perinæum induced uterine hæmorrhagy, and a state of things resembling and bordering on puerperal mania. The subject must be reserved for a second volume; as must also the subject of the *sporadic* forms of Puerperal Diseases, as well as some valuable papers by Dr. Tyler Smith, Mr. W. F. Barlow, and several other friends.

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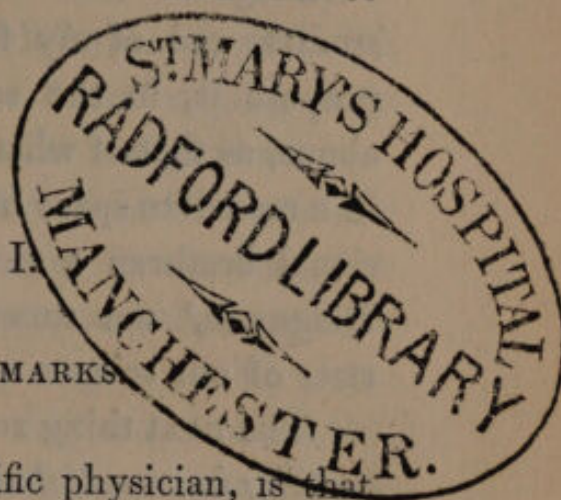
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PRACTICAL
OBSERVATIONS AND SUGGESTIONS.

CHAPTER I.

INTRODUCTORY REMARKS.



THE first study of the scientific physician, is that of anatomy, physiology, pathology, and therapeutics or the *mode of action* of remedies or morbid agents. Without a knowledge of the structure and functions of the animal frame and œconomy, of the changes and derangements of these which constitute morbid processes, of their effects on the different organs and on the system at large, and, lastly, of the mode of action of external agents, whether remedial or poisonous, the medical practitioner is but an empiric (ἐμπειρικός), a mere experimenter,—at the best discovering remedies by accident or using remedies so discovered at the hazard of life.

Having profoundly studied or learnt these preliminary branches of medical science, the first step in actual

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highest faculty which a physician can possess, in the actual exercise of his art. Like all other faculties, it may be greatly augmented by exercise.

If the following 'Observations and Suggestions' prove that I have not cultivated *this* subject entirely in vain, and lead other physicians into the same useful train of mental culture, I shall be amply rewarded for the pains which I have taken in embodying them in language and laying them before the profession.

I have published these 'Practical Observations and Suggestions' in an unpretending form: first, that they may appear in the modest manner becoming such a trifle; and, secondly, that they may be readily portable; for my ambition is, that they may become the companion of the student, and of the country practitioner, in some of his lonely drives, especially of those whose time is too much taken up by practice to admit of their reading larger and denser volumes.

I have also wished not to deter, by the form of this work, the general reader, who may be interested in medical matters generally, or in some particular medical subject.

I present the following Suggestions to my medical brethren as a part of the results of my observation and experience in practice during a period of somewhat more than a quarter of a century. I propose, in due time, to add another volume or two of the same kind.

And here, in reference to my own labours, I trust

my readers will allow me to make a very few brief remarks, without imputing to me any other wish than that of doing myself an act of mere justice.

I may truly affirm that mine has been a really active professional life. In the midst of practice and of lectures, I have allowed few days to elapse without recorded observation. This habit I regard as the *test* of a physician's steadiness and industry. But, besides this, for ten years I devoted a part of my leisure hours—often snatched from hours which should have been devoted to repose—to physiology. My labours in this department have been rewarded by no less a discovery than that of *the Function of the Spinal Marrow, reflex* in its form, *excited* in its character, embracing *all* the *acts* of *ingestion* and of *expulsion* in the animal œconomy, and therefore all such acts in their relation to the preservation of the individual, and the continuation of the species—a function, therefore, of no mean or inconsiderable extent. To the physiology of the spinal marrow, too, must be added its pathology and therapeutics.

I shall now only advert to the practical application of this discovery—an application as yet only half known; for it extends to all convulsive diseases, and to the action of all such agents as, like the douche of cold water, exert their influence on the true spinal system.

But there are *two* special applications of this discovery to practice, which I may mention: the first is

its extreme value in the *diagnosis* of all diseases of the nervous system : the second, its application to the theory and practice of the Obstetric Art, of which it will, I am persuaded, one day form the very basis. This I mentioned long ago ; and the recent invaluable papers of Dr. Tyler Smith, now in the course of publication, are fully confirming my prediction.

But of my various labours, in the course of medical practice, I look upon my researches in regard to the use and abuse of blood-letting, of all remedial measures the most powerful for good and evil, with the greatest satisfaction. I *know* that the Rule for the due administration of blood-letting, which I have adduced from those researches, is the daily means of saving valuable lives ; of extricating the individual practitioner from many and most serious difficulties ; and of protecting the patient from the dangers of the undue detraction of blood on the one hand, and the inefficient administration of an important remedy on the other.

I think I may say, of the distinction between the cases of intestinal irritation, of the effects of loss of blood, of inflammation, and of the various *mixed* cases consisting of two or of all three of these, variously mingled together in the same case, pretty nearly what I have said of the Rule for the due and safe administration of blood-letting,—that it is one of great practical importance, and that it has proved the means of saving many dear and valuable lives. This is still

more true when the diagnosis in question is confirmed or corrected, and the treatment regulated, by that very rule.

I remember the time when sporadic puerperal diseases in general were regarded, without due discrimination, as inflammatory, and forthwith treated with lavish blood-letting, by which they were frequently rendered fatal.

At an early part of my medical career, I published an Essay on this subject, of the practical value of which the late Dr. Baillie spoke in the highest terms. I believe this testimony to have been true. It has constantly been confirmed by those of my friends most engaged in the practice of midwifery, who have had at once the opportunity and the disposition to put my suggestions to the test of experience ; and, after a lapse of twenty years, I have still the happiness of thinking that my labours have, in this instance too, had a highly useful result.

After the rule proposed for the due administration of blood-letting, and the diagnosis established in regard to puerperal diseases, I would rank the observations I have made on that form of hydrocephaloid disease which arises from exhaustion, for their practical utility. I have seen, and do still see, little patients whose maladies are doomed to run a fatal course, under the erroneous idea that they are really hydrocephalus, rescued from their state of peril by a juster diagnosis.

One other service which I think I have rendered the art of medicine, in its application to infants and children, is that which relates to the treatment of infantile convulsions.

But I hasten from these prefatory remarks, to which I have been led almost unconsciously. I will only add, that some of the suggestions contained in the following pages may appear to be almost too trifling for publication. But my constant object has been utility; and if I could only insure this object, I have been ready to sacrifice, as it were, the dignity of authorship.

CHAPTER II.

ON HOMŒOPATHY AND HYDROPATHY; AND ON MEDICAL REFORM.

THE late Dr. Baillie used to observe to his pupils —“learn your profession well, and then practise it on principles of common sense.” This injunction is not less necessary in the present day, than at the time when it was promulgated by that able and eminent physician. It is first necessary to study medicine in its various preliminary branches of anatomy, physiology, pathology, and therapeutics; no light or easy task. Having laid this foundation, we may proceed to build upon it the super-structure of actual practice; we may begin to acquire the art of diagnosis, or of the detection of diseases and their effects, and the further and ultimate art of prescribing, or the just appropriation of remedies.

Whatever the designing pretender may assert, and whatever the weak in intellect but strong in prejudice may fondly believe or imagine, there is no other, shorter, or more ready road to the knowledge and safe and just treatment of diseases. This conclusion is at once the result of the simplest reasoning and of all experience. Have not all systems of quack-

ery had their brief day and then failed, hitherto? Can any one understand or repair the derangements of a complicated machine, unless he first understands its structure, and the springs and modes of its action? What should we think of an ignorant peasant turning quack engineer? I do indeed remember to have seen persons, when their watch would not go, give it a good shake; and once or twice this coarse mode of watch-therapeutics may have succeeded in removing some unknown obstacle to its movements, and the little machine may have resumed its horological career. Such a lucky accident in experiments on the human frame and its diseases, has made the fortune of a quack in medicine. Yet would any one in his senses deliberately deliver over his watch to the issue of such an experiment? Would not the *shake* be more likely to move the displaced pivot still further from its proper position in the *many* wrong directions, than to replace it in the *one* right one? Yet to such experiments, to such violent and ignorant experiments, many entrust the well-being of that most complicated and delicate of all machines, that ‘harp of a thousand strings,’ the human frame!

The common-sense view of the subject is this: the structure and movements of the machine should first be correctly understood; the kind of derangement in either of these should be accurately detected; the most wise and appropriate means of correcting that derangement should then be carefully, cautiously

applied. No rash experiments, replete it may be with evil, though they may be attended by a *possible* good, should be permitted. The nature of the injury and the operation of the remedy should be explained in the plainest, simplest terms, without reserve, without exaggeration, and without mystery. Such explanations ought to be sufficient. And it *would* be sufficient to minds disciplined to reason and satisfied with truth. But there is in the human mind such a disposition to admire the obscure and the incomprehensible, and to despise what is plain, simple, and intelligible, that the pretenders to specifics, secrets, and systems, will always find persons ready and willing to become their dupes.

I have always, too, observed a great tendency in most persons to magnify the supposed cures of quacks and pretenders, and to receive with lukewarmness the benefit which the regular physician may have been enabled to confer. On the other hand, the profession has been untrue to itself, in its opposition to real improvements, as exemplified in its first reception of inoculation and of vaccination.

There are two sources of the success of quacks: the first is, the *vis medicatrix naturæ*, as it has been designated, or the power by which Nature restores deranged functions, and even deranged structures, unaided, and by which it resists the injurious tendency of external agents, whether these be decorated by the designation of a remedy or not; the second is,

the unreserved and confident tone in which these pretenders, excited by their unhallowed love of gain, address their patients, and promise them a certain cure, regardless at once of truth, and unrestrained by conscience.

Two systems of quackery have recently occupied the public attention—homœopathy and hydropathy. The former is, indeed, “the art of amusing the patient whilst nature cures the disease.” The latter possesses great power. It may be compared to gambling when the stakes are high. The various profuse applications of cold water, internally and externally, which this system embraces, are measures which may be fraught with good and evil; and if scientific and honourable physicians had taken up the subject, in the way of careful and philosophical investigation, much benefit might have been conferred on mankind by its means.

But hydropathy is a system which comprehends various most powerful agents: the profuse ingurgitation of cold water; the violent affusion of cold water; lotions of cold water applied over extensive surfaces; &c. These agents are combined and applied to patients whose diseases are equally complicated. Has this problem—To what special cases is each of these powerful remedies adapted?—been solved, with all the care and attention so momentous a problem, big with life and death, health and disease, good and evil, demands? Who, of our hydropathists, is capable of

solving such a problem, or has given a tithe of the time to the subject which the solution of such a problem requires? Where do we hear of a Currie, where of a Louis, among these gentlemen? Has not hydropathy become the "refuge of the destitute" amongst us? How different from the career of him, who once said to me, "I never thought of medicine as a profession. I pursued it as I would any other branch of science." There is indeed only *one* man on earth of whom I could believe this! How little there is to encourage such devotion to medical investigation, in this country at least!

But to return to the subject of this chapter. Without a remedy (homœopathy), and in spite of the remedy (hydropathy), patients may, and do, recover. The public then never stop to enquire, but conclude at once, very philosophically of course, that the *post* is *propter*. The high-minded physician alone is anxious to ascertain and promulgate *the truth*.

There has always been in the public mind—and neither physicians nor philosophers themselves have been proof against the delusion—some strange hope of discovering an elixir vitæ, some specific remedy or remedies for all diseases, without the trouble of studying them. From Paracelsus to Priessnitz, learned physicians and ignorant quacks have pretended to systems, to such universal remedies, to specifics. Whereas all that *can* be done is, to investigate the nature of diseases, and thence to deduce

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I repeat that the hydropathists, of this country at least, have begun to practise without having previously investigated the powers, the risks, the hazards, of their art; that there has not yet been sufficient *time*, or sufficient *talent*, engaged in the investigation. The whole proceeding is therefore one of adventure and speculation, unworthy of our profession.

The public have a strange idea of medicine—an idea little different from superstition:—there is nothing too trifling, not even homœopathy; nothing too violent, not even the feats of Priessnitz and of St. John Long; nothing too absurd, from the royal touch, or that of a hanged man's hand, down to Perkinism or Mesmerism.

I have on various occasions published my opinions on the subject of medical reform. They remain unchanged and need not be repeated here.

But we have recently heard a new phrase, that viz. of *free trade in medicine*, and even members of Parliament are not wanting ready to advocate such a state of the law. There *is*, however, *one* restriction which *I* would impose. It is this, and the statement is a repetition of what has been already repeated in this chapter—that they who may be permitted to *prescribe* should be compelled first to study anatomy, physiology, and pathology.

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CHAPTER III.

THE PHYSIOLOGY OF THE NERVOUS SYSTEM.

I have frequently been requested to publish a brief and simple view of the physiology of the nervous system. The following sketch may be sufficient to introduce this interesting subject to the young medical student or the general reader.

The nervous system is divided into THREE parts : 1. the *cerebrum* or *brain*, the central organ or seat of the soul or of mind ; 2, the *spinal marrow*, or the nervous centre of all the functions of ingestion and of expulsion in the animal œconomy ; and 3, the *ganglionic system*, or the double chain of nervous knots, discovered by the anatomist within the animal frame, though unknown to others, under the influence of which the processes of formation, nutrition, change, secretion, &c. are carried on.

The cerebrum, the spinal marrow, and the ganglia, constitute the whole nervous system. To these correspond the mental faculties, the ingestion and expulsion of *masses*, the internal arrangement, &c. of *particles*, respectively. I cannot imagine a simpler statement.

Connected with the cerebrum or brain, are certain *cerebral nerves* ; the nerve of sight, hearing, smell,

taste and feeling. These nerves take a special course. The optic or nerve of sight passes along an opening into the orbit and to the eye. The other nerves of sense pursue a similar course to their destination. The nerves of feeling or touch pursue their course in a similar manner, to their multifarious destination over the general surface of the body. A part of this course is within the spinal canal; and then they are united with the spinal marrow, from which, however, they may be distinguished by the designation of the spinal *chord* of nerves. This union of the spinal chord with the spinal marrow, has been the source of great difficulty in regard to the physiology of the nervous system. For ages, the two have been viewed as one; and though glimpses of the truth have occasionally been caught, their full and perfect distinction, their separation and isolation, have been the result of my own labours. It may be said that the functions of the true and real spinal marrow was entirely concealed by those of the spinal *chord*.

Having proceeded along with the spinal *marrow*, the spinal *chord* of nerves gives off its various branches at the inter-vertebral spaces in this course. These branches have a *double* origin, a posterior and an anterior one, of which the former was discovered by the late Sir Charles Bell to be *sentient*, and the latter *motor*. These combine, and are contained within the same neurilemma or sheath, and pursue their course to the different points of the cutaneous surface, and to the different muscles.

Such is a simple view of the cerebral system. It is the system of sensation, volition, memory, judgment,—in a word, of the mental powers. Its organs are the cerebrum, the cerebellum, the nerves of special sense, the spinal *chord* of the nerves of feeling, and of volition.

Singular enough, no part of the *masses* of this cerebral system is endowed with feeling; or perhaps it is more correct to say, is susceptible of *pain* on being lacerated, punctured, bruised, &c. If, in an experiment on an animal, or in an accident in man, the brain be so treated, no pain is experienced. If even the retina be punctured, the patient is unconscious of pain.

Not only is there the entire absence of pain under these circumstances, but there is also an entire absence of *motion*. The cerebrum, cerebellum, &c. are *inexcitor* of muscular action. It is the soul, seated, or enthroned on these masses, which feels, and wills, and which performs acts of volition through the medium of the cerebrum, &c. as its material instruments*.

In all that relates to sense and voluntary motion, the function, the course of the former is uniformly *towards* the brain, and of the latter *from* that organ. But there is no necessary (or reflex) connection

* What has been said relative to the susceptibility to pain of the nervous masses, does not apply to the nerves of *feeling*. The truth is, the seat of *pain* is not yet accurately determined.

between the two : sensation may take place unattended by voluntary motion ; and voluntary motion may occur unpreceded by sensation.

Such then are the functions of the cerebral system. I now proceed to describe those of the *Spinal Marrow*, formerly either confounded with them or entirely misunderstood.

And, in the first place, I may surely be allowed to remark that it is extraordinary that the functions of such an organ, that a *Class* of functions so obviously distinct, should not hitherto have been recognized. All the acts of Ingestion and of Expulsion of the animal œconomy ; the acts by which our material being is supplied ; the acts by which the species is continued ; all, all these are specially and immediately *spinal* acts !

The *principle* of these acts is special,—at once distinct and different from mind, and probably allied to electricity ; the *mode of action* is not *towards*, or *from*, the nervous centre, but uniformly and invariably BOTH ; and the phenomena are not spontaneous, like those of voluntary motion, but uniformly and invariably *excited*.

In the first place, all the phenomena and functions of the spinal marrow remain when the cerebrum and cerebellum are removed. In the case of an experiment, in which these organs are removed in a young animal, and in that of the anencephalous fœtus, the respiration and the acts of ingestion and of ex-

pulsion generally, continue. These acts are therefore *not* cerebral. If the spinal marrow be absent, they cease at once and entirely; they *are* therefore spinal acts.

Some of these facts had been observed. They were erroneously referred by Legallois to sensation and voluntary motion. By others they were recorded without any physiological inference being deduced from them. It was my fortune first to detect the class of functions, principle, and course, and mode of action, of the spinal marrow. Neither Legallois nor Sir Charles Bell knew that inspiration was an excited, reflex act; this fact has even been recently disputed by several eminent physiologists.

If the cerebrum and cerebellum of an animal be removed, there is *never* afterwards *spontaneous* motion. But if various parts of the general surface be irritated, certain movements are *excited*. If the foot be pinched or punctured, the limb moves; it is generally retracted. Acts of inspiration may be so excited. If the finger be placed within the lips, or within the pharynx, it is grasped, by a similar excited action. If the border of a sphincter be touched or irritated, this circular muscle contracts, and the orifice which it guards is closed.

In *all* these cases, it is demonstrable that the irritation induces an effect which travels along certain incident nerves *to* the spinal marrow, is *reflected* by the spinal marrow, and sent along other nerves *from* this organ, to the muscles called into action.

Two things are therefore requisite to effect a spinal act. There must be an *excitant*. There must be a *nervous arc* continuous *to, through, and from* the spinal marrow, and uniting at its extremities the excitable surface and the muscular fibre.

I have stated that the cerebral substance is *inexcitor*. The spinal marrow is, in this respect, in the very opposite condition. The slightest puncture *excites* the most frightful convulsive movements.

I discovered that the incident nerves were endowed with this excitor power. The muscular nerves were long ago known to be so. But, by means of my discovery, I was enabled to explain the mode of action in each excito-motor arc. Thus, if we dash cold water on the face, or general surface, some condition is excited which travels along incident nerves to that part of the spinal marrow termed the medulla oblongata, and thence by other nerves to the muscles of inspiration. A morsel of food in the pharynx excites the act of deglutition precisely in a similar reflex manner and route.

All the *physiological* phenomena of the spinal marrow, except one, take place in this excited, reflex manner. The exception to the rule is—*the tone of the muscles*. This is induced by some constant current from the spinal marrow.

The *pathology* of the spinal functions may consist in violent *reflex* actions, as in the case of epilepsy from gastric, intestinal, or uterine irritation; in *direct*

actions from irritation of the spinal marrow itself, as from an exostosis within the spinal canal; and in other *direct* actions excited by disease in the course of motor nerves.

The spinal marrow has its own therapeutics; but into this subject I cannot enter at present.

The ganglionic system consists of an external and internal portion. On the posterior root of each spinal nerve there is a ganglion, the function of which appears to me to be to the external limbs what the system generally designated ganglionic, is to the internal organs, tissues, &c. viz. the nervous cause of nutrition, secretion, &c.

The ganglionic system may regulate the condition and the acts of mere irritability of the muscular fibre, therefore of the heart; the œsophagus, stomach and intestines; &c. as well as the minute acts of nutrition and secretion.

I have only space for one more remark. There is good reason to think that *emotion* and the *passions* have their seat in that part of the spinal marrow termed the medulla oblongata; and I think there is reason for thinking that this is also the special seat of *pain*.

Lastly, a knowledge of its distinct functions is absolutely necessary to understand the diseases of the nervous system. Every day I am witness to this fact. Cases are brought to me as hemiplegic (of cerebral origin), which have their origin in fact in the

sentient or muscular nerves themselves, or both, and are to the limbs what certain affections of the tri-facial and facial nerves are to the face.

But this subject I must postpone to a subsequent part of these pages ; and I conclude the present chapter by referring my readers for further information to my 'New Memoir,' which contains the latest facts and views on the subject, and by stating that I believe the results of my investigations present *the KEY to the DIAGNOSIS of the diseases of the nervous system*, and are therefore not misplaced amongst these *Practical Observations and Suggestions*.

CHAPTER IV.

ON THE USE OF THE ALCOHOLIC LOTION IN PHTHISIS PULMONALIS.

So many persons affected by incipient phthisis, marked by dulness of sound on percussion, and no doubtful pectoriloquy under the clavicle, hæmoptysis, and disposition to chills, heats, and early morning perspirations, &c. have been benefited and restored to apparent health by the remedy, or remedies, which I am about to mention, that I cannot but think they possess great efficacy.

The first and the principal of these remedies is an alcoholic lotion constantly applied by means of six folds of linen over and across the upper lobes of the lungs.

One part of pure alcohol is mixed with three parts of water. It is applied tepid at first, afterwards of the temperature of the atmosphere. It is applied, in *small* quantity at a time, every *five* minutes, so that the application may always consist of alcohol and water. (If applied in larger quantity and less frequently, the alcohol would evaporate, and water alone would be left, and this would be the source of a feel-

ing of discomfort, instead of the feeling of glow which the alcohol induces.) The application is easily made : a piece of soft linen, of the size of a very *large* sheet of letter-paper, being folded in the usual manner, is then folded twice more, in lines parallel with the first, so that the whole consists of six folds. These are stretched, applied across the upper part of the thorax, just below the clavicles, and fastened to the shoulder-straps, or other part of the dress, which latter is to be arranged so as to be readily opened and closed. A sponge, the size of a walnut, is then filled with the lotion, and pressed upon the linen along its whole course, the dress being opened for this purpose and immediately closed.

This operation need not occupy five seconds. It should be repeated, as I have stated, every five minutes. The application of the lotion should be incessant during the day and all waking hours, the dress being light, or even entirely removed, so as to allow of free and rapid evaporation. It is suspended during the night.

It is by no means my wish to laud this remedy beyond its just value ; but I have no hesitation in asserting that it possesses a power in checking the progress of the deposition and softening of tubercle in the lungs, beyond any other which I have ever tried. And the number of patients who have recovered from incipient phthisis under its use, and who, after many years, are still living, and in appa-

rent health, induces me to express myself in strong terms in regard to its extreme value.

One patient, who consulted me fifteen years ago, had dulness on percussion, and pectoriloquy, and every other sign of incipient phthisis. He applied, and long wore, the alcoholic lotion, called it his "breast-plate," and is now a professor of ——— College.

A lady, about thirty years of age, became affected with hæmoptysis, and displayed the physical signs and the usual symptoms of phthisis. She was enjoined the alcoholic lotion. It is fourteen years since it was first applied, and it is continued, or renewed, if ever suspended, to this day.

I saw a young lady two years ago, one of a most consumptive family, affected with hæmoptysis, and with every threatening sign and symptom of incipient phthisis. I prescribed the alcoholic lotion, and the cough and hæmoptysis were removed, and every fear dispelled. It had already been proposed that this young lady should take a voyage to Madeira. She did so, continuing the lotion, and returned in apparent good health.

Three months ago, a young lady was brought to me, having a recurrence of hæmoptysis. There were pectoriloquy and dulness under the right clavicle, cough, loss of colour and of flesh. The alcoholic lotion was applied. The hæmoptysis and cough ceased. The patient went to Hastings, and every

account which I have received has been one of improved health.

I give these cases as examples. I do not imagine that the alcoholic lotion does more than *check* the morbid processes. But—"est quoddam prodire tenus, si non datur ultra."

In what the morbid processes of the deposition and the softening of tubercle consist, I believe we do not know; but if these processes be really checked by the application of the alcoholic lotion, we have a *practical* fact which must excite the deepest interest. Some degree of this influence, in incipient cases, is, I believe, exerted by this remedy.

None of the remedies ever yet proposed for phthisis has maintained the character first given to it. The encomiums bestowed upon them were always beyond the truth: I would therefore carefully guard against such an event in the present instance; and I would beg to be understood as stating only the fact, that I have witnessed many, very many, cases of incipient phthisis checked by the strenuous application of the alcoholic lotion, and the patients restored to *apparent* health, these cases having been proved to be phthisis by the presence of the physical signs, as well as the morbid symptoms of this dire disease.

I would also guard my readers against trusting to this remedy as a sort of *cure* for phthisis. I think it the most important remedy in this disease which we possess; but I would by no means neglect *any*

of the other well-known *aids* in the treatment of phthisis. Of these, changes of air ; free exposure to the sea-breezes ; a sea voyage ; a mild climate ; a chalky soil ; a locality screened from the north-east winds ; gentle exercises, especially on horseback ; a meat diet, with a little of Bass's ale, perhaps, but otherwise without stimulus ; the system of sponging with the sea-water, or salt and water, or vinegar and water ; light clothing, with flannel next the skin, &c. ; the plan recommended by the late Dr. Stewart, &c. ; constitute the additional remedies to be adopted in the treatment of phthisis.

The rest of the remedies to be adopted in phthisis will be noticed in another part of this work, when treating of tubercle in general, and chronic affections of the chest in particular.

CHAPTER V.

ON THE MOTIVE FOR THE SCARIFICATION OF THE GUMS DURING DENTITION.

THERE is no practical fact of the truth and value of which I am more satisfied than that of the effect and efficacy of scarification of the gums in infants, and not in infants only, but in children. But the prevailing, I may say the universal, idea on this subject is, that we should lance the gums only when the teeth are ready to pierce through them, and only at the most prominent parts of the gums, and as the occasion to which I have referred may require; and no idea of this important measure can be more inadequate to its real value. The process of teething is one of augmented arterial action and of vascular action generally; but it is also one of augmented nervous action; for formation, like nutrition, secretion, &c. generally, is always one of nervi-vascular action; and of this the case in question is, from its peculiar rapidity, one of the most energetic. Like other physiological processes, it is apt to become, from that very character of energy, pathological, or of morbid activity. It is obviously, then, attended with extreme suffering to the little patient; the brain is

irritable, and the child is restless and cross ; the gums are tumid and heated ; there is fever, an affection of the general vascular system, and there are, too frequently, convulsions of various degrees and kinds, manifested in the muscles which move the eye-ball, the thumb and finger, the toes ; the larynx, the parietes of the respiratory cavities ; and the limbs and frame in general, affections of the excito-motor part of the nervous system, and of the secretion of the liver, kidneys, and intestines, affections of the ganglionic division of that system.

What is the precise cause and source of these formidable effects ? Can the mere tension and irritation of the gum situated over the more prominent part of the teeth be the cause of such extensive morbid actions ? I think not. The real source of these phenomena is in the entire dental system, in which actions of unusual energy and extent are going on,—sub-inflammatory they might be called, were they not, in reality, of an essentially different nature and origin. This undue action takes place in the fangs and sockets of the teeth in their whole extent, with their connections, vascular, nervous, and membranous. But *the* focus from which the *nervous* actions emanate is, I believe, not as is generally imagined, the nerves of the mere *gums* seated over the prominent parts of the teeth, but the nerves which may be emphatically termed *the nerves of the teeth themselves*, the nerves which enter into the very fangs and substance of the teeth.

It is to the base of the gums, not to their apex merely, that the scarification should be applied. The most marked case in which I have observed the instant good effect of scarification, was one in which *all the teeth had pierced the gums!* And there is a phrase amongst nurses, viz. ‘the breeding of the teeth,’ which may be taken as evidence that *before* the teeth actually reach the borders of the gums, they may prove the source of much irritation.

This view of the subject may assist in removing the futile objections of some who have, without due consideration I am convinced, opposed my plan of frequent, often daily, scarification of the gums; to whom I would say, as my sole reply,—Better scarify the gums *unnecessarily* one hundred times, than allow the accession of one fit of convulsion from the neglect of this operation, which is equally important in its results and trifling in its character.

And it is not merely the prominent and tense gum over the edges of the teeth which should be divided; the gums, or rather the blood-vessels, immediately over the very *nerves of the teeth*, should be scarified and divided, as you would divide the vessels of the conjunctiva in inflammation of that membrane.

Now, whilst there is fever or restlessness, or tendency to spasm or convulsion, this *local blood-letting* should be repeated daily, and in urgent cases even twice a day. I would here repeat my maxim,—Better do this one hundred times unnecessarily, than

have one single fit from the neglect of so trifling an operation. A skilful person does it in a minute, and in a minute often prevents a most serious attack,—an attack which may cripple the mind or limbs, or even take the life of our little patient, if frequently repeated. There is, in fact, no comparison between the means and the end; the one so trifling, the other so momentous.

I would refer those who wish to prosecute this subject to my work on the “Diseases and Derangements of the Nervous System,” but especially to my “New Memoir,” which contains the most lucid and recent view of the whole subject of the physiology and pathology of the true spinal system, and plates which, for skill in the draughtsman (Mr. Simpson, of Stamford), both that of the artist and that of the physician, and for interest in a practical point of view, have not been surpassed. *Each* plate evolves a principle of physiology or pathology of great interest and value.

I have frequently thought the vascular condition of the gums during dentition might be ascertained by means of a thermometer properly guarded. The results of a series of observations on this point could not fail to possess much value, whilst they would probably suggest a means of diagnosis in some serious diseases.

I do not pretend, in the above proposition, to have advanced any thing new; but in the *locality*

chosen for the operation, and in the *promptitude, repetition, perseverance*, and in the *energy and steadiness of purpose* with which I recommend the measure to be adopted,—if these be fully apprehended,—I believe I do propose something *new*; and when I repeat that since I adopted the plan of *effectually* removing *all* irritation in the gums, stomach, and intestines, in cases of crowing, and other convulsions of the same nature, early enough, I have not known or seen a fatal case, I am aware that I propose a plan of treatment at once new and *invaluable*. But half-measures are of no efficacy.

These remarks do not apply, of course, to convulsive diseases of centric origin.

CHAPTER VI.

REMARKS ON THE NATURE AND TREATMENT OF STRIDULOUS CONVULSION IN INFANTS.

THE series of cases, occurring in the same family, and given in the *Lancet* for April 17th, 1841, and for July the 9th, 1842, must have excited the deepest interest in the profession. It is plain that the *disposition* to the affection in this family must be extreme, and its fatal tendency not less so. The case last detailed may, therefore, be regarded as presenting a fair test and criterion of the efficacy of the remedial measures adopted in it, and collaterally of the truth of the pathology which suggested their use.

The disposition to this disease seems to consist in a peculiar susceptibility of the excito-motor property of the spinal marrow. The immediate attacks are the result of the action of sources of irritation or excitement of this property. This susceptibility should, if possible, be diminished, and the causes of excitement should be most carefully avoided. These are the *two principles* which must, I believe, guide us in our treatment.

I. The most obvious sources of irritation and excitement are—

1. *Dentition.*
2. *Indigestible food in the stomach.*
3. *Morbid alvine matters in the colon.*
4. *External agents.*
5. *Mental emotion.*

On each of these subjects I proceed to make a few remarks.

1. *Of Dentition.*—I have long regarded the process of dentition as not very dissimilar from a state of *sub-inflammation*. I have therefore prescribed the gum-lancet, not only in cases of actual dentition, but in cases in which I did not immediately expect the eruption of teeth through the gums, and even in cases in which *all* the teeth had already appeared. From the same motive, I have prescribed scarification of the gums within and without the highest or lowest border of the gums, or the lines along which the teeth make their appearance.

I have prescribed the use of this remedy, in a word, to correct a state of the blood-vessels and nerves, which, though physiological, borders on a pathological character. I have prescribed it to be used daily. I have been satisfied with nothing short of the subjugation of the excessive action and fulness of the vessels, and of the disappearance of morbid actions, chiefly of a nervous character, in distant parts.

I have thought it right to continue the remedy,

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character, as proper to be administered, to the exclusion of all others. In the case* upon which these remarks are based, I desired that a young and healthy nurse might be procured, and that no other kind of diet might be allowed. We were fortunately successful both in our choice of a nurse and in the result of our experiment; and for a long time the little patient took no food, except the nurse's milk.

In other instances, when the child was too old for a nurse, I have recommended asses's milk, or a certain proportion of cow's milk and water, thickened with rusk or arrow-root, and taken through a 'bottle,' as the *sole* diet.

In the case of the threatening of an attack, I have directed the fauces to be tickled by a feather, and the stomach to be thoroughly evacuated by vomiting.

3. *Of the State of the Bowels.*—The bowels should be well moved daily. But, in accomplishing this, we must avoid all *irritating* measures, which may themselves induce the attack, and *exhaustion*, which adds to the susceptibility to attacks.

If the secretions be wrong, a grain of calomel or blue pill should be given frequently. But large doses of calomel are, I am persuaded, injurious. They are the source of much irritation first, and of much exhaustion afterwards. The mildest effectual aperients are required. The infusion of rhubarb, with the

* See the LANCET for July the 9th, 1842.

tartrate of potass and manna, is one of these. To such a draught, a few drops of the tincture of hyoscyamus, of the aromatic spirit of ammonia, and a little of the syrup of ginger, may be added. But a *most* important remedy is the enema of warm water or barley-water. To be administered in sufficient abundance, this must be given *very* slowly. It is then most effectual, *washing* out the intestine, and removing what even drastic purgatives would leave behind.

It frequently happens that, in the crowing disease, there is a spasm of the gall-ducts, and the alvine evacuation is as pale as white clay. Nothing removes this state of things so effectually as the repeated use of ample 'lavements.' It has accomplished more than the blue pill, the grey powder, or calomel itself. I shall never forget the surprise of a friend of mine, who had brought his child to me, saying, "all my remedies have failed in inducing the due flow of bile." I said, "omit all medicines, and give an ample lavement night and morning." In three days the desired event was accomplished. I have already suggested the propriety of avoiding the irritation of purgative medicine by adding hyoscyamus.

4. *External Agents*.—The principal of the external agents which influence this disease, both injuriously and beneficially, is the external atmosphere. The baneful influence of the *north-east* wind, and the curative influence of *change* of air, and especially of the *sea-breezes*, are not less marked in this affection

than in hooping-cough; facts which, with many others, denote an intimate relation between these two diseases.

When the little patient has been long free from attacks, a sudden change of the wind to the north-east frequently induces a return of them; and when they have been long obstinately repeated, and have become as it were chronic, a change of air has induced as sudden a suspension of them.

An interesting remark is made by Sir Henry Marsh*. Speaking of a little patient affected with this disease, he observes:—"About this period a slighter recurrence of these symptoms led to the removal of the child from the city to the country, upon which they ceased immediately, and the child improved rapidly in health and strength. Recovery appeared now so complete, that the child was brought back to a large and newly painted house in the city; when, after a few hours, the spasmodic attacks recurred with violence. On a second removal to the country, they ceased at once: a similar experiment was a second time tried, and with precisely similar results; and it is a curious fact, that two other children were attacked with a similar spasmodic affection in this same newly painted house: of these, one died in a convulsion; the other, on being sent to the country, recovered. The child, whose case has just been

* Dublin Hospital Reports, vol. v. p. 610.

related, had been for years free from any spasmodic affection, but remains delicate, and suffering severely from scrofulous disease."

These observations are sufficient for my present purpose, and I proceed to make a remark or two on the effects of

5. *Mental Emotion*.—Even in infants, mental irritation is a frequent cause of convulsive attacks. The infant should not be suddenly awaked out of sleep. The infant should not be 'slapped' by an angry nurse. If the nursing nurse be out of temper, there is frequently a *double* source of renewed malady; her treatment of the infant is rude, and her milk unwholesome. To *change* the nurse is, therefore, occasionally a judicious and necessary measure, when the patient does not proceed prosperously.

The slightest *alarm* is still more serious in its effects. No disease, generally speaking, is so formidable as that which is induced by *fright*. All sudden noises, all rapid movements in nursing, &c. should be carefully avoided. The infant should be addressed in a soft and soothing tone of voice. In a word, every source of mental emotion should be most carefully avoided.

II. In reference to the *morbid susceptibility* of the little patient, it is, I believe, best subdued by the tincture of hyoscyamus and the infusion of the humulus lupulus. The system may be kept constantly under the gentle influence of these remedies; that of

the exciting causes is then less injurious. The gentle tonic influence of sponging the general surface with tepid salt water is also highly beneficial. All inclemencies of the weather being avoided—for heat, cold, damp, and the north-easterly winds, are alike injurious; yet the child should be much in the open air. It should be protected, not only by the *shade*, but by a flannel dress which should cover every part of the surface, whilst the clothing in general should be suited to the season.

III. I must now make a very few remarks on the *pathology* of this affection, and especially on the connection which the condition of the *thymus* gland has been supposed to have with it.

Much has been said by various authors about the enlarged condition of this gland as the *cause* of the crowing inspiration and convulsion. They have been deceived by the morbid appearances. They have not reflected that enlargement of the thymus might be a natural *effect* of the violent convulsive efforts observed in this terrific malady. I have known the thyroid gland become and remain enlarged in like manner after the efforts of severe and protracted labour. I have known the eyes to be bloodshot from whooping-cough; the eyelids to be ecchymosed, in spots, from epilepsy, and from the efforts of vomiting and parturition.

In this manner we may understand how enlargement of the thymus may be an effect of this formid-

able disease. Viewed in this point of light, we can readily imagine that it would subside with the disease. In this manner we are led to consider the disease as not necessarily incurable, which it must be if it depended on organic change of structure. This case affords another example of morbid anatomy, erroneously interpreted, leading to erroneous views of disease.

If we carry our views to the condition of the brain, and bear in mind the effect of the convulsive effort on the thymus gland, and on the face, we shall see the great importance of adopting measures which may relieve the congested encephalon. Unfortunately, depletion adds to the susceptibility of the nervous system, and therefore to the disposition to attacks. The spirit lotion applied to the head seems to be the safest remedy, as well as the most efficacious one. In severe cases, the ice-cap should be applied.

As a confirmation of these views, I may mention that it has never been my lot to see the veins on the forehead of a little patient so enlarged as in the case in question.

In conclusion, I may repeat that no case could present a more marked diathesis of the convulsive character than this little patient. One of nine children, all of whom had suffered from the crowing convulsion, three having died, and one having presented the appearance of enlarged thymus, the principle of the total removal of all irritation, gastric,

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and appears to digest it; his cough is relieved, and his appearance is altogether improved. His bowels keep in a moderately lax state, without signs of irritation; I can detect no febrile excitement. The turgescence of the veins of the forehead, I think, continues. I continued the lancing of the gums twice a-day until yesterday, when I only did it once, and the same to-day, as the gums, where divided, continue soft and open, and slightly ulcerated, as well as from the amelioration of the symptoms for which the lancing was ordered. I am anxious to have your advice by the bearer, how I shall go on in this matter, and if we shall still administer the calomel and rhubarb every night.

I am, dear Sir, most respectfully yours,

T. R. MIMPRISS.

Wandsworth-road, May 4, 1842.

Dear Sir,—Mrs. Grey's infant has continued to improve since my last report. I believe no spasm has been noticed; the different functions of the body go on in a healthy way. The treatment you suggested has been unremittingly carried out, excepting that, since I last wrote, the gums have been only lanced once a-day, &c. &c.

CHAPTER VII.

ON THE USE OF SETONS, ESPECIALLY IN THE TREATMENT OF PARAPLEGIA.

MANY years ago, I was consulted by Mr. Double-day of Blackfriars Road, in the case of a young married lady, who had suffered from peritonitis after her first accouchement.

This peritonitis appeared to be confined to the pelvic region. Its acute character had been subdued; but tenderness with tumidity, and difficulty in voiding the bladder and rectum, remained. I made a careful examination. A distinct hardness was felt above the pubes, extending to one side, I think the left. On examination per vaginam and per rectum, a similar hardness was found occupying the lower part of the pelvis. I imagined this hardness to consist in coagulable lymph, effused from the inflamed peritonæal surfaces of the pelvis, producing the symptoms by its pressure on the neck of the bladder, and on the rectum.

We strictly regulated the diet and the intestines, and inserted an ample seton over the induration. Slowly and gradually that induration, with its attendant symptoms, became diminished, and eventually disappeared.

Several years after this, I was consulted in the case of the sister-in-law of this patient, under very nearly similar circumstances. The same remedy was followed by the same happy result.

A year ago, I was consulted by Mr. Burford, in the case of a gentleman of sixty, who had become affected with pain, tenderness, and tumidity of the abdomen. On a careful examination, a distinct hardness was felt, in the midst of the general tumidity, occupying the region of the caput cæcum coli. We regulated the diet and the bowels, administered mercury, and inserted an ample seton. The mouth became affected, and the seton discharged copiously; the hardness and the other symptoms gradually, but at length entirely, disappeared.

A similar case occurred a year ago, in the person of a gentleman of forty, a patient of Mr. Squibb, in Orchard Street. A strict regimen was enjoined, the bowels regulated, and an ample seton was inserted. The induration, which in this case occupied the space between the false ribs and the ilium, on the left side, gradually disappeared.

Two years ago, I was consulted by Mr. P——, a barrister, affected with pneumonia of the middle and upper lobes of the right lung. A seton was inserted, and Mr. P—— went to Madeira. On his return, the physical signs and the symptoms of the pneumonia had disappeared.

I have still more recently treated a case of pneu-

monia of the upper portion of the right lung, in consultation with Mr. Beane, of Peckham. A seton was inserted, and in six weeks a most decided amendment in the physical signs, the symptoms, and the general health, occurred. Since that period, the patient has continued to improve, and now no dulness on percussion, or other sign of disease, is perceptible.

In a variety of cases of acute or chronic, local or limited internal inflammation, I have had recourse to the seton, and uniformly with the most marked success; so that, I think, we may look upon the remedy as almost specific in such cases. It is unnecessary to enumerate them. But hepatitis and nephritis belong to them in an especial manner, and I would suggest this remedy as likely to be of service (if any remedy can) in the case of albuminous urine. In one such case, the urine was more albuminous after cupping. I imagined the effect arose from the mechanical violence inflicted, and recommended the cupping to be performed above and below the precise region of the kidneys. Under the use of this remedy, the albumen diminished, and even ceased for a time.

These and other cases, then, induce me to think, that there can be little doubt of the real efficacy of the seton in chronic inflammation. The object is to demonstrate this in some measure, and then to notice briefly, farther applications of the remedy. I do not pretend to suggest any thing new, but rather to enforce what is old. The efficacy of setons, when ap-

appropriately applied in the nucha (for they are frequently employed very uselessly), is well known. The proper cases are inflammation and congestion. But the case to which I would particularly draw attention, is that of disease of the spinal marrow, with paraplegia, or paraplegic spasm.

In this case, issues are generally inserted. They appear to me far more painful, far less manageable, and far less efficacious than ample setons. They have also, I am persuaded, been generally applied *below* the real seat of the disease. I was consulted a few weeks ago by a gentleman from Manchester. With partial loss of power, he had loss of sensation in the lower extremities; the numbness extended to a line just above the sacrum. Issues had been applied on each side of this line. They might, with equal efficacy, have been applied to the foot! I need not say that the spinal nerves proceed, for some distance, from above, directly rather than obliquely, downwards, and that the seat of the disease is *at* or ABOVE their junction (insertion or origin) with the spinal marrow.

Bearing these two principles in mind, then, viz. that ample setons afford a more efficacious counter-irritation than issues, and that they ought to be applied higher along the spinal column than has been usual, I think we have a new mode of treatment for this formidable class of diseases.

These setons should, besides, be larger than usual. They should be three-fourths of an inch in breadth,

and extend through two inches in length, be inserted on the level with and above the supposed seat of the disease (the anatomy being consulted), and be four or six in number, two or three being instituted on each side of the spinal column. Acting on this principle, I had, five days ago, the pleasure to receive the most satisfactory account of a patient affected with paraplegia, whom I had seen at Lohan, in Essex, in consultation with Mr. Gross.

I repeat, and beg to conclude by repeating, that I believe counter-irritation applied along the spine has failed, because it has been applied below the seat of the disease ; and that, to be efficacious, it must be both more efficient in itself, and applied with greater regard to the anatomy of the spinal marrow and nerves. The precise spot for their application must be left to the well-informed practitioner. I need scarcely remind my reader, that the persistence, or cessation, of all reflex actions, will determine whether our remedies should be applied above or below the origin of the *canda equina*, above or below the last dorsal vertebra.

CHAPTER VIII.

ON CROSSED INCISIONS IN CUPPING, AND ON DRY CUPPING.

It frequently occurs to the physician to wish to relieve an internal pain or other affection without inducing exhaustion—to relieve the head, for example, without depleting the general system.

I have found two modes useful in these circumstances: the first is the application of the cupping instrument *twice*, so as to make incisions crossed at right angles, applying the cupping glasses slightly, so as to take very little blood; the second is the application of the cupping glasses alone, commonly called *dry-cupping*.

The object of the first mode of proceeding is to induce effectual counter-irritation. The crossed incisions, which may be repeated, become inflamed; or they may be excited to inflammation by proper applications; and in this manner they act as minute temporary issues. Issues and setons themselves are, I believe, more efficacious, at the first, when inflamed, than afterwards, when they merely pour forth a purulent discharge.

Dry cupping has greater efficacy than I formerly imagined; and, admitting the fact, the question is, what is the rationale of its operation?

It is easy to perceive that, on the application of the glasses, and the exhaustion of their cavity, the blood flows copiously into the cutaneous vessels *from* the parts immediately subjacent. These parts are as much depleted as if the blood were removed from the system altogether. What happens when the glasses are removed? The blood does not return to the vessels which had been depleted, but is *diffused*; those vessels are therefore permanently relieved as much, or nearly as much, as if the blood had been withdrawn altogether.

Such being the rationale of these two modes of cupping, the appeal must next be made to *facts*; and I am persuaded that these will prove the efficacy of the remedies in many cases in which we dare not deplete the system, in the most gratifying manner.

In various pains of the head, side, abdomen, or limbs,—whether nervous, vascular, or nervi-vascular,—both these remedies are most useful. The crossed incisions are, of course, more so than the dry cupping. But they are also more formidable and severe to the patient. They are more adapted to the severer cases; the dry cupping to those less severe and more chronic.

It is possible that the dry cupping may act, in the nervous cases, on the imagination. This is a view of an important class of remedies and diseases full of the

deepest interest to the physician, and may constitute the topic of another chapter. Meantime I may observe, that the effect is as *real* as if the agency were of the most *physical* kind. Ague, equally with hysteria, is arrested by a forcible mental impression. And in this point of view there is something in that forlorn thing, Mesmerism itself. As confidence will cure formidable diseases, so other mental conditions have a most baneful influence: anger or despair fills or empties the blood-vessels of the brain and cheek respectively. Of all nervous diseases, the worst are produced by fright. But, as I have said, I reserve this subject for a future occasion.

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resumption of the erect position. It is plain that these three modes of treatment can have no permanent effect, unless, indeed, the form assumed under their influence be confirmed, as it were, by the deposit of solid bony matter during *growth*.

The same observations may be made in regard to the stays hitherto devised, which not only frequently induce injurious pressure, but especially exert an injurious effect upon the shoulders, raising them inordinately, and on the points made the '*points d'appui*,' particularly in the very young and growing subject.

Of mere rubbing, little can be said ; it can accomplish nothing.

The most useful remedy in general use, is the system of *exercises* adopted in the treatment of curvature. But these exercises are, generally speaking, too violent, and rather fatigue than nourish and strengthen the muscles which are so frequently atrophied in this disease.

The plans for the treatment of curvature of the spine which I propose, have three objects in view :—

The first is the restoration of the natural form.

The second, the re-nutrition of the weak and emaciated muscles.

The third, the restoration of the health and vigour of the general system.

I propose to accomplish my first object by stays applied to the curved form, so constructed as

to give the most perfect support without inducing the least injurious pressure, either on parts too protuberant, or on others, as the axilla or the ilium, taken as points of support.

Let the patient be artificially made to assume the straight or perfect form by means of posture, stretching, and pressure; under these circumstances, carefully preserved, let a cast of the bust be taken in plaster of Paris; from this cast let a mould in wax be taken; lastly, on this mould let stays of steel be accurately fitted (or let copper be deposited by means of the electrotpe and sawn in two vertically). This is to be covered and lined with soft leather and slight wadding, and fixed and worn in the ordinary manner, drawn to the proper degree of tightness.

It is obvious that, these stays being put on and fastened in the recumbent posture, the bust *must* retain the perfect form, although the patient may now resume the erect position; that no partial or injurious pressure will be made on any part; and that there is neither any constrained position, nor any obstacle to the due use of the muscles.

Such a stay may be always worn, even by the incurable; but to the curable it affords the opportunity of assuming the erect position, and of adopting the most appropriate exercises, even in the open air, not only without injury, but with every benefit which can accrue from them. The length of these stays must be such as not to interfere with the movements

of the arms. The crutches, as they are very properly termed, of the ordinary surgical stays have this injurious effect ; and whilst they merely raise the shoulders unduly and awkwardly, they allow the spine to sink down between them and resume its curvature. On each point tending to project, efficient pressure is made, whilst to the yielding portions of the spinal column efficient support is given. This pressure and support are gentle, diffused, and, the stay being perfectly *symmetrical* with the bust, perfectly equable. No injurious pressure is made on the bones of the pelvis, preventing their just development. No violent pressure is made on any part. There is, in a word, *no* pressure from without. The pressure which does take place is that induced by the assumption of curvature, of which the support proposed becomes the immediate preventive or corrective.

The support afforded by this stay, whilst it is thus equable, will be most efficient. The patient is constrained to assume and to retain her most perfect form, whilst the limbs are free to perform every kind of motion, to go through every kind of exercise, and the patient breathes the free and open air.

It is useless to pursue this subject. The observations which I should make will naturally occur to all ; I will therefore pass on to another topic.

It has been stated that *rubbing* is a measure adopted in the treatment of curvature of the spine. But friction alone can do little. It may reduce the

swelling or pain produced by chronic inflammation or rheumatism ; but it can accomplish little in cases of atrophy or defective nutrition, and such is the state of things in the muscles passing along the convex parts of spinal curvature.

In order to accomplish the restoration of nutrition in these atrophied muscles, something more must be done ; and this remark leads me to a second proposition for the treatment of these distressing cases. It is that of inducing, by means of rubbing, what I will designate *counter muscular effort*.

If, whilst the patient is sitting perfectly erect and unsupported, we press on any given point along the spine with the finger, every muscle situated *below* the point of pressure is necessarily called into a state of action, which (action and reaction being equal, but in contrary directions) is, in degree, commensurate with that of the pressure, unless, indeed, the patient *yields* to the pressure. In this manner, any one of the numerous muscles situated on either side the spinal column may be called into action *at will*, and this by means of the very friction which was formerly used in a form that may be termed *inert*, and in a degree proportionate to the *pressure* with which it is applied.

The patient being placed unsupported in the erect position, the hand or hands are to be passed along the muscles of the spine, pressing, at first very moderately, then more and more firmly, whilst they are carried upwards and downwards alternately, in

the ordinary manner of rubbers. At every successive instant a fresh set of muscles is called into action more particularly, whilst the whole system of the spinal muscles is made to contract together, or in their turn.

But the very muscles which are most atrophied and enfeebled are brought into action by the simple manœuvre of applying the pressure and rubbing immediately *above* them respectively. In this manner their nourishment is brought, in a certain degree, under our control, and the spinal column is held straight and erect by augmenting the power of its natural and living supporters.

By the stays already described, the morbid extension is removed from the enfeebled, atrophied, and stretched muscles. By the friction and the counter-effort of these muscles they are nourished and strengthened. By both these means they are rendered efficient in their office of supporters and movers of the spinal column and the head.

These stays must, as I have already stated, be so prepared as to be compatible with the exercises of the general form, which call into action the muscles seated along the spine. They may also be so contrived as to expose an open space at the particular part along which the proposed rubbing, with counter-muscular effort, may be applied.

With both these objects in view, I beg particularly to recommend the study of the beautiful work of the

late Dr. Barclay on Muscular Motion. It is replete with observations which assume the character of most useful suggestions to those who are engaged in the treatment of lateral curvature of the spinal column.

As to the kinds of exercise, none of the ropes and pulleys devised to be employed *within doors* can be of any value. The hoop, the skipping-rope, &c. used daily and properly in the *free open air*, or whilst inhaling the *sea-breezes*, are the only exercises worthy of consideration. The hoop should be bowled with the left hand, and the left handle of the skipping-rope should be weighted. But these are particulars upon which I need not enter on the present occasion. I may, however, suggest the propriety of a seminary or establishment, on some healthy sea-coast, for young ladies of delicate health and impaired form, as worthy of the consideration of persons properly qualified for such an undertaking.

CHAPTER X.

ON THE MODES OF INDUCING A REGULATED TEMPERATURE AND MOISTURE IN THE SICK-ROOM.

It may not always be possible to command the advantages of an Arnott's stove. In this case, much may still be done to induce a genial, warm, and moist atmosphere in the sick-room, in imitation of that afforded by that admirable invention.

First ; the windows should be secured by means of list or leather, or by thick paper carefully pasted all round the sashes ; they should then be made *double*, by means of strong string attached to the inner part of the frame by means of nails or screws, and passed across from side to side, and from above downwards, so as to afford a support to transparent paper, which is to be firmly pasted to it. Or this may be done to a separate frame which admits of being placed accurately in contact with that of the window. The patient is thus secured from all draughts from the window.

The next object is to admit sufficient air into the room for the purposes of supplying the fire, and respiration, and for free and ample ventilation. The door, like the window, is to be secured by means of list or leather, whilst, at its upper

part, it is pierced across by means of an opening, half an inch in depth, carried nearly across the frame, and made to slant from without to within, *upwards*. The air thus admitted first passes to the ceiling, whence it becomes diffused in the room, and supplies the fire, whilst the direct draught or current from the door to the fire, usually so injurious to those who are forming the circle around it, is avoided. The safety and comfort of small rooms especially, and such are bed rooms generally, are greatly augmented by this simple measure. Perhaps some contrivance for the more effectual *diffusion* of the air introduced might be adopted; such as piercing the upper part of the door in various directions. But, generally, the introduced air will be cooler than that of the room, and its consequent tendency to fall, with its tendency to *diffuse* itself, may be sufficient.

In the third place, if the patient be confined to bed, he may be still further protected by hanging sheets, or muslin curtains, round the bed (besides the usual curtains), so as to avoid every little crevice which might admit a current of air; whilst foot-pans or large basins of water, kept at the temperature of 180° of Faht. are placed, at the foot of the bed, or on chairs by the side of the bed, within the curtains, so as to distil over constantly a gentle vapour.

Lastly; if still greater precaution be required, the patient may sleep under a muslin curtain, arranged in the manner of the mosquito-net used in the southern

climates. Even this may pass over and enclose a jar containing water of a given temperature, and well protected from cooling by being surrounded by blankets.

A jar of warm or hot water is a *store*. A certain number of such jars would preclude the necessity of a fire altogether.

I have frequently thought that boiling water might be made to circulate from the boiler in the kitchen, through a water-stove in the room or rooms above, so as to supply temperature without additional fires.

The application of the means detailed in this short chapter to the treatment of chest affections in general, will be pointed out in another part of this volume.

CHAPTER XI.

ON THE PRECAUTIONS NECESSARY IN THE TREATMENT OF TETANUS AND HYDROPHOBIA.

I appeal to those who have witnessed the agonizing symptoms of tetanus and hydrophobia, for the importance and practical value of the following brief remarks, in reference to the precautions required in the treatment of these two terrific maladies.

No one can have witnessed the agony in tetanus, and especially in hydrophobia, induced or aggravated a thousand-fold, by every draught of air, by every jar of the bed, every shake of the floor, and, in the latter disease, by the sight of water, or the idea of drinking, without perceiving the infinite and even vital importance of keeping the patient guarded from the injurious influence of these several sources of new and augmented suffering and danger.

The patient who had seemed to have escaped from the perils of tetanus, has been seized, or re-seized, with that dire disease on being exposed to damp or cold, the shaking of a carriage, the ring of the tocsin, the sound of the trumpet, or the report of cannon. There is no case in which absolute quiet of body and

of mind is so essential. A severe shock, as that of a cold bath, has been instantaneously fatal!

In order to insure and preserve this quiet, I propose that, in an hospital especially, the patient's bed should be put upon mattresses, and then surrounded by tents or screens, two or three-fold, with intervening spaces of two or three feet, and closed at the top. Within the first screen no one should be admitted but the physician, the surgeon, the nurse. But the space between this screen and the second should be so arranged as to admit the student to see, without disturbing, the patient. The space between the second and third screen will add greater security against external impressions.

In this manner the patient will be protected from several of the causes of exasperation of his disease to which I have alluded. But, in addition to this negative advantage, a more positive and, if possible, a still more important one may be gained. Large jars of hot water may be so placed, and in such number, within the first screen or tent, as to induce such a temperature, and diffuse such hygrometric moisture, as may be deemed most conducive to the comfort, well-being, and recovery of the patient, or even to act as a positive and real means of cure. What that temperature and what that degree of hygrometric moisture may be, must be determined by experience. But they must be uniform, and carefully maintained from sudden or considerable change.

There is no more severe excitant of the spasms which occur in the course of tetanus than exposure to cold and draughts. These most painful exasperations of suffering will be effectually avoided by the means which I have proposed; and whilst the patient's condition is rendered one of less suffering, it will, if possible, be rendered one of more hope.

I need scarcely notice the other usual precautions taken in these cases; viz. to avoid any sudden noise, every rude movement in the ward, &c. The doors must be secured, and the attendants on the patient must tread lightly on the floor.

My object is to recommend *uniform warmth and moisture, and effectual security from shock of body or of mind.*

CHAPTER XII.

ON THE EXCLUSION OF THE ATMOSPHERIC AIR IN THE TREATMENT OF CERTAIN DISEASES.

SOME years ago, I attended a fatal case of peritonitis. On a post-mortem examination, I was struck with the florid, red appearance of those parts of the intestines which were contiguous and adherent to the abdominal parietes, and the perfectly pale condition of those other parts of the intestinal canal which were contiguous and adherent to each other. Both surfaces were equally covered with a layer of rather opaque and moderately consistent coagulable lymph.

I could only account for the difference in the appearance of these two portions of the same intestine, by supposing that one was affected by the absorption of oxygen from the atmospheric air, whilst from the other this gas was excluded.

It is usual, in the Parisian hospitals, to trust the treatment of pleuritis greatly to the application of cataplasms. I confess that, when I first heard of this mode of treatment, I thought it trifling. I have since thought that these cataplasms may entirely exclude the influence of the atmospheric air, and prove of real efficacy.

But whatever may be the rationale, the fact remains as I have stated it; and where the treatment of pleuritis consists greatly in the application of mere cataplasms, a post-mortem examination in this disease is scarcely or not to be obtained, so generally do the patients recover.

It is, probably, by the exclusion of the atmospheric air that other remedies for inflammatory diseases act: the various plasters, the nitrate of silver, even blisters, have this effect. I do not, however, mean to insinuate that they have no other.

Cataplasms may further act by their warmth and moisture; the nitrate of silver possesses some extraordinary power over the actions which constitute, or coincide with, inflammation. But certainly mere adhesive plasters have an efficacy in cases of chronic chest affections, in lumbago, sciatica, and other forms of rheumatism, in neuralgia, and cases of scirrhus, which cannot be easily explained. One of my patients, a martyr to extensive sciatica, was desired to envelope the limb in adhesive plaster. He was a joiner, and an ingenious man. He prepared the common stocking material with glue dissolved in the proportion of one ounce to two pints of water, and had it spread over, when dry, with the emplastrum galbani compositum; and if this exuded, it was dusted with flour. By the steady application of this plaster, his severe rheumatism was cured. I was once informed, by a celebrated physician, that he had pre-

scribed a mild adhesive plaster over a scirrhus tumor of the mamma. It remained adherent for years, and the disease remained stationary. The plaster then separated, and from that period the disease pursued its devastating progress.

Certain modes of the treatment of burns consist in excluding the influence of the atmospheric air.

Some affections of the face are remedied by applying a layer of gelatine. Isinglass is dissolved in water, and the solution is applied with a camel's hair pencil, and allowed to dry.

Perhaps the most remarkable example of the influence of the exclusion of atmospheric air is seen in reference to the checked development of the pustules of variola: either the application of an unirritating plaster, or of the nitrate of silver, stays or mitigates the inflammatory action, and checks its course in the spots so protected.

But my object at present is mere '*suggestion*,' and I trust the profession will view this little work in no other light. I wish to direct my younger brethren into paths of useful investigation, and do not pretend on this occasion to do more.

CHAPTER XIII.

ON THE USE OF ENEMATA OF COLD OR WARM WATER.

No means of relieving the intestine is so ready, or so simple, as the injection of mere water. This means may, with great propriety, indeed, be denominated the “washer;” and so it is, both in the ancient Greek and modern French terms, glyster (κλυστηρ, from κλύω, to wash), and “lavement,” having this precise meaning respectively.

The mere water enema may be used in very different modes: a pint of warm water will frequently relieve the rectum; three pints will wash out the colon; whilst cold water acts as an excitor of the *true spinal* nerves of the rectum by its temperature.

In order that this latter effect may be obtained, the injection should be prompt and even rapid, and the degree of cold best adapted to the object we have in view should be ascertained by careful experiment; for on this its action in the present instance depends.

If we wish to relieve the rectum by warm water, this also should be injected rapidly.

But if we wish to wash out the colon, the instrument (and Read's is incomparably the best) should be used very slowly. The rule for the administration of

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CHAPTER XIV.

ON THE PREVENTION OF MILK-ABSCESS AND MILK-FEVER.

ORDINARY abscess appears frequently to consist in a dilated capillary vessel. The mammary or milk abscess is frequently a dilated milk duct.

That this view of the mammary abscess is just, is proved by the fact, that, in a recent case, the milk abscess relieved itself through the very centre of the nipple, pursuing the actual course of a milk duct, and that the nipple itself was afterwards drawn inwards by the contraction induced by the process of cicatrization.

The practical deductions which may be drawn from this view of the subject are obvious.

Since the milk abscess consists originally in a distended condition of the milk ducts, the prevention consists in carefully and efficiently preventing all undue accumulation in those ducts.

It occasionally, though rarely, occurs that milk abscess takes place before parturition. In the case of the threatening of such an event, the milk ducts should be emptied by artificial means.

Far more frequently this form of abscess takes place at various early periods after delivery. The

preventive remedy is—the early, or rather the immediate, application of the new-born infant to the mammæ.

The milk ducts must be kept entirely free from distension. We must not, however, trust to the usual application for drawing the breast, or the lips of an adult person. A robust and healthy child must be applied. For, in general, there is, and can be, no effectual substitute for the mouth of the infant: the lips embrace a good part of the *areola* (which is formed and destined for this purpose); a vacuum is induced in the *mouth*; the *gums* compress the whole of the large milk ducts and cells within this areola and the nipple, with a movement in a direction from the mamma to the orifices of these ducts, emptying them completely; and the *tongue* is used as an excitant, exciting not only the secretion of the milk, but its energetic expulsion. No artificial means, not the lips of an adult person, can imitate this complicated procedure.

I am of opinion that what is designated milk-fever is frequently symptomatic of the condition of the mammæ. The remedy for this febrile state also is, therefore, *depletion* of the milk ducts.

As a preventive of milk-abscess and milk-fever, and with other hygienic objects, the infant should be put to the mammæ at the moment it is born. If, in spite of this, the mammæ become in the slightest de-

gree tumid, or febrile action be set up, another and a stronger infant should be applied *without delay*.

This is *Nature's* mode of relief, and infinitely more efficacious than the application of leeches. The mammae must be kept absolutely free from heat, tenderness, and tumidity; the patient must take barley-water as her sole nourishment, and the bowels must be freely purged.

I do not pretend, in the above proposition, to have advanced any thing new; but in *proposing such promptitude, perseverance, energy, and steadiness and decision of purpose*, with which I recommend the measure to be adopted, if these be fully apprehended, I believe I do propose something *new*.

CHAPTER XV.

ON THE CAUSES AND PREVENTION OF APOPLEXY AND PARALYSIS.

THERE is no more delicate or more momentous question in the practice of medicine than that of the prevention of attacks of apoplexy, or of hemiplegia, or other paralytic affections. These arise from such different and even opposite causes, that that very course of medicine and regimen which is most conducive to safety in one case, has the very opposite tendency in another; and the diagnosis, on which our treatment depends, requires the utmost care and attention.

There is sometimes a state of plethora, or of too great fulness; sometimes the opposite condition of anæmia, or bloodlessness; in other cases there is neither plethora nor anæmia, but that morbid condition of the system termed cachexia, often denoted by boils, carbuncles, &c. with deranged secretions,—as the predisposing cause of attacks of paralysis.

Allied to this last condition, is that which obtains in dyspepsia and gout.

The imperfect performance of the function of the lung, of the liver, and especially of the kidneys, is,

in another class of cases, the cause of these formidable diseases.

In some cases there is disease of the heart ; in others, of the minute arteries or veins, or of the capillary vessels of the brain or its membranes.

This brief enumeration will be quite sufficient to prove that the accurate diagnosis of the case, on which the treatment entirely depends, requires the utmost care and attention ; and I have only to hint that in some instances there is a complication of two or more of these causes, to convince my reader that the due appreciation of the degree and extent of each, requires no little degree of experience, and of accurate observation and skill ; and to add, that on our judgment and prescription, the safety, of mind and of limb, of our patient hangs, to give to the question all its varied and momentous interest.

The attention even of physicians has, until recently, been too much directed to fulness, as the general cause of the apoplectic or paralytic attack ; and as to the public, they have to this moment only one idea,—that a fit, a seizure of any kind, is fulness ; and the practitioner who, being summoned to such a case, shall brave this opinion, and, depending on his professional knowledge, his good sense, and his just discretion, shall discard that invariable refuge of the timid and ignorant, the lancet, will make himself responsible for the issue.

The real principle of prevention of the apoplectic

or paralytic seizure, is that of inducing a state of *equilibrium*, in regard to plethora or inanition, and of *health*, in regard to the general tone, habit, and secretions.

I have repeatedly been consulted by patients with a pallid and anæmious countenance, who have been kept in a state of constant alarm by the continual use of blood-letting, or application of leeches, whom an opposite course, especially a mild chalybeate, adopted and pursued with due caution and prudence, has rescued from this state of alarm, and of danger too—for there is danger even of apoplexy and paralysis in a state of inanition,—in a moderate space of time.

In other cases, a state of dyspepsia, or of cachexia, has induced similar symptoms, which have been kept up by similar means. The cure depended on the restoration, by air and exercise, early hours, and a strict regimen, and mild cold bathing, and such remedies as quinine and sarsaparilla, of the general health.

I shall proceed to make a few remarks on each of the conditions to which I have adverted.

1. *Of Plethora.*

When there is plethora as the cause of the threatening of an attack of apoplexy or paralysis, the remedy, the safety of the patient, consists in—depletion.

How are we to be certain of the fact? There may be the appearance of the sanguineous tempera-

ment in the countenance, an athletic form, the general appearance of too rude health; and with all this, headache, vertigo, and other symptoms of head-affection. But, is it certain that the symptoms, in such a case, depend upon fulness? If there be, in addition to the appearances and symptoms which I have enumerated, a disposition to *doze*, it is nearly so. But, in the absence of such symptom, or even with such symptom, may not the real case be indigestion? Certainly. Then what is to be done? How shall we determine a question so momentous to our patient?

There is a symptom of great importance, when it can be clearly ascertained to exist. It is the occurrence of vertigo—1, in the stooping, or, 2, in the unusually erect, position, especially when these are suddenly assumed. One patient turned giddy when he pulled on his boots. Another could not bear to look up to the ceiling of the room. In both these cases the diagnosis was pretty distinct. But in another case, no such event has been noticed. What is then to be done?

There is a resource in such a case, which, in spite of a criticism in a very respectable author, I will again venture to assert, is of immense value, and to which I shall have to revert in some subsequent chapters. There is no case in which the patient, if bled from a good orifice, in the erect posture, bears to lose so much blood before syncope takes place, as that of real congestion of the cerebral vessels; there is no case in

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have been kept in a state of anæmia by blood-letting, general or topical, when an opposite treatment is required to restore the equilibrium of the system, or by defective digestion and nutrition.

A state of pallor; a disposition to vertigo, faintishness, palpitation; a state of nervous timidity; the recurrence of the symptoms when the stomach is empty, when the bowels are freely moved, or on suddenly looking upwards, or resuming the upright position after stooping, or on rising from the bed or sofa; such are the diagnostic signs of a state of inanition from a state of plethora.

The *history* of the case is, in every respect, a great aid in the diagnosis: if depletion has been used, it has been attended by this result—a temporary relief, with the subsequent aggravation of the symptoms; an opposite mode of treatment, very cautiously adopted and prudently pursued, involving quinine and iron, confers a more permanent benefit, but less marked and immediate.

To the important distinction between the immediate but transitory relief conferred by blood-letting, and the slow but persistent relief obtained from quinine and iron, &c. both being observed very closely, I would especially beg to draw the attention of the profession. In the former case, a state allied to syncope is substituted for the previous symptoms, which return on reaction. In the latter case, a gradual induction of health and restoration of the circulation

effectually and permanently remove the symptoms. Without this explanation of the subject, the phenomena are sufficiently puzzling.

The state of anæmia itself is not free from danger, even of apoplexy or paralysis. In such circumstances, the actual effusion of blood into the substance of the cerebrum has occurred, with its attendant hemiplegia. Such a case is related by Denman: it occurred in the midst of exhaustion and anæmia from hæmorrhagy from uterine polypus; a clot of blood was found in one hemisphere of the cerebrum on a post-mortem examination. A similar case is detailed by Mr. Travers: it occurred under the actual use of the lancet, and during the flow of blood from the arm. A third case occurred to my friend Mr. Hammond, of Brixton: it took place after parturition; it assumed the form of hemiplegia; the patient gradually recovered. We *might* therefore incautiously bleed our patient into hemiplegia!

3. *Of Dyspepsia and Cachexia.*

There can be little doubt that, in dyspepsia, the blood itself becomes contaminated, and, as it were, *cachectic*. On this principle we account for the appearance of furunculus and paronychia; for the morbid condition of the tongue and interior of the mouth, the general cutaneous surface, the secretions, &c. I have so often observed symptoms threatening the apoplectic or hemiplegic attack, in conjunction with sym-

ptoms of dyspepsia and cachexia, that I have no doubt of the vast importance of a strict attention to this subject. This very day (Oct. 1, 1841), I have been consulted by a medical gentleman, from Birmingham, under these circumstances. One form of this affection is the following: vertigo occurs, with faintishness, sickishness, and a cold, clammy perspiration; sometimes there is actual sickness, sometimes much flatus. In these cases, the feet and other extreme parts are apt to be cold. The secretion of the liver is frequently defective, and the urine is apt to deposit the lithic acid salts. Nothing can be so injurious as blood-letting. In no case is the loss of blood repaired with such difficulty. The application of a few leeches frequently leave a state of debility and pallor which is felt and seen for weeks. The treatment consists in the correction of the secretions, and in the infusion of tone and general health into the system. The compound decoction of aloes, the infusion of rhubarb, of gentian, of cinchona,—singly, or, better, mixed together; sarsaparilla; the vinum ferri; the bicarbonate of potass; stomachics, tonics, and antacids, in a word, are the principal internal remedies. But with these, a mild, nutritious diet, a system of gentle exercises, early hours, the tepid salt-water shower-bath, and a strict attention to the condition of the feet and general surface, by means of the flesh-brush, flannel, and a frequent change of shoes and stockings, should be conjoined. Those engaged in the harass-

ing affairs of a London life should sleep in the country, and cherish the utmost quiet of mind.

4. *Of Gout.*

But I have frequently traced a connection between gout and its frequent attendant, the lithic acid diathesis, and the apoplectic and hemiplegic seizure. It is not merely plethora, or the opposite state of inanition, which leads to the apoplectic attack. The morbid state of the blood in dyspepsia and cachexia also disposes, as I have already said, to this affection. The same remark applies to the condition of the system and of the blood, especially in gout; and, as I shall have to observe immediately, the same disposition obtains in several morbid conditions of the liver and kidney. A nobleman, now no more, suffered in succession from gout and the herpes zoster, and the urine deposited the lithates copiously. He was relieved by the appropriate remedies, and became affected with an apoplectic (or epileptic) attack. A similar attack (without hemiplegia) occurred several months afterwards, and a third attack proved fatal. This gentleman was pallid, the prolabium being white. A steady perseverance in such remedies as the decoctum aloes compositum, the bicarbonate of potass, and the vinum ferri, have, in other cases, effectually averted the threatened evil. But I must make another remark. The vinum colchici should be given in very minute doses, as five drops thrice a

day, also steadily and perseveringly, to overcome the specific gouty diathesis.

The lithic acid diathesis is not the only urinary disorder which leads to apoplexy and hemiplegia. This attack, it is well known, occurs in the case of diabetes, and in that of albuminous urine.

Although I have designated the attack apoplectic and hemiplegic, it is sometimes more allied to epilepsy than apoplexy. The gentleman to whose case I have briefly adverted, was affected with minute ecchymosed spots on the forehead, which I have only observed under three circumstances; viz. after severe vomiting, the efforts of parturition, and the epileptic attack. When I saw him, soon after the second seizure, the insensibility had passed away, and there was no hemiplegia.

In resuming the subject, I may remark, that it is not plethora alone which predisposes to the apoplectic and hemiplegic attack; the very opposite condition of the system, or anæmia, whether it arises from the loss of blood by blood-letting or hæmorrhage, or from defective sanguification, is not free from this danger. Dyspepsia and cachexia, as they induce external disease, as seen in furunculus, paronychia, &c. may also induce a paralytic affection, a morbid condition of the blood taking the place of plethora or anæmia.

Such are the predisposing CAUSES of an attack of apoplexy or paralysis ; the PREVENTION must consist in removing them ; and, according to circumstances, DEPLETION, IRON, SARSAPARILLA, COLCHICUM, and ANTACIDS, with the appropriate system of DIET, EXERCISES, HOURS, &c. must be prescribed and steadily administered.

CHAPTER XVI.

ON THE TEMPER-DISEASE.

WHEN a child's stomach and bowels are disordered, the temper is fretful ; and the same thing is true of older children ; so that the natural disposition, however amiable, becomes perverted, and the patient may become a burthen to his family and friends. In all such cases the patient is apt to be blamed, although really to be pitied ; though it must be confessed that the perversion of temper might frequently be controlled, and the physician's attempts to relieve might be seconded, where they are but too frequently opposed.

The most frequent, yet the most extraordinary of these perversions of temper, are seen in young females. It is a species of aberration of the intellect, but short of insanity, real enough, but exaggerated, fictitious, factitious, and real at the same time. It frequently has its origin in dyspepsia, hysteria, or other malady, and in emotion of various kinds, such as disappointment, vexation, &c. Its object is frequently to excite and to maintain a state of active sympathy and attention, for which there is, as it were, a perpetual, morbid, and jealous thirst. It was rather

aptly designated, by the clever relative of one patient, an *ego-mania*.

One patient cannot articulate; another cannot walk; a third cannot eat, cannot swallow, or, if deglutition have been performed, does not retain the food on the stomach, but, without nausea, and apparently without effort, returns it, as it were by an act of easy rumination.

I think I have known one and the same patient forcibly to retain the contents of the intestines until an enormous tympanitic distension was the consequence; and to retain the urine until the pelvis of the kidney became distended and the kidney itself enlarged.

The abdomen of a patient, a malingerer in the hospitals and workhouses, was marked extensively by leeching, cupping, and setons, and it was proposed to extract a supposed diseased ovarium, and to this operation the patient pretended to be ready to submit!

I was consulted in the case of a young lady, who was affected with paroxysms of violent, apparently spasmodic, action of the muscles which raise the left shoulder, attended by a partial inspiration; the attack usually came on *horâ somni*, and many were the wakeful hours which this affection caused to the patient, her friends, and her nurses. I then suspected, but would not believe, that these muscular actions were voluntary; I now believe they were so.

In another young lady, a similar apparently spas-

modic action, more constant or less in paroxysms, affected the muscles which raised the right thigh. I always regarded this affection as one denoting temper.

In one patient the fingers were forcibly contracted into the palm of the hand. In other cases there are various forms of lameness. Every one remembers the famous case of Miss Fancourt.

One young lady was affected with ptosis. Another was unable to write, except in zig-zag forms, *a little like* the effect of real tremor.

This affection is not limited to females, or to grown-up persons; an athletic youth of 16 pretended to be affected by paralysis of one lower extremity. Sir B. Brodie saw him with me, and agreed with me that it was feigned; and our opinion was confirmed by perfect recovery.

Nor is it confined to adults: one little patient, aged ten, under the influence of jealousy, feigned a regular evening attack of delirium, being frightened at lions, tigers, bears, &c. and at one time could not articulate, and at another could not swallow. A little boy, aged eight, feigned a regular evening attack of spasmodic affection.

Having thus sketched the case of the temper-disease in general terms, I shall now proceed to describe this singular affection more particularly. I hope not to be mistaken. I do not regard it as entirely a feigned disease. It is, originally at least, the result of malady, or of some mental or bodily af-

fection. It is allied to hysteria; and hysteria—hysteric palpitation, for example—is a real disease. It is best illustrated by the effects of derangement of the stomach and bowels in infants,—and who would think of correcting a child for temper which was the immediate, natural, and inseparable effect of bodily disorder? It is a perversity, an *insaniola*, originating in bodily disorder or mental affection, and perpetuated by a morbid indulgence of temper and desire for sympathy and attention.

In the midst of such a case as this, the last resort—a forlorn hope—has been to homœopathy and Mesmerism!

I was recently consulted in a case, with an able friend, in which there were incapability of utterance and incessant cough. The cause was, I think, wounded pride. The young lady did not possess an equipage, &c. equal to those of her near neighbours! Many were the observations I made on this young lady's case. When the attention was fairly engrossed, the cough would cease. It was difficult to convince an affectionate father of the nature of this case. But I adopted a measure which eventually succeeded most perfectly. I said, "Your daughter cannot speak, cannot articulate; but you will admit that she can *try*. Well; to pronounce, or to attempt to pronounce the letter *b*, or *p*, we must bring the lips together; to pronounce the letter *d*, or the letter *t*, we must bring the tongue in contact with the anterior part of the palate,

or with the front upper teeth. Your daughter will do this, if she *tries* to articulate. Let us go and *observe*." We went. I said to her, "try to speak, try to pronounce *b*; try to pronounce *t*." There was a ridiculous movement of the lips, but no attempt at articulation.

In another case, arising from wounded pride too, a young lady, coming from boarding school, learnt that her father and mother were not married, and were not visited; she could not walk, could not articulate, wrote in a sort of zig-zag, could not swallow; at length she could swallow, but rejected her food, without nausea, without effort, by an easy act of rumination. I had intended to insert a fac-simile of the writing of this patient. I took several notes to my banker, and begged for an opinion as to whether the writing was real or feigned. The decision was, that it was feigned. This case continued for several years.

Another patient could not articulate; the eye-lids were on one occasion just of the hue which would be induced by the application of plumbago; she would not permit them to be touched with the corner of a towel dipped in water, and at my next visit this blackness had disappeared; the lips were covered with dried blood, and blood was displayed on the sheet and the pocket-handkerchief, and there was cough by which it was expelled, but without *râle*,—and this disappeared forthwith; the intestines were tympanitic, and the right kidney or its pelvis was enlarged. I

repeated my experiment on the articulation, with precisely the same issue as in the former case. This patient had turned Roman Catholic, and had disagreed with her family. This state of things, with variations, continued for many years. But the plumbago and the hæmoptoe never reappeared.

This patient contended that she never passed either fæces or urine.

I wish I possessed her portrait, when her eyelids were of the colour of plumbago, and her lips black with gore! It was ghastly!

It is astonishing how admirably, in another case, that of the malingerer, the patient imitated, by a forcible contraction of the diaphragm, &c. the sort of abdominal tumor we observe in diseased and enlarged ovarium; and with what patience she had submitted to leeches, cuppings, issues and setons, and with what apparent 'bonne foi' she appeared ready to submit to the operation for removing the ovarium. But every part of the abdomen was tympanitic or resonant on the most careful examination by percussion.

The case of ptosis was one of a most interesting character. The patient perfectly recovered from this and a variety of other congeneric symptoms, under the able treatment of my friend, Mr. Mackenzie, of Leytonstone.

The case of apparent spasmodic action of the muscles which raise the shoulders was of a less obvious character. The movements might be spasmodic,

or they might be voluntary; there was nothing in their character to determine the question. The case might therefore belong to the Class which I am describing, or it might be allied to chorea. I suggested my doubts, my suspicions. I prescribed as if the patient were not feigning.

Sir Benjamin Brodie and Dr. Blundell saw the patient after me, with as little advantage as myself; and she was afterwards placed under, first, the homœopathic, and then the mesmeric treatment!

The precisely similar case of apparently spasmodic action of the rectus femoris, was for a long time equally obstinate and untractable.

But one of the most interesting cases of this kind which has fallen under my own immediate care is the following:

A young person of hysteric disposition was bled, and soon afterwards became affected with contraction of the fingers into the palm of the hand. Under the idea that the nerve had been wounded, the cicatrix left by the venæsection was removed: the spasmodic action of the fingers immediately became relaxed, and their use was restored. By degrees the spasm returned, and the operation was repeated with the same good effect, less prompt but not less perfect than before. The spasm returned a third time.

I now began to suspect that even this strange degree of spasm, during which the nails actually grew

into the palm of the hand, was not altogether real. I suggested that the patient should be blindfolded, and that a mock operation should be performed. It was performed: superficial but painful lacerations were made in the integuments; it was pretended that a nerve was laid bare, was divided; and it was loudly said, "Now the spasm will cease, and she will open her hand;" and she did open her hand! Water was coloured with the *tinctura lavandulæ composita*, for the want of blood! Again, after a time, the spasm seemed to be returning; but now the whole truth was told; and the patient, for fear of exposure, took care to remain well.

One patient could not swallow. And if a few biscuits were placed near her bed, they still remained there untouched the next morning. But if a good number were so placed, several of them invariably disappeared.

In some cases there are pains of the back, of the side, of the limbs, of the joints; sometimes loss of power of the limbs, in which case Sir Benjamin Brodie has acutely observed that there is a loss of *volition*; frequently there is retention of urine, and for this the catheter has been (very needlessly and improperly) introduced twice a day for many weeks together!

The case glides into hysteria, with which it is not unfrequently complicated, in all its varied forms.

I have alluded to the difficulties in the diagnosis and in the treatment of these cases. As the judg-

ment of the physician is such as to compromise more or less the moral integrity of the patient, as it, in fact, involves the idea of feigning or exaggeration, as the expression of it must fall most painfully on the ear of a parent, it is easy to imagine other difficulties which beset the practitioner. Sometimes the patient *will* be cured, and sometimes she *will not*. Most frequently this *will* is *induced* by some extraordinary moral influence ; such was the case in the well-known instance of Miss Fancourt. Such have been the results under the influence of Mesmerism, Perkinism, homœopathy. Such has been the event when the patient has been roused from a state of moral inertness to ardent activity by some stirring circumstance in her family or condition.

But such events it is next to impossible to induce. The parents and friends are shocked, and remain unconvinced, if the truth be told ; and it requires great courage on the part of the physician to make the communication. There is no one to second our efforts. The mildest measures are apt to be branded with most undeserved epithets, and the most wise proceeding is apt to be misinterpreted.

The treatment and cure consist, however, in mental discipline—in raising the ideas above the former standard, and fixing them upon some more elevated view than that which has occupied them.

Attention to the wants of the sick poor, to the education of the ignorant poor ; gardening ; travelling ;

a course of reading; a strict attention to the general health, the diet, the bowels; early hours, active exercises, the sponge or shower bath, &c.

The subject of this chapter was treated briefly in my work on 'the Diseases of Females,' ed. 2, p. 105.

It would be interesting to look over the works on Perkinism, on Mesmerism, on homœopathy, &c. and gather together the cases of this kind which abound in these publications.

CHAPTER XVII.

DIFFICULTIES IN THE STUDY OF THE NERVOUS SYSTEM, SET FORTH BY LEGALLOIS.

THERE is no more distinguished name in physiology, than that of Legallois. It is difficult to say what we should most admire in the writings of this philosopher—his great talent, or his extraordinary candour. He was not satisfied with stating the positive and important results of his own interesting researches ; but he has set forth, in the most prominent manner, various difficulties which beset him in his career, as points claiming attention from those who should afterwards pursue the same path of inquiry. It is to several of these difficulties, so exposed, and so propounded for future investigation, that I beg to draw the attention of physiologists in the subsequent observations.

I may observe, *in limine*, that the difficulties to which I have alluded, appear plainly to have arisen from the ignorance of Legallois, in reference to the reflex function of the spinal marrow, and to admit of a ready and satisfactory solution on the principle of that function. I may also remark, that the fact that Legallois *was* ignorant of this function, and of its

important applications in physiology and pathology, is the more remarkable, because no one was more familiar with its phenomena as seen in experiments. The source of Legallois' difficulties was, indeed, his erroneous interpretation of these phenomena, his erroneous reference of them, as we shall observe immediately, to sensation and voluntary motion. That Legallois, who was not less versed in the history of physiology, than distinguished as an original observer, was ignorant of the reflex function, of its principle, and of its applications in physiology, is also a sufficient proof that that function was in reality generally unknown amongst physiologists, and that it was not a very obvious deduction from the experimental phenomena.

Legallois observes,—“ Il est facile de démontrer que cette prérogative de la moëlle épinière, d'être la source du sentiment et de tous les mouvemens du tronc, lui appartient exclusivement à toute autre organe*.” The reporters of the Institute adopt the conclusions of Legallois :—“ M. Legallois,” they observe, “ a démontré que la section de la moëlle épinière sur les premières ou sur les dernières vertèbres cervicales, n'arrête que les mouvemens inspiratoires, et qu'elle laisse subsister dans tout le corps le sentiment et les mouvemens volontaires. Cette distinction est capitale : personne ne l'avait faite avant lui†.”

* Œuvres de Legallois, Paris, 1824, tome i. p. 62.

† Op. cit. tome i. p. 251.

I believe I may now affirm, that it has been proved that the phenomena in question, far from being phenomena of sensation and voluntary motion, are phenomena of a totally different and *insentient* and *involuntary* principle, viz. the *vis nervosa* of Haller, acting according to newly discovered laws. For this proof I beg to refer to my other papers on this subject.

The *first* of Legallois' difficulties was the apparent division of the sentient being into two or more portions, equally sentient. He observes,—“ L'unité du *moi*, dont nous avons la conscience, est encore un fait qui semble répugner à la dissemination du principe de la vie dans toute l'entendue du cerveau et de la moëlle épinière*.” He adds in another work:—“ Au moment de la décapitation, le sentiment du *moi* se partage réellement entre le tronc et la tête†.” To shew that by these expressions, “ l'unité,” “ le sentiment du *moi*,” Legallois means the sentient principle, I may quote one additional paragraph. Speaking of the “ premier mobile de la respiration,” he says,—“ Quel que soit le lieu qu'il occupe, il est certain que ce lieu est véritablement le siège, je ne dirai pas de *l'âme*, pour ne pas me servir d'une expression mal définie, mais de la vie‡,” &c.

* Op. cit. pp. 21, 22.

† Expériences sur les Animaux, Paris, 1835, p. 158.

‡ Op. cit. p. 156.

The views of Legallois are, in one word, based upon an undisguised *materialism*, and lie at the foundation of the immateriality, indivisibility, indestructibility of the soul; and I imagine that I shall do some service to our youth, by giving a clear and unanswerable refutation of them.

The facts of the case are most clearly exhibited by dividing the spinal marrow in a young animal, or in an animal of cold blood, into two parts, below the anterior extremities: each of these presents the phenomenon of certain movements under certain circumstances. Legallois refers all these movements, as I have already stated, to sensation and voluntary motion. The sentient and the *willing* being is, therefore, according to this writer (and to all who maintain similar views), divided into two or more of such beings. And, as one of my friends, on witnessing the experiment, observed,—If these phenomena depend upon feeling and volition, *what* feels and *what* wills?

But greater attention to the phenomena themselves has shown, that the character of the movements in these several portions of the divided animal is not the same in each of those portions. Those of the portion to which the head, the cerebrum, is attached, are frequently *spontaneous*: those of each and all of the other portions are never so; they require a stimulus for their manifestation; they are invariably and essentially *excited* in their origin, and *reflex* in their mode and form.

This simple statement is sufficient to prove that

Legallois confounded movements perfectly different. A knowledge of the principle of the reflex function of the spinal marrow affords at once a refutation of the views of this physiologist, and an explanation of his difficulty. Whilst the movements of the part to which the head is attached are, as I have said, frequently the result of sensation and volition, and frequently spontaneous, those of the headless portion have been distinctly traced to the principle observed to act in an amputated limb (which no one, since the days of Whytt, the steady, pertinacious, but mistaken opponent of Haller, has considered as the principle of sensation), acting in directions *into* and *out of* the spinal marrow, not known, not applied at least, until the publication of my inquiries into this subject.

A *second* difficulty under which Legallois laboured, is expressed by him in the following terms:—
“Comment le cerveau règle-t-il les mouvemens du corps, sans en fournir le principe immédiat? Les expériences ont peu de prise sur cette question. Sans me livrer à toutes les conjectures auxquelles elle pourrait donner lieu, je dirai que le cerveau paraît agir sur la moëlle épinière comme celle-ci sur les parties qu’elle anime*.” “Ces rapports intimes

* Œuvres, pp. 21, 22.—This opinion of Legallois, founded upon an indubitable error, is still that of many physiologists. It can only be received with considerable modification. See my volume on the Diseases and Derangements of the Nervous System, section 1292.

entre le cerveau et la moëlle épinière aident à expliquer certains faits qui, au premier abord, paraissent fort difficiles à concilier avec mes expériences. Telle est la paralysie de tout un côté du corps, produite par des causes qui n'ont affecté que le cerveau. Mais quand bien même on n'apercevrait aucun moyen de les concilier, il n'en demeurerait pas moins vrai, d'une part, qu'une affection bornée uniquement au cerveau peut ôter le sentiment et le mouvement volontaire, à la moitié du corps, et de l'autre, que le sentiment et le mouvement volontaire peuvent subsister et être entretenus dans un animal décapité. Quelque opposées que ces faits paraissent être, il faut se souvenir que deux faits bien constatés ne peuvent jamais s'exclure l'un l'autre, et que la contradiction qu'on croit y remarquer tient à ce qu'il y a entre eux quelque intermédiaire, quelque point de contact, qui nous échappe." The difficulty, in a word, is to explain the occurrence of paralysis (hemiplegia) from disease of the cerebrum, impressed, as Legallois was, with the idea that the spinal marrow constituted the the source of voluntary motion. The principle of the reflex function enables us at once to solve the difficulty, and to account for the paralysis induced by disease of the cerebrum, on one hand, and for the movements of an anencephalous fœtus in utero, or of a decapitated animal, on the other. The paralysis consists in the loss of voluntary motion; the movements of the anencephalous fœtus result from the

agency of the reflex function of the medulla spinalis. Legallois' error was that of mistaking the phenomena of the reflex function for sensation and voluntary motion, and his difficulty naturally arose out of this error. There is no real discrepancy between the two orders of facts to which Legallois refers. The "intermédiaire" is made obvious by the investigation into the reflex function of the spinal marrow.

The same principle enables us to understand how a perfect action of the sphincters is compatible with the paralysis of the limbs from disease of the cerebrum, and even of the higher parts of the medulla spinalis; whilst paralysis of the sphincters is usually conjoined with paralysis of the limbs, arising from disease of the lower part of the spinal marrow. The first intercepts the principle of voluntary action; the second affects the very seat of the reflex function, which presides over the action of the sphincters.

A *third* difficulty is expressed in the following terms*:—"Comment se fait-il, qu'après la décapitation, les seuls mouvemens inspiratoires soient anéantis, et que les autres subsistent? C'est là, à mon sens, un des grands mystères de la puissance nerveuse, mystère qui sera dévoilé tôt ou tard, et dont la découverte jettera la plus vive lumière sur le mécanisme des fonctions de cette merveilleuse puissance."

The same difficulty is again set forth in Legallois'

* Œuvres, pp. 63, 64.

more recent and posthumous work :—" Si tous les nerfs qui naissent de la moëlle épinière, tirent d'elle le principe de leur action, comment se fait-il que tous ceux de la respiration perdent la leur par une section faite au-dessus de leur origine ? Nous voilà donc encore ramenés à la difficulté dont je parlais tout-à-l'heure, difficulté que tous les éclaircissements dans lesquels je viens d'entrer n'ont fait que rendre plus saillante. Dira-t-on que la section, sans détruire les fonctions de la moëlle, les affaiblit, et que les nerfs d'où dépend la respiration exigent dans ces fonctions plus d'énergie que les autres ? Cette explication supposerait absolument le contraire de ce qui a lieu constamment*."

It was impossible to explain this difficulty, whilst the movements of the excited reflex functions were confounded with those of voluntary motion ; but when this distinction is duly made, nothing is more obvious and easy. Decapitation removes the cerebrum, the central organ of voluntary motion. It also interrupts the reflex nervous arc of the respiratory movements, separating the incident nerves and their central point—the key-stone of the arc—from the reflex motor nerves. Both the voluntary and the respiratory movements cease, therefore, after decapitation, the nervous source and seat of volition, and the central part of the reflex arc of the respiratory movements,

* Expériences, &c. p. 65.

being alike removed; whilst the class of reflex motions attached to the remaining portion of the medulla still remains. Thus is the veil raised from this apparent "mystery."

That this explanation is the true one, is further proved by the following observation:—The statement of Legallois, however true in regard to mammalia, is altogether erroneous in reference to the batrachia and insects. In the batrachia, the acts of respiration continue after the division of the spinal marrow below the occiput (which is the same thing as decapitation in regard to the respiratory movements), because, those acts being performed by the submaxillary muscles, the reflex nervous arc of respiration remains entire. The same anatomical relations obtain in the libellula in each of the two or three portions into which the abdomen of that insect may be divided.

There is a *fourth* and last difficulty, not really felt and expressed by Legallois, but really implied in that writer's views. He, with many others, confounds the *gasps* observed in the separated head, after the division of the spinal marrow in the neck, and in asphyxia in young animals, as partial acts of respiration. These gasps are in no respect allied to the *physiological* acts of that important function. They are *pathological* phenomena, and cannot be employed in illustration of physiology. In the case of asphyxia (in kittens), in which alone the phenomena can be ob-

served, each of these gaspings is associated with a forcible and convulsive expiration, by which bubbles of air are expelled from the lungs, and particles of curdled milk from the stomach; and followed by an equally convulsive contraction of the muscles which flex the trunk and limbs; these gaspings are, unlike the physiological acts of respiration, most frequently, if not always, exerted immediately through the medulla. If, in the decapitated head, we irritate the divided end of the spinal marrow, gasping is immediately induced. This was observed by Legallois*, and I have very frequently witnessed the same fact. It is observed in asphyxia from the impression of deeply venous blood on the medulla oblongata, and it is observed as an effect of hemorrhage, from anæmia of that organ.

Such a pathological affection, arising from a morbid condition of the central organs of respiration, must be carefully distinguished from the physiological, reflex acts of respiration, induced through the system of incident and reflex nerves, in connection with those central organs. Such a distinction, Legallois, and physiologists in general, were not prepared to make before the development of the reflex theory and the true spinal system. No argument can

† “ Si, lors même que les bâillemens ont fini depuis quelque temps, on touche le moignon de la moëlle qui tient à la tête, on en produit un; ce qu'on peut répéter plusieurs fois.”—Expériences, p. 154.

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CHAPTER XVIII.

ON THE DIAGNOSIS IN CASES OF PARALYSIS OF THE FACE.

No question is more important than that of the diagnosis between hemiplegia of the face and paralysis of the facial nerve, and of this latter as it occurs *within* and *without* the cranium. I had recently an urgent summons in such a case. The patient was situated in a lunatic asylum, a circumstance which rather disposed the mind to expect *cerebral* disease. Besides, the patient complained of pain of the head at one time, and was apparently drowsy at another. The face was drawn exceedingly to the left side. In the first place, I desired the patient to close the eyelids; the right eye remained open. In the second place, I enquired whether the arm or leg was affected, and found that they were not. In the third place, I begged the patient to put out her tongue; it was protruded in the direct mesial plane. In the fourth place, I enquired where the patient had been sitting, and we went up stairs and placed the chair near the window, precisely as it had been occupied the day before; it was placed so as to expose the right side of the face to the draught from the window,

which, with the door of the room, which was just opposite, had been open whilst the patient had been engaged in sewing. The weather was autumnal.

Taking these facts together, I did not hesitate to declare that the case was one of paralysis of the facial nerve. In hemiplegia, the eyelids of the affected side can always be closed, though not so firmly as those of the other side. In so severe a case of facial hemiplegia, the limbs are almost certainly paralysed, and the tongue is generally affected and protruded to the affected side. Still a question was raised, whether this nerve was affected *within* or *without* the cranium; there were pain of the head and drowsiness. Now, the portio dura and the portio mollis of the seventh pair (the facial and the auditory) are placed so immediately together within the cranium, that it is scarcely possible for one of these nerves to be affected without the other; yet *there was no deafness*.

A further diagnosis is afforded by ascertaining the comparative irritability of the muscles on the two sides of the face. According to a LAW formerly laid down, cerebral paralysis (hemiplegia) is attended with augmented, spinal paralysis (that of the facial nerve, for example) with diminished, irritability. This subject will be treated of in another chapter.

I remained therefore of opinion that the case was one of paralysis of the facial nerve, external to the cranium, confirmed, as it had been, by the fact which I had almost anticipated, of the special position and

exposure of the patient as she had sat sewing in her bed-room. The issue has proved my opinion to be the just one. No affection of the cerebrum has occurred, and the facial paralysis is gradually subsiding under the usual local remedies; viz. leeches, fomentations, sinapisms, &c.

But the first effect of such partial exposure to cold is sometimes paralysis, whilst a more remote effect is undue action. I may illustrate this principle by a most interesting case of *spasmodic tic*, interesting in many points of view. It is given in the form of a letter, written to an eminent authority on this subject.

“ Dear Sir, I saw Lady ———, now Lady ———, before a recent visit to Switzerland, and I have this day, after my return, seen the correspondence between you and Mr. ———, of ———, on her ladyship’s case.

“ There certainly has been some misapprehension of this case, for Mr. ——— speaks of the ‘ affection having *shifted* from one side of the face to the other;’ and you say ‘ there is certainly a degree of *weakness* of the portio dura of the *left* side.’ Now, I believe there has never been a change of the side affected, and that it is not the portio dura on the *left* side which is weakened, but that of the *right* which is irritated, so producing spasm. This view I will explain.

“ The probable cause was exposure to a severe, cold wind. When the affection first took place, the face was drawn towards the left side, but the eyelid

of the right was paralysed, the eye requiring the application of the finger to close it, and being more open than the left, the left being in its natural state. After a time, the face was drawn to the *right*, and now the *right* eye, which gaped before, became *less open* than the left, but the *left* was *still* in its *natural* state.

“ In a word, the change was from *paralysis* to *spasm*, but it was of the same side—*always* the *right*; and now it is not *weakness* of the *left* portio dura, but *irritation* of the *right*. The *right* eye was always *morbidly* affected, first by *paralysis*, now by *spasm*; the *left* has *always* been *natural*. The *sensibility* has always been *unaffected*. At this time every thing is *spasmodic*, and *that* of the right side of the face. The right eyelid is usually more closed than the left; and when closed by an act of volition, it is drawn a little awry (to the right); and during laughing, it is spasmodically closed without an act of volition.

“ The whole right side of the face is spasmodically drawn to the right on laughing, or speaking, or *eating on the right side* of the mouth, and a *new dimple* is *formed* on the right side of the chin. All is normal on the *left* side, which is only drawn a little by the spasmodic action on the *right*: the *eyelid* is *natural*, and mastication is naturally performed on this side, except from the decayed state of the teeth. It is plain that, whatever the cause might be, and I suspect it was exposure to severe cold, it first induced that change in the portio dura of the right side which pro-

duced paralysis, and which, being *diminished*, is now characterised by spasm. It is the *right*, and not the *left* side, therefore, to which our remedies must be applied, if applied near the motor nerve immediately or remotely the seat of the disease.

“ I have seen several cases beginning with paralysis and proceeding to spasmodic affection of the portio dura of the same side. I have also seen *one* unequivocal case of paralysis affecting successively the portio dura of both sides, after an interval of several years. I am, dear Sir, yours, &c.

“ MARSHALL HALL.

“ Manchester Square, Sept. 20, 1840.

“ To ————”

From the misapprehension in regard to this affection, to which I adverted in the above letter, the remedies were actually prescribed to be applied to the unaffected side of the face !

This patient married, became pregnant, and miscarried with convulsions about the eighth month. It was then asserted, but without the shadow of a reason, that the facial paralysis had been of cerebral or intracranial origin ; but it *was* certainly an affection of the *facial nerve*, and there had been no *deafness*, and there was no post-mortem examination ; so that there are positive and negative facts which militate strongly against such an opinion ; and the only positive fact which might have been adduced in favour of it was

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CHAPTER XIX.

ON THE IRRITABILITY OF THE MUSCLES IN PARALYSIS.

THE present subject is naturally introduced by that of the last chapter.

Several weeks ago, a paragraph in Dr. Pereira's work on *Materia Medica*, at variance with my statements, was pointed out to me by a friend ; and, a few days ago, Dr. Todd observed to me that he had met with results similar to those of Dr. Pereira, at King's College Hospital.

Dr. Pereira's paragraph I subjoin:—

“What is the reason that strychnia first displays its remarkable influence on paralytic limbs ?”

“Dr. Marshall Hall* has advanced a most ingenious explanation of the above-mentioned fact. Strychnia, he asserts, does not, in every case of paralysis, first display its influence on the paralytic limb. When the paralysis is cerebral, the irritability of the muscular fibre becomes augmented, from want of the application of the stimulus of volition ; and in such cases, therefore, strychnia first affects the paralysed muscles, because these are more irritable than the

* Med.-Chir. Trans. second series, vol. iv.

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thus simultaneously traversed the paralysed and healthy arms. To my great surprise, the muscles of the paralysed arm were comparatively but slightly affected, while those of the sound one were most powerfully convulsed. This experiment was tried repeatedly, and invariably with the same result.

“In this case, the paralysis was undoubtedly, I think, cerebral. On Dr. Hall’s hypothesis, the effects of strychnia on the paralysed limbs proved it to be so. Yet the paralysed muscles were less irritable than the sound ones, as manifested by voltaic electricity. I have observed the same effects in many other cases. Furthermore, I may remark, that in every case of paralysis, whether cerebral or spinal, I have found the muscles of the paralysed parts to be less irritable to voltaic electricity than those of the sound part. Nor have I met with a single exception to the statement that strychnia first displays its effects on the paralysed parts,—a fact of which I cannot at present offer a satisfactory explanation*.”

It is not my intention to enter into any controversy on this subject. The question being one of fact, of physiological and pathological science, and of the action of an important remedy, the appeal must be to new experiment. It is an important question, because it involves an important practical application.

* Elements of Materia Medica and Therapeutics, second edition, vol. ii. p. 1300.

The simplest plan for me to pursue, as it appeared to me, was to repeat my observations, though these were made too frequently, and in too varied a manner, in the first instance, to allow me to doubt of their accuracy. But it struck me, that by their repetition I might not only confirm or correct my former statements, but detect the source of the discrepancy between Drs. Pereira and Todd, and myself; and I believe I have done so.

I galvanised the two arms of a hemiplegic patient, a young person kindly sent to me by Mr. Hutchinson of Farringdon Street, three several times, in the presence of Mr. H. Smith, Dr. Heming, and several other friends; the muscles of the paralytic arm were made to contract forcibly, by a number of plates, which had no perceptible effect on the healthy arm; and if the number of plates was augmented, within certain limits, the difference of effect was still the same.

I repeated the experiment on the arm and leg of another hemiplegic patient; the result was the same.

How then are these results, apparently so opposed, to be reconciled? Before I proceed to reply to this question, let me observe that I galvanized at the same time the two hands of a patient affected with paralysis of the extensors of the right hand, from the *blight* induced by exposure to a keen north-east wind; in this case, the muscles of the paralysed hand were *less* affected than those of the healthy hand.

1. In the first detail of my experiments, I stated that I used the *smallest* degree of galvanic influence which would produce an unequivocal result.

It is obvious that if this precaution be not adopted,—that if a degree of galvanic power be employed which will affect the sensations of the patient, and especially if such a force be used as will affect the sensations painfully, and, with the sensations, the timidity,—muscular contractions will be induced in the unaffected limb, which will far exceed those induced by the mere action of the galvanic influence on the muscular fibre, however its irritability may be augmented.

2. In the choice of cases, I selected those in which the paralysis was very decided. In hemiplegia, the arm is usually much more affected than the face or the leg. It is, therefore, by comparing the irritability of the muscles in the two arms, in cases of decided paralysis, that the result obtained is most distinct. It requires great care, if we would compare the two sides of the face, or the two legs: the sensibility in the former case, and the slighter difference in power, with the constant *use* of the paralytic limb, which diminishes its irritability, in the latter, render the experiment less marked.

If these precautions had not been adopted, no *exact* result could be obtained; and I may here remark, that Dr. Pereira did not even employ the same instrument as that which I had used, and mentioned in my former publication. Mine was a common gal-

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plegia of the face and paralysis of the facial nerve, and similar states of the hand, arm, and leg, are distinguished at once; but the *test* must be applied with a care and precaution far greater than those which appear to have been adopted in the observations on which I have animadverted.

But I must notice a little more particularly the concluding part of Dr. Pereira's observations.

Having stated—"In every case of paralysis, whether cerebral or spinal, I have found the muscles of the paralyzed parts to be less irritable to voltaic electricity than those of the sound part,"—he adds, "nor have I met with a single exception to the statement, that strychnia first displays its effects on the paralyzed parts, a fact of which I cannot at present offer a satisfactory explanation*." Now this latter observation is not, as Dr. Pereira seems to think, limited to the question of the irritability of the muscles of paralytic limbs. It involves that of the organ on which the influence of strychnia first takes place; and Dr. Pereira's conclusion is at variance with his own opinions, detailed on the previous page, in which I entirely concur. I quote Dr. Pereira's words—

"On what part of the body does nux vomica exercise a specific effect?"

The symptoms clearly indicate the nervous system to be specifically affected; and as the voluntary muscles are supplied with nervous influence from

* Op. cit. p. 1301.

the cerebro-spinal portion of the nervous system, it is presumed that it is on this portion that nux vomica exerts its principal or sole influence. Physiologists, however, have endeavoured to ascertain what part of the cerebro-spinal system was principally affected. Now the tetanic symptoms, and the absence of narcotism, have led to the conclusion, that the spinal cord was the seat of the disease—a conclusion supported by the fact, that the division of this cord, nay, even complete decollation, will not prevent the poisonous effects of nux vomica; whereas the destruction of the cord, by the introduction of a piece of whalebone into the spinal canal, causes the immediate cessation of the convulsions; and if only part of the cord be destroyed, the convulsions cease in that part of the body only which is supplied with nerves from the portion of medulla destroyed. These facts, then, originally observed by Magendie, and which I have myself verified, lead to the conclusion, that the abnormal influence, whatever it may be, which causes the convulsions to take place, is not derived from the contents of the cranium, but from *the medulla spinalis itself*. Moreover, as the motor nerves seem principally affected, it has been presumed that the disorder is seated in the anterior columns of the cord; but the white fibres of the nervous system are merely the conductors of nervous power, the grey matter being apparently the source of it. Hence, then, the seat of

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muscles have a higher degree of irritability than those of the unaffected side.

Amongst other precautions, the patient must be made to fix her eyes on some object, whilst the influence of a very slight galvanic power is observed on the muscles of the eyelids. It is in the face that the effect of galvanism on the muscular fibre is particularly apt to be complicated with wincing.

The most unequivocal experiment is that made on the arms; because the paralytic seizure is, in general, most displayed in this part. The difference in the degree of irritability of the muscular fibre in the two legs is less marked; because the paralytic weakness is also, in general, less considerable.

CHAPTER XX.

ON THE DISPUTES RELATIVE TO THE FUNCTIONS OF THE SPINAL MARROW.

ONE reason of the tardy reception of the recent discoveries in regard to the functions of the spinal marrow, has been, that those discoveries have been continually and very groundlessly called into question and made the subject of dispute, and that by gentlemen totally unprepared for entering into that discussion.

Recently some papers of this character have appeared from the pen of Mr. T. Wilkinson King, in conjunction with his pupil, Mr. Brereton, to which an admirable reply has been given by Dr. Tyler Smith.

It is not my intention to enter into this controversy. I only wish to lay before my readers one or two very brief observations indeed.

Mr. King observes—"There is not a single fact to shew that the division of the spinal marrow between its lower end and the phrenic nerve-roots has ever been attended by any reflex motion connected with its lower segment."

The limits selected by Mr. King in this paragraph are most unfortunate ; for, most assuredly, if there be not a single fact of the kind in the case supposed, there is no such fact in the case in which the division has been *above* those nerve-roots. Such a case could not subsist for one minute. If the *cervical* portion of the spinal marrow be divided *below* the “phrenic nerve-roots,” the respiration becomes diaphragmatic, the motions of the chest being instantly and entirely arrested ; if *above* these nerve-roots, the contractions of the diaphragm, as well as those of the intercostals, are suspended. There is instant asphyxia.

Mr. Brereton, who says of himself, that “from the year 1836 to the present moment, (he) has lost no opportunity of testing the truth of the reflex doctrine, and during this time has written two papers in which it has been discussed,” observes—“One of the most interesting cases on this point which has come under my eye, was a patient of Mr. Key’s, from accident, who had fracture of the tenth and eleventh dorsal vertebræ, and, as he lay completely deprived of both motion and sensation for upwards of twelve months, full opportunities were afforded of experimenting ; and yet, with all attempts, success never followed,—not even the introduction of the catheter could produce this action. In this case, autopsy proved a complete section of the marrow.”

Dr. Smith has well remarked, that, in looking for reflex actions in a case in which the functions of the

spinal marrow were destroyed by fracture of the *tenth* and *eleventh* dorsal vertebræ, Mr. Brereton looked for an impossibility—for that which could not exist. In such a case, the injury is so low and so violent, as to leave no portion of the spinal marrow, in connection with the incident and reflex nerves of the limbs and genital organs, *intact*. The key-stone of the reflex arcs in these parts is destroyed!

Mr. King and Mr. Brereton have adopted a dogma, at variance with well-recorded cases of paraplegia, and, I may add, with all experiment. The former gentleman says—"The view I entertain is, that with all kinds of actual or efficient division of the spinal marrow there is loss of all sense and of *all* MOTION below, and that in the supposed cases in which reflex signs appeared with the absence of sense and motion, the division of the spinal cord was positively incomplete or (in a very few cases) uncertain." The latter—"My conviction is that it is never developed when *sensation* is *fully* and *completely* destroyed. I say fully and completely, because it may be very slight, or it may be much modified, and yet reflex actions go on; but when it is so destroyed as I have presumed, I have never witnessed reflex phenomena." In these conclusions, Mr. King and Mr. Brereton set themselves in opposition to Macartney, Brodie, Mayo, Barlow, Baly, Carpenter, &c. which is being rather presumptuous. To the cases of these eminent persons I am now, by the politeness of Mr. Sheppard, of Stone-

house, enabled to add an additional case, in point, in which the presence or absence of sensation was 'tested' in a manner to satisfy any one :

15, Union Street, Stonehouse,
July 25, 1844.

My dear Sir,

It affords me great pleasure to find that you consider the case I sent you interesting, and that the points alluded to possess a physiological interest. I shall touch but slightly on the general features of the case, and shall confine myself chiefly to the physiological phenomena.

A. B. ætat. 34, applied to me in consequence of the following symptoms:—Paraplegia complete, neither sensation nor power of voluntary motion in the lower extremities. I found she had lately been in the Exeter Hospital, in consequence of pain of the lumbar region, which she attributed to rheumatism. She had been discharged from the Hospital six days previous to my visit; since which time, the present affection had been gradually supervening. The day before I saw her, she had arrived from Exeter by coach. The mental faculties were perfect and entire; but cerebral influence over the lower extremities was COMPLETELY destroyed. Voluntary motion, *even in the slightest degree*, was suspended; there was a line of demarcation corresponding to the umbilicus, and to the first lumbar vertebra, which separated, as it were,

the living from the dead parts ; this line of demarcation was not an abrupt line, but sensation gradually passed into deadness. To shew the total absence of sensation, her husband had applied a jar of boiling water to the right foot, which was permitted to remain in contact until it so destroyed the vitality of the part, that the wound is now alone sufficient to threaten to destroy her life. If I pricked or pinched her legs, it gave no pain ; but it produced a somewhat singular phenomenon : she knew which leg I irritated, by the twitchings which it produced in the abdominal muscles. If I pinched, pricked, or tickled her legs, it caused " twitchings " of the limb irritated. When her fæces passed, or when she strained at stool, the muscles of her legs " twitched." When I first saw her, she passed her urine involuntarily ; but this soon yielded ; the excited reflex actions were also perceived when her urine was passed. I discovered no difference in the sensation, or powers of voluntary motion, in the two extremities. I minutely examined the spinal column, but could discover no symptom whatever of diseased bone ; indeed, I was inclined to consider I had an active disease of the spinal marrow, or of its membranes, supervening on a chronic affection. No case, it appears to me, can be more conclusive against the idea of the reflex actions *only being apparent when some cerebral influence remains*, and of their disappearing when all cerebral influence is destroyed, or when the paralysis is complete. Your facts are facts,

and will remain so, although they may even be opposed by the whole profession.

Immediately your letter arrived, I visited the case, with Mr. Perry, the surgeon of our Union, to whom I had handed over the patient. I found the sloughing wound of the foot frightful, as also a very large, horrible wound over the sacrum, though she has only been in bed about ten days. Sensation had somewhat returned; she felt when we touched her limbs. Still, on irritating her skin, or on touching either of the wounds, the reflex actions of the limbs were developed. On bringing a cold spoon in contact with her limbs, no effect was produced; but when the spoon was heated, violent reflex phenomena were observed; on plucking a hair suddenly, reflex action was produced, this morning. But, as I said, there is now *more* sensation, and, I think, in the same proportion, *LESS* reflex action.

Believe me to remain, my dear Sir,

Yours, most truly obliged,

JAMES SHEPPARD.

Dr. Marshall Hall, F.R.S. &c.

CHAPTER XXI.

ON NEURITIC SCIATICA.

THE symptoms of true neuritic sciatica have not, I think, been fully described. They consist, *at the first*, of *augmented sensibility*, and of *augmented muscular contraction*; in other words, of *pain* in the nerve, and of *spasm* and *quivering* of the muscles to which the nerve is distributed. *Afterwards* there is *numbness* or a sense of "*pins and needles*" in one (the outer) side of the foot, and muscular *debility*.

These symptoms are perfectly distinct and pathognomonic. During recovery, they subside, and leave a distinct *tenderness* along the course of the nerve, and a disposition to augmented action, or *cramp*, in the muscles. On one occasion, when the pain and numbness, and muscular quivering and weakness, had greatly subsided, there were such excruciating pain and spasm in the gastrocnemii, on attempting to pull off the boot without the aid of the boot-jack, that the patient had almost fainted away.

Mercurial and other purgative medicines, but especially a hot bath every night on going to bed, at 103°, for fifteen minutes, were the most effectual remedies. Fomentations did good.

There was a disposition to an early morning exacerbation. The jar of a carriage was intolerable.

This neuritic sciatica is of an essentially different character from any muscular rheumatism, as lumbago. As the latter is inflammation of the muscular fibre, the former is most distinctly, in its two-fold set of symptoms, a *neuritis*. The numbness is similar to that experienced in the second stage of odontalgia, doubtless from hyperæmia of the neurilemma and compression of the nervous substance.

CHAPTER XXII.

ON THE CIRCULATION IN THE ACARDIAC FŒTUS.

It is well known that the late Dr. Young first suggested the most ingenious idea, that the circulation in the acardiac fœtus is effected by the power and agency of the heart of the perfect fœtus, by which the acardiac fœtus is uniformly accompanied; that the late Sir Astley Cooper supposed that he had demonstrated this fact by his injection and dissection of the vascular system of the placenta or placentæ of the perfect and imperfect fœtus in such cases; and that Dr. Houston, of Dublin, has called in question both the original views of Dr. Young, and the *mode* of this circulation suggested by Sir Astley Cooper.

My attention has been drawn to this subject by the recent able works of Dr. Carpenter* and Dr. Graves†. These gentlemen are of opinion that the views of Dr. Young and Sir Astley Cooper, regarding the circulation in the acardiac fœtus, are erroneous; and they revert to the notion, that the circulation is accomplished by the agency of the capillary vessels.

* On Human Physiology, p. 414.

† On Clinical Medicine, pp. 82, 485.

That the action of the heart of one fœtus *does* extend to the umbilical cord of a second fœtus, is, however, proved by a fact of a different kind: the blood of a retained fœtus has been actually *seen* to flow from the divided cord of the one first born, as in the following case, abridged from M. Lallemand:—"Après un travail de quelques heures il sortit naturellement un fœtus bienportant." "Quand on eut coupé le cordon ombilical, et lié le bout qui tenait à l'enfant, M. Patissier, qui tenait celui qui répond au placenta, s'aperçut qu'il donnait plus de sang que de coutume." "Le sang qui sortait était lancé par saccade." "Nous pensâmes donc qu'il existait un second fœtus;" "et le toucher confirma cette présomption." "Les deux placenta étaient réunis en une masse commune*."

That the capillary vessels do, in reality, possess any intrinsic power of moving or circulating the blood, is totally without proof. The facts of the continuance of the circulation in the capillaries, after the removal of the influence of the heart, quoted from Dr. Philip, are *not facts*; and the very nature of capillary attraction, whilst it might account for the flow of blood *towards* the capillary vessels, would render its reflux *from* those vessels impossible; and of attraction followed by repulsion in capillary tubes we have neither proof nor example; so that the idea of "vital attrac-

* M. Lallemand's "Observations Pathologiques;" Paris, ed. 2, 1825, p. 34.

tion and repulsion" is a mere hypothesis. On the other hand, that the influence of the heart may, and does, extend to and through the capillary vessels, *is a fact* at once most obvious and indubitable.

Before I proceed, I must state the opinion of the authors whom I have quoted a little more particularly.

1. Dr. Young merely suggested the idea, that the circulation in the acardiac fœtus is effected by the heart of the perfect twin fœtus, without stating the precise channels of this circulation.

2. Sir Astley Cooper supposed that the blood of the perfect fœtus is conveyed to the imperfect fœtus through the medium of an anastomosis between the umbilical *arteries* of both ; that the circulation in the *cord* of the imperfect fœtus is inverted, the blood being conveyed *to* the fœtus by the umbilical artery (there was only *one* in the case he described), and *from* it by the umbilical vein. He observes, " In considering the mode in which the imperfect production may have derived its support, the chief difficulty is, to explain how its circulation could be maintained without the force of the heart's action, as that organ was totally absent. This effect has been supposed to arise from the muscular efforts of the vessels themselves. But the difficulty is at once removed, by observing, that the imperfect child was a mere appendage to that which was perfect ; that there was only one placenta ; and the blood, which traversed its structure, was derived from the perfect fœtus, and

returned to it again ; that the imperfect fœtus received, through its own umbilical artery, from that of the perfect fœtus, the current, which, after entering the aorta, and thence circulating through the arteries and veins of the monster, was conveyed back again, by the umbilical vein of the imperfect, into that of the perfect fœtus ; and that the heart of the developed child impelled the blood into the other, which was appended to it, in the same way as it caused that fluid to circulate through the vessels of one of its limbs*.”

3. Dr. Houston's view is, that the blood pursues its course *to* the imperfect fœtus, as usual, by the umbilical vein, and *from* it by the umbilical artery, but that its course *through* the *fœtus itself* is inverted. Dr. Houston observes, “ I am of opinion, that in monsters of this nature, the placental circulation is normal, viz. that the blood enters the organ by the arteries, and returns by the veins, equally in the imperfect as in the perfect placenta ; that there may be, and I suppose there always is, in such cases, a communication between the vessels of the two, which may account for the diminutive size of the one organ, as compared with that of the other ; but that the presence of such communication is more in favour of the hypothesis, that the currents take the same course in both cords, than of that which infers that they run in opposite directions.

* Guy's Hospital Reports, vol. i. p. 236.

“As to the circulation in the body of the monster, the facts already stated lead me to conclude, that the course of the blood in the veins and arteries is abnormal, viz. that that fluid enters by the veins, and returns by the arteries*.”

The objection to Sir Astley Cooper's view of the subject is this:—it is plain, from the injected placenta, or double placenta, that the umbilical artery is distributed to *both* portions of this placenta. The force by which it is impelled must therefore be extended through the capillaries, to the umbilical vein of the imperfect as well as the perfect fœtus. If the force of the heart is directed at the same time into the umbilical *artery*, it is plain that, being balanced in the two orders of vessels, it will propel the blood along neither; unless some other principle be introduced, to modify this force, and direct its influence.

The objection to Dr. Houston's view is, that it leaves us without a power to which the circulation of the blood in the imperfect fœtus can be referred.

My objection to both these views is, that one inverts the order and course of the circulation in the cord, and the other in the fœtus—an inversion, to say the least of it, most improbable.

Now a fact has been adduced, which proves that the influence of the heart of a perfect or retained fœtus *does* extend along the umbilical cord of the one first

* Dublin Journal of Medical Science, vol. x. pp. 214, 215.

expelled. The difficulty is to conceive that this influence can be so extended through the placental capillaries. A further difficulty would be to conceive that the same influence can extend through a *second* series of capillaries, in the body of the imperfect fœtus, for this is essential to the return of its blood to its placenta,—in a word, to the *circulation* of the blood.

But have we not examples of such extended influence of the heart? Do we not observe that, in fishes, the blood is distributed first through the capillaries of the lungs, then through the capillaries of the various organs of the body, and, lastly, again through the capillaries of the portal circulation? If any one doubt the extent of this power, it is incumbent on him to show that there *is* indeed an auxiliary or additional one; and of this, I again assert, we have hitherto *no proof*.

Viewing a manifest *pulsation* in the capillary vessels and veins, synchronous with that of the heart, as a proof of the extension of the power and action of the heart to those vessels, and being anxious to know whether that power and action could be ascertained to extend to a secondary series of capillary vessels, I performed, with my friend Mr. Henry Smith, the following experiment:

We placed the pectoral fin of the eel in the field of the microscope, and compressed it by the weight of a heavy probe. The movements of the blood became most obviously pulsatory, pretty regularly about

twenty times in the minute, the precise number of the pulsations of the heart.

The heart's action extends, therefore, through the branchial capillary vessels, to the secondary series of capillaries in the body of the animal.

We now tied the vessels proceeding from the heart; all circulation in the tail and in the fins subsided almost immediately, affording a proof that the capillaries have in reality no power of sustaining the circulation. Now, if in any animal the capillary vessels have a power of their own, it is surely in the *eel*. For this is the longest of animals, and its systemic circulation is entirely secondary, both *requiring* such power.

My view of the subject is this. I suppose the heart of the perfect fœtus to propel the blood to the imperfect fœtus, as Dr. Young suggested; but not immediately from its umbilical artery into that of the other, according to the view of Sir Astley Cooper, but through the capillaries of the placenta into the umbilical vein, and through the umbilical vein and a series of capillaries to the aorta; and not, according to the views of Dr. Houston, in an inverted direction.

There may appear to be some difficulty in conceiving how an anastomosis between the umbilical artery of the perfect fœtus with that of the imperfect one can exist without arresting or impeding the flow of blood towards the placenta in the latter. The fact is to be explained, I believe, on the principle of *la-*

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It follows, then, that we must dissent from the following opinions of Dr. Houston:—"As all the blood of both fœtuses passes through the capillaries of the placentæ, it is obvious that the intervention of that organ between the arteries of the normal fœtus, and the few veins of the monster which can derive origin from them, must considerably neutralize the power of the heart as an agent for the furtherance of the circulation in the latter*." "Supposing, however, it were even possible that the heart of the perfect fœtus might assist, in a slight degree, to propel the blood into the body of the imperfect one, by what agency then shall that blood be driven out of that body again? It cannot be accredited that the remote heart of the second fœtus would have power, after conducting the circulation in the individual to which it properly belongs, to drive the fractional surplus of its blood, with all the rest belonging to the placenta of the monster, not only into that monster, but out of it again.

"It must, therefore, appear evident that the *vis a tergo* imparted by the heart of the perfect twin, cannot be the sole moving cause of the circulation in its abnormal companion,—no matter in what light we view the application of the force in question. An acardiac fœtus of this kind stands perhaps in the same light, in reference to the influence of a heart on the

* Op. cit. pp. 215, 217.

circulation, as one of the same description without a companion in utero, and in which, of course, the blood should take its rounds, totally unaided by any mechanical *vis a tergo*.”—Has such a case really ever existed?

Dr. Houston further observes:—“ But, even in the perfect fœtus, while it remains connected with the womb, the heart does not fulfil the same important offices as after the individual is brought into a condition of independent life; for there is in all cases a period, and that, too, long after the growth of the fœtus has commenced, in which there is no heart at all, and in which nothing but vessels is discernible; and there are other instances in which, throughout the whole period of fœtal existence, the organ never acquires perfection; and, nevertheless, we do not find that under either of these circumstances the blood fails to flow through the body; whatever parts are developed in such cases receive an abundant supply of that fluid. This question might be still further elucidated by a reference to the state of the circulation in many of the lower animals; but, enough—sufficient has been advanced to show that the heart is not an indispensable organ in fœtal life, and that the circulation of the blood, at this period, is not solely due to its influence.” Here I may reply,—

1. That of the *nisus formativus*, and its modes of operation, we literally know nothing, and cannot, therefore, reason from its phenomena;
2. That the “ other

instances" must be mentioned more distinctly; and, 3. That the circulation in certain of the "lower animals" equally requires elucidation.

I must now adduce the most extraordinary of Dr. Houston's statements. He says,—“What the action of the placenta may be, in promoting the circulation in the fœtus, it is difficult to say; but that this organ possesses an inherent power, a vital force drawing in and ejecting again the blood which traverses its vessels, no one who has ever heard the placental *souffle*—the noise caused by the rush of fluids to the spot in which it lies—will for a moment question. This rush of blood cannot be accounted for by a reference either to the force of the heart of the mother, or of that of the infant; it is independent of both, and due, no doubt, to the vital endowments of the organ itself, and of the uterus to which it is connected. And it is quite possible to understand that, with such vital properties in the placenta, together with others of a like character co-existing in the fœtus, the circulation may be carried on between them, without any other influence whatever.*” I will only, in reply, adduce the following paragraph from the recent work of MM. Barth and Roger:—“Le souffle utérin ressemble assez au souffle que l'on détermine en comprimant une grosse artère; mais il offre une résonance particulière, et il existe sans choc, sans soulève-

* Op. cit. p. 219.

ment appréciable. Isochrone au pouls radial de la mère, il en suit les variations de rythme et en subit toutes les influences*.”

If the view which I have given of this subject be correct, the use to which Dr. Carpenter and Dr. Graves have applied the opinions of Dr. Houston, for they are nothing more, is without foundation. The facts still remain—that the heart affords the propelling force which circulates the blood through the capillary vessels, and that we are destitute of all proof that these vessels themselves have any such power. The further application of such views to explain the nature of inflammation, is a still further deviation from true philosophy.

* Op. cit. p. 241.

CHAPTER XXIII.

FURTHER OBSERVATIONS ON THE CIRCULATION IN THE ACARDIAC FŒTUS.

SINCE the publication of the preceding paper, Dr. Houston has read a second communication on the same physiological question, in reply, before the British Association. Dr. Houston states, at the same time, his "intention not to engage in any further controversy" on the subject. I shall therefore, without adverting more than is quite necessary to Dr. Houston's paper, proceed to state what I have further to observe upon the cause of this interesting phenomenon.

I may observe, in the first instance, that this case of circulation in a monster would be unworthy of so much notice, but for the ray of light it might be supposed to throw upon the powers by which the circulation in the perfect fœtus is effected, and upon the nature of the actions in inflammation and other morbid processes.

The circulation in the perfect fœtus is like that of the batrachian reptile. It is effected by a single heart. That heart is both systemic and pulmonic; that is, it impels the blood partly along the aorta into

the general system (especially the head) of the fœtus, and partly along the (pulmonic or) umbilical artery, into the placenta, the fœtal lung. It further impels the blood *through* the capillary structure of the placenta, *into* and *through* the umbilical vein, and *into* and *through* the fœtus.

In the aplo-cardiac fish tribes, the heart, which is pulmonic, accomplishes by its sole power the circulation through the branchial capillaries, the aorta, and arteries in general, the systemic capillaries, and the veins, and effects the return of the blood through this *perfect circulation* to itself. The movement of the blood, in this case, is pulsatory in the second series of capillaries. This I have proved by direct experiment, as formerly detailed (p. 137).

It is proved then that the power of the heart is really sufficient to propel the blood through two distinct and distant sets of capillaries, and accomplish all I have stated; and, indeed, this is now admitted by Dr. Houston himself (par. 12). But the fœtus is sometimes *acardiac*. What are the sources and mode of the circulation in this case?

It is generally, if not always, found that the acardiac fœtus is *a twin*. Indeed, if it were really ever otherwise, there would be an end to all controversy on the subject. The acardiac fœtus would be proved to contain within itself the power requisite for the circulation of the blood. But the case must be most carefully observed, as a case "*à part*," *in every point of*

view. This has not been done. The present discussion is, at any rate, limited to the case of the *twin* acardiac fœtus,—to the case in which this acardiac fœtus is the companion of another and perfect fœtus.

According to my view of the circulation of the blood in the acardiac fœtus, the blood is propelled by the heart of the perfect fœtus, through *both* placentæ, along *both* umbilical veins, into *both* fœtuses, with *equal* velocity. The *difference* between the two cases is observed in the umbilical *arteries*, and in these only; for whilst the blood is propelled rapidly along that of the perfect fœtus by means of the *immediate* action of its heart, it is propelled slowly along that of the acardiac fœtus by the action of the same heart, diminished in its energy by having already propelled the blood through the vessels of the placenta, of the chord, and of the fœtus, just enumerated. In these arteries, the blood of the perfect fœtus comes into contact with that of the acardiac fœtus, through the medium of an anastomosis. At this point, the rapid current of the former attracts the slow current of the latter, by “lateral action,” *precisely in proportion to the degree of the DIFFERENCE of their velocity.*

It is precisely at the point of contact of the rapid—and of the slow—moving blood that the sole difficulty in this question exists; and I believe this difficulty is removed by the demonstrable influence of lateral action which I have introduced.

Dr. Houston imagines that a similar, but contrary,

effect would occur at the point of anastomosis between the *veins* of the perfect and acardiac fœtus, and that the latter would, in consequence, be actually drained of its blood (par. 13, 33). He overlooks the facts, that in these two veins there is no difference of velocity, the blood of both being equi-distant from the heart, the source of its movement, and that there can therefore be *no* lateral action.

Thus is the circulation in the acardiac fœtus effected by the power of the heart of the perfect twin fœtus, as originally imagined by Dr. Young, though not in the inverted direction supposed by Sir Astley Cooper.

One interesting subject of inquiry still remains. Are the veins of the acardiac fœtus really valveless, as stated by this eminent anatomist? That they should be so—that the *nisus formativus* should act inversely to the order of nature, or leave its work undone—appears to me very improbable. I can readily imagine a coarse injection passing along the large veins of the placenta and other viscera of the fœtus, probably imperfectly developed; but the question I now propose relates to the minute veins of the *muscular* tissues of the limbs. I propose this question for new and careful examination.

Having thus described the circulation of the acardiac fœtus, such as I believe it to be in nature, I beg to add a very few incidental, concluding remarks.

The power of the placenta to promote the circu-

lation of the blood of the fœtus is unnecessary, not therefore to be inferred, and altogether without proof.

The inverted course of the blood in the body of the fœtus is equally so.

The auxiliary power of the capillaries, by which the circulation is supposed by Dr. Houston to be promoted, has in no case been shewn to exist in the higher orders of animals; and I imagine we cannot conclude that such a power exists in these animals, from what we see in worms, insects, and vegetables.

The effects of heat and cold, whether of general or local application, are induced through the medium of the heart, and of *physical* changes in the tissues. Heat excites the central organ of the circulation, and expands the tissues; cold has precisely the contrary effect. Reaction, after the application of cold, depends, in like manner, on the restored action of the heart, and on the restored physical condition of the tissues.

All that is formation or development—the development of the collateral branches of an artery on which a ligature has been applied, for example—is to me at present quite inscrutable. He who shall happily explain the familiar fact to which I have adverted, will, I am persuaded, take an important step in physiology.

Lastly—as to the hypothesis of “attractions and repulsions,” I have never been able to detect, in my long-continued attention and observation relative to

the subject, the slightest evidence of any such phenomena.

In regard to the human subject, and the mammalia, I believe all the cases of apparent auxiliary power really arise from *obstruction* to the circulation. Such is the case in inflammation, gangrene, &c.—the blood particles are adherent in the minute vessels: such is the case on applying a ligature, whether to an artery, or round a limb so as to obstruct the flow of blood in the veins; and such is the case, probably, in all the phenomena of the erectile tissues, in blushing, &c.

I entirely separate from the phenomena of the *circulation* those of development and formation, and of the *nutrient* and *secernent* vessels in general, in which there is obviously a new structure, probably muscular, and a nervous power.

I have thus stated my views in as little of a controversial style as possible: I have not followed the example of Dr. Houston, who nevertheless repudiates controversy, by imputing to him a biassed state of opinion (pars. 5, 11, 34), a “puzzle” of the understanding, “a distinction without a difference” (par. 35), a theory to which the existence of a certain great vein is “fatal” (par. 14), &c. &c.

I have often observed that the objection to controversy is not so much an objection to controversy in itself, or in ourselves, as in our opponents.

CHAPTER XXIV.

ON APHORIA, OR STERILITY.

STERILITY, doubtless, frequently depends on organic defect; but the fact that a first child has been born after many years of marriage, is a sufficient proof that, in other cases, the defect has arisen from causes of a functional and less permanent nature. Of these, a too excited condition, and the opposite state of inertia, in the immediate uterine system, appear to me to be the most frequent. The former case is illustrated by what is observed in dysmenorrhœa; the latter by a condition of the uterus frequently attended by leucorrhœa. They may be designated aphoria tonica and aphoria atonica, respectively. In this point of view, sterility becomes a legitimate object of medical inquiry and of medical treatment.

The questions come to be, whether any remedies have been discovered for such conditions of the uterus, and, if not, whether any such *suggestions* may be fairly offered to guide us in our future investigations in regard to the treatment of this condition.

It must be first observed, that, although the most marked forms of aphoria be the tonic and the atonic, there are intermediate forms and intermediate stages

of this affection, which may require the plans to be proposed for each to be variously combined, or to be adopted alternately. It is by a knowledge of the physiology of conception, and of the causes which most probably influence this function, that we are led to the adoption of measures likely to obviate the defect in question.

Now, it is a well-ascertained fact that the families of the laborious poor are numerous, and tend to augment the population, whilst those of the indolent and luxurious rich continually tend to become extinct. The inference from this fact, and its practical application, are obvious: as a remedy for aphoria, much exercise should be taken, even to fatigue, whilst the diet should be moderate, not to say spare.

Other facts, which I need not notice here, prove that extreme moderation in intercourse is favourable to conception, and that the opposite condition leads to aphoria, at first probably in its tonic, afterwards (as exhaustion and inertia follow excitement as a general principle) in its atonic form. Hence temperance and abstinence become means of cure.

The condition termed inertia, once induced, may continue on the principle of habit; just as the abuse of stimuli in general leads to a state of insusceptibility, only to be remedied by withdrawing the stimulus, and observing long and rigid abstinence.

But I proceed to another and most interesting view of this subject. There is an extraordinary re-

ciprocal sympathy between the mammæ and the uterus, which has always presented an object of deep interest to the physiologist. At every catamenial period, the mammæ sympathise with the uterus, become tumid, and tend to assume their office of organs for the secretion of milk.

But the sympathy is not only seen in the affection of the mammæ by the condition of the uterus, but, though somewhat less definitively, in the inverse order, and the state of the mammæ influences that of the more immediate uterine system. In general, though by no means invariably, the catamenia are suspended and conception is postponed by the process of lactation.

Nor are these two the only facts of this kind. Amongst the most efficacious means of preventing uterine hæmorrhage after parturition is the immediate or prompt application of the infant to the breast. Dr. Rigby remarks, in his "System of Midwifery," published as the sixth volume of the "Library of Medicine," by Dr. Tweedie, p. 217,—“ The application of the child to the breast is not less valuable for preventing any return of the hæmorrhage, than for stopping it in the first instance. We are *never* perfectly secure against hæmorrhage coming on during the first few hours after delivery, even where every thing has turned out as favourably as possible ; the exhaustion from the length or severity of the labour, the warmth of the bed, and, in some cases, it would seem, the re-

laxing effects of deep sleep, are all liable to be followed by inertia uteri and hæmorrhage. In no way can we insure our patient so completely against this kind of danger as by putting the child to the breast. The uterine contraction which it excites is not only powerful, but permanent; nor do we consider that a practitioner is justified in leaving a patient in whom the uterus has shewn a disposition to inertia without having insured her safety by this simple, but effectual safeguard."

Dr. Heming mentions, as a fact well known to accoucheurs, that uterine pain is induced on the application of the infant to the mammæ.

The first and immediate effect of applying the infant after parturition is probably a reflex action, inducing contraction of the uterus; another, somewhat more remote, is the *derivation* of the uterine blood *from* its previous destination *to* the mammæ; and in this manner, not only uterine hæmorrhage, but, probably, hysteritis and peritonitis themselves, may be prevented!

Mr. Hey, indeed, mentions a fact of an opposite kind, still bearing on the general question of the sympathy between the mammæ and the uterus:—"In the two preceding cases, the first attack of severe pain in the abdomen took place on suckling the child. This circumstance happened so frequently, that it became our rule, while the epidemic was rife, to forbid the drawing of the breasts till the usual period of attack

had passed over, or till the painful distension of the breasts required some degree of depletion*.”

But a still more remarkable fact of this kind resulted from a happy experiment by the late Professor Gregory. Dr. Gregory was consulted, in the town of Ayr, in the case of a lady who had repeatedly miscarried, with dreadful hæmorrhage, in spite of every remedial means which could be devised by the first medical authorities in Scotland. Dr. Gregory saw the patient on one of these occasions; he prescribed for the hæmorrhage; and when this had been arrested, and the patient had sufficiently recovered, he examined the state of the mammæ, found them distended with milk, and directed a lusty infant to be applied, and nursed for nine months. The lady became pregnant, the mother of a living child, and ultimately of a numerous family, her labours being unattended by hæmorrhage!

Lactation, unduly protracted, on the other hand, induces uterine hæmorrhage and extreme leucorrhœa of the *atonic* character.

There is, then, an extraordinary sympathy between the mammæ and the uterus, so that the functional condition of the former influences that of the latter. This sympathy is partly nervous in its character, partly vascular. As a reflex action, the uterus is made to contract after parturition by applying the newly-born infant to the mammæ. As a vascular

* Puerperal Fever, p. 321.

sympathy, uterine hæmorrhage and leucorrhœa occur from undue lactation. In an intermediate stage, the flow of the catamenia and conception are prevented, and by its due continuance the disposition to abortion, with hæmorrhage, is counteracted, and the full period of pregnancy attained.

The question now presents itself, whether any other practical application of this principle may be made?

Now, as I have already stated, for one week before and at the return of the catamenial period or flow (when a vesicle probably bursts), the mammæ become tumid with blood, and tender from augmented sensibility; in a word, there is the condition which, after parturition, leads to the secretion of milk. Might not this secretion be actually excited, under this condition, by the appropriate or other stimulus? that is, might not the mammæ be brought into the condition which obtains after parturition? Might not an infant be applied and suckled? And might not the uterine system, in the married and the childless, be brought into the healthy state required for conception?

In this manner, not only the female, but the male mammæ have been excited to the secretion of milk in such abundance as to supply the infant with abundant nourishment*. But the case most to our purpose is that of a servant maid, given by M. Belloc, in his

* See Good's Study of Medicine, ed. 2, vol. iv. p. 79.

“Cours de Médecine Légale,” 1811, p. 70:—“Une fille de service, obligée de fair coucher dans sa chambre un enfant qu’on voulait sévrer, et qui dérangeait son repos, imagina de lui donner son sein pour apaiser ses pleurs, qui l’importunaient; au bout de peu de temps cette fille eut assez de lait pour satisfaire cet enfant.”

My suggestion then is, that when the mamma is excited at the return of the catamenial period, a robust infant be repeatedly and perseveringly applied, in the hope that the secretion of milk may be excited, and that the uterine blood may be diverted from the uterus and directed into the mammary vessels, and that a change in the uterine system and a proneness to conception may be induced.

To show that such an event is not improbable, I here quote a singular remark of Dr. Heberden:—“*Fœminæ quadragenariæ mammæ cœperunt tumere, et mox lacte impletæ sunt, quod per tres menses exstillabat; protinus vero ut lac in mammas fluere desisset, mulier hæc e viro suo concessit, quæ per sex annos gravida non fuerat*.*”

The sympathy or synergy between the mammæ and the uterus presents a principle on which we may confidently found our views of the treatment of certain kinds of sterility, and probably some other affections of the latter organ. Indeed, the influence of lactation on the uterus is so marked, that, as I have

* Cap. 61.

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cited class. Contraction of the uterus may be excited, and be followed by relaxation and ingurgitation. I need only make the observation. The inference is obvious.

As a fact bearing upon this part of the question, I may adduce a custom precisely of this kind amongst the breeders of horses. There is frequently, not to say generally, some truth in customs as in proverbs. I leave it, without further remark, to the consideration of my readers.

I must here observe, that, of all *general* excitants, the sudden application of cold water seems the most powerful. This is seen in the effect of this remedy in inducing sobbing inspiration.

Mr. Simpson, of Stamford, has recently made a new application of this principle. A patient, after suffering from puerperal convulsions, "became conscious, but was obstinate. With great difficulty," says Mr. Simpson, "I forced some liquid into her mouth, but she would not swallow; I therefore dashed cold water in the face, and the contents of the mouth were instantly gulped down. This novel mode of making patients swallow was repeated a dozen times, and with the same invariable effect."

I trust that it will be admitted that new applications of physiology to practice have been made in this paper; and, first, that the sympathy between the immediate uterine system and the *mammæ* is both ner-

vous and vascular; and, secondly, that the principle of the reflex actions have been shown to have a practical bearing not previously noticed.

The next great improvement in the obstetric art, in its various branches, will, I think, be accomplished by that physician who shall apply the principles of the excito-motor actions, recently so fully developed, to this department of medical science.

We have here, then, a new application of this doctrine, or that of the excitor movements, to actual practice. Many such, I am persuaded, still remain undiscovered. I may here be allowed to refer to my 'New Memoir' on this subject, as containing the shortest, yet the most complete view of this subject, with its beautiful illustrations by the pencil of Mr. Simpson, written expressly for the use of those who have not time for the perusal of more voluminous works.

NOTE

TO CHAPTER XVI, ON THE TEMPER-DISEASE.

AT page 91, l. 19, I have sketched a case of temper-disease of an extraordinary kind. The number of fictions was not complete. I was requested to see the patient again, and now the face and the upper part of the thorax were affected with blisters of a diffused character.

I instantly suspected that a blister had been applied in succession to those parts, and I resolved on making the positive discovery, if possible. I therefore carefully examined the skin. I found a little black matter, scraped it off, and sent it to Mr. Dalrymple, requesting him to subject it to examination by the microscope. Mr. Dalrymple favoured me with the following note :

My dear Sir,

Unquestionably the black spots contain fragments of the wing cases of the blistering fly. The brilliant scales are well seen under the microscope, as you may behold any time you may be passing by.

Yours faithfully,

JOHN DALRYMPLE.

56, Grosvenor Street,
Sept. 16, 1844.

Not a word need be added to this simple detail.

CHAPTER XXV.

CURSORY REMARKS ON PROGNOSIS.

THE physician is made responsible for every case of sudden dissolution. His only protection is in a most explicit and even repeated prognosis of the event—a thing sometimes impossible.

No one would prognosticate a sudden dissolution in chlorosis, however inveterate and severe. Yet I have known four examples of a sudden, or rapid, fatal termination in this disease.

Few physicians would think it necessary to forebode such ill in cases in which profuse blood-letting had been adopted, or profuse hæmorrhage had occurred, if the patient appeared to be, however slowly, convalescent. Yet, in such cases, sudden death has occurred so frequently as not to be a very extraordinary event.

But the most treacherous cases are those of intestinal obstruction, from various causes. The patient shall have suffered from sickness,—rejecting all food and medicine; and from constipation, resisting every kind of aperient or purgative, however administered, whether swallowed, injected as an enema, or applied to the tongue (croton oil), or endermically: at length

the bowels shall be moved satisfactorily, and the patient shall appear better in every respect! The appearances are fallacious. The powers of the heart (so apt to be impressed through the medium of the stomach and bowels) shall have yielded to the struggle; a state of the most insidious *sinking* has set in. Food is retained; the bowels are freely moved; all pain is gone; the patient, as I have said, appears better in every respect; but, in the course of the night, or in the course of twenty-four hours, sinks and expires! I could not, if it were necessary to do so, describe this painful state of things, whether the feelings of friends or those of the physician be considered.

In diseases of the head; in diseases of the *heart*; in diseases of the *blood* (whether mere anæmia, or that which occurs in asphyxia; diabetes, albuminuria; extreme dyspepsia; &c. &c.); in cases of the exanthemata, especially variola and scarlatina; sudden death occurs. Attacks of epilepsy are sometimes suddenly, sometimes less suddenly, fatal. Cholera, dysentery, even diarrhœa, occasionally induce rapid and unexpected sinking. I have already noticed the effect of effectual relief to the bowels after constipation.

Indeed the influence of the intestine on the heart is most remarkable: in mere dyspepsia, the nose, ears, hands, and feet, are apt to be cold and livid; one of the most distinctive marks of tuberculous dis-

ease in the abdomen, is, a frequent, small pulse, with still greater lividity and coldness of the nose, ears, hands, and feet; in inflammation of the intestine, the pulse is known to be of remarkable *smallness*; the same thing is observed in hernia. This subject deserves to be prosecuted further, both in a physiological and pathological point of view.

In the course of various diseases, *the most insidious sinking* is apt to occur, and the physician should treasure up any facts which lead to its prompt detection. I shall enumerate several of these:

The first is—*breathlessness*. This is observed when the patient moves about—in walking, or, in acuter cases, even in bed. It is *heard* by the attentive physician. It is merely what I have termed it—a little audible breathlessness. It occurs in diseases of the heart; in extensive disease of the lungs; in cases of exhaustion; in cases of debility. It denotes great danger, and almost certain death.

A second symptom of this kind is—a *slight crepitus in the breathing*, heard without the stethoscope. The rattles in bronchitis, or other disease of the lungs themselves, must be excluded. The crepitus to which I allude comes on in the course of fever, and other diseases of the general system; in extreme exhaustion and debility; in disease in the head or abdomen; as an early symptom of the sinking state.

A third symptom, frequently conjoined with this crepitus in respiration, is *tympanitic tumefaction of the*

abdomen. Both arise from the same cause—a deficiency and failure of the ganglionic nervous power.

There is a fourth symptom, which I have observed in puerperal diseases chiefly, of fearful, if not fatal, tendency: it is a peculiar severe pain in one side of the neck; I know not of what nature; but I have observed it in fatal cases so frequently, as to think it worthy of being thus pressed upon the attention of my medical brethren.

CHAPTER XXVI.

CASE OF PAINFUL SUBCUTANEOUS TUBERCLE.

I TRANSCRIBE the particulars of a case of the painful subcutaneous tubercle, of which Mr. William Wood has given so excellent an account in the Edinburgh Medical and Surgical Journal for July and October 1812. The intelligence of my patient has furnished me with a variety of circumstances, which may add to the history of this affection in general. The case affords another instance of the occurrence of the subcutaneous tubercle in the male subject; it presents an example of severe and painful suffering continued during the long period of two and twenty years; and it illustrates the perfect safety and efficacy of the cure by excision.

In 1793, Mr. Edmund Hart, of Nottingham, observed a slight bleeding from nearly the point of the fore-finger of the left hand, and, being a shoemaker, he suspected that he might have punctured this part with the awl. Some time after this bleeding had ceased, an acute pain was experienced in the point of the finger, on putting the hand into the pocket, which contained some halfpence; and after this period the patient was always affected with very acute pain

on touching any hard substance. Nothing was at that time observable on examination; at length, however, a small red speck was discovered within three lines of the point, and on the ulner side of the finger. Soon afterwards, *paroxysms* of pain, unoccasioned by external injury, began to be experienced, during which a little redness and tumour were observed in the part affected.

About seven years after the commencement of this affection, the paroxysms of pain became more and more severe, and came on nearly regularly every fortnight, during the course of the *day*. At this period an application of caustic was made with temporary relief. Some time afterwards, the patient resorted to the practice of paring away a small portion of the integuments over the spot, so deep as to make the part bleed a little. This he did from time to time, and always with a certain degree of relief, probably by rendering the part less prominent, and consequently less exposed to external injury.

From the period last mentioned, the paroxysms of pain became more severe and more frequent, until at length the pain, in a more or less exasperated form, was nearly constant. About eight years ago this pain began to be particularly urgent during the *night*; and during the last two years a great part of each night's rest has been lost from it, an aggravation of the pain taking place about eleven and continuing until three o'clock in the course of each night. The

part affected itself has suffered little change and little increase in size. It has been observed to be rather more tumid and red in the evening than in the morning, and during the paroxysms than during the absence or alleviation of pain.

In the paroxysms, the pain became more and more severe by degrees, and was accompanied by a painful sense of pulsation. This pulsation was irregular, and not experienced at each pulsation of the arteries. The pain extended to a considerable distance from the point affected, along both sides of the arm and along the middle-finger; it was never felt in the thumb nor in the other fingers, but sometimes the back of the hand and the root of the little-finger on the outside were affected. In moments of acutest suffering, he experienced pain down the left thigh and leg to the toes. Occasionally, on touching any hard substance, the pain has been so excruciating as to induce fainting.

The patient's suffering has always been particularly aggravated during any general indisposition, once during the continuance of a febrile affection from an accident, and at all times during the presence or aggravation of certain dyspeptic symptoms to which he has been subject. The pain was also aggravated during the prevalence of cold or wet weather. On washing the hand in cold water in the winter season, the pain was immediately induced, and

the patient was obliged to expose the part immediately to the warmth of the fire for relief.

Besides the application of caustic, and the removal of a small portion of the integuments already noticed, the patient has experienced temporary relief from the application of adhesive plaster, of a blister, and of spirit of wine; and, during the paroxysms, by exposure to considerable warmth near the fire.

Such is the history of the case to the day on which Mr. Higginbottom and myself were consulted by Mr. Hart. On examination of the finger, a small hard red spot was observed about three lines from the point of the finger, on its ulnar side. The integuments were rather changed and immoveable over this hardness, probably from the different modes of treatment which had been employed. The spot was exquisitely sensible on rubbing or pressure, but the parts around possessed the ordinary degree of sensibility. The pain on pressure seemed to dart along the course of the nerve to the radial side of the middle finger, and upwards along the arm.

The patient earnestly requested the amputation of the first joint of the finger. But it was decided that Mr. Higginbottom should extirpate the tubercle by two free curvilinear incisions. This was accordingly done. The wound healed in a few days, the pain ceased from that moment, and the patient has experienced no subsequent uneasiness of any kind.

I mention this last circumstance particularly, because the patient had been alarmed by the suggestion that there would be a danger of the supervention of trismus from any operation. The result of this case has, however, only tended to confirm the observation of Mr. Wood, that "the tubercle may be extirpated with perfect safety, no unpleasant symptom having been ever produced by the operation*."

The small portion of integuments removed was divided by the scalpel after the operation: they were rather indurated over a small body of the texture of cartilage, which seemed to be contained by them as in a cyst, from which it was expressed by the thumb and finger. The portion of integuments removed was too inconsiderable to admit of tracing the small tubercle or its cyst to any connection with the nerve.

The patient's conjecture relative to the cause of his complaint is probable. There is a case of punctured nerve, somewhat analogous, detailed by M. Verpinet, in the third volume of the *Edinburgh Medical and Surgical Journal*. The subcutaneous tubercle occurs more frequently in women than in men, probably from the use made of pins in their dress; and it is possible that the *tic douloureux*, which is allied to this affection, often arises from the injury done to the nerves of decayed teeth, or the laceration occasioned by their extraction.

* *Edinburgh Medical and Surgical Journal* for 1812.

CHAPTER XXVII.

CASE OF THE EFFECTS OF TOBACCO.

ON May 24, 1815, Mr. J. H. aged 19, unaccustomed, except for a day or two before, to the effects of tobacco, smoked one and part of a second pipe, without employing the usual precaution of spitting out the saliva; and partook at the same time of a little porter. He became affected by violent syncope, and by violent retching and vomiting. He returned home, complained of pain in the head, undressed himself, and went to bed. Soon afterwards, he was taken with stupor and laborious breathing.

He was found in this state by the medical attendant. The countenance was suffused with a deep livid colour; the eyes lost their brilliancy; the conjunctivæ were injected; the right pupil was exceedingly contracted; the left was much larger than usual, and had lost its circular form; both were unaffected on the approach of light.

The hands were joined, and in a state of rigid contraction; the arms bound over the chest; and the whole body was affected with spasmodic contraction.

The breathing was very stertorous; pulse about 80 or 82, and nearly natural in other respects. No more vomiting; no stool or urine passed; no palsy.

Fourteen ounces of blood were immediately taken

from the temporal artery, and vinegar was administered. He revived evidently; the countenance became less livid; the spasmodic affection of the hands ceased; the respiration became less stertorous; the pulse was not materially affected. An emetic of ipecacuanha was given, and operated once, and afterwards some purgative medicine was administered.

He dozed through the night.

On the morning of the 25th, the patient was affected with syncope, during the efforts made to get out of bed and go to stool. At the visit, he complained very much of pain of the head and eyes; the eyes and eyelids appeared red, and suffused. Pulse 80, and natural. Tongue loaded and brownish; one stool. Continued to doze. The feet were cold in the morning. Sixteen ounces of blood were taken from the arm.

On the third day he still dozed, complained of pain of the head, of nausea, and of tendency to fainting. Countenance more natural; the pupils natural, and contract by light. Pulse 72. A loose stool passed insensibly in bed.

In the evening of this day, the patient again became affected with a degree of stupor, spasms of the hands, and stertor in breathing. The countenance was not livid; 3vj of blood were drawn from the temporal artery; vinegar was given, a blister was applied to the forehead; and mustard cataplasms to the feet; with much relief to the symptoms.

On the 27th, or fourth day, the patient appeared much as on the preceding morning. There was some pain of the head. No sickness or vomiting; one scanty loose stool. Dozing continued. Tongue dry and parched.

May 31.—Since the last report, he has gradually recovered. The headache, pain of the eyes, and drowsiness ceasing; a little obstinacy of the bowels; some appetite; tongue, &c. becoming natural.

The patient is at present (August) perfectly recovered.

This case seemed, on its first aspect, to wear the form of apoplexy, its cause being unknown. The appearance of the countenance, the state of insensibility, the stertor in breathing, are the same in both affections; but the absence of paralysis, the spasmodic affection being generally observed on both sides of the body; the natural state of the pulse; the manner of the attack; the succession of the symptoms of syncope, nausea, and vomiting, and affection of the head, all concurred in distinguishing this affection from any kind of apoplexy.

Indeed, the symptoms of the case were sufficiently peculiar: Syncope, succeeded by nausea and vomiting, and subsequently by violent pain and affection of the head; coma, and stertorous breathing, without paralysis, and with little affection of the pulse; the tendency to dozing, and to syncope on a change of posture, or on any exertion; the languor of the cir-

culatation observed in the extremities ; all these circumstances, taken together, seem to characterize decidedly the effects of tobacco, and to distinguish them from any other affection. It may be useful, however, on similar occasions, to recall to mind, that apoplexy, an injury of the head, a fit of epilepsy, a state of deep intoxication, the effects of other narcotics, asphyxia, syncope, &c. are all affections which, with the one recorded in this case, require to be accurately distinguished from each other.

The treatment employed by the surgeon in this case seems to have been very efficacious. Perhaps the opening of the jugular vein would have been equally so, as the lividity seemed to indicate a redundancy of venous blood. But in spasmodic affections, the temporal artery is more accessible, and more promptly and more conveniently opened. The particular treatment here mentioned was followed, in the later periods of the complaint, by such remedies as the symptoms seemed to require, and especially by repeated doses of calomel.

CHAPTER XXVIII.

ON THE EFFECTS OF THE HABIT OF GIVING OPIATES TO INFANTS.

I was consulted for a little boy aged six months. This infant was suckled during the first month after its birth ; at this period, being weaned, its mother began the pernicious practice of giving it an anodyne every night ; a practice which has been continued to the present day, and which has induced the following effects.

The countenance has a shocking disfigured appearance ; the colour is sallow ; the eye-lids, especially the under ones, are swollen and red, secrete a glutinous matter, and are without lashes ; the lips, especially the upper one, are also bloated and swollen ; the integuments of the face, in general, are puffy and flabby, and are marked with deep furrows or wrinkles, especially below the under eye-lid, and from the nostrils obliquely downwards, and outwards. When the infant cries or laughs, the countenance assumes an aspect still more shocking, the preceding appearances being increased ; the action of the muscles is deeply marked, the integuments being partly stretched, and partly puffed up ; the whole face is at once aged,

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the integuments, countenance, and the general decrepitude, continue after this period.

Subsequently to the last report, I have seen three infants, affected in a similar manner from anodyne compositions, who have been made to forego their use and adopt the plan of treatment just noticed. They have all improved remarkably in health, strength, and general appearance.

One female infant, however, of five months old, died of the effects of this baneful practice. Before death, it presented the most remarkable living miniature of old age, in the female countenance, that can be imagined. To this appearance the absence of the teeth would, no doubt, contribute materially.

The effects of opiates on infants require to be accurately distinguished from those of chronic disease,—of defective nutrition, of syphilis, and from that state of feebleness in which some infants, especially one or both of twins, or those which are born prematurely, or of sickly or aged parents, are brought into the world. They occur of course principally in the children of the poor.

CHAPTER XXIX.

ON GANGRENE OF THE FACE IN CHILDREN.

It would appear that the skin and subjacent textures in children are particularly liable to assume a disposition to sloughing and gangrene. I have witnessed this occurrence in cases of intertrigo affecting the bend of the thigh and the fossa of the nates, in excoriation behind the ears, in the inflammation which sometimes supervenes on inoculation, in severe cases of aphthæ, and as an effect of the application of a blister. Sloughing and gangrene are also usual in the erysipelas infantile; and children appear to be particularly exposed to that species of inflammation and of gangrene termed frost-bite.

Children are also liable, in the circumstances about to be described, to a particular affection of the face, which begins with pain, hardness, swelling, and slight erythematous redness, and terminates in the formation of a spreading eschar and ulcer. In one case, the patient did not survive the extreme irritation of the system in general, which attends the commencement of this affection; in four other cases, life was prolonged until a considerable portion of the soft

parts of the face and mouth was destroyed by the mortification, and the little patients died from exhaustion; in a sixth, the patient survived the affection altogether, after experiencing an extensive sphacelation of each cheek, of a part of the tongue and of the contiguous gums, and even of a portion of the jaw-bone.

In all the cases which have come to my knowledge, this affection had been *preceded* by fever, acute disorder of the digestive organs, typhus, inflammation of the lungs, variola, rubeola, or scarlatina. This affection would therefore appear to be, in some measure, the consequence of the exhaustion, debility, or irritation, induced by previous disease. It might be proposed, indeed, as an interesting question, whether it may be an effect of calomel, so usually prescribed, in the present day, in almost all diseases of children. I am disposed, however, to reply to this question in the negative. For, in one of the instances of this affection, about to be detailed, it appeared to be distinctly ascertained that no calomel had been administered; and the effects of calomel on the mouth, even when so great as to induce sloughing and prove fatal, are manifestly different from those of the disease under consideration.

This affection has appeared to occur principally, and indeed almost exclusively, in *infancy*, in the *winter* season, and in *female* children, as may be collected from a reference to the cases subjoined.

In this disease, frequently when the little patient has appeared to be *convalescent* from the previous indisposition, some part of the face has become affected with pain, induration, swelling, and erythema, and the child has become cross, irritable, feverish, and restless. At no distant period, usually on the succeeding day, a dark-purple or livid spot has appeared, which has soon assumed a dark-brown colour, losing its purple hue, and at the same time its vitality. When the patient survives, the sphacelated part enlarges, and becomes black, separated, loose, and extremely fetid; the living part retains an erythematous redness, bordered by a ring of a livid hue. The internal mouth is soon involved in the affection; the sphacelus penetrating into this cavity, the teeth become loose, and eventually fall out, and the breath is shockingly offensive. The child, from being restless, gradually becomes more patient and tranquil; it seems frequently conscious of the disgusting appearance of the affection, and dislikes to be noticed; but there is often, eventually, dozing or coma. In the later stages, there is not much heat of skin; but the pulse is frequent.

This affection appears to be by no means very unfrequent, as, in conversations with different medical friends, I have found that each could recall to mind similar cases, as having been cursorily observed by them in the usual hurried course of practice. It is noticed by Mr. Dease, Dr. Underwood, and Mr.

Burns, under the denomination of *erosion of the cheek*. Huxham, too, observes, in his report for July 1745, "I have more than once, during this month, witnessed a mortification of the fauces and mouth; and, besides, a caries of the cheeks and os vomeris, which occasioned a very painful kind of death, and that, too, after the measles." And, in the report for September, he adds, "Sometimes there were very terrible ulcers of the mouth, which occasioned a caries of the maxillæ." Dr. Willan remarks, in relation to scarlatina, "In one infant, about the eleventh day, a considerable erysipelatous swelling affected the left cheek, and, within three days, produced a deep gangrenous eschar. The wrists, at the same time, became rigid and contracted, and the patient died on the sixteenth day of the disease. Another child, eight years old, was affected, on the seventeenth day, with an erysipelatous swelling under the left eye, and died on the following day. It would appear, from authors, that there has often occurred superficial gangrene in other parts of the body, as about the nates and genitals, and likewise on the tongue, gums, and insides of the cheeks, sometimes attended with caries of the jaw-bones."

Dr. Parr observes, under the head of *Nome*, that the term signifies "ulcers that sometimes attack the cheek or vulva of young girls. These appear in the form of red and somewhat livid spots; are not attended with pyrexia, pain, or tumour; and in a few days

become gangrenous. These ulcers are usually considered as phagedenic." Mr. Burns's account is still more distinct*. These notices of the nome may serve, perhaps, to connect the term with the disease described in this chapter; or, being quoted here, they may lead to a more correct and accurate acceptance of this word. And, notwithstanding the accounts of this disease to which I have directed the reader's attention, I have thought that a detail of some cases of the affection might still be valuable, by diffusing a knowledge of its character at that early period at which alone a cure appears either probable or desirable; and that it might present a *counterpart* to a paper by Mr. Kinder Wood†, on a subject somewhat analogous, and, if the associations made by Dr. Parr, and still more pointedly by Mr. Burns, be correct, perhaps somewhat *connected* with the affection which forms the subject of this communication.

This affection must be principally distinguished from common parulis, erysipelas, canker, from the effect of mercury on the mouth, and from syphilis.

I shall now subjoin the cases of this affection to which allusion was made in the commencement of this chapter.

Case 1.—November 1, 1817. Mr. Storer's little girl, aged three years. This infant became affected with rubeola eight days ago. The rash was very dis-

* Principles of Midwifery, ed. 3, p. 499.

† Medico-Chirurgical Transactions, vol. vii. p. 84.

tinct on the fifth day, and has since that day been gradually declining. Yesterday she first complained of the under lip, which was observed to become affected, together with the left cheek, with a degree of hardness and tumour. This morning, besides the hardness and swelling, two minute livid or purplish spots were observed on the left part of the under lip, at its inner edge, where it is not supplied with cuticle, and so as to be partly within and partly without the cavity of the mouth. During this day the two spots have increased in magnitude, and have coalesced. The lip is affected with more hardness than swelling. This is distinctly felt on applying the finger. The hardness extends from the left to the right part of the under lip. The left cheek is also tumefied, and the left eye almost closed. The tongue is moist. The breath not yet fetid. The teeth not loose. The bowels open. 2nd. The livid spot is somewhat more extensive, but the skin is unbroken, and it might be compared to the appearance in ecchymosis or purpura, affecting this part. But the colour is a bluer livid, and there is a considerable hardness and some tumour of the whole lip towards the right side and towards the chin. The child is constantly applying its fingers to the part affected. The left side of the face is more swollen than before, and the left eye quite closed. The tongue is moist, the breath untainted, and the teeth still fast. The inside of the lips and the gums are unaffected. A third spot, besides the two which

have united, was observed last night about the middle of the lip, and is rather larger this morning. The skin is cool. The pulse is frequent. Leeches, a cold lotion, and a purgative and saline medicine, were prescribed. 3rd. The spot is still somewhat increased in size. The middle part is now black; the edges of a purple livid colour. The hardness and swelling are also somewhat augmented; and the cheek has a glistening and erythematous appearance, without much redness. The left eye is quite closed. The right side of the face is slightly swollen. The breath is not fetid. The pulse is 192, and sharp. The bowels loose. There are great restlessness and uneasiness; but little external heat. The child is constantly picking the part affected with its fingers. 4th. Little change since yesterday. 5th. There is now a degree of fetor in the breath. The cheek and lip are still very hard; but the swelling is less considerable and paler. The respiration is rather laborious. The pulse is softer. There is an appearance of sinking in the countenance and general aspect. The infant died a few hours after this report.

This is the only case under my observation in which death took place before the sphacelus had spread so as to destroy a great part of the soft parts of the cheek and internal mouth, and in which the patient appeared to die from the violence of the first symptoms.

Case 2.—October 12, 1817. Mrs. Stone's little

girl, aged two years and two months. This little girl was attacked with rubeola four weeks ago. A fortnight ago, when only apparently labouring under the consequent debility, she became affected with hardness, swelling, and palish redness, of the upper lip, and of the cheeks, especially the left. In a short time, the gum in front of the upper jaw was observed to become livid, and the teeth became loose, and soon dropped from their sockets. About the sixth day of this affection, a black spot appeared immediately under the left nostril; this spot gradually increased in magnitude; became separated and loose; emitted a most offensive odour, and was surrounded by an erythematous redness of the living parts. The disease extended until the lip, part of the *alæ nasi*, nose and cheek, the front teeth, and part of the front of the upper jaw, were involved in sphacelus. The separated portion of flesh at length fell in, and exposed the internal mouth. Before death, too, the front of the under jaw and the under lip became affected. The under lip presented the same appearance of a circumscribed black spot, just below the lobe; this spot was surrounded by slight redness; it soon became a distinct, circumscribed, black, loose slough. The ulceration extended; the teeth fell out; and the gums participated in the affection. The fetor exhaled was excessive. Life was prolonged about fourteen days from the commencement of the affection, when the infant seemed to expire from exhaustion. Dur-

ing the course of the complaint, it was generally restless, thirsty, and feverish.

Case 3.—January 1816. Mr. Smith's little girl, aged four years. She has had four attacks of inflammation of the lungs at different intervals, for which she was bled, &c. When apparently recovering from the last attack, the complexion was observed to become darker than usual; this appearance ceased, however, on the following day. But a degree of swelling was remarked on the left side of the face; and she complained of toothache, and of pain of the head. On the first or second succeeding day, a black spot was observed on the side of the left ala nasi, and one of the teeth had fallen out and was found in bed. The breath was extremely fetid. The spot was surrounded by an erythematous redness, and a degree of hardness. The little girl required to be rocked constantly. There was apparently little feverishness. The sphacelated spot increased daily. The teeth became loose and fell out. The breath continued excessively fetid. About the tenth day from the commencement of the affection, the little patient expired.

Case 4.—January 4, 1817. Mr. Benson's little girl, aged three years and a half. She had been affected with fever about fourteen days, and was apparently convalescent, when a degree of swelling was perceived affecting the left side of the face, the left part of the lips, and closing the left eye. This swelling presented a red, glistening appearance. About

the same period, three spots were observed, one on the gum of the under jaw, and the other two on the left cheek. Those on the cheek soon became dark-coloured. The child was extremely cross and restless, and constantly picking the part with its fingers. At first, the progress of the affection was slow; but the spots gradually spread; a slough separated from the living part. The cheek was at length perforated, and the internal mouth exposed. The two sphacelated parts united. The dead part was retained in its place by means of a bandage; the teeth fell out. The breath and the exhalation from the ulcer were extremely offensive. The child lingered about fourteen days, and sank gradually. There was little affection of the appetite or bowels, and the power of swallowing was retained to the last. She seemed sensible of the state of the face, and could not bear to be examined.

The following case was communicated to me by a friend.

Case 5.—October 31, 1815. Matilda Ellis, aged five years. She has been ill of worm-fever for some time; since which, a black spot has appeared on the cheek, and, having increased, a large hole is formed through the cheek. The mortification spreads rapidly, and will soon reach the mouth. November 3rd and 5th. The disease has spread still more. There is a secretion of pus at the part nearest the mouth. 8th. There is a very extensive mortification of the left

cheek; the surrounding integuments being erythematous and swollen. The mortification now occupies the fourth part of each lip on the left side, extending upwards within an inch of the orbit, backwards to the anterior edge of the masseter muscle, leaving the integuments over the zygoma untouched, and downwards to the basis of the lower jaw. The whole substance of the cheek has sloughed away to near the angle of the mouth; but elsewhere the inner lining of the mouth is still preserved. 11th. The disease has spread a little towards the nose. 17th. The disease still spreads. 18th. The little patient died last night. About one half of the nose is destroyed, and the mortification has extended to the left eye, and nearly to the left ear. The globe of the eye was not injured, but appears flatter than usual.

Case 6.—October, 1818. Mary Barker, aged twelve years. In the second week of typhus fever, the gums and left side of the tongue were observed to have become black, and to be in a state of sloughing; the breath being extremely offensive, and the teeth loose. The face was much swollen. The inside of the *left* cheek, the left angle of the mouth, and a portion of the left side of the tongue, became, in a short time, affected with discolouration, succeeded by gangrenous sloughing and ulceration. About a week afterwards, a gangrenous slough was observed to have formed in the middle of the *right* cheek, and the angle of the mouth of this side was observed to be

eroded with ulceration. The two parts were torn into one by the patient during delirium. Much of the inside of the cheek, and a considerable portion of the angle of the mouth, sloughed. The gangrene was at length apparently arrested by poultices. Notwithstanding all this disease, the patient has survived, and is now (May 4, 1819) in good general health. The *right* angle of the mouth has contracted and healed ; but the cheek is much fallen in, from the loss of substance. The *left* angle of the mouth displays a frightful chasm. Three teeth have fallen out, and a portion of the superior maxilla juts forward in a loose state, black, emitting an offensive odour, and covered by an exudation of pus, which issues from the alveola. The edges of the wound in the cheek are cicatrized.

Such was the deplorable aspect of this little girl in May. It was then proposed, when the removal of the diseased bone should have taken place, and the parts have become healthy, to join the opposite parts of the chasm in the left side of the cheek, by an operation similar to that for the hare-lip. But, in the beginning of July, a tendency to gangrene and sloughing again manifested itself, without any assignable cause. The soft parts at the opening at the left angle of the mouth became swollen and livid, the eschar and skin sloughed so as to enlarge the orifice considerably, and a portion of gum also separated. On this recurrence of the tendency to sloughing, the com-

mon linseed poultice was exchanged for a cataplasm of vinegar, chamomile flowers, and linseed ; this gave some pain, and appeared to arrest the sloughing ; afterwards the parts healed, grew a little, and the orifice is at length become nearly as described in the last report. A portion of the alveolar processes and side of the palate bone, and the second molar tooth, are carious, and moveable by the probe.

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“ Wm. Schofield, aged four years and four months, was admitted as an out-door patient to the Western General Dispensary, October 21, 1839, suffering from hooping-cough, under which he had laboured for ten days or a fortnight. Antimonial salines were prescribed; eight days after his admission, he was attacked with severe symptoms of pneumonia. Three leeches were applied to the chest, and a mixture containing liq. ammon. acet. and vin. ant. tart. was given. Two days after this, a blister was applied, and, the bowels being in a confined state, three grains of calomel were prescribed. This was on the 29th of October; until this time, no calomel had been given. These measures afforded some relief to the patient, and were persisted in until about the 7th of November, the calomel being repeated on the 30th of October, the 2nd, 4th, and 7th of November.

“ About this time, a considerable swelling of the right cheek was observed, attended with difficulty in opening the mouth, and a very offensive breath. The gums and inside of that cheek appeared ulcerated. Bark, and a gargle of borax, were prescribed. The mouth continued getting worse, when, about the 16th, a sphacelus appeared on the right cheek, of about the size of a shilling, which rapidly extended to the size of a crown. Quinine, wine, and opiates, were prescribed, and nitric acid was applied to the external surface of the gangrenous patch. The child continued getting worse, and died on the 23rd.”

The post-mortem examination was conducted with great care by Mr. Lomax, in the presence of the following gentlemen and myself: Dr. Green, Mr. Barker, Mr. Andrews, Mr. Ley, and Mr. Fagg; on the 27th of November.

There was no sign of disease within the cranium, excepting, perhaps, a little more serum than usual.

The lower lobe of the right lung was the seat of pneumonia. The pleura pulmonalis adhered by means of long and firm adhesions to the pleura costalis.

The right auricle was gorged with blood.

There was no disease in the abdomen.

There was an extensive eschar in the right cheek; its size, externally, was $2\frac{1}{2}$ inches in length by $1\frac{1}{2}$ in breadth. It penetrated through the entire cheek, and occupied an equally extensive space on its internal surface; the contiguous gum was in a similar state of sloughing, the alveolar processes were denuded; one or two teeth had disappeared, and several adjacent ones were loose.

On the left side an incipient gangrene was observed, occupying the internal part of the cheek and the contiguous gum, the teeth being loose: there was no indication of such disease *externally*.

I now most carefully examined the condition of the other parts of the mouth, with a distinct reference to the question before the Coroner. The *tongue* was perfectly free from tumefaction, ulceration, or other

morbid condition ; *the gums and internal parts of the cheek*, excepting those affected with gangrene, were also perfectly free from any morbid appearance ; and the teeth were perfectly firm in their sockets.

The facts last mentioned are, in my opinion, definitive as to the question of this affection having arisen from calomel. Not to mention the extreme rarity of ptyalism in children, in cases in which many times more calomel have been given, it is well known to every observer that the effect of calomel, when it does take place, is *uniformly diffused* over the *gums, tongue*, and internal parts of the *cheek*.

It appears therefore scarcely necessary to adduce other facts. I may, however, mention that I have known an instance in which gangrena oris occurred, in which not a grain of calomel had been given ; and Dr. Green, who observed his cases in Paris, where calomel is rarely prescribed, has taken the notes of nine such cases. Further, when sloughing from calomel does take place, and I have witnessed several such cases, one a fatal one, it is *diffused*, and is totally different in many respects from the *circumscribed* form of the gangrena oris.

It is now eighteen years since I published half a dozen cases of this disease, in the fifteenth volume of the Edinburgh Medical and Surgical Journal*. I then compared them, as Dr. Parr and Mr. Burns had

* See above, p. 177.

done before, to an affection of the *pudendum* occurring in female children, and of which an interesting account is published in the seventh volume of the Medico-Chirurgical Transactions, by Mr. Kinder Wood. In these latter cases, the chief characteristic is a phagedænic ulceration (in one case there was mortification, however) in the place of gangrene.

In the last volume of the Royal Medico-Chirurgical Transactions, there is a case, by Mr. Solly, of gangrene of the *limbs* in a child only three years and seven months old.

CHAPTER XXXI.

A CASE OF PERFORATION OF THE STOMACH AND ŒSOPHAGUS, WITH BRIEF REMARKS.

THE little girl whose case I am about to describe, had been subject, from a very early period after its birth, to attacks of bronchitis.

Early in April, it became affected with pertussis. The symptoms of bronchial and pulmonary inflammation called for the abstraction of blood; and three, and then two, leeches were applied to the chest on two successive days, with other remedies usual in such cases. This was followed by exhaustion with reaction, the countenance varying, being sometimes pallid and cold, and sometimes flushed, and the pulse frequent and jerking. Soon after the second application of leeches, there were also frequent fits of convulsion, for which a cold lotion was applied to the head; and the warm bath was used frequently. The *hydrargyrum cum creta* was administered, with a mild nutritious diet. There was no sickness, no diarrhœa.

After a variable state of things, this little patient sank and expired, having lingered eight days.

Permission could not be obtained to inspect the body until the fifth day after death. The morbid

appearances were then carefully noticed by Mr. R. Welbank and myself.

The general surface was extremely pallid; but there was little or no emaciation.

The bronchiæ were clogged with mucus, and the lowest lobe of each lung was hepatized.

On looking into the right cavity of the thorax, a small portion of venous blood was observed. The source of this was carefully traced. A small part of the pleura, immediately adjacent and above this spot, extending upwards over the convex surface of the vertebræ, was found perfectly removed by erosion; the subjacent veins had been opened by the same process, and their blood had escaped; the nerves were left entire, as it were beautifully dissected. Proceeding with the examination, there was found, at a part which corresponded with these appearances, an opening that penetrated into the œsophagus; and through this opening a portion of the contents of the stomach flowed, on raising this organ. At the same moment, the rest of the contents of the stomach escaped into the abdomen, through a large orifice at its most dependent part.

On further examination of the state of the œsophagus and stomach, the mucous membrane was found uniformly reduced to a gelatinous mass; the textures constituting the former were pierced by an irregular opening, of a size less than that of a pea; the peritonæum covering the latter was destroyed to a con-

siderable extent. But there were no appearances of disease about the edges of either orifice.

The head was not examined. The other viscera presented no unnatural appearances.

The case thus briefly detailed leads to some remarks of great interest.

1. It cannot be doubted that in this case the perforations of the œsophagus and of the stomach resulted from the action of the gastric juices after death. This appears to be proved by the eroded state of the adjacent parts. This fact may therefore be regarded as established by the present and similar cases.

2. It is equally certain that there is one special disease or disorder of infants which leads to similar results, as stated in the interesting and valuable paper of Dr. John Gairdner, in the Transactions of the Edinburgh Medico-Chirurgical Society, vol. i. p. 311.

3. It is a point of the utmost importance to state, in the account of the post-mortem appearances, at what precise period after death the examination was made; and it might be useful sometimes to make the examination at two distinct periods, taking care not to disturb the parts at the first. It is quite plain, that, had the parents of the little girl, whose case has been given, earlier consented to an examination of it, some of the appearances which have been described would not have been observed.

4. It would be interesting to make a series of ob-

servations on rabbits and other animals, with a view of determining the circumstances which favour or oppose the erosion of the stomach by the gastric juice. The observations made by Dr. W. Philip, in the third edition of his singularly admirable work on the Vital Functions, pp. 131, 132, appear to be too general on this point.

5. We might possibly employ the gastric juice in the minute dissection of the nerves, since this texture appears to resist the action of this agent, whilst that of the other parts is destroyed by it. The fact itself is mentioned by Cruveilhier, in his *Médecine Pratique*, Cahier i. p. 143.

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II. *On Scarlatina.*

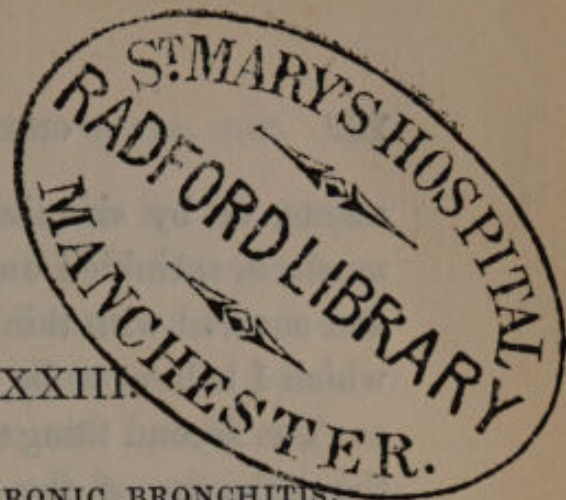
I HAD, a year or two ago, the melancholy task of watching a case of scarlatina, in which, when the disease had run its usual course, the rash, sore-throat, and fever, recurred, with enlarged parotids, and led to a fatal issue.

It is well known that scarlatina may recur in the same individual at a distant period from the first attack. But the case I have sketched is the only one which I have witnessed of scarlatina being recurrent *immediately* upon the first attack having finished its course.

III. *Suggestion for the Treatment of Scarlatina, &c.*

Chlorine seems to possess the power of decomposing or destroying the principle of contagion. This principle is probably absorbed into the blood. Chlorine may admit of being so absorbed too, if respired, swallowed, or applied to the skin. I would propose that, in cases of this kind, chlorine should be diffused in the atmosphere of the sick-room, applied to the general surface in the way of ablution, swallowed as a drink, and used as a gargle, appropriately diluted.

It is needless to point out the manner in which this mode of proceeding may produce its beneficial results. This will be obvious to every one.



CHAPTER XXXIII.

ON THE TREATMENT OF CHRONIC BRONCHITIS, CHRONIC PNEUMONIA, ETC.

BRONCHITIS, pneumonia, pleuritis, from being repeated, neglected, or mismanaged, may issue in a chronic affection within the chest, inducing troublesome cough, dyspnœa, &c. &c. The question to be discussed in this chapter is, what is the best mode of treatment of such affections?

It is plain that this treatment, to be effectual, must be chronic too, like the ailment itself.

I had a little patient who was affected with violent pertussis, influenza, and repeated attacks of bronchitis, in succession. Chronic bronchitis was the result. For three whole years, a sharp liniment was applied over the back and front parts of the thorax, night and morning, without intermission. The result was that the chronic bronchitis was effectually cured.

This case may afford an example of the kind of steady perseverance that may be required in such cases. But I proceed to state the plan of treatment more in detail.

The first thing is to keep up a steady counter-irritation over the chest. This may be done by lini-

ments, or by sinapisms (of which the best form is mustard, sprinkled on flannel wrung out of hot water, and covered with thin muslin), or the two alternately, which I believe to be better than either alone.

The second thing to be accomplished is to exclude the influence of the oxygen, dryness, and temperature of the atmospheric air, on the *external* surface of the thorax. To accomplish this object, oleaginous liniments may be used; but what is far better, is an ample adhesive plaster, fitting the whole surface of the chest. This may be removed, to apply the liniment or sinapism, and be reapplied; or the former remedies may be suspended for a time, to admit of wearing the plaster, and may be resumed when it is thought that this has had a fair trial. These plans may be varied with the season.

The chest is to be defended from inclement temperature by a flannel, silk, or leather waistcoat.

Not only the chest, but the face and the general surface of the body should be defended. Now the best *respirator*, the best protection to the face, throat, and chest, is—a *brown crape veil*. This may be used as a shawl in general, and be thrown over the head and face on occasions of exposure. The general surface should be protected by flannel; the feet should be kept guardedly warm and dry.

But the important part of the treatment is that to be pursued during the night. I have frequently found the following plan of extreme value: a sort of

mosquito net is formed of muslin ; this is made to pass over and enclose a chair, on which is placed a large jar nearly full of water, at 180° Faht. ; and under the same net the patient sleeps. During the whole of the night, he inhales a warm and genial vapour, whilst his face is exposed to it, and the whole surface is influenced by it. A state of the skin, and of the air tubes and cells, is induced which is very favorable to the cure of chronic inflammation within the chest.

The success of this plan in chronic bronchitis, pneumonia, and pleuritis, has been most gratifying.

The plan must be long continued. During the winter, and during the prevalence of the north-east winds, the patient should occupy a room warmed by an Arnott's stove. I have known a patient who would cough excessively during the whole night, in an ordinary bed-room, sleep undisturbed in a drawing-room supplied with such a stove.

In pneumonia, cupping and setons over the solid part of the lung should be added to the other measures*.

* See further, p. 67.

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In the course of the night, however, the ear-ache and the rheumatic pain of the neck returned with violence. The weather was intensely cold; it was the night of the 13th of February, 1844. After fomentations had been applied in vain, I nearly filled a large flat tea-pot with boiling water, stopped the spout, and covered the tea-pot with six or eight folds of flannel; I laid the little patient's ear over it, the lid being removed. In a quarter of an hour he was asleep!

The next day the sickness continued, and a draught containing fifteen grains of rhubarb, of carbonate of magnesia, and of the bicarbonate and sulphate of potass, and all food, were rejected. A powder with three grains of calomel was given. It remained on the stomach and moved the bowels, and the little patient appeared better, and probably took too much food.

Again, in the succeeding night, the ear-ache and pain of the neck returned. It seemed probable that a slight draught of air, in the coldest part of the night, might be the cause of this return, and every crevice round the window-frame was closed by paste and paper. The vapour of the tea-pot again gave relief.

The next day, four grains of calomel were given. It remained on the stomach, moved the bowels, expelling spinach-like motions, and greatly subdued the patient, inducing a feverish state of the tongue

and mouth generally, heat and dryness of the skin, and general mal-aise.

Again, in the course of the night, the pain returned, affecting all the upper part of the scalp most severely. Here the tea-pot could not be applied. But I filled a flat pint glass bottle with boiling water, wrapped it in many folds of flannel, and applied it along the head, from the occiput forwards. Again my little patient's piercing cries were lulled, and again he fell asleep. (I have since thought of the sad effect which might have followed, had the bottle cracked or broken and the water escaped. Some safer method of applying heat should be adopted. I have thought that the tea-pot might be filled with a large sponge; that this would absorb and retain the boiling water, and admit of being *inverted* on the seat of pain.) The sickness continued to recur.

Still suspecting the night-cold, or draughts, I had my patient removed into the drawing-room, which is warmed by an Arnott's stove, on the morning of the 16th. From this time we had no return of pain or of sickness, and our course was one of recovery. The ear-ache and rheumatic neuralgia ceased, the bronchitis subsided, the sickness was forgotten; and first the appetite and then the strength returned.

That the vapour and heat of the tea-pot, and the heat of the bottle, afforded great and present relief, is indubitable. But the value of the equably warm tem-

perature and genial moisture of the atmosphere of the drawing-room, with its Arnott's stove, was also most marked.

The little patient was so much improved by the 25th, that I believed he might be taken into the dining-room. He was carried down stairs, and placed on a Dawes's chair near the fire, with every precaution to avoid cold. I had great reason to regret this step; for, on the 26th, there was a return of rheumatic—or neuralgic—pain of the forehead, sickness, feverish breath, and frequency of the pulse. The bottle with hot water was again applied, with success; the bowels were moved by the warm-water enema; no food was taken, except a little tea.

In the evening there was much fever and restlessness. The little patient was moved to the sofa, and had his feet put into hot water, whilst his bed was freshened. He took some tea, gradually fell asleep, slept well, and awoke free from fever, and with an appetite.

It need scarcely be added, that this little patient was not again too soon removed from the genial atmosphere produced by the Arnott's stove. Without this, and with such ungenial weather, I know not how long he might have suffered from attacks of the severe symptoms which have been enumerated.

After this period, the patient suffered from dreadful attacks of pain, which assumed the recurrent character of *brow-ague*, though without being limited to

the brow. They were subdued by large doses of quinine, long continued.

This formidable malady was induced either by remaining in wet trowsers after snow-balling on one day, or by snow mischievously put into the little patient's neck and bosom on the next. With these immediate causes, the habitation of a house newly built, on London clay, might possibly concur. The pain frequently induced actual delirium. On one occasion, stupor occurred, instead of pain or delirium, and masked the disease so as to render it scarcely recognizable.

The little patient was slightly deaf before this attack; but I have now to deplore deafness augmented to a serious degree, especially of the left ear, the one principally affected.

CHAPTER XXXV.

CASE OF GANGRÆNA SENILIS TREATED BY THE NITRATE OF SILVER; BY J. HIGGINBOTTOM, ESQ.

A retired tradesman, seventy-three years of age, of a full habit, was attacked with gangræna senilis. Before my attention was directed to the disease, the third and fourth toes had assumed a dark colour, and become a little swelled; and two small purple vesications had appeared on the lower and outer part of the leg.

The disease appeared to have existed for several days; and, from its progress, I feared the result would be unfavourable. I determined to try the effect of the nitrate of silver. I used it in the solid form. The parts being previously moistened with water, I applied it freely on the affected toes and over the surrounding healthy skin; and having removed the little vesications on the leg, I touched the denuded surfaces, so as to form eschars.

The eschars became adherent; the inflammation was subdued, and all further mischief prevented. In due time the eschars were thrown off, leaving the parts underneath healthy.

No constitutional remedies were employed.

The patient lived three years afterwards; he had

no return of the complaint, and died ultimately of old age.

The external application of the nitrate of silver to the surface of the skin appears to have a very extraordinary influence on the subjacent vessels, changing an unhealthy action into a healthy one. What is very remarkable, is, that after one decided application of it upon the skin, its action appears progressive, and is completed in four days.

On an inflamed surface, little vesication may be induced on the first day. On the second day there is often more vesication. On the third, the vesications appear stationary, or rather on the decline, and the swelling of the part has a puffy feel when pressed upon with the finger; and on the fourth day the vesicles suddenly disappear.

If the vesicles be not previously broken, the escharred cuticle remains adherent until the new cuticle is formed, and then is cast off.

From the success of the nitrate of silver in checking the progress of gangræna senilis in the above case, I am led to conclude that the disease is, in the commencement, in some cases, confined to the capillaries. The nitrate of silver could scarcely have such an effect, if it had a deeper seat. Ossification, or inflammation of the arteries, may be the cause of gangræna senilis in certain cases; and in these the nitrate of silver will not, of course, be expected to effect so ready a cure.

CHAPTER XXXVI.

CURSORY REMARKS ON DIAGNOSIS.

DIAGNOSIS constituted the subject of my first medical studies, and of my first medical publication. I still regard it as the most important object of the attention of the physician, and destine it to occupy my own for what remains to me of professional career.

By the term diagnosis, I do not mean merely the distinction of one disease from another. Such a diagnosis would form but a very inadequate foundation for prescription, or the treatment of a patient. To be prepared for this last important duty, we must carefully and accurately determine—

I. 1. *The Seat*—2, *the Nature*—and 3, *the Extent*
—of the Disease :

II. *The diffusion of the Disease*—1, *in the Organs*
—2, *in the System* :

III. *The Effects of the Disease*—1, *on the Organs*
—2, *on the System* :

IV. *The Effects of the Remedies*—1, *Diagnostic*—
2, *Curative*—or 3, *Morbific*.

This kind of diagnostic investigation must occupy us at each of our successive visits to our patient; for we must never forget that the disease, and our remedies, are each producing their appropriate effect on the patient's state. The problem soon becomes a complicated one. The effects of disease of the heart are soon detected in the lung, the liver, the kidney, &c. and on the system at large; tubercle is apt to be diffused amongst several organs in the same patient; the effects of blood-letting are soon traced on all the organs and on the whole system; the effects of mercury, of digitalis, of colchicum, are also apt to complicate the original case; and without the just diagnosis of such complication, our views of the case must be defective.

How often do we see symptoms—the *effects* of a disease—treated as the disease; how often do we see the effects of our treatment even, mistaken for disease! As an example of the latter, I may advert to the throb of the temples, or of the heart, and other symptoms of affection of the head and heart, arising from repeated blood-letting—the reaction or the remote effects of the loss of blood.

A just and accurate diagnosis determines all these questions, and solves a problem, of the difficulties of which the dishonorable abettors of the different systems of empiricism have no idea. The difficulty of this problem, indeed, is only known to the scientific and conscientious physician.

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This operation was performed by Dr. Heming, of Manchester Square. The uterus being protruded as much as possible, by the efforts of the patient, two parallel incisions were made through the mucous membrane, from the sides of the os uteri, along the course of the protruded vagina, to the os externum; the portion of this membrane situated between these incisions was then removed, leaving a space of one inch and a half in breadth, and of the entire length of the vagina, completely denuded. A suture was then inserted, near the os uteri. This suture being tightened, the os uteri was obviously pushed upwards. A second, a third, and other ligatures, were then inserted, in the same manner, at short intervals, to the os externum; each ligature, on being tightened, moving and supporting the os uteri upwards.

This operation was attended with little pain; the only sensitive parts of the membrane being those near the os uteri and os externum.

The patient was directed to keep quiet in bed. The bowels had been opened. An opiate was given. No pain or fever followed. In four or five weeks, the denuded parts had firmly united, and shortly afterwards the ligatures were come away.

On examination, six, eight, and ten weeks after the operation, the os uteri could be just felt *in situ*, by the finger passed through the vagina: the vagina was firmly contracted along its whole course.

The prolapsus of the uterus was thus completely

remedied. The descent of the pouch of the rectum was lessened.

This patient was examined several years afterwards by Mr. Vincent. The uterus remained in its proper position.

The principle upon which this case was treated, is illustrated by a fact, detailed to me by Dr. Holland, of Queen Square, May-Fair. A pessary, introduced in a young person to support the uterus, subject to be completely prolapsed, induced great inflammation. This was followed by such firm contraction of the vagina, that the uterus ever afterwards remained in its proper situation.

This operation has been more recently repeated with success by M. Velpeau and by M. Berard, jun. It has been designated, by the latter, "*elytroraphie*" (from *ελυτρον*, *vagina*, and *ραφη*, *a suture*).

The case of prolapsus uteri must be carefully distinguished from that of elongated cervix uteri.

CHAPTER XXXVIII.

SUGGESTION FOR THE CURE OF VASCULAR NÆVUS.

VASCULAR NÆVI appear to me to have their seat variously—in the minute arteries, in the true capillaries, and in the minute veins.

The arterial nævus consists, obviously indeed, in numerous enlarged cutaneous arteries. This is obvious in the nævus *araneus*; and there is every intermediate form or degree of this kind of nævus, between that of distinct and scattered minute arteries, and that of minute arteries so crowded together as to constitute a diffused, florid, and uninterrupted redness. This kind of nævus is little elevated, and of no certain form.

The *capillary* nævus, on the other hand, consists as evidently in *dilated* capillary vessels: the points of dilatation are frequently manifest on the surface; the colour is deep and livid; the boundary more regular and circular; the tumor more elevated and globular.

It is probably this species of nævus which, when seated more deeply, and unattended by discolouration, has been designated, by Mr. Wardrop, the *subcutaneous*. It sometimes attains a large size; in other

instances it involves the subjacent textures, or organs, as the bones of the skull, &c. and may then be designated the *complicated* nævus. In a case of this kind mentioned by Dr. A. T. Thomson*, the disease extended to the bones of the cranium, and became complicated with hydrocephalus.

There is a fourth form of nævus, perfectly distinct from any of those which have been enumerated, which may be denominated the *venous*, or *varicose*: it is subcutaneous; if it consist of a few minute veins, these are seen in the vicinity of the nævus itself, which consists of more crowded minute branches, or more of capillary vessels; but when the veins are large, the sensation which it imparts to the finger is precisely that presented by varicocele. Such a case exists in the neck of a medical friend.

A fifth form of nævus is that which may be designated the nævus *increscens*.

It is necessary to distinguish it from the stationary nævus; because, as Celsus observes, “*quædam remedia incrementibus morbis, plura jam inclinantibus, conveniunt†.*”

It is, indeed, an important question to consider whether the same mode of treatment be equally applicable and beneficial to each of the various kinds of this disease.

* Bateman on Cutaneous Diseases, ed. 7th, p. 448.

† Lib. iii, cap. 1, sect. 1.

When we reflect that the vascular nævus may be arterial, capillary, or venous, it will appear rather fanciful to confound these real distinctions, and to compare these diseased conditions, so obviously various, to the erectile tissue, as is done by M. Dupuytren. The erectile tissue is, indeed, endowed with its own peculiar anatomy, properties, and functions, nerves and blood-vessels, and has its origin in a peculiar *nîsus*; whereas the vascular nævus frequently consists in mere enlarged arteries, dilated capillaries, or varicose veins.

The capillary nævus is frequently situated over a considerable artery, with which it is probably intimately connected, and from which it may probably derive its origin, being induced by the too forcible impulse of the blood upon the irresistible capillary vessels; sometimes it has no such connection, and its excision does not divide any vessel of importance. In the former case, the pulsation of the artery may be felt, on pressing deeply through the tumor, or the tumor may be pulsatory. This nævus is generally of the kind which I have designated capillary; and the ligature of the main artery, as performed by Mr. Hodgson, Mr. Wardrop, and M. Dupuytren, will effect a temporary diminution of the disease.

In other cases, the nævus may be determined by the impeded return of the blood through the veins. It is exceedingly augmented on every muscular effort, as in crying, &c.; and its growth may be accelerated

by similar causes. Its peculiar localities may, perhaps, be explained by a reference to the operation of this cause. I have thought that the frequent occurrence of *nævus* behind the ear might depend upon the pressure of the finger of the accoucheur.

Whatever the cause may be, the disease seems to be seated in the minute or capillary vessels; and to these the remedy should be applied.

Although entirely vascular, the vitality of these forms of *nævus* is extremely low: ulceration and sloughing are readily induced; adhesive inflammation and other curative processes very slowly. This characteristic must be our constant guide in selecting the mode of cure. If too much be attempted, we may induce destructive changes; if safe means only be employed, we must expect them to act tardily, and, perhaps, require to be frequently repeated.

The principal modes of the cure of vascular *nævus* which have been hitherto tried, are—1, the application of cold and pressure, proposed by Mr. Abernethy; 2, vaccination, by Mr. Hodgson; 3, excision, by Mr. J. Bell; 4, the ligature, by Mr. J. Bell, Mr. White, and Mr. Lawrence; 5, the application of the potassa, by Mr. Wardrop; and 6, the ligature of the principal artery which supplies the *nævus*. The first of these modes of treatment is usually inefficient; the second is only applicable to superficial *nævi*, and frequently induces ulceration or sloughing, and eventually a scar; the third is frequently dangerous, from hæmor-

rhagy, and proved fatal in one instance, even in the hands of Mr. Wardrop; the fourth is attended by extreme pain, and in one case there were convulsions*; the fifth must be liable to the same objections. All these remedies, except the first, leave a scar, and are totally inapplicable in many cases of diffused or deeply seated nævus. The ligature of the artery is at once a formidable and unsuccessful operation.

To this list of remedies must be added the tartar-emetic ointment, the nitric acid, &c. The same observations apply to them. Their application is attended with pain, and followed by a scar.

The question is, then, can we devise a mode of treatment, in these cases, which shall, without the danger of inducing ulceration or sloughing, be efficient in the cure, applicable to all circumstances and localities of the disease, to parts not admitting of pressure, and to parts so deeply seated as to be removed from the action of vaccination, and not to admit of the ligature, or of excision? All these objects are attained by the operation which I am about to propose. This operation is calculated to induce, with the deposit of lymph, the slow adhesive inflammation in parts of low vitality, avoiding the destructive processes of ulceration or sloughing; it is applicable to any part not admitting pressure, as the eye-

* See Med.-Chir. Trans. vol. ix, p. 203, and vol. x; and vol. xiii, p. 430.

lid, the lip, the tongue, the labia pudendi,—this auxiliary not being required for hæmorrhagy, or any other event, or for the cure; and it may be extended deeply, to parts adjacent to an artery, to bone, &c. It only requires to be done efficiently, to be repeated often enough, and to be followed by sufficient delay for processes, necessarily slow, to be established and completed.

It seems long to wait weeks and months for the completion of Nature's operations. Yet it is distinctly proved that that which cannot be accomplished in the present case in one month, or in two months, is so in six. And if any part be left uncured, the remedy is as simple as it is easy and efficacious. I have not the slightest doubt that the most formidable cases may be cured by the persevering repetition of this trifling operation every two months. And when this statement is contrasted with those in which the formidable operations of the ligature of the artery, of the ligature or excision of the tumor, and of the caustic potassa, are detailed, it must, I think, be admitted that the proposition and the proof of the cure of nævus by mere punctures, or slight incisions, are not without their value.

The mode of cure to which I have alluded consists in passing a needle of moderate size, and with cutting edges, through the nævus, so frequently as to induce the adhesive inflammation, with the deposit of lymph, and so as to obliterate and consolidate the

vessels of which it is composed, yet so slightly as to incur no risk of inducing sloughing. The needle must be passed in several directions, from one point in the circumference of the nævus to several points more or less opposite. The punctures must be made near the surface, in the superficial arterial nævus; but in tissues more or less deeply seated, in cases of the prominent capillary nævus.

The operation must be repeated at distinct intervals of *two, three, or four months*, according to the state of the case and the progress of the cure. This is not of the slightest consequence; for the operation neither inflicts pain, nor occasions hæmorrhagy of any moment.

The cure may be carried too far: for the efficacy of the plan is such, that the part which was formerly of a florid or livid red may become of a paler or whiter hue than that of the surrounding skin. This is always observed in cases in which ulceration has occurred and effected a partial cure. When the due measure of the remedy is employed, there is no scar or visible appearance left whatever—an event of some importance when the nævus is seated on the face.

This operation has the advantage of being applied to the very seat of the disease, and of being applicable to any part, wherever situated, and however deep. Its power admits of being regulated, augmented or diminished, according to the particular nature of the case: the needle may be smaller or larger, with blunt

or cutting edges, and it may be withdrawn so as to leave a mere puncture, or so as to make an incision, and it may be introduced any appropriate number of times.

Future experience alone can teach us these things. I trust that I shall at least have done my part, by bringing the subject before the profession at this early period of the inquiry. It still remains to try this remedy in cases of *nævus* very deeply seated, and in cases of aneurism by anastomosis. I confess that I can see no limits to its efficacy, if it be sufficiently repeated, and if it be applied deeply and extensively enough, and with the due care not to do too much at once. I even think it might have spared Dr. Massey's patient the ligature of two carotid arteries, and the excision of twenty-five square inches of the scalp.

But if the operation which I have described were found insufficient for the cure of *nævus*, *there are modes of augmenting its efficacy*:—the needle may carry portions of silk through the *nævus* which may be left, so that they may excite inflammatory action to any degree which may be deemed advisable; or the whole *nævus* may be divided in distinct operations, by severing alternate portions by means of a needle with a cutting edge, and after any convenient time. In fact, the operation may be instituted and repeated precisely according to the exigencies of the case. It is too trifling in itself to render the necessity for its repetition of any consequence, though it were

for a considerable number of times. Indeed, it may be done once a month, in difficult cases, until the cure is finally effected.

In fine, the object of this proposition is to avoid *pain*, *hæmorrhagy*, and *scar*. Its principle is this: to substitute *cicatrix* for the nævous tissue. In fact, whatever may be done, sacrificing the skin, may be done preserving it, whether this be accomplished by *punctures*, *incisions*, or even by *ligature*.

I also think this remedy may be susceptible of other applications: it is probable that phagedænic and sloughing ulcers may be checked in their progress, and that a salutary change may be effected in other cases of morbid action by its means; it is also probable that it may be employed to induce adhesive inflammation and actual adhesion between adjacent surfaces in some cases of surgical operation.

Case 1.—The first case in which this operation was performed, was under the care of my friend Dr. Heming, many years ago. It was in June 1830. The operation consisted in introducing a couching needle with cutting edges at one point of the circumference of the nævus, close by the adjoining healthy skin; from this point the instrument was made to pass through the tumor in eight or ten different directions, so as to produce slight incisions through its textures, parallel with the skin, but not so as to pierce the tumor in any other part. The first point of puncture was made the *centre* of the several rays of slight

incisions effected by merely withdrawing and again pushing forward the little instrument, in the manner and in the various directions just described.

The nævus was oval, and rather larger than a shilling. The couching needle was introduced at one point, passed as nearly as possible to the opposite edge of the tumor, without piercing it, and then in various directions, until eight or nine punctures, or rather incisions, traversing the texture of the tumor, but not the skin, had been made.

A little pressure was then applied over the tumor, by means of strips of adhesive plaster.

There was no pain, and of course no hæmorrhagy; and, as the skin was punctured only in one point, there could result no scar.

I expected that inflammation would take place, and that a cicatrix would be formed, which, from its solid texture and progressive contraction, would obliterate the textures of the tumor.

For some time—for several weeks—little appeared to have been effected. There was little or no change of any kind in the appearance of the nævus. Indeed, it was almost concluded that the plan had failed—that the vitality of the part had been too low to yield the degree of inflammation required for the cure.

What a short time did not effect, however, a longer period accomplished completely. *Half a year* after the operation, the tumor was found to have disappeared, and the colour of the skin to be nearly natural:

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ragged edges became smooth and white ; the ulcerated surface covered with a film of coagulable lymph. In a few days more the whole ulcer was completely healed.

As a much slower process, the deposit of coagulable lymph encroached on the edges of the remaining ring of *nævus*, which, in the space of one month, had become reduced to one-third of its original breadth.

At this period, it was thought right, in order to accelerate the process of obliteration, to repeat the operation. But, on examination, the process of obliteration of the rings of the *nævus* was going on so beautifully, that we determined to leave it for daily observation.

The deposit of coagulable lymph, with obliteration of the vessels, gradually encroached upon the breadth of the ring of *nævus*, and destroyed its redness and tumor. Each successive week induced an obvious change*.

The whole process was so distinct and so peculiar, that no doubt could exist in regard to the influence of the operation in curing the disease.

Soon after the operation, the vascular borders were elevated at least the tenth of an inch above the surface of the skin ; many months afterwards, when the cure was nearly completed, it was with difficulty that the finger detected the slightest inequality of surface.

* Medical Gazette, vol. ix, p. 353.

Case 3.—For this case of arterial nævus I am indebted to Mr. Vickers, of Baker Street. The little patient was several months old. The needle was passed in various directions, immediately under the surface, carefully avoiding the nipple. In six weeks, a slight but obvious change had taken place: the operation was repeated. Four months after this, the curative process was still progressive, perhaps even more so than at any preceding period. Nothing could be more interesting than the comparison of its different stages: the effect of the slight incisions made in the operation was most marked; and we are led accordingly to conjecture what is going on in cases too deeply seated to be thus subjected to the eye.

Case 4.—The fourth case was one of venous nævus, completely divided into two, from its surface to its base, by accidental ulceration. I was indebted to Mr. Mackelcan, of Devonshire Street, for the opportunity of treating it, and of watching the progress of the disease, or of the cure.

The operation was performed twice. After this period, there was little change for some weeks, except that the tumor enlarged considerably in a direction above and behind the original nævus.

The operation was performed twice, principally upon this new portion. Its further progress was checked, and Mr. Mackelcan thinks its size diminished by one third during the four weeks which have

elapsed since this second operation. Its texture had also become much firmer, less spongy, and more adherent to the cutis.

Case 5.—This case was brought to me by Mr. Nicholls. The nævus occupied a part of the lower lip, near the angle of the mouth. It was daily augmenting in size. The needle was passed through it in several directions: its growth was checked, its texture became firmer, and its colour paler, in the course of six weeks. For fear of inducing too much paleness, the interior part of the nævus was now punctured, slightly only, a second time.

These cases afford abundant evidence of the safety and efficacy of this mode of treatment. The first two cases are perfectly cured. The third and fourth are in the most interesting stage of the curative process. The fifth has presented the interesting fact of the formation or augmentation of a new subcutaneous nævus, and of its arrestation and diminution by due use of the incision needle.

Several years have elapsed since the preceding observations were made. During this period, my attention has been taken up with other investigations. But I have seen enough to convince me of the safety and efficacy of the plan of treatment proposed. I frequently see the parents of those little patients in

whom the operation was perfectly successful ; and I am utterly at a loss to explain the luke-warmness with which the proposition has been received by the profession ; except that a little patience in waiting, and a little perseverance in the use and repetition of the remedy, are required.

That practitioner who shall repeat the trifling operation frequently enough, and wait long enough for Nature's operations, will not have to regret the adoption of this simple, painless, and bloodless means of cure. Even the *increasing* nævus is eventually, first arrested in its progress, and then made to contract and fade under the influence of this simple remedy.

CHAPTER XXXIX.

ON THE INFLUENCE OF LATERAL FRICTION ON THE CIRCULATION.

As the blood flows along the vessels, a degree of friction takes place between the particles of the fluid and the internal lining membrane of those vessels. This friction is proportionate to the velocity of the circulating blood. It is therefore greatest, *cæteris paribus*, in the arteries.

The first effect produced is the arrestation of the nearest portion of the fluid on the lining membrane. This layer consists of the serum of the blood. It forms a fluid lining within the internal lining membrane of the blood-vessels throughout their course. It has been especially pointed out and depicted by M. Poiseuille, in his most admirable work on the circulation of the blood.

I have already adverted to the application of this principle to explain the circulation of the blood in the acardiac foetus (see p. 138). I have now only farther to add, that I am persuaded that, in the diagram given of this circulation by Dr. Houston, the arrows marked *ee* and *g* should be *reversed*. This remark will sufficiently explain the influence on our opinions of the

principle of which I propose, for the first time, the application to physiology.

In a recent experiment, performed before the pupils of St. Thomas's Hospital, the principle to which I advert was set forth in the most interesting and unequivocal manner.

To the lower part of a horizontal tube of lead, about one-third of an inch in diameter, a small glass tube was fixed, so that its edges might just reach the internal surface. This glass tube was then inserted into a tall glass jar containing coloured water. When the flow of water through the larger tube was *slow*, it flowed along the smaller tube and filled the jar; when, on the contrary, the flow of water through the large tube was rapid, the agency of friction induced a retrograde movement of the fluid through the smaller one and *emptied the jar*.

The application of this fact to determine the course of the circulation in the acardiac fœtus will be obvious to every one, especially with Dr. Houston's diagram before us: the rapid flow of the blood along the artery of the umbilical cord of the perfect fœtus will induce a *retrograde* movement in the anastomosing branch connecting it with the analogous vessel of the acardiac fœtus; and the current of blood at *ee* will require the arrow to be reversed:—the slower flow of blood along the corresponding vein will allow that in the anastomosing branch between it and the vein

of the acardiac fœtus to pursue its course onwards unchanged and undisturbed, so that the direction of the arrow at *g* must also be changed.

Amongst the further applications of this principle to physiology and to pathology, I may now notice a fact of the most extreme interest to the surgeon, and hitherto, I believe, without explanation.

If a ligature be applied to the main artery of a limb, the collateral branches enlarge forthwith, and the circulation is, in due time, carried on by their means. What is the rationale of this phenomenon—of this enlargement of the vessels?

We cannot argue from final causes. And though it may be imagined that, on applying a ligature to an artery, the pressure of the blood is augmented on the collateral branches, it is certain, from the experiments of M. Poiseuille, that the similar arteries in the corresponding limb of the other side participate in that increase of pressure; yet these do not enlarge. There must, therefore, be some other cause of that enlargement. This has not yet been ascertained.

Now it is obvious that, in proportion to the velocity of the current of the blood over the orifice of an arterial branch, there is a disposition to diminish, or arrest, or even to invert the course of the blood in that branch; but when the current of blood in the arterial trunk itself is arrested, the influence of current is withdrawn. The whole power of the heart is

now upon the orifice of the branch, undiminished by lateral friction, and that branch will consequently become enlarged.

I believe I need not add any further remark to these hints. It must be left to a future day to point out the influence of this principle in other cases, as inflammation, &c. I will only remark, that, in these cases, there is, first, obstruction to the flow of blood, and, in consequence, the subtraction of the influence of lateral action on the collateral channels of its circulation: these therefore enlarge.

CHAPTER XL.

ON THE PREVENTION OF INSIDIOUS DISEASES OF THE BRAIN IN CHILDREN.

It too frequently happens that several children of the same family are affected with what is usually designated *hydrocephalus*, in succession.

I have quite recently been consulted in two cases in which such an event was apprehended ; and I think it may be useful to insert a part of the correspondence which took place on those occasions. They were both cases in which the parents, and, I fear, the medical attendants, had been taken by surprise, by the insidious development, progress, and termination of this dire disease of children ; and the question was—how could such an event be averted in regard to the other children ?

My object is to state what has appeared to me the Nature and the most efficacious mode of Prevention of this insidious affection. In regard to the first case, I merely give my reply to a series of questions. The second is given in the words of part of the correspondence upon the case.

CASE I.

14, Manchester Square, June 27, 1842.

Dear Sir,

I lose no time in writing you my promised letter in regard to your young charge.

We should keep steadily in view *one object*. We have to counteract a tuberculous diathesis. On this every thing depends. Now this is to be done by adopting every means of imparting *tone* and *energy* to the general system, and especially to the circulating system.

The first question to be considered is that of atmosphere and soil. The former should be *bracing*; the latter *dry*. In every respect the sea-coast is to be preferred; only we should avoid exposure to the north-east in spring, and to the south in summer, on account of the prevalent winds of the former season, and the reflected sun-beams in the latter. But the sea-breezes, the aspect being chosen, soften both the cold of winter and the heat of summer. I have mentioned this subject irrespectively of any consideration. But if I take your position as an M. P. into my view, I should say that, during half the year, your children may safely reside in a chosen spot in London. Suppose that they reside, during the months of September, October, November, and December, by the sea-shore, they could not do better than spend January, February, March, and April, north of Hyde Park.

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stockings, the upper clothing being warm or not, according to the season. The shoes should be changed, be this needed or not, for others perfectly warm and dry, four times a day; and oftener, if necessary. It is most important that the *feet* and *hands* should be kept WARM.

The next thing is, *exercise*. They should walk regularly and systematically a good deal; but never—never to *fatigue*. A crust of bread, with a small cup of tea, half milk, should be taken, and then a walk before breakfast. An early morning and an evening walk should be taken daily during the summer, and a saunter in the shade of trees in the middle of the day, avoiding excessive heat and damp. The walks, &c. must, of course, be regulated according to the change of season. But, generally, plenty of exercise should be taken, without fatigue.

When at the sea, they should either go in the machine and sponge, freely exposed to the open air, or dip once, *for a moment*, in the sea, using their coarse towels. But they must never be allowed to *lose* their *temperature*, to have a livid lip, or a cold hand or foot, on coming from bathing. *Warmth*, and a sustained circulation in the extremities, are all-important.

Such are the principles to guide us, and such are the rules with regard to air, diet, clothing, and exercise. I now come to a most important matter. What is to be done by *medicine*?

First, we should avoid calomel, blue-pill, &c. (if possible), as “cane pejus et angue,”—as well as all lowering remedies.

Secondly—*see* that the bowels are *copiously* relieved *once daily* (and no more), just after breakfast. If this do not happen, give the baume de vie, for which I send a prescription, *daily*, immediately after dinner, until the habit has been formed. Then gradually leave it off, diminishing the dose.

I next advise five, seven, or ten drops of steel wine to be given thrice a-day, in a table-spoonful of water, in the midst of meals, for one month; then half, two-thirds, and one grain of the sulphate of quinine, in the form of pill, thrice a-day at meals, for another month, omitting the steel wine; then *both* these medicines for a third month. I would then give one, one and a half, two, and two and a half wine-glassfuls of the pale ale prepared for India, for a fourth month, omitting the tonic medicines. Then return to the steel wine, the quinine, and both, as before, and so on.

Generally speaking, these little folks cannot be too much in the *open air*. But nothing is so injurious as the partial exposure to draughts, or the want of clothing over the neck, arms, legs, &c. The hands and feet should, as I have said, be kept perfectly and constantly warm and dry. Damp is, if possible, worse than cold. We should induce hardihood, but not in this way.

They should never be awakened out of their sleep, and they should have plenty of sleep. Their studies should be *regular*, but *slight*. Nothing is more important than thoroughly active recreation and *amusement*; and I may add, joyousness. There is no better tonic or cordial than happiness.

Then it must be remembered that any *change*—of air, of scene, &c.—is good, and monotony bad. We must not forget, in our regimen, the important articles—the hoop, the skipping-rope, the ball, the whipping-top, the battledore and shuttlecock, &c.

I fear you will think my directions prolix and minute; but really I know not what I could omit in them. I figure to myself Mrs. —, Miss —, and yourself assembled, and criticising what I have written—sometimes smiling. Pray let me hear from you; and believe me, my dear Sir, yours most truly,

MARSHALL HALL.

— — — — Esq. M.P.

CASE II.

— — — — Dec. 29th.

Sir,

I shall feel greatly obliged by your giving your opinion and advice under the following circumstances.

I lost a child, two years ago, whose case, as it appeared on a post-mortem examination made by Dr. — of — I enclose.

I am now under anxiety about another child, just four years of age, a girl. Like her sister who died, she is a very strong, healthy, well-made child: there has always been a considerable resemblance between them, particularly in the shape of the head (which, however, in both cases, is pronounced to be perfectly natural and well formed). Latterly, symptoms, identical, so far as they go at present, with those which showed themselves in her sister, have made their appearance. There is a degree of nervous sensibility quite unnatural, in particular I would mention as to *sound*. She cannot bear any noise; a knock on the table, a blow with a hammer, will cause a flood of tears; and she dreads its recurrence, and begs it may not be repeated. She has complained now for a month, at intervals perhaps of five or six days, of pain in her forehead, pointing generally to the very spot her sister used to describe, about the centre of the forehead; these pains being of the most transient nature, not lasting many seconds, and not always being in one part of the forehead. The child is perfectly well to all other appearance, the eyes seeming all right, the bowels acting healthily and regularly: the appetite latterly not very good, apparently on the decrease, and rather fanciful. She sleeps well, but is easily disturbed, and alarmed by rain, wind, or other noises.

I shall feel obliged if you will (considering these symptoms in connection with the former case) give

me your opinion, as to the importance which you attach to them, and whether any course of medical treatment ought to be adopted: if any, will you state *what course*, and prescribe all the particulars of it? I ought to have mentioned that, in the case of her sister, the bowels continued to act healthily and regularly up to the time when the disease set in fatally, which was three weeks before she died.

I remain, Sir, yours faithfully,

*Autopsy of Miss ———— æt. 6—January 17, 1842,
eighteen hours after death.*

Exterior generally pale.

Head—of usual size. There was a good deal of venous congestion under the arachnoid. The corpus callosum was elevated by fluid in the ventricles. The cortical substance of the cerebrum was of a deep colour, and the medullary showed numerous and large red points. The ventricles having been opened, it was considered that three ounces of a colourless watery fluid escaped. The septum lucidum and fornix were reduced to a thin pulpy state, as well as the medullary substance lining the anterior cornua of the ventricles. These softened portions of the medullary substance were of a beautiful pearl-white colour, not having the least tint of redness.

The consistence of the other parts of the cerebrum was normal. The base of the brain presented nothing unusual, except that the cerebellum appeared rather bloodless ; it was pale in the cortical and medullary portions.

There was neither pus nor lymph found any where.

To this and a second letter, the following reply was returned :

Sir,

* * * * *

I am not aware that any form of inflammation, of pure inflammation, is hereditary. Pure arachnitis, pleuritis, or peritonitis, inflammation of the substance of the brain, lungs, or liver, does not recur in the other branches of a family, one of whom may have suffered from any of these maladies. Pure inflammation is strictly accidental.

Tubercle, on the contrary, is hereditary. It occurs in different members of the same family ; sometimes in few, but sometimes in many.

Not only is tubercle in general hereditary, and therefore recurrent in the same family, but its very *forms* are recurrent ; and not only so, but these forms are recurrent at *similar* AGES, in different members of the same family.

Thus I have known hydrocephalus recurrent in the young children, tuberculous affection in the abdomen about the age of puberty, and phthisis pul-

monalis at a later period of youth, in members of the same family respectively.

This disposition is so marked, that we may especially fear the recurrence of hydrocephalus in the other children of that family in any branch of which hydrocephalus has once occurred. The same remark is applicable to phthisis pulmonalis, and abdominal tubercle or mesenteric disease, and to glandular affections in youth generally.

But, besides the more marked hereditary dispositions, there are proofs of a more general tuberculous diathesis; and if the child escape hydrocephalus, it is, alas! but too frequently only to be carried off at a later period by mesenteric disease, tuberculous disease of the bones, &c. or phthisis.

In other cases, this general diathesis is not observed; and if the period liable to hydrocephalus is once passed, there is comparatively little danger of the occurrence of these other diseases.

On the other hand, tubercle, in all its forms and localities, may occur in an individual of a family in which it was previously unknown.

Inflammation may occur, from accidental causes, in the most robust health; though it is also apt to occur, and to assume a more intractable character, in habits deranged by febrile and other disorders.

Tubercle is less associated with accidental causes, and far more with an unhealthy and feeble, or enfeebled, condition of the general system.

To avoid the occasional causes of inflammation, is, generally, to avoid the attack of inflammation. But to prevent the formation or deposit of tubercle, we must bring and sustain the system at large in its healthiest condition. This is to be done—by much exercise in the free, open air,—the hoop, the skipping-rope (short, however, of fatigue), &c.—by early hours, seven a. m. and seven p. m. being the properest for rising and going to bed for children of delicate frame and hereditary tendency to tubercle; the most wholesome, the most nutritious, and the most digestible food; meat being, of all kinds of food, and mutton of all kinds of meat, the best: by sponging the general surface every morning with salt and water, the little patient using afterwards a coarse towel briskly and actively; by defending the frame against the changes and inclemencies of our trying climate, by clothing with flannel next the skin the year round, and varying the outer garments with the season, and equally avoiding the two extremes.

There is no doubt too, from experiment, that the beneficial influence of light on the development and health of the animal frame is very considerable.

To these plans of regimen, gentle tonics, especially steel and quinine, in their turns, and combined, should be added.

The object throughout is to give such health and tone to the general system as shall correct the tuberculous diathesis, on which the disposition to hydro-

cephalus and the congeneric diseases depend. It has been found, by Dr. Rufz, that hydrocephalus is conjoined with minute tuberculous granulations of the arachnoid ; and the concurrence of tubercles in other organs in the same individual, and of other forms of tuberculous disease in the same family, sufficiently denote the connection of tubercle with hydrocephalus. It is the result of general experience, that each and all of the various forms of tuberculous affection is warded off by those means which add to tone and the general health ; whilst every thing which impairs these, augments the morbid diathesis. The families of fishermen residing on our coasts, and of butchers, are comparatively free from tubercle ; the supposed effect of their locality and of the diet of fish in the former case, and of the still more nutritious diet of meat in the latter.

The following points in the treatment are the most important :

1. The *hair* should be kept *constantly* wet with a lotion consisting of one part of alcohol and three parts of water. The head should be placed *high* in bed, and no cap worn.

2. The *feet* should be kept guardedly warm and dry ; and flannel jacket and trousers (all in one) should be always worn next the skin.

3. Every morning, the general surface should be sponged briskly with salt and water (one ounce of bay salt to one pint of water), and then rubbed, more

briskly still, with a coarse towel *well*, until a thorough *glow* is induced ; and partly by herself, if possible.

4. The diet should be almost entirely meat, and that *mutton*, with stale bread, or mealy potatoes, &c. and one third part of milk with tea, &c.

5. Omit *all* lessons *entirely*, and let the day be spent as much as possible in *active* exercises in the full, *open* air.

6. Let early hours be observed in regard to going to bed and getting up ; seven p. m. and seven a. m. are the best.

7. Some mild form of tonic, and especially iron and quinine, *alternately* and then *combined*, should be *long* taken, indeed *always* ; a scruple of the sesquioxide of iron, or ten drops of the vinum ferri, and from one-sixth to one-third of a grain of the sulphate of quinine, should be taken, *just after meals*, twice a day.

Lastly. I strongly advise change of air—to an elevated, dry, sandy or chalky spot, and especially to the sea-coast, for a year or two.

————— January 1, 1843.

Dear Sir,

I thank you for your letter, and for its very full and clear contents. If I trouble you with questions, you must excuse me, under the circumstances of anxiety in which I am placed.

The system of treatment which you recommend, appears to me, in some of its important particulars, to go upon ground so different from what I have always remarked to be that commonly adopted, that I shall feel greatly obliged if you will tell me what you suppose, in my child's case, to be the cause, in the brain, of apprehended evil? I have always been taught by medical men that hydrocephalus was a result of *inflammatory action* in the brain; and the system of treatment I have been accustomed to contemplate has been one of *purgatives, calomel* (in greater or less quantities), *low diet, almost entire abstinence from meat*: perhaps issues in the arm, or blisters between the shoulders or elsewhere; and, in one case, I remember *digitalis* being prescribed: all this running, as I conceive, upon one idea—to lower the system, or to decrease the supposed inflammatory action. Now it appears to me that you go upon a different assumption. I judge so from these particulars in your advice: “the diet should be almost entirely meat,”—the administration of “some mild form of *tonic*,”—whilst nothing is said as to the secretions, except that they should “be regulated:” I conceive kept to a regular action by means of *rhubarb*.

You seem to me, therefore, to go rather upon supporting than upon lowering the system; and this view and this treatment make so important a difference, that you will excuse me, I know, for asking for an explicit statement of your views in this case; for you

will see that it becomes, to a parent, a question of deep and practical interest, and one on which he desires to come to an intelligent conclusion, for the sake of a child's chance of life.

I am aware of the total absence, in my last child's case, of any of the common evidences of inflammation upon the post-mortem examination. Is it upon this ground you found your advice? and do you suppose that inflammatory action cannot exist in the substance of the brain, so as to cause death by hydrocephalus without leaving its perceptible traces after death?

I will also tell you that, in my child's case (whom I lost), I thought the medical man (a man of eminence in his profession) was puzzled. In her we noticed no symptoms until her last illness of three weeks set in; but, after declaring the secretions all healthy, the pain in the head still continuing, —so little evidence (I conclude) of inflammatory action was there, that he gave a tonic (quinine) for several days, without effect either way; then the ordinary remedies with which these scenes close—leeches, calomel, blisters,—with obstinate constipation of the bowels (which yielded, however, to castor oil), were adopted, in vain.

As is often the case, we are the more troubled by the anxious counter-recommendations of anxious friends; and I should feel much obliged to you if you would give me your opinion on the following points—

to which, perhaps, you will justly say your general treatment is an answer already :

Do you hold mercury to be altogether inadvisable in this case, or even injurious ?

Do you hold that an issue or seton in this case is unnecessary and might be injurious ?

I should tell you that we have given a little calomel a short time back ; that at present we are doing nothing, save keeping a rather freer action than ordinary of the bowels, by means of a decoction of aloes. Is this a medicine you disapprove in this case ?

You will bear in mind that the child is a very strong child, never complaining of fatigue or any thing of that sort.

I do not believe tubercle in any form exists in either family. My wife's sister died of consumption ; but we have no other case of that on record, or of any scrofulous affection : and I never heard of a child on either side lost by hydrocephalus, except my own.

I owe you an apology, I think, for almost writing for an essay on hydrocephalus, as well as for the treatment of it ; but I feel sure you will see my position ; and I cannot act in the dark, knowing what little I do.

I remain, Sir, yours very truly,

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the *head* ; warm and dry *feet* : these and other similar plans *must* be approved of by *all*.

The *two* points on which alone there is any discrepancy of opinion as to treatment, are those which relate to the administration of—

1. *Mercurials* ;

2. *Tonics*.

Why should you not *discard both* of these *extremes* ? The *secretions may be* corrected without the former ; and *tone may be* improved without the latter. *Nothing* is so effectual in inducing a flow of *bile*, and in the correction of the secretions generally, as the warm water enema ; whilst *the best* tonic is free exposure to the open air, with gentle exercises, but without fatigue.

Thus I think that, in the midst of some discrepancy of opinion, your way is clear enough before you. *The most important* measure is change of air and soil ; and the best choice is that of the sea-breezes on the chalky coasts of our island.

You must constantly bear in the mind the difference between the *preventive* and the actually *curative* treatment in these cases ; they are so different as to be almost opposite, both in their character and in their measure. This remark will tend to reconcile what may appear to you to be a glaring discrepancy in the medical opinions which have been given in the cases of your little patients.

I am, dear Sir, yours very truly,

MARSHALL HALL.

CHAPTER XLI.

ON THE TREATMENT OF SUDDEN AFFECTIONS OF THE HEAD IN CHILDREN.

It is well known that a sudden attack of the most formidable cerebral symptoms is apt to occur about fourteen or sixteen days after even mild cases of scarlatina. Of this affection I have treated in my volume on the Diseases and Derangements of the Nervous System, 1841, p. 152.

An attack of very similar appearance occasionally takes place independently of any previous scarlatina. In one family, a little girl, aged four years and a half, and a boy, aged twelve years, experienced a similar seizure, which proved fatal, in the former case, in six, in the latter, in twelve hours!

Such events seem strongly calculated to excite a deep and lively interest in the mind of the physician; and though it did not fall to my lot to see either of these patients during life, yet, as the particulars of both have been communicated to me, and as I was witness to the post-mortem examination in the second, I cannot think that the following brief detail can fail to be interesting to my reader.

Case 1.—Miss Emily D——, aged four years and

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temples twice, bleeding till the pulse came down, which it did after about six or eight ounces were abstracted; cold applications to the head, when too hot; and mercurial inunction. He was quite unable to swallow. A blister, towards the end, was put behind the head.”

Examination.

General congestion of the veins within the skull, with a small patch of lymph on the top of the left hemisphere. No appearance of disease in the heart, lungs, or within the abdomen.

May 30, 1843.

From all the circumstances of this case, it is obvious that the morbid condition consisted in *congestion of the cerebral vessels*; the coma, the dilated pupil, and the convulsions, lead to this conclusion. *The remedy* in such a case is—*blood-letting*, in the erect position, carried to such an extent as should induce an obvious impression on the system—i. e. incipient syncope. It should be done from the jugular or a brachial vein.

This remedy should be instituted *instantly*: not a moment should be lost.

If delay *be* allowed, it should be anxiously employed in emptying the stomach by an emetic, and the intestine by an enema, given *simultaneously*; the object being to produce a prompt effect by the evacuation of those organs together.

If this measure be not followed by the most marked result, a vein should then be opened, as I have stated, instantly.

These measures should be followed by mercurial and purgative medicines, in such doses as the condition of the secretions and excretions, and the symptoms, may require, and the strength of the patient may bear.

A cold *spirit* lotion should be applied to the head, a blister to the nape of the neck, and fomentations and sinapisms to the feet; or

A long-continued, small stream of cold water should be made to fall from a considerable height upon the head, from time to time, employing the spirit lotion in the intervals,—the head and shoulders being raised, and the feet fomented.

CHAPTER XLII.

ON THE EARLY SYMPTOMS OF CONSUMPTION.

I NEED not insist upon the extreme importance of an early detection of phthisis. The timely adoption of such preventive and curative measures as are in our power, and the correctness and truth of our prognosis, depend upon this early distinction of the disease.

Tuberculous affection of the encephalon can, I believe, only be suspected, and distinguished from insidious inflammation or the slow formation of tumours, by observing the concurrent existence of tubercles, or of some other strumous affection, in other parts of the body. Or if there do exist symptoms which distinguish this morbid affection within the head, they have not hitherto been noticed with accuracy.

Before the stethoscope can detect the existence of tubercles in the lungs, the constitution of the patient frequently takes the alarm, and the functions of the circulation and of the respiration become slightly accelerated, or are easily hurried.

I have frequently observed, that, with a complexion which is apt to alternate between the pallid

and the vivid, there is a degree of sensitiveness to cold, of susceptibility to the effects of heat, of breathlessness on moving quick or ascending a hill or staircase, and of cough. The cough is frequently slight, hacking, and dry, and scarcely or not at all observed by the patient or friends.

In other cases, and especially in females, the countenance remains pallid, with the slightest waxen or lemon hue, a tendency to blue lividity observed in the lips and at the roots of the finger nails, and a disposition to coldness of the extremity of the nose, the ears, and the hands and feet.

These changes are frequently so insidious that they are apt to be first observed, not by those who are in the daily habit of seeing the patient, but by some one who sees him or her after a certain interval and is struck by the change. Even at this early period, I have frequently found, on inquiry, that the catamenia have ceased. And I would observe, that this cessation of the uterine discharges is generally, or at least frequently, complete at once; unlike the case of disorder of the general health, in which the flow becomes very slowly paler and more scanty, and, except in chlorosis, not ceasing altogether, and, even in that disorder, generally very gradually. This is the more remarkable, because the condition of the uterus, under the influence of tuberculous disease, is one of great proneness to conception, a change which has, in its turn, a reflex action in arresting the progress of the tuberculous affection.

The appearance of transient flushes, or of more permanent pallor, however slight, should always excite our immediate attention. We shall probably find, on a careful examination, that the pulse has become quickened, and that breathlessness is experienced on any little exertion or effort; that there is occasionally a single hacking cough, and some loss or change of the voice; that the young person is sensitive to the cold, turning pale and livid under its influence, apt to become feverish, and prone to perspire towards the dawn of twilight; frequently there is, even at this early period, a favourite side or posture adopted during sleep. Still the stethoscope may detect nothing.

The nostrils are apt to be moved by the acts of respiration, especially if this function be a little hurried; and a feebleness and caution may be detected in the gait of the patient, on a very attentive observation.

These symptoms may be suspended for a time. More frequently they assume a gradually aggravated character. There is a recurrent, vivid, circumscribed flush on the cheek, strongly contrasted with the surrounding waxen, or dingy, pallor. The chills, feverishness, and perspiration, become augmented; the breathing is perhaps shorter; but the cough especially becomes more frequent, and attended with expectoration. This often consists of distinct portions of opaque matter floating in a more transparent mu-

cus, and it is often streaked or dotted with blood. There is now a favourite posture, and frequently pain of the side. At this period the stethoscope generally detects pectoriloquism, bronchial or cavernous rattles, and a varied degree of respiration on the two sides or different parts of the chest.

The fever which accompanies phthisis, like other symptomatic fevers, and unlike all pure and primary fevers, is frequently unattended by muscular debility, or by affection of the head, or of the digestion. There is no headache or vertigo, and the patient often continues to walk or to ride to the last. There is a degree of feebleness and stooping observed in the gait, very early in the disease; and this remains little augmented, until the colliquative perspiration or diarrhœa bring with them their own debility and emaciation.

It is not my design to pursue the history and symptoms of phthisis in this place; a subject which I reserve for my work on diagnosis. My present object is merely to present a sketch of its early and admonitory symptoms, contrasted with those of some other diseases of early youth.

With these symptoms we occasionally observe great derangement of the general health; but sometimes there is little constitutional affection, which is not plainly the effect of the tuberculous disease. In the former case we may hope to check the progress of the tuberculous affection, by removing the derangement of the system. In the latter our means of doing

good are much restricted. Still, a mild animal diet, the free exposure to the open air, and sponging the surface with a solution of salt in water, are not without their efficacy. And I may especially add, that I have known the progress of phthisis to be frequently checked, and several times suspended, by the application of an alcoholic lotion across the chest*.

In concluding the subject of the early symptoms of phthisis, I would beg to urge my younger readers to an accurate and habitual observation of the countenance, the manner, the mode of breathing, in their patients, especially their youthful patients. An unwonted pallor; a straw-coloured, waxen, or livid tinge of the complexion; a slight, but vivid and circumscribed flush on the cheek; a stoop, or caution in walking; or a degree of breathlessness on exertion or effort; a cough, however slight;—should always excite their attention. On further examination, the pulse will usually be found unnaturally frequent, and the muscular parts of the body shrunk; and dots or streaks of blood may have been expectorated.

* See above, p. 25.

CHAPTER XLIII.

ON TUBERCULOUS DISEASE IN THE ABDOMEN.

TUBERCULOUS disease in the abdomen is the most insidious of all those diseases which may be considered as necessarily and progressively fatal. I have repeatedly traced this tuberculous affection through a distinct course of four, five, and six years.

It is, also, most unequivocally, a family or hereditary complaint. I have, in many instances, had the melancholy task of watching one member of a family taken off after another, by this incurable disease.

I think the proportion of females affected with tuberculous disease in the abdomen decidedly greater than that of the males; but the latter by no means enjoy an immunity from its attacks.

The age at which that peculiar form of the disease of which I am speaking occurs, is usually from fifteen to twenty-five.

Tuberculous disease in the abdomen is greatly characterized by three symptoms—great tendency to coldness and lividity of the extreme parts of the body, a frequent pulse, and slow but progressive emaciation.

The aspect of the countenance is altogether peculiar, especially in cold weather, together with an obvious emaciation and expression of languor and disease; the end of the nose is livid in colour, and cold to the touch; and there is, in general, either paleness or a slight degree of flushing.

Similar observations may be made respecting the general surface. There is emaciation; the skin is soft, and apt to become moist; and there are general perspirations during sleep, especially in the early part of the morning: to prevent this perspiration, the patient frequently endeavours to keep awake. There is an undue sensibility to cold observed on the slightest unexpected exposure,—as the opening of a door,—and the patient usually creeps over the fire. Sometimes I have observed the back of the hands and the fore part of the legs to assume a peculiar brown colour, from being burnt by this constant exposure to heat: the hands and fingers are apt to be extremely livid and cold.

The mode of walking is peculiar, being attended by stooping, weakness, and caution.

The pulse is always frequent, and generally regular. It is earlier and longer frequent in tuberculous affection of the abdomen, than in that of any other cavity. I have known the pulse to be between one hundred and one hundred and twenty for several years.

The emaciation in tuberculous disease of the ab-

domen is uniformly, but very slowly, progressive. It is accompanied by a state of unvaried debility; and, in the later periods of the disease, by some œdema, generally observed more in one leg than the other.

The other symptoms of this morbid affection are less constant; they are chiefly—an augmented appetite for food; copious, pale, alvine evacuations; and pain, and sometimes a perceptible tumor, in some part of the abdomen, especially in the iliac or hypogastric regions. The catamenia simply become scanty, or cease, without undergoing the changes observed in some cases of disorder of the general health.

There are altogether a peculiar appearance of the countenance, a peculiar mode of walking, and a peculiar attitude and manner in general, all denoting debility and great disease; and if to these be added the peculiar sensibility to cold, and tendency to coldness and lividity of the extreme parts of the body, the very gradual emaciation, and the habitual frequency of the pulse, it is scarcely possible to mistake the nature of this disease: but, in practice, the diagnosis requires very careful and minute observation.

I shall now give a brief sketch of two cases which first excited my attention to the constitutional symptoms of this disease.

Miss —, aged 19. This young lady's complaint has formed and proceeded very slowly and insidiously. Her countenance is thin and peculiarly expressive of disease; the skin is smooth, the nose apt to be cold

and livid : the fingers are affected in a similar manner. There is considerable loss of flesh, the skin in general is smooth, and there is much tendency to perspiration. The tongue is marked by enlarged papillæ, and is, in other respects, red, and scarcely loaded. She hangs down the head. She has a hacking cough, which gives her pain in the chest. She has much pain and some tenderness of the abdomen ; the bowels were at first constipated, but are now open. The catamenia became irregular nine months ago, and ceased altogether three months ago. This affection proceeded as it began, making a peculiarly slow, but gradual progress, and inducing extreme weakness and emaciation during many months, and at length proved fatal.

Miss —, sister of the former patient. When the young lady, whose case has just been detailed, became so feeble as to be unable to walk unsupported to see me, she was generally attended by her mother alone ; but on one day the present patient accompanied them. She was not suspected to be an invalid, but her appearance struck me forcibly as being similar to that of her sister ; and I disclosed my opinion to their mother, that both her daughters were affected by the same complaint ; and I had previously expressed my fear of its fatal character. From that time they visited me no more ; but I had an opportunity, on a subsequent day, of making the following report of Miss M —'s complaint :—The face is thin,

the eyelids affected with a dark ring, the nose and lips are livid and cool; the rest of the countenance cool and pale; the tongue is nearly clean, with a few enlarged papillæ at its point; the hands are cold and thin, and the nails livid; there are great emaciation and weakness; there is much chilliness in the morning; and there is a slight cough, with scarcely any expectoration; the pulse is one hundred and eight, or rather more; there is pain of the abdomen and of the left side; the bowels have been loose, but are now less so; the catamenia have been regular, except that it is two months since their last appearance. This patient hangs down the head, and sits much near the fire, just as her sister had been observed to do before her. Miss —— lingered for a considerable time; but the disease proved at length fatal, having induced extreme emaciation.

No examination of these patients was permitted; and it was not until the following and some other cases occurred, that I certainly knew with what disease the constitutional affection which has been described was to be associated. Nevertheless, the aspect, the progress, the symptoms, and the effects of the affection, were such as to induce the conviction that it was of a fatal kind.

The following case is more detailed, and the symptoms are connected with the morbid anatomy. It is only one of many in which I have observed the characteristics of this disease, and confirmed the dia-

gnosis by post-mortem examination. It occurred in the male sex; but I am not aware that this circumstance would at all modify the symptoms.

Mr. —, aged 21, first began to complain four years ago; two years ago, he observed a loss of flesh and of strength, and an incapacity for his usual business and exercise, and a degree of coldness and lividity of the end of the nose: during the last year and a half, he has been affected with a short hacking cough, and with a degree of pain and tenderness on the right side of the abdomen, below the navel; and during the last half year he has been unusually sensible to cold, becoming chill whenever a door is left accidentally open, and being affected with a livid and clammy coldness of the fingers. These affections have made a slow and insidious progress; the thinness, loss of strength, and sensibility to cold, gradually increasing, with a sense of weariness, and a propensity to sit over the fire.

At present, October 1817, the countenance is expressive of disease, rather emaciated, pale, but easily flushed, and the nose is very liable to become livid and extremely cold; the tongue is rather white, with enlarged papillæ; he is feeble in his walk, but not tremulous, nor easily agitated; and he is extremely sensible to the cold; the hands, and especially the fingers, are very liable to become livid, clammy, and cold; the surface in general is thin, the skin soft and apt to become moist, and there is occasionally per-

spiration in the night ; in the night, too, there is frequently a degree of muttering delirium ; there is a hacking cough, with the expectoration of white mucus, never tinged with blood ; the pulse is always frequent, and easily accelerated ; at this time, the patient being in bed, it is one hundred and twenty : there has all along been slight aching pain deep in the right iliac and umbilical regions, the part being tender on pressure, and especially on making a false step in walking, and presenting, on examination, a perceptible hardness not abruptly defined ; the pain is sometimes acute, and sometimes it appears to extend to the testes ; the bowels have been apt to be loose, the stools generally copious, fœtid, and whitish—of the colour of white clay, and rather light, like yeast.

November 11. There is a gradual loss of flesh observed in the countenance, the bones of which become more and more prominent ; the colour is pale, never yellow or sallow, but easily flushed ; there is generally an expression of suffering, and especially on coughing ; and there is, now that he has not been out of the house even, a degree of lividity of the nose, which is colder than the cheek. The tongue is loaded at the back part, and displays enlarged papillæ at the point and edges. He now bends still more forward in walking, and is obliged to use a stick for support ; he lies most easily on the back, or on the left side. The hands are apt to be cold and livid. He has no pain of the head, no fluttering about the heart. He

has a variable, hard cough, with increased pain of the abdomen, and a little mucous expectoration, sometimes preceded by a little dyspnœa. The pulse is one hundred and twenty, small and regular. He complains of constant tenderness and soreness of the abdomen, especially of the right side, and low down, where a degree of hardness and tumor are perceptible on examination. He complains also of pain in the perinæum, within the hip, and deep in the hollow of the sacrum; the hand is immediately applied to this part on coughing; there are attacks of griping pain, especially in the evening, and on taking warm tea; the appetite is pretty good; there is a little thirst in the evening; the alvine evacuations are copious, sometimes formed, always of the colour of whitish-brown paper, and fœtid, but without pus or blood. The urine is sometimes clear, but sometimes deposits a copious sediment. He is rather less chilly, and has never any shivering; he does not perspire in the night, but always, if he falls asleep, in the morning.

December 16. The deep colour and coldness of the nose are less observed in bed than when he is up. The tongue is now clean, of a deep red, smooth in the middle part, moist, and with enlarged, red papillæ at the point. Some time ago, it was, with the internal parts of the lips, covered with numerous and very minute aphthæ, with much soreness. There is some sweating, but only in the morning, and chiefly during the last morning sleep: he has often purposely

kept awake to avoid this morning perspiration. The other symptoms and appearances become progressively worse.

January 10th. 1818. The symptoms remain nearly as before; but the tumor of the right part of the abdomen is far less perceptible, and the bowels less affected with pain. The patient declined and sank very gradually.

On examination, the peritonæum was found slightly but generally adherent to the enclosed viscera. The omentum was destitute of fat, but studded with tubercles of the size of a pea. The small intestines were adherent, admitted of being raised up on the left side of the abdomen, but attached on the right. In the right iliac, and in the lower and right part of the umbilical regions, there was a mass of disease, consisting of the united intestines and of the mesentery, enclosing tubercles and enlarged mesenteric glands, some of which were surrounded by puriform matter, which exuded from several orifices when this mass of disease was divided; one part of the intestines was ulcerated, and on being torn, an apricot-stone, half digested, escaped. The glands, not only of the mesentery, but of the mesocolon and of the small epiploon, were enlarged; this membrane itself was discoloured, and a part near the cardia, together with that part of the peritonæum in contact with it, were ulcerated. The stomach was free from ulceration. The liver was only affected by superficial adhesions.

The right lung contained tubercles, some of which were softened and suppurated; the left lung was heavy, fœtid, and replete with tubercles and partial suppurations: there was some water in the right pleura. The right leg and arm were very œdematous; the left, literally skin and bone. The integuments were extremely white, and the skin roughish.

The state of enlargement of the papillæ of the tongue, and the state of the complexion, in some instances, would lead me to conjecture that the tuberculous affection of the abdomen may be connected with a disordered state of the alimentary canal; and if so, this forms an additional reason for circumspection and attention in regard to the latter disorder,—to observe its first inroads upon the general health, and to remove it early. Disorder of the general health can, however, only be viewed as an exciting cause of tuberculous affection; for there is always a constitutional cause of still greater influence in the development of tuberculous disease.

It is of great importance to ascertain the external circumstances which may concur to induce tuberculous disease, or which may have some efficacy in preventing it. Of the causes of this morbid affection, sedentary habits, poor diet, a damp atmosphere, and defective clothing, are probably the principal amongst the poor; and warm apartments, recluse studies, and a variable mode of dressing, amongst the rich. The chief preventives are—a nutritious and animal diet,

an active and regular system of exercise, warm clothing, sponging the surface, and a strict attention to the general health. If one member of a family have suffered, a total change of diet, habits, and air, should be adopted for the rest.

In one family, residing on an alluvial soil, two children died in succession of tuberculous disease in the abdomen. The next child was sent to a distance and escaped.

CHAPTER XLIV.

INTESTINAL DISORDER IN CHILDREN.

I HAVE just been witness to the perfect recovery of a little patient, the daughter of Mr. Frampton, of Hythe, from symptoms precisely similar to those detailed in the last chapter :—the same chilness, pallor, debility, emaciation, tumid abdomen, hectic chills, heats, early morning perspirations, and frequency of the pulse ; the same look of disease, the same stoop of debility. I had, I confess, no doubt of the tuberculous character of the disease, and no hope of the recovery of the patient.

This little patient did, however, recover under the influence of warm aperients, the neutral sulphat of quinine (one grain being given in water thrice a day), a light animal diet, and sponging with tepid sea-water, gentle exercises on a pony or donkey, and free exposure to the open air in fine weather.

I have repeatedly seen recovery in cases similar to this, with the exception of frequency of the pulse and hectic ; but I have never seen a case so perfectly similar to tuberculous disease in every respect terminate so favourably.

The present case suggests a caution in regard to the prognosis, and a steady perseverance in regard to the use of remedies, in cases which may appear hopeless at the first examination, especially in children.

CHAPTER XLV.

ON CERTAIN CASES REQUIRING GREAT CAUTION IN THEIR DIAGNOSIS.

IN the year 1825, I published a little volume entitled "Medical Essays," which has been long out of print. I think the substance of these Essays so valuable and important in practice, that I am induced to insert two of them (the first and third), with the preface, amongst these "Practical Observations and Suggestions." The second will be found in a distinct work on Blood-letting and the Effects of Loss of Blood.

These Essays treat of—

- I. INTESTINAL IRRITATION ;
- II. EXHAUSTION FROM LOSS OF BLOOD ;
- III. THE SINKING STATE FROM VARIOUS CAUSES.

"That the first and second of these states should induce symptoms resembling those of inflammation of the brain, and that the state of exhaustion, and especially of sinking, is apt to be attended by symptoms resembling those of compression of that organ, are facts which must greatly influence our prescriptions in many cases of great emergency.

Similar remarks will also apply to the influence of intestinal irritation in inducing symptoms of inflammation of the peritonæum or intestines, of which I observe an interesting example in the work of M. Andral:

“ Nous avons vu, dans d'autres cas, l'accumulation prolongée des matières dans le gros intestin donner lieu à la tension générale de l'abdomen, et à des douleurs assez vives pour faire croire à l'existence d'une péritonite. Nous avons surtout observé ces douleurs à leur plus haut degré d'intensité chez une femme récemment accouchée. Lorsque nous la vîmes pour la première fois, sa face était pâle, décomposée; ses traits, profondément altérés, exprimaient l'anxiété la plus vive; le pouls était petit et très fréquent; l'abdomen était le siège de douleurs atroces qui arrachaient des cris à la malade, et que la pression augmentait. Ces douleurs, assez légères d'abord pendant quelques jours, avaient acquis, depuis quarante-huit heures, ce haut degré d'intensité*.”

This state of the bowels sometimes also, though more rarely, occasions pain of the side, and other symptoms of inflammation of the pleura, and occasionally induces the apprehension of affection of the heart.

Loss of blood, in certain circumstances, is attended by all the symptoms of violently increased action of the general system, and especially in the head and of

* Clinique Médicale, tome i, p. 52.

the heart; and I have no doubt that recourse has frequently been had to the lancet, when an acquaintance with the facts contained in the second of these Essays would have dictated far different measures. I may here take the opportunity of observing that many of the symptoms which result from loss of blood in adults, are observed to occur in children in some cases of diarrhœa,—especially the symptoms of great nervousness and affection of the brain. Of this I have very recently witnessed a marked example.

It is plain, from these observations, that there are cases which require to be very cautiously distinguished from inflammation, and which have by no means hitherto received the attention which they imperatively demand. I now beg to remark that these cases are extremely apt to occur in the puerperal state, from the prevalence of their causes—intestinal irritation and loss of blood—at that period. The following Essays are, indeed, only preliminary to the publication of a treatise on Puerperal Diseases, in which it is my wish to contrast anew, and with great accuracy, the history, symptoms, morbid anatomy, and treatment of those diseases.

The second of these Essays naturally led me on to the investigation of the subjects of the third. They are all presented to the medical reader as mere sketches, requiring to be filled up; and they are published in this imperfect state, in the hope that I may by this means be assisted by the observations and

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detecting its nature. When the state of sinking occurs from affection of the brain, there is a gradual failure of the actions of the heart and of respiration; when, on the contrary, it arises from a clogged state of the bronchia, or of the lungs, there is conjoined with it a manifestly defective arterialization of the blood; and, lastly, when sinking takes place in certain affections of the stomach and bowels, as enteritis, dysentery, &c. there is great failure of the action of the heart, indicated by an extremely small pulse, and of the animal heat. These differences in the state of sinking require to be still further traced; and it is highly probable that the inquiry would lead to many interesting observations, both in physiology and pathology.

I once more beg to repeat, that the following pages are offered to the medical reader, only as containing materials for thinking, and suggestions for renewed inquiry. In every other sense, I am fully aware of their many imperfections."

CHAPTER XLVI.

ON THE EFFECTS OF INTESTINAL IRRITATION.

THERE are some effects of intestinal irritation which, although of an acute and alarming character, appear to me not to have been always understood in practice, or discriminated from some other morbid affections of a totally different nature, and requiring a different, if not an opposite, mode of treatment, and of which I have been unable to find any distinct account in medical writings.

The case resembles, in many instances, the most acute phrenitis; and it is this form of the disorder in particular to which I wish to draw the attention of the profession. In other instances, the affection has assumed the character of inflammation of the intestines or peritonæum. Occasionally, the seat and kind of pain have led to the suspicion of pleuritis. Or attacks of palpitation have suggested the idea of disease of the heart.

Very frequently two or more of these affections take their rise in succession, the first or second probably ceasing entirely before the subsequent one is established—an event which has, I believe, often led

to an erroneous idea of the *metastasis* of inflammation or other morbid affection from one organ to another.

The occurrence of this morbid affection is by no means unfrequent. This consideration, added to that of its resemblance in difference instances to inflammation, induces me to think that it should be established and regarded, in its several forms, as a distinct class of disorders, to be constantly distinguished from the latter disease.

The subject cannot, I think, be better introduced to the attention of the medical reader, than by presenting him with the following case, taken from one of the most respectable journals of the day, and regarded by its intelligent author, and apparently by the editor, as affording an example of migratory inflammation, or metastasis.

Case 1.—Mrs. F. a young married lady, had felt unwell for some days, in consequence of slight cold. Her medical attendant, Mr. F. had bled her copiously the preceding evening, apprehending symptoms of *enteritis*. She was of a spare and slender make, the mother of two children, generally healthy, but subject to *severe and frequent constipation of the bowels*, which seemed to form the ground-work of her present complaint.

“On my first visit,” the writer observes, “I found *enteritis* established in its *most acute form*; nor had the previous bleeding produced any mitigation of her sufferings. A vein was immediately opened, and she

was bled *ad deliquium* ; the warm bath, calomel and nitre, of each three grains, every four hours, and a solution of manna in strong senna tea (the only laxative that could remain on her stomach), were ordered. Next day the symptoms had remitted ; but it was necessary to repeat the bleeding, and to apply many leeches to the abdomen. The bowels were now freely purged, the evacuations black and offensive to a degree I have seldom witnessed. On the third day, the mouth was sore, the abdomen free from pain, all the symptoms favorable, except a quickness of the pulse, which I thought was attributable to the action of the mercury. I therefore consigned my charge to my medical friend. But I was surprised, on the day but one succeeding, at being requested to see Mrs. F. again ; and still more so, to find *very marked symptoms of inflammation of the brain*. These had come on in the course of the previous afternoon, without any intelligible reason (except that the bowels had become constipated). I was certain, from the prudence of Mr. F. that no stimulant, either in food or drink, had been given. The *intolerantia soni et lucis* was so great, that she could not bear the slightest motion about her, nor hardly permit me light enough to conduct my examination. She complained of intolerable weight and oppression of the head, vivid flashes of light constantly before the eyes, urgent thirst, the tongue was coatsd, the pulse full and labouring, the skin hot, &c. ; no delirium ; no pain

upon pressure of any part of the abdomen ; the mouth still sore. Copious depletion was again had recourse to ; a blister to the nape of the neck ; the head wrapped in towels constantly wet with vinegar and water ; large doses of extr. coloc. comp. with calomel twice a day, assisted by the former mixture of senna and manna, and a mixture of antim. tart. and potass. nit. every four hours. The pressure of other engagements prevented my seeing her oftener than every other day—a circumstance I the less regretted, from the constant attendance of her brother-in-law. At every visit but my last, I was obliged to bleed ad del. or until sensible relief was obtained, besides applying numerous leeches every day. She was never delirious, always protruded her arm for the lancet, and expressed the relief she felt while the blood was flowing : it never had a true buffy coat ; but the crassamentum was remarkably firm and fibrous. After the second bleeding, the pain was confined to the right hemisphere ; on which side a blister was applied and kept open till it formed a running sore. At my fourth visit, the pain in the head was sensibly abated ; but symptoms of *abdominal inflammation* had *supervened*. This the bleeding of that day conquered. The bowels, notwithstanding the large doses of purgatives, were with difficulty kept soluble ; the disorder sensibly yielding as the evacuations became more natural. The soreness of the mouth, which never amounted to ptyalism, subsided during the attack, and never again

recurred. At my sixth visit, I took leave of my patient, with sanguine hopes of her permanent recovery ; yet within a week I was *again* called to her, in consequence of a *severe attack* of *pleuritis*. I understood that the pain in the head had *returned* a few days after I saw her, and that her brother had found it necessary to continue, in a modified degree, my plan of treatment. As she slowly recovered, difficulty of breathing, pain in the side came on, and at length *a very marked case* of *pleurisy* was established. Almost in despair, I again began the evacuating system, and at length had the pleasure of subduing this last attack ; but not without repeated bleeding, leeching, and blistering. My patient was by this time terribly worn down ; and in my opinion inflammation had nothing to fasten upon. However, a few weeks in the country soon restored her to her usual appearance."

I believe the following observations will render it most probable, if not certain, that this case was *not* one of inflammation, but of intestinal irritation, and of its effects on several organs in succession. If so, I need not insist on the necessity of forming an accurate diagnosis of these two diseases, in order to the adoption of an appropriate mode of treatment. The case itself, which I reprint, notwithstanding the different view which I take of it, with the approbation of its candid and liberal author, is indeed "peculiarly interesting, and affords ample scope for meditation."

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been subject to indigestion. And he is particularly liable to experience returns of the affection, in the same or some other form, until the primary disorder and the consequent debility be finally removed.

The Symptoms.—This affection generally begins in the manner of a sudden attack. This attack is usually ushered in by rigor; indeed, by a more distinct and decided rigor than is observed in many cases of inflammation: the rigor is usually soon followed by much heat of surface; with the heat, the patient experiences some affection of the head, chest, or abdomen, and, indeed, more or less, of all. There are vertigo on raising the head, pain and some morbid impression on the mind, panting in the breathing, and fluttering about the heart, with general hurry, irritability, and restlessness; the tongue is white and loaded; the alvine evacuations are morbid, dark-coloured, fœtid, and scybalous, or yellow like the yolk of an egg, or of the appearance of yeast; the urine is turbid, and frequently deposits a oopious sediment.

The further account of the symptoms will be best conveyed by a few cases, selected with the object of displaying the character of this affection.

Case 2.—Amongst the earlier cases of the effects of intestinal irritation which excited my attention, was that of Mrs. Hawkins, a rather delicate, married woman, aged 35. When I was first called to this patient, she appeared to labour under *inflammation of*

the peritonæum, the symptoms of which were so severe as apparently to demand the repeated employment of the lancet and application of leeches, so that the patient lost about thirty-five or forty ounces of blood; the bowels were freely purged; the stools were very foetid.

All the symptoms were removed on the third day. I only visited my patient once; and, like the author of the case already given, I had every hope of a speedy and secure convalescence. I was, however, equally doomed to be disappointed. Early on the succeeding day, I received an *urgent* request to see her. She had been seized with severe pain of the head, especially over the eyebrows, attended by beating and throbbing, and by the most urgent intolerance of light, so that the eyes could not be opened for a moment for examination; the pain was increased on attempting to sit up erect; the countenance was palish and sallow; the pulse full and frequent; there was no faintness or sighing.

As this case occurred early in my investigation of the effects of intestinal irritation, I hesitated in determining whether the symptoms were such as I had already witnessed in one or two cases as arising from that cause, or were indicative of inflammation within the head. I prescribed a draught with thirty drops of the *tinctura opii* and of the *spiritus ammoniæ aromaticus*, whilst a cold lotion was applied to the head. On the succeeding day, Mrs. Hawkins was better in

every respect, but complained of any noise. On the next day, she was comparatively well, only suffering from vertigo on raising the head. From this time the recovery was progressive and uninterrupted, the utmost care being taken to regulate the bowels and the diet.

This case appears to me perfectly similar to the one first given, and, under similar management, or under the plan of treatment first adopted, from the idea of its being inflammatory, would probably have been equally protracted, and the attacks equally repeated in their various forms. It was, I now think, at first *mistaken* for *enteritis*: the symptoms were, in the second attack, those usually deemed indicative of *phrenitis*, in its most marked form; yet these symptoms were removed, without the lancet, by an ammoniacal anodyne draught! and the patient had a speedy, safe, and uninterrupted recovery.

Case 3.—The present case is one of still greater interest; for the patient himself is a most intelligent surgeon*, and the case is given in his own words. He had undergone a painful operation on the anus, which it is unnecessary to specify particularly here, and had suffered much for six days, especially on passing the fæces, and on dressing the wound. He had kept himself low, and had had restless nights, as well as painful days. On the *sixth day*, after describing the pain and suffering he had experienced

* Mr. Oldknow, of Nottingham.

from the evacuation of the bowel, which contained scybalous fæces, and from the dressing of the wound, he says—"I now began to experience great soreness and tenderness in the right groin, and down the back of the thigh; *my feet and legs became extremely cold*; but, in about an hour's time, by the application of warm flannels, bottles, and friction by the hands, and by taking a small basin of broth, the coldness and aching subsided; *I became generally heated*, and my mouth was clammy; there came on a general *soreness* of the skin, and especially of the eye-balls; my face was heated and flushed; my pulse gradually rose to 96; but I became quite easy, except from a tenderness in the groin. I took soda-water. I attributed this attack, in part, to a little exertion. At two o'clock in the afternoon, *the chilness returned*, and was removed towards three, at which time I experienced *throbbing in my temples, with headache*, and *flying stitches in my side*: pulse 112. I was bled to sixteen ounces; after which I began to perspire, and felt a little faint: the throbbing of the head ceased, but the pain continued: pulse 116. A little before five o'clock, the perspiration had ceased, having been pretty general, but not profuse. I felt very much *overcome*, and general lightness and vertigo on moving; great thirst. At half after six o'clock my *faintness* continues; I am afraid of taking medicine, for fear of sickness; I have pain of the head; and if I raise it from the pillow, I feel giddy and confused. My skin

is tolerably cool; my thirst continues; I feel very *restless*, and cannot help *sighing*; the *fan* and aromatic vinegar seem to revive me a little; if I doze, my breathing is alternately very prolonged and very rapid; pulse 108; tongue covered with a thin, white mucus; the other groin is a little painful. Eight o'clock: Much the same. I am directed to take a dose of calomel at bed-time, and of ol. ricini in the morning; to foment the groins and arms, and omit introducing the dressings." On the *seventh day*, the patient dictated the following report:—"In the early part of the night, my *head* became *distractingly painful*, for which I applied cold wet cloths to my head, face, and neck, with much relief; the *faintness* was very distressing. Between eleven and twelve o'clock, I had a large glyster, composed of gruel and oil, which induced two stools, attended by great faintness: I took sal volatile and nourishment. After the second evacuation, my head was relieved; but the faintness continued. I dozed at intervals until three o'clock, when I took the ol. ricini, with nourishment at short intervals. I had a copious stool at six o'clock, and vomited; my headache and faintness were much relieved; I slept comfortably, and perspired profusely. Betwixt eight and nine o'clock, I had another motion. The pain of my head was quite gone, as well as the faintness, except after any exertion; the stools were passed with ease; the pain of the groins abated, so that the wound was again dressed with lint; my pulse

had got down to 92: I continued to take as much nourishment as I could bear. About twelve o'clock, I fell into a sound sleep, which continued, with one trifling interruption, until four, when I awoke in a profuse perspiration, had my linen changed, and felt considerably better. At the present time, seven o'clock, I am quite free from pain and faintness; but I feel occasionally flushed, and have a strong disposition to perspire; pulse 84;" &c. I think it unnecessary to add the subsequent reports in this interesting case, as they relate to the local complaint, and will probably be published by the patient himself.

When I arrived to witness the symptoms just detailed, the patient had been bled from the arm at his own instance, and, being unrelieved, the leech-man was in waiting. The question was asked, ought the blood-letting to be repeated, or leeches applied to the temples? I decided, without hesitation, in the negative, and prescribed an emollient, but copious enema, sal volatile, and nourishment. I left the patient past midnight, greatly relieved. The next day, I found him free from symptoms of affections of the head!

This case illustrates several points of great importance:—1, the united effects of intestinal irritation, of pain, fatigue, and want of rest, of exertion, and perhaps of exposure to cold, and, afterwards, of blood-letting; 2, the *concurrence* of affections of *several* organs—of the head and of the chest; 3, the

contrast of dissimilar modes of treatment,—the depletory plan only inducing a remission of symptoms which are to recur in the same or some other form, whilst the removal of their common causes secures the patient against further attacks—a point also fully illustrated by Case 2, contrasted with Case 1. The opinion which the patient had formed of his own case is plain, from the treatment adopted in the first attack, and about to be pursued in the second. I should not have decided differently had I not already witnessed several cases of a perfectly similar nature, and cautiously watched their symptoms, and ascertained the mode of cure. And I think most physicians would have apprehended, at least, some inflammatory affection within the head.

Case 4.—The next case is that of Mrs. Darley, a young married lady, in the fourth month of pregnancy, habitually costive. The present attack came on after much fatigue in travelling; and she is stated to have experienced a similar one formerly.

On the 7th of October, she complained of pain of the head, and leeches were applied to the temples. On the 8th, the pain of the head was more violent, and attended with much throbbing of the temples; and to these symptoms, pain of the right side, under the breast, a sense of tightness across the chest, and hurry in breathing, were superadded. Twelve ounces of blood were drawn, and an efficient aperient medicine was given; and on the 9th and 10th she was

much better, and a saline medicine was prescribed. On the 11th, she was again taken worse, after imprudently sitting up; the beating of the temples, tightness across the chest, and difficulty in breathing, returned, unattended by cough. Sixteen ounces of blood were taken from the arm, with great relief, and the aperient medicine was repeated; the patient was relieved, and continued better on the 12th. In the night of the 13th, the medical attendant received an urgent message to visit his patient, and found her with severe pain and beating of the head, great tightness and pain across the chest, and now with violent palpitation of the heart. Twelve ounces of blood were taken, and calomel and other aperient medicines were given, with considerable relief. On the 14th, a physician was consulted, who prescribed the pil. hydrarg. with an aperient draught. In the night, the apothecary was again sent for, all the symptoms having returned, and now, for the first time, with the addition of a slight cough. Eight ounces of blood being drawn, great relief was obtained. On the 15th, the physician was again sent for: ten ounces of blood were taken, with great relief; an aperient, and a mixture for the cough, prescribed, with eight drops of the tinctura digitalis purpureæ every four hours. In the night of the 16th, the medical attendant was again sent for: all the symptoms had returned in a still more aggravated form; the pain of the head, tightness across the chest, palpitation, and cough,

being extremely severe. Eight ounces of blood were drawn, without relief; the head was shaved, a cold lotion applied, and a blister ordered for the back of the neck.

On the 17th, I saw the patient, for the first time. There were much pain and throbbing of the *head*, which felt benumbed and heavy, as if she could not raise it from the pillow; there had been no sleep; the pupils were extremely small, with intolerance of noise and disturbance of any kind; there were palpitation of the *heart*, and sometimes faintness, and a feeling of sinking or dying; there were a sense of tightness across the *chest*, oppression in the breathing, and a peculiar tracheal or laryngeal cough; some pain in the region of the *uterus*, increased by pressure, but no vaginal discharge; the countenance was usually pale, but sometimes flushed, the tongue extremely loaded, and even black at the back part; the alvine evacuations, on giving purgative medicine, were still, at first, dark-coloured, offensive, and scybalous; and, afterwards, offensive and like yeast: the pulse was 120. I was forcibly struck by a general, but marked, resemblance of this case to those already given, and to others of the same nature which I had witnessed. The depleting plan, already fully adopted and repeated, had proved ineffectual in affording relief; the purgatives hitherto given were, I believed, inefficient. The plan I proposed was to give efficient purgatives; to restrain their operation by draughts with tinctura

opii and spiritus ammoniæ aromaticus ; to support the strength by means of nourishment, given every hour, or oftener ; to procure sleep by anodyne enemata ; to guard against exertion or fatigue, noise or disturbance. The recovery was uniformly progressive ; there was not even one recurrence of the painful attacks ; the symptoms gradually disappeared, the pulse becoming natural, the pupils of the natural size, the head and chest being relieved, and the bowels daily, but fully moved ; quiet sleep and a good appetite returned ; in six days, the patient was convalescent : shortly afterwards, she bore a long journey home without any ill consequence, and, at the proper time, had a safe delivery.

Case 5.—Mr. T. H. aged 19, complained, on Sunday evening, September the 29th, of pain shooting through the region of the stomach to the back, recurring at intervals ; he took some ginger tea, was relieved, went to bed, rose in the morning, looking pale, but expressing himself better, went into the counting-house, and ate his dinner of cold roast-beef as usual. About five o'clock in the afternoon, he became affected with coldness of the hands and feet, slight flushing of the face, violent and constant pain of the crown, or, as he said, of the “ bones ” of his head, numbness of the right hand, and contraction of the right side of the lip ; an incoherence of manner, answering hastily and sharply to any questions ; restlessness and tossing about ; and extreme intolerance

of light, or the least noise, desiring that the shutters might be accurately closed, and that the room door should not be moved. About two hours after this attack, sickness came on; a great load was vomited, and he became more collected, but still complained of pain of the bones of the head, and of the slightest light or noise. In an hour, he fell into an uneasy slumber, breathed hard through the nostrils, awoke in half an hour a little easier, his hands and feet becoming warmer. He took a cup of bohea tea, and a dose of calomel and jalap. At ten o'clock, p. m. he lay more composed, then dozed at intervals, but always complained, on awaking, of pain of the head. At two o'clock, he slept more quietly; his medicine acted three times: he rose in the morning much refreshed, but looking dull and sallow. He continued to recover during the day, rode out, ate his dinner, but still looked ill.

Case 6.—In the cases already given, the *head* was the part chiefly affected. In the present case, the patient, Mr. Hastie, aged 40, was attacked with symptoms which were, I think, mistaken for *pleuritis*. He was bled profusely, and lost nearly a gallon of blood. At first, the pain was mitigated; but it always returned with unremitted violence, especially at the latter part of the treatment, when the relief afforded was also of shorter duration.

At this time I was consulted. The pain was referred to the *right side*, over the false ribs, and was

excruciating on drawing a deep inspiration, but less so on breathing deep a second and third time; the pulse was about 86; the tongue white and loaded. As blood-letting had been fully tried without effect, and as I entertained the opinion that the pain was symptomatic of intestinal irritation, rather than inflammatory, I prescribed a brisk purge, the operation of which was to be followed by the ammoniacal opiate draught. The motions were dark and fœtid. This plan was repeated daily, with a strict attention to nourishment. The pain *moved* to the *right breast*, and afterwards to the *back*, and was extremely severe on drawing a deep breath. By pursuing this mode of treatment, the pain gradually subsided; and on the ninth day of my visits, and twenty-fifth of the disease, it was nearly gone, and the pulse natural. During the continuance of the pain, much relief was obtained by the application of a liniment and fomentation.

At one time, the pulse was 120 from *mental agitation*, and continued frequent during several days; and there were hurry and agitation from any sudden noise, as that of a knocker, or of any thing falling on the floor; a tendency to talking and delirium, restlessness, and picking of the bed-clothes; heat and perspiration during sleep. The operation of the medicine often induced faintishness; the face and hands were blanched. The purge was given daily, the draught with *tinctura opii* and *spiritus ammoniæ aromaticus*, three times a day; the liniment and fo-

mentation when required for pain; and nourishment in small quantity almost every hour. The recovery was progressive, and without any untoward circumstance, except the effects of mental agitation just mentioned. The patient, however, continued to labour under derangement of the general health for some time.

Case 7.—In this case, of which the heads only can be given, the patient was afflicted with great *palpitation of the heart*, which returned in paroxysms. The attack would come on from various causes, induce great alarm and sense of dissolution, with throbbing along the abdominal aorta. The patient was bled profusely, without more than temporary relief. He recovered gradually under the employment of purgative medicine, nutritious diet, and soothing treatment, remaining only subject to dyspepsia.

Symptoms continued.—The *general* symptoms have been already detailed, and the *local* complications have been illustrated, in some measure, by the cases. It will be necessary, however, here, to enumerate the latter more distinctly.

The affection of the *Head* consists of the most acute pain, the greatest intolerance of light and sound, and the severest form of vertigo, wakefulness, and distress, and sometimes even delirium, and the pupils of the eyes are often extremely contracted.

The affection of the *Chest* is denoted by severe and acute pain of some part, which is apt to vary its

situation, passing from one side to the other, or to the *back*, or occupying a situation higher up or lower down: this pain checks a deep inspiration, and even the ordinary breathing, to which it imparts a character of difficulty and anxiety.

When the *Abdomen* is affected, there are acute pain, and great tenderness under pressure, in some part, or more or less generally diffused. The attack and situation of the pain are such, in some instances, that the case is with difficulty distinguished from *gall-stones*, though it more generally resembles *enteritis*.

When the *Heart* is the seat of this affection, there are violent and terrific attacks of palpitation, and the course of the carotids, and even of the abdominal aorta, is sometimes the seat of violent pulsation or throbbing.

All these affections are apt to occur in sudden attacks, and to recur in paroxysms, perhaps varying their form, and exciting great alarm in the patient and his friends, who usually despatch a hurrying message to the medical attendants.

The Diagnosis.—I now come to the most important and difficult part of my undertaking. The preceding cases are sufficient to establish the fact that there *are* attacks which *resemble* inflammation of the head, chest, or abdomen, and yet which are totally different in their nature. This fact is, of itself, highly important. And if I should fail in giving sufficient diagnostic marks of these morbid affections, it will

still be of the utmost moment to know that the distinction is absolutely essential to the adoption of an appropriate mode of treatment; and that, whilst we appeal to future experience to render the diagnosis more complete, the peculiarities of each case must be carefully seized, in order to supply the deficiency of the general rule.

I would first observe that the attack from intestinal irritation is, in general, more *sudden* than that of inflammation, which is generally formed somewhat more gradually. This circumstance must therefore be cautiously inquired into, and may *assist* the diagnosis.

I believe, too, that the seizure in the former case is attended by *more distinct rigor*, and afterwards by *greater heat*, than in the latter.

The case of intestinal irritation affects, in a marked degree, *more organs at once* than that of inflammation, which is usually confined, at first at least, to one.

The state of the *tongue* and the condition of the *alvine evacuations* are far more marked by disorder, and the latter are far more offensive, in attacks from intestinal irritation than in cases of inflammation.

The affection of the *Head* from intestinal irritation comes on suddenly, is formed all at once, and is attended by great restlessness, suffering, and distress. In *phrenitis*, the disease is usually formed somewhat more gradually; the patient has been subject to pain of the head, perhaps for some days, or even longer;

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previously subject to disorder of the bowels ; afterwards he is apt to experience similar attacks, unless he be attentive to diet and regimen, and to the state of his bowels.

Besides the circumstances already pointed out, there are some points of a very interesting nature which deserve to be particularly noticed in this place.

1. It must have fallen to the lot of many physicians to witness very severe morbid affections, immediately consequent upon causes which appeared totally inadequate to the production of such effects. A slight blow or a trifling fall has appeared to induce serious and alarming indisposition. The truth is, that there was already a disordered and loaded state of the bowels, dormant until roused into effect by the accident. A lady, about 50 years of age, fell a few steps down stairs ; she got up, however, and walked to the sofa ; in a short time she was taken with chilliness, succeeded by heat of skin, and the most intolerable pain of the head and sensibility to light, noise, &c. She soon recovered, on taking active purges, alternated with the ammoniacal anodyne draught.

2. Every physician must also have observed cases of apparent inflammation, which did not pursue the *usual course* of inflammation ; probably yielding sooner than is generally observed, or receding altogether and recurring in paroxysms. This course of the disorder is noticed in several of the cases given in this essay.

3. The case is often *relieved*, perhaps, but obsti-

nately refuses to *yield* to the lancet, recurring with great if not increased violence, in a manner not observed in cases of inflammation.

4. In other instances, the local affection ceases, perhaps for a day or two even, and then recurs, only attacking some distant part. In these cases, it has often been thought that there had been a *metastasis* of the former local affection, whilst, in fact, the *cause of both* remaining unremoved, has exerted its influence through a different channel of sympathy, and upon another organ.

5. In the same manner, we sometimes observe cases apparently involving inflammation of more vital organs than one at the same time. Such cases may certainly occur. But it is my present object to show that appearances may be deceptive, and that the case may be different from inflammation, and dependant on a disorder remote from the parts affected.

6. In the last place, there have been many cases in which the expected traces of morbid anatomy—the effects of inflammation within the head, chest, or abdomen,—have been absent altogether. This observation has been fully illustrated, in regard to the *brain*, in the works of MM. Parent Duchatelet and Martinet*, and of M. Hebreart†. All these authors have noticed cases in which the *symptoms* of phrenitis

* De l'Arachnitis, pp. 24, 25.

† Annuaire Med. Chir. See Dr. Johnson's Review, No. X, pp. 435, 438; see also No. VIII, p. 731.

existed, and yet not a trace of the effects of inflammation on dissection. The view which has been given of the effects of intestinal irritation may assist us in explaining an event which must have been witnessed by all who have in any degree pursued the study of morbid anatomy.

The Treatment.—The mode of treatment comprises the full evacuation of the bowels, soothing by anodynes, light nourishment, and certain local remedies.

Before I make a few observations on each of these remedies, I wish, however, shortly to discuss the question—ought we ever to have recourse to the lancet? If our diagnosis was early and certain, *perhaps* the lancet would never be required. But there are two reasons why it appears to me that, whilst we must use this remedy with every precaution, it should not be entirely discarded, even in cases of intestinal irritation. First, that which was originally irritation merely, may doubtless lead to a state of inflammation; the presence of much disordered fæces in the bowels may not only irritate and induce pain of that and of some remoter part, but may eventually induce inflammation, if long continued; and the lancet may be requisite as a *preventive*, if not as a cure. This observation applies especially to the attack of pain and tenderness in the abdomen; much less so, I think, to the affection of the head. Secondly, in the case of intestinal irritation, the diagnosis may not, until the symptoms of the affection be further studied, be such

as to remove all doubt as to the nature of the case. It will then be prudent to bleed, for the sake of safety, whilst we enforce the other and more specific modes of treatment.

The bowels must be fully and freely evacuated. This alone, however, will not remove the symptoms of this distressing disorder, which appear to continue after the original cause is removed, partly from the irritation occasioned by the purgative medicine and from the state of purging themselves, and partly from the degree of lowness and exhaustion induced. To remove these effects of the administration of purgative medicine, the draught of tinctura opii and spiritus ammoniæ aromaticus, on one hand, and light and fluid nourishment on the other, seem to be absolutely necessary. This remark is highly important; for I have frequently known the practitioner disappointed who depended upon any *one* of the remedies mentioned. It is by the judicious combination of all, that we must hope to subdue the present symptoms, and what is of equal moment, to prevent their recurrence.

The local applications are chiefly a cold lotion applied to the *head*, a liniment applied to the *chest*, and a fomentation and liniment applied to the *abdomen*, when the pain occupies one or other of these parts.

As it is my principal wish to be as brief as possible, I have not deemed it necessary to enter more into detail respecting the various remedies to be employed. It is the objects which are to be attained which should

be kept steadily in view; viz. to prevent inflammation by cautiously bleeding, *if necessary*; to remove the cause of the affection by free purging; to allay irritation by the ammoniacal opiate draught; to obviate exhaustion by nourishment; and to obtain relief for the local affection by the local remedies already enumerated. The same motive has especially induced me to give only such a number of cases as might be just sufficient to establish the facts and lead to reflection, whilst I reserve it for future opportunities to pursue the investigation. I shall have attained my object, if I shall have impressed the profession with the truth, that phrenitis, and other inflammations of important viscera, are sometimes simulated by intestinal irritation; and that an accurate diagnosis of these affections is still required, in order that we may avoid dangerous measures, and adopt such as can alone cure the disease.

CHAPTER XLVII.

ON THE STATE OF SINKING, FROM VARIOUS CAUSES.

THE subject of this Essay, like those of the two preceding ones, has, I think, been too much overlooked in medical writings. There are, however, some interesting observations by the late Mr. John Hunter*, and two invaluable papers by Sir Henry Hallford†, not irrelative to it, to which I shall have occasion repeatedly to refer, in the course of the subsequent pages.

I propose to consider the subject of exhaustion and sinking in relation to—1, *Early Infancy*; 2, *Old Age*; 3, *Several Diseases*; and 4, *Certain Causes of Exhaustion*.

I. *Of Exhaustion in Early Infancy.*

The state of exhaustion is very apt to be induced in *early infancy*; and, as the reaction is feeble at

* See the Treatise on Inflammation, Part II, chap. ix, sec. 3, on Dissolution.

† Trans. of the Coll. of Phys. vol. iv, p. 316, on the Climacteric Disease; and vol. vi, p. 398, on the Necessity of Caution in the estimation of symptoms in the last stages of some diseases.

this period of life, the case soon assumes the character of sinking. I have frequently been consulted when the original disease has been subdued, perhaps, and the chief complaint of the little sufferer was a state of exhaustion, which a truce from remedies and medicine, and a proper supply of nourishment, and perhaps stimulus, have removed.

This state of things is often mistaken for inflammation of the brain, or hydrencephalus. And it may be difficult to state the grounds for a just diagnosis between the two affections. It will, however, be of great assistance to be fully aware of the nature and character of exhaustion, and to conjoin with this knowledge a due retrospect of the history of the case, and a due consideration of the effects of the various remedies which may have been employed.

The stage of exhaustion in infants is little marked by the symptoms of reaction in the system described in the preceding essay. At first, there are great restlessness and irritability of temper, whilst the countenance is pale and expressive of great anxiety, and there is great frequency of the pulse; afterwards, the temper and restlessness appear subdued, there are some dozing, and other false and deceptive appearances of amendment; but the pulse is still more frequent, the face pale and sunk, and the cheeks and extremities are cold; the voice is apt to be husky, and attended with a husky, hacking, and distressing cough.

Case 1.—One little patient was reduced by too copious and repeated bleeding for croup. There supervened a state of irritability of temper, so that, when greatly exhausted, it made great efforts to bite, scratch, and beat its attendant. This state of agitation continued until the powers of life were gradually exhausted.

Case 2.—A little girl, aged four months, was seized with a bowel complaint; the usual medical attendant prescribed an aperient, which acted too freely. When I saw it, on the second or third day of the disorder, the countenance was pale and sunk, and the cheeks cool; it started on being touched; there was a peculiar *huskiness* of the voice; and the pulse beat from 144 to 150. By giving brandy, the pulse was, on the succeeding day, reduced to 120, and there was some apparent amendment, although a degree of rattling in the breathing, or on coughing, was now added to the huskiness of the voice. By continuing the brandy, the cheeks became warm, and at length somewhat flushed, and the pulse rose to 140. The quantity of brandy was now diminished, and cautiously regulated, and the pulse very gradually lowered to the natural standard.

The condition of the cheeks, in respect to colour and warmth, may be almost regarded as the pulse of very young infants. In this case, their pallidness and coldness, together with the state of the voice and breathing, indicated almost a fatal degree of exhaus-

tion: the frequency of the pulse, arising from this cause, was reduced by the brandy; but it was afterwards again increased, as the effect, not of the exhaustion, but of the stimulus, and the cheeks recovered their warmth, and sometimes even became flushed. In another case, precisely similar, the state of sinking continued in spite of every remedy, and the little infant lingered and then expired. I have known such a state of lingering to be continued for several days.

Case 3.—An infant, two months old, was taken with scarlatina; the bowels were affected with diarrhœa; and afterwards there were an aphthous state of the throat, and frequent sickness with the diarrhœa; the rash was livid, disappeared imperfectly under pressure, and resembled the effects of exposure to cold on the extremities of young children. This infant went through the disease, but remained feeble for several days, and then gradually glided into the sinking state. The cheeks became pale and cool, the hands cold, the eyes were dimmed by a film of mucus, the pulse and respiration became more and more feeble; a state of restlessness gradually subsided into dozing and death.

When a child has been rather long ill, when active remedies have been employed, when the form of the disease has perhaps changed in some degree, and paleness of the cheeks is attended with irritability and restlessness, we should carefully consider whether the symptoms are not those of exhaustion. I am per-

suaded that, by relinquishing all lowering remedies, and adopting a cordial and soothing plan of treatment, I have seen some children recover who would soon have sunk under the continuance of remedies calculated to subdue a supposed state of inflammation within the head, chest, or abdomen. In these cases, the idea that the original disease and the remedies had worn out the little patient, and led to a state of exhaustion, had apparently never occurred to the practitioner. It is impossible to do justice to this subject in a short section of a short essay; but I am persuaded that the *hints* here offered will, if carefully considered and cautiously acted upon, be of great assistance to the young physician in his treatment of some of the diseases of infants.

II. *On Sinking in Old Age.*

The state of sinking is apt to come on in *old age*, as it does in infancy, unattended and unpreceded by the symptoms of reaction. There are transient flushes of the cheeks, and an increased frequency of the pulse; but the force of the arterial beat does not pass beyond that of health, but, on the contrary, becomes gradually more and more feeble.

Nothing can be more accurate than Sir Henry Hallford's description of this state*. He observes—
“ It sometimes comes on so gradually and insensibly, that the patient is hardly aware of its commencement.

* Trans. of the Coll. of Phys. vol. iv, pp. 318—320.

He perceives that he is sooner tired than usual, and that he is thinner than he was; but yet he has nothing material to complain of. In process of time, his appetite becomes seriously impaired; his nights are sleepless, or if he get sleep, he is not refreshed by it. His face becomes visibly extenuated, or perhaps acquires a bloated look. His tongue is white, and he suspects that he has fever.

“If he ask advice, his pulse is found quicker than it should be, and he acknowledges that he has felt pains occasionally in his head and chest; and that his legs are disposed to swell: yet there is no deficiency in the quantity of his urine, nor any other sensible failure in the action of the abdominal viscera, excepting that the bowels are more sluggish than they used to be.

“Sometimes the headache is accompanied with vertigo; and sometimes severe rheumatic pains, as the patient believes them to be, are felt in various parts of the body, and in the limbs; but, on inquiry, these have not the ordinary seat, nor the common accompaniments of rheumatism, and seem rather to take the course of nerves than of the muscular fibres.

“In the latter stages of this disease, the stomach seems to lose all its powers; the frame becomes more and more emaciated; the cellular membrane, in the lower limbs, is laden with fluid; there is an insurmountable restlessness by day, and a total want of sleep by night; the mind grows torpid, and indiffer-

ent to what formerly interested it; and the patient sinks at last, seeming rather to cease to live, than to die of a mortal distemper."

The countenance, besides being thinner and paler than before, often betrays a peculiar imbecility, both of the muscles, and perhaps of the mind or feelings, by certain peculiar rapid movements observed in the chin and cheeks. A similar debility is observed both in the articulation and in the movements and manner in general. The feelings are, in some instances, very susceptible, and the patient is apt even to shed tears, and is unable perhaps to bear society: besides the headache and vertigo, there is sometimes a degree of fluttering in the region of the heart or stomach, and the pulse is apt to be irregular; the breathing is easily hurried by exertion or emotion; the patient is soon fatigued; there are wakefulness and restlessness, with thirst and heat; the ends of the fingers are apt to become of a pale livid hue, and cold; the muscular flesh wastes, and the patient is observed to be much "altered."

In this state of exhaustion, I have several times known an attack very similar to *paralysis* to take place. In one patient, the head fell down upon the chest, the muscles of the back of the neck becoming all at once affected with such debility as to be incapable of supporting it. From this debility the patient recovered gradually, and was once more able to hold his head erect. Another patient suddenly lost,

in a degree, the power of articulation and of deglutition. He recovered this power in a great measure, but soon passed into a fatal sinking state.

Such is the state of things before positive sinking begins, and from such a state the patient may recover; but in a short time, if recovery be delayed, that other change takes place, and appears to lead irretrievably to dissolution.

With increased debility of the muscles and of the pulse, there is now slight delirium, with a tendency to dozing; there is rattling in the throat and in the bronchia, with laborious and imperfect breathing; in some instances there is retention, with or without incontinence, of urine; the cheeks, hands, and feet become pale, livid, and cold, and the eye is covered with a film of mucus; after some unusual effort, or perhaps just after the bowels have been moved, the patient frequently expires rather suddenly; otherwise there is the most gradual sinking of the powers of life, perhaps after several unexpected changes for better and worse.

Case 4.—The Rev. —, aged 78, after having declined in the most gradual manner, became affected with cold and cough; in a few days, it was apparent that he was passing into the sinking state; the countenance became more emaciated and fallen, the cheeks cool, alternating with slight flushings, especially on giving any stimulus, the tongue became dry, there were wakefulness and restlessness, and afterwards

dozing and snoring, some tendency to choaking on swallowing, and great rattling in the breathing; the pulse was frequent, the skin at first rather hot, the extremities afterwards losing their warmth. There were frequent unexpected changes for better and worse, and at last the fatal change took place rather suddenly, after a too free evacuation of the bowels.

Case 5.—The Rev. —, aged 77, had been gradually declining for several years, when he was taken with apparent paralysis of the muscles of speech and swallowing; the former was almost inarticulate, the latter attended by choaking and coughing; the cheeks and feet were frequently cool; at other times the countenance was flushed and the surface hot; at length the face sank, the pulse became feebler, and the breathing laborious and imperfect, with much rattling from the accumulation of mucus; the articulation and deglutition were, with the strength, at one time, much restored, and it appeared plain that these affections were the result of debility; afterwards they again became much impaired, and it was impossible to understand the patient; and the choaking on swallowing recurred. In one attack of coughing from this cause, it really appeared that the patient would expire: he did recover, however; but, after having been stationary for several days, the state of sinking increased so rapidly, that the injurious effects of the exertion were most obvious. The mind remained clear; slight dozing came on; a film of mucus be-

dimmed the eyes ; the rattling increased ; the breathing became more and more imperfect, and the pulse feebler, until they gradually ceased altogether.

Sir Henry Hallford makes the following just remarks on the most usual causes of this state. " Of the various immediate causes to which this malady may owe its commencement, there is none more frequent than a common cold. When the body is pre-disposed to this change, any occasion of feverish excitement, and a privation of rest at the same time, will readily induce it. I have known an act of intemperance, where intemperance was not habitual, the first apparent cause of it. A fall, which did not appear of consequence at the moment, and which would not have been so at any other time, has sometimes jarred the frame into this disordered action. A marriage contracted late in life has also afforded the first occasion to this change: but, above all, anxiety of mind and sorrow have laid the surest foundation for the malady in its least remediable form."

III. *Of Sinking in certain Diseases.*

Some diseases are apt to issue, even at a rather early period, in a state of sinking ; in other cases, sinking supervenes in the later stages of these diseases. This state seems sometimes to be the result of a direct influence of the disease in lowering the vital powers ;

sometimes the disease has subsided, but the state of sinking has continued and destroyed the patient ; and sometimes the sinking has appeared to annihilate the morbid actions which constituted the disease, and thus to prove a *cure*, though a fatal one. In the latter cases, the physician whose eye is fixed on the disease alone, and the friends of the dying patient, are apt, from the apparent truce in the actions or pains of the disease, to be led into a sanguine, though delusive, hope that the patient is better ; there is perhaps a degree of dozing, mistaken for a long wished-for sleep ; or some painful symptom has subsided, and the patient expresses himself as easier ; but there are some of the appearances or symptoms, about to be described, which will not fail to undeceive the careful observer.

In treating of this subject, I shall first make some extracts from the chapter on *Dissolution* by Mr. Hunter, and from the paper by Sir Henry Hallford, already alluded to, p. 310. The former of these contain a great deal of excellent remark in its author's usual singular style. The latter will be read with profit by every student of clinical medicine. After having made these quotations, I propose to add some remarks which are deduced from my own experience.

“ Dissolution is the last stage of all, and is common to, or an immediate consequence of, all diseases, whether local or constitutional. A man shall not recover of a fever, whether original or sympathetic,

but shall move into the last stage, or dissolution. It shall take place in the second stage of a disease, where the state of constitution and parts appears to be formed out of the first; as, for instance, a man shall lose his leg, especially if above the knee; or have a very bad compound fracture in the leg; the first constitutional symptoms shall have been violent, but all shall appear to have been got the better of, and there shall be hopes of recovery, when suddenly he shall be attacked with a shivering fit, which shall not perform all its actions, viz. shall not produce the hot fit and sweat, but shall continue a kind of irregular hot fit, attended with loss of appetite, quick, low pulse, eyes sunk, and the person shall die in a few days.

“ The first symptoms are generally those of the stomach, which produce shivering: vomiting immediately follows, if not an immediate attendant; there is great oppression and anxiety, the persons conceiving they must die. There is a small quick pulse; perhaps bleeding from the whole surface of the sore, often mortification, with every sign of dissolution in the countenance; as it arises with the symptoms of death, its termination is pretty quick. Here is a very fatal disease taking place; in some almost immediately, when all appeared to be within the power of the machine, and therefore cannot immediately arise from the sore itself; for it is very common after such operations as usually do well; but the hectic always takes place in consequence of those sores which

seldom or never get well in any case ; yet the sore certainly assists in bringing on dissolution, because we never see the disease take place when the sore is healed, nor in those where the constitution seems not to be equal to the task, as is the cause of the hectic.

“ Death or dissolution appears not to be going on equally fast in every vital part ; for we shall have many people very near their termination, yet some vital actions shall be good, and tolerably strong ; but if it is a visible action, and life depends much upon this action, the patients shall not appear to be so near their end as they really are : thus I have seen dying people, whose pulse was full and strong as usual on the day previous to their death, but it has sunk almost at once, and then become extremely weak, with a thrill ; on such occasions it shall rise again, making a strong effort, and, after a short time, a moisture shall probably come on the skin, which shall in this state of pulse be warm ; but, upon the sinking of the pulse, shall become cold and clammy ; breathing shall become very imperfect, almost like short catchings, and the person shall soon die.

“ It would appear, in many cases, that disease has produced such weakness at last, as to destroy itself : we shall even see the symptoms, or consequences of disease, get well before death.

“ Even when in the state of approaching death, we often find a soft, quiet, and regular pulse, having not the least degree of irritability in it, and this when

there is every other sign of approaching death; such as entire loss of appetite, no rest, hickup, the feet cold, and partial, cold, clammy sweats, &c.*”

It often happens, at the latter end of some diseases, both of an acute and a chronic nature, that appearances present themselves of a very equivocal and delusive nature, with which the issue of the malady does not correspond. This is most frequently the case when the resistance of the constitution against the influence of the disease has been long protracted, or when the struggle, though short, has been very violent. Here, a pause in nature, as it were, seems to take place; the disease “has done its worst,” all strong action has ceased, the frame is fatigued by its efforts to sustain itself, and a general tranquillity pervades the whole system. This condition of comparative ease, the eager wishes of friends misconstrue into the commencement of recovery, and the more readily so, as the patient himself, being appealed to, to confirm their anxious hopes, having lost some of his sufferings, admits, perhaps, that he is better.

“I have seen this fallacious truce in four or five instances of inflammation of the brain, particularly where the membranes which cover it have been inflamed, producing phrenzy.

“In inflammation of the bowels generally, it is so notorious that mortification often follows a cessation

* Hunter on Inflammation, pp. 504, 506, 507, 508.

of pain, that I do not think it necessary to dwell upon this form of disease with a view of cautioning physicians; but, in that partial inflammation of the intestines which a strangulation of a portion of it in hernia produces, how often have I had occasion to deplore the disappointment and broken hopes of relatives, who, having been made happy by the assurance of the surgeon that he had reduced the protruded bowel, and that now all would be well, in only a few hours afterwards were doomed to lament the patient's death! It is an invariable rule with me still to consider life as in jeopardy, until the intestines shall have performed their functions again, all irritation having left the stomach, and the skin remaining universally and equally warm.

“ The confluent small-pox requires a very guarded prognosis at a certain stage of it. The physician may fairly acquiesce in the fears of a family, when, on the completion of the eruption, he sees the face and breast one mass of disease, and may most reasonably doubt the capability of the constitution to mature and perfect so large an eruption. But he must not hold out unfounded hopes to the parents, if the malady proceed, in the next stage, in a most satisfactory manner, beyond his expectations. The pustules ripening fully, and the process being complete—for, alas! at this very moment, it may be, the patient is sinking—is dead! the powers of his constitution being exhausted by the efforts it has made, and no

longer equal to the accomplishment of a protracted cure*.”

The diseases in which the state of sinking is most marked, are, I think, Typhus Fever and Enteritis, Dysentery, or Cholera; though many other diseases lead to this state, and especially some which consist in repeated attacks, each attack leaving the patient weaker than before, until they issue in sinking of the vital powers.

Amongst the first symptoms, coldness and lividity of the hands are frequently observed, the livid colour disappearing imperfectly on pressure; the cheeks and nose are at the same time usually cool. There are often much general and indefinable suffering, distress, and restlessness; sometimes slight dozing; at others, slight delirium; and in some cases convulsion, followed by coma; the breathing is sometimes imperfect; at others, little affected; and I have, in some cases, observed the crepitus in breathing of which I have spoken in the preceding essay, for some days even before there was any other decided symptom of sinking; the voice is frequently altered, and rather husky; the pulse is small and frequent, and perhaps irregular; the motions are apt to be passed involuntarily, and sometimes there is retention of urine. It is usual for some distressing symptom, as delirium in phrenitis, cough in affections of the chest, and pains

* Trans. of the Coll. of Phys. vol. vi, pp. 400, 405, 408.

in those of the abdomen, to have ceased as the state of sinking has come on.

The state of sinking has not, I am persuaded, been distinguished from those forms of disease which have lately been more particularly attended to, and denominated *congestive*; yet the diagnosis is of the utmost moment; for, under the idea of congestion, the lancet has sometimes been used when stimuli were required to obviate a state of exhaustion or sinking.

In Typhus, sinking is very apt to occur in the later stages. In some diseases of the bowels, this state sometimes occurs even early in the disease; in some such cases, it has been usual to conclude that gangrene had taken place; but, on examination, no such appearance has been observed; the sinking state is, equally with gangrene, attended by a subsidence of the abdominal pains*. In one case of *suppression* of urine, the secretion was somewhat restored in the last stage, or sinking state.

In the more chronic cases leading to sinking, there are various slight efforts of reaction, as flushes and heat of skin; sometimes there is shivering, followed by heat; slight dozing, or delirium, crepitus or labour in breathing, catching or mucous cough, cold extremities, the eye being bedimmed by a film of mucus.

* See further, the Essay on Symptoms, p, 77.

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lessness, and a small pulse of 120, and gradually increased until the patient died.

Case 8.—Mr. —, aged about 30, was affected with complicated disease within the thorax; viz. tubercles, and a contracted state of the chest from the effusion and subsequent absorption of serum. In the latter period of the disease, the cough and expectoration had almost ceased, the pulse remaining very frequent. In this state he walked and rode out, when it was plain that the effort kept up the frequency of the pulse, and increased the exhaustion of the patient. He became more feverish, with suffusion of the countenance and of the eyes; slight delirium came on, with playing with the fingers as on a piano-forte, restlessness and wakefulness. In a few days afterwards, a convulsive struggle took place, recurred several times, and was succeeded by coma. The eyes now became covered with a film of mucus; there were rattling and labour in the breathing, and retention and involuntary flow of urine; the extremities became cold, and the patient gradually sank.

Case 9.—The Rev. —, aged 40, was affected with Icterus, and reiterated attacks of pain in the region of the stomach. These attacks, together with the remedies necessary to relieve them, gradually reduced the patient to extreme weakness and great emaciation. In this state he went to Leamington, and was apparently benefited by a course of the blue pill. At this period, feeling himself better than usual,

he rose early one morning, dressed himself, and went down stairs, with the intention of agreeably surprising his friends. He was overcome by the effort, however, and became faint; he was then taken with chilliness; he was removed to bed, and became slightly feverish. On the succeeding morning, there was rigor, followed by great heat of skin, and a sense of tightness under the sternum. On the next day, there were slighter rigor, less heat, a degree of delirium, and then constant dozing. In this state of dozing he continued for some hours, no danger having been intimated by the physician in the morning, or felt by his friends during this sleep, from which they expected to see him awake refreshed. In the evening, when the physician arrived, the pulse could scarcely be felt, and the vital functions shortly afterwards ceased altogether.

The following extracts from the celebrated work of M. Laënnec seem to have a reference to this state of sinking, as occurring in some cases of pneumonia.

“ Chez d’autres sujets, au contraire, la péripneumonie détermine la mort avant que l’engorgement ait envahi le quart de l’organe pulmonaire. Ce fait est propre, ainsi que beaucoup d’autres, à prouver que, dans les altérations nos organes, la mort est souvent due à l’affaiblissement du principe de la vie beaucoup plus qu’à l’intensité ou à l’étendue de l’affection locale.”—§ 201.

“ On ne voit que trop souvent des exemples de

péricneumonies qui, après l'emploi de la saignée et des anti-phlogistiques, paraissent au bout de quelques jours à-peu-près guéries, si l'on s'en rapportait aux symptômes extérieurs: la fièvre a cessé, la douleur n'existe plus, la toux devient rare et peu pénible, l'expectoration est médiocre, les forces renaissent, l'appétit reparait et devient quelquefois même très-vif, et cependant l'engorgement pulmonaire n'a nullement diminué: la percussion donne un son mat, le cylindre ne fait rien entendre. Au bout de quelques jours, et même de quelques semaines d'une fausse convalescence, les forces tombent de nouveau, et, suivant l'âge du malade, un nouvel appareil inflammatoire ou une dyspnée accompagnée d'affaissement et de symptômes de congestion cérébrale sont promptement suivis de la mort."—§ 212.

Sinking is sometimes induced by a too active depletory mode of treatment; at other times, it is the peculiar tendency or effect of the disease. Altogether I regard this subject as of peculiar interest, very imperfectly known, and still requiring the most attentive investigation. I have here only pretended to offer hints, and some materials for thinking, leaving the matter for future inquiry.

IV. *Of certain Causes of Exhaustion.*

The causes of exhaustion to which I intend to allude slightly in this place, are chiefly—too protracted

lactation, and profuse *leucorrhœa*. These two causes of exhaustion produce nearly similar effects, and the former frequently induces the latter. It will only be necessary, therefore, to give the usual symptoms of exhaustion in the case of protracted lactation.

The countenance becomes pale and thin, and there is a general loss of flesh and strength, with great susceptibility to the effects of bodily exertion, or mental emotion ; there are headache, and frequently a sense of beating, or of pressure ; there are usually fluttering and palpitation of the heart, alternating with faintishness ; breathlessness and cough, and feebleness or hoarseness of the voice ; and the stomach and bowels become greatly disordered, flatulent and constipated, and incapable of performing the functions of digestion. The cough is sometimes attended with expectoration, and such emaciation as to lead to the apprehension of a particular kind of *consumption*, of which I purpose to publish an account hereafter. Every thing denotes a diminished energy of the vital powers.

CHAPTER XLVIII.

ON GOUT, ESPECIALLY OF THE INTERNAL ORGANS.

“IN arthritide, non solum artus, verum etiam cerebrum, ventriculus, et intestina, sæpi laborant*.”

The important question is—what is the nature of those affections of the head, stomach, and intestines, which occur in the arthritic patient? No one can doubt that true inflammation and other organic disease may occur in such a subject. But is the arthritic patient liable to other internal diseases of a special and peculiar character? Are there such diseases as *gout* of the brain, of the stomach, of the intestines? Or, are there other forms of disease, not inflammatory, and not arthritic, to which the gouty patient is specially liable?

I cannot introduce this important question better than by quoting the following case of the late Dr. Haygarth, inserted in the Transactions of the Royal College of Physicians, volume iv, page 303, which the reader of Chapter XLVI, and especially the case at p. 283! will, I think, readily understand.

* Heberden, Com. cap. 9, p. 43.

“On the 3rd of July, 1806, Dr. Stewart desired to consult with me on the case of Governor B——. He was 75 years of age. For two days he had suffered a most violent pain in the left side of the thorax, exactly in the region of the heart. His pulse was irregular to an uncommon degree, but beat about 120 in a minute, as near as could be reckoned. The extreme anguish he suffered occasioned profuse sweats. The disease was manifestly an inflammation of the heart, and consequently attended with the most imminent danger. It became a point of nice and highly important investigation to determine what was the nature of this inflammation. In our consultation, this question was very deliberately and candidly considered.

“We were informed that for six weeks our patient had complained of a pain of his wrists and knee, accompanied with a *swelling* of these joints, particularly the former, which had considerably abated previous to the commencement of the dangerous symptoms above described. The point at issue was, whether the disease which had apparently been translated from the wrists and knee to the heart, was gout or rheumatism? To Dr. Stewart I fully explained what conclusion I had drawn by induction from the facts related in the former part of this paper. We entirely agreed in opinion that the disease was *carditis arthritica*.

“The brother and sister of our patient had been

afflicted with gout ; but he had himself only suffered one fit, twenty-five years ago (in 1781), when an officer of the army, in America. He was of a full habit, and had lived freely, but not intemperately.

“ In our consultation, this nice and difficult point being thus previously agreed upon to our mutual conviction, our next consideration was, what remedies could most effectually preserve our patient from the imminent danger of instant death, by the violent inflammation of such a vital organ. I then asked, Is it necessary and safe to take some blood from a vein, even though the gout be the cause of this inflammation ? If there were no such suspicion, the violence of the disorder would require large and repeated venesections. However, let us venture to take a moderate quantity, as seven ounces of blood, and be then guided in our proceedings by the effect which this evacuation may produce.

“ The loss of so small a quantity of blood was immediately succeeded by sickness, prostration of strength, depression of spirits, cold extremities, and faintness, approaching to syncope. The blood had a partially inflamed crust. This operation was performed in the evening, and a blister was then applied to the pained part of the thorax. During the night, the pain increased to such a degree, that the patient himself, with earnest anxiety demanded to be bled again, and twelve ounces were taken. Similar symptoms immediately succeeded, of sickness, loss of

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is characteristic of gout, these pains were aggravated in the night, about two or three o'clock. His appetite, digestion, good spirits, sleep, and strength were gradually restored by the use of bark and the Bath waters, &c."

That *this* case was plainly and simply one of *intestinal irritation*, such as is described in Chapter XLVI, especially page 283, there can, I think, be no doubt. That real inflammation *may* occur under similar circumstances, can admit of as little question. How important then is the *diagnosis* in such cases!

But in what point of light is internal arthritis itself to be viewed?—and is there really such a disease of the internal viscera (as of the joints, the eye, the stomach, the kidneys, &c.) distinct at once from inflammation and irritation?

There is a class of diseases which is usually denominated *symptomatic*. There is a class of diseases extremely liable to be linked with *complications*. Of the former, urticaria, furunculus, erysipelas, vertigo, palpitation, asthma, are examples. Of the former, dyspepsia, and every form of derangement of the chylipoetic viscera. These two classes are obviously *one and the same*; and it is still required to pursue the interesting inquiry into this question to its full extent. Are they not, in effect, cases of a peculiar *reflex* action?

To this class of maladies I believe arthritis to belong. The very essence of this disease is—that it

consists of a *local* affection connected with a *general disorder of the system*, and especially of the *chylopoetic viscera*. In every case, the stomach, the intestines, the kidneys, &c. are deranged. It is an inveterate case, indeed,—from constitutional become local, by organic change in the part,—which does not yield to emetic doses of ipecacuanha, decided purgative medicines, the bicarbonate of potass, with opium to allay irritation, and applications to subdue the actions of the part, systematically and judiciously combined; and it is an inveterate tendency to gout which may not be subdued by—*abstinence* and exercise.

The object, in the prevention and treatment of the gout, in all its forms, is the induction of a healthy condition of all the functions, especially of the stomach, intestines, kidneys, and skin, and the subjugation of the topical affection, whether this be external or internal. The secretions should be watched, and restored if morbid or defective; the diet, the hours, the exercises, should be regulated.

The topical affections must be carefully examined and distinguished; and, in the cases of the threatening of head or other internal affection, the most energetic plan should be pursued which is dictated by the diagnosis.

I believe the colchicum to be an invaluable remedy, both as a preventive and cure of gout. In the former case, it should be given in minute doses, long continued; in the latter, in doses proportioned to the urgency of the case.

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CHAPTER XLIX.

CHRONIC INFLAMMATION OF THE LARYNX, CURED BY LARYNGOTOMY AND MERCURY.

THE profession is deeply indebted to several most respectable writers* for the ability with which the diseases of the larynx have been pressed on its attention. Probably the present case, which presents an example of chronic inflammation of the larynx, in which an impending suffocation was averted by the operation of laryngotomy, and the original disease was subsequently removed by the mercurial action, may be deemed of sufficient importance to form an addition to the number of valuable cases of affections of the larynx already contained in the volumes of the *Medico-Chirurgical Transactions*†.

Mrs. Ann Hatton, aged 53, of Barrow on the Soar, about fifteen miles from Nottingham, became affected, in the latter end of September 1817, with hoarseness and a hard, dry cough. These two affections continued to augment in severity, without any additional

* Baillie, Farre, Lawrence, Charles Bell, &c.

† Vol. iii, art. 6 and 19; vol. iv, art. 16; vol. vi, art. 15; vol. ix, art. 4.

symptom, during two months, when, about the 13th of November, a degree of difficulty in breathing, referred by the patient to a "tightness in the throat," was superadded to them; and she discovered that she was unable to "snuff up" through the nose in inspiration, in the ordinary way. During two subsequent months, the hoarseness, cough, and dyspnœa continued and increased; and, about the commencement of February, 1818, she began to experience, in addition, a degree of difficulty in swallowing. In the beginning of March, she observed a swelling, rather diffused, but said to have been of the size of a pigeon's egg, over the upper part of the thyroid cartilage, with an increase of the dyspnœa and dysphagia. A liniment was employed for this tumor, by which it was reduced in size, and the difficulty in breathing and in swallowing was diminished. In a short time, however, these symptoms became again aggravated, and they continued to augment until the month of August.

During the course of this affection, Mrs. Hatton constantly referred the seat of the difficulty of breathing to a tightness at the upper part of the larynx. She has always been affected with cough, accompanied by a peculiar, harsh, croupy sound in the throat; at first, hard and dry; but more recently, attended with the expectoration of viscid mucus, once tinged with blood. The dyspnœa has been constant, and lately much aggravated, precluding sleep, or putting a pe-

riod to sleep by inducing a sense of impending suffocation, and rendering a raised position in bed absolutely necessary. Lately, too, she has suffered from fits of increased dyspnœa, threatening suffocation, obliging her to run for relief to the open window, and causing great anxiety and urgent distress.

Mrs. H. applied to me, on the 15th of August, 1818. She was then affected with a degree of hoarseness which rendered the voice scarcely audible. There was a perpetual dyspnœa, referred by the patient, by the noise in breathing, and by the sound of the cough, to the upper part of the larynx. She swallowed with great difficulty and effort. There was an obvious general tumefaction of the parts about the larynx, occupying the left rather more than the right side. She stated that she experienced great difficulty in walking up a hill, or pair of stairs. She described the impossibility of snuffing up the nostrils—an effect, I suppose, of the partial closure of the larynx; for, to produce this snuffing, it is necessary that a certain *quantity* of air should be drawn through the nostrils with a certain *velocity*; and, in the present instance, the *quantity* of air admitted appears to have been too small. The patient experienced increased uneasiness on drawing the head backwards. A bougie was passed into the œsophagus, but met with no resistance.

On the 15th of August, I recommended five grains of the pil. hydrarg. to be taken every night and morning, half an ounce of the sulphat of magnesia twice

in the week, four leeches to be applied over the larynx every other day, and a lotion constantly, when the leech-bites were not bleeding.

On the 22nd of August, I again saw Mrs. H. The symptoms were unabated. The mercurial had produced no effect on the gums. Mrs. H. was now induced to remain a short time at Nottingham. There was a degree of emaciation and debility; the pulse was rather frequent and feeble; the appetite impaired. The pil. hydrarg. was continued three times a day.

On the evening of the 24th, Mrs. H. was seized with an alarming fit of dyspnœa, to which I was witness. There was the greatest anxiety of countenance and manner; and, in the breathing, every auxiliary muscle of respiration was called into exertion, and there was every appearance of impending suffocation. The dyspnœa had abated somewhat in violence, and there had been similar fits of dyspnœa before, or I should have immediately recommended the operation of laryngotomy. The difficulty of breathing abated gradually, and I left my patient in her usual state of dyspnœa.

In consultation with Mr. Oldknow, a most skilful surgeon of this town, it was concluded that the operation of laryngotomy was necessary, to avert the danger of suffocation, incurred during the fits of dyspnœa. The operation was therefore performed on the 25th instant, and I am obliged to Mr. Oldknow for the following account of it.

“ An incision was made through the integuments, beginning a little above the thyroid, and terminating a little below the cricoid, cartilages. The external surfaces of these cartilages were then exposed, partly by incision and partly by the finger. An opening was then made into the larynx, a little below the most prominent part of the thyroid cartilage, and extended downwards to the upper margin of the cricoid cartilage. This incision not being sufficient for respiration, a crucial incision was next made through the membranous connection of the two cartilages; but still with an unsatisfactory result; for the breathing was performed only in part, and with great difficulty, through the aperture thus made. A circular portion, about one-eighth of an inch in diameter, was therefore removed from the lower and lateral part of the thyroid cartilage, when the respiration became perfectly free, and the patient experienced the greatest possible relief. The cut edges of the integuments were kept asunder by straps of sticking plaster, passed from them towards the nape of the neck.

“ *Remarks.*—This operation was rendered more difficult than might have been expected, from the impossibility of the patient’s reclining the head *backwards*—this position inducing greater dyspnœa. The larynx could not therefore be brought sufficiently forwards, and the depth of the incision was necessarily greater than was contemplated. The upper part of the thyroid gland, which appeared to reach higher

than usual, was exposed. This gland was nearly in contact with the cricoid cartilage, so that an opening could not have been made through the upper ring of the trachea without the danger of wounding the gland and causing hemorrhagy.

“ It may be said, that an opening made so high in the larynx, as in the present instance, is injudicious: first, on account of its affording less decided relief to the respiration, if there be extensive disease; and, secondly, on account of the danger of wounding the vocal cords. With regard to the first objection, the decisive relief afforded to respiration, in the present instance at least, is a sufficient answer. With respect to the second, if care be taken to remove a part of the thyroid cartilage, to the extent above specified, from the inferior and lateral part of this cartilage, no injury will be inflicted on the vocal cords—their anterior attachment being nearly opposite to the most prominent and central part of the cartilage.

“ On the other hand, the advantages of a permanent opening, thus induced, are very considerable, especially when we consider the impossibility frequently experienced of employing a tube to insure the same effect. In the present case, the introduction of a probe merely, induced the most distressing fits of convulsive coughing.”

This operation afforded immediate relief to the respiration, and Mrs. H. slept soundly through the ensuing night, for the first time for a long period.

Deglutition continued difficult, and always induced coughing, during the five or six subsequent days. The cough raised some viscid mucus, which was forced through the orifice made by the operation. The voice was quite lost.

On the day of the operation, the pil. hydrarg. was omitted, and the ung. hydrarg. was prescribed to be rubbed in, in the quantity of half a drachm, morning and evening. The ol. ricini was ordered to open the bowels.

On the 28th, the mouth became sore. Mrs. H. soon afterwards experienced a mitigation of the difficulty in swallowing; and, on applying the finger to the opening into the larynx, she found, in a short time, that the tightness in the respiration was also diminished, and that she could breathe with greater facility than before the operation, and, as she expresses it, more freely through the nose.

This amendment continued progressive; and, on the 5th of September, the orifice into the larynx so far closed, after an attack of sickness and retching, induced by the ol. ricini, that the air only passed through it during respiration. On the 11th, the orifice closed finally; the respiration, however, was free, the swallowing easy, and there was a slight return of voice even. On the 13th, I again heard from Mrs. H. who had returned to Barrow: the amendment continued; the mouth was extremely sore. The ung. hydrarg. was ordered to be used more sparingly.

On the 22nd, I paid Mrs. H. a visit. She was sitting up in bed. She breathed with perfect freedom, and had had no paroxysm of augmented dyspnoea since the time of the operation; she swallowed without uneasiness or effort, and, as she said, as well as ever; the whisper had advanced to a hoarse voice; and she could snuff up the nose with the usual force. Speaking, however, still required much effort, from the remaining hoarseness; and, in swallowing, the skin just above the cicatrix was drawn into wrinkles, being raised by its adhesion to the thyroid cartilage. The tumefaction about the larynx had disappeared. There was scarcely any cough, and but the scanty expectoration of a little mucus. The general appearance, strength, and appetite were improved. She could lie down, and slept the night through. The mouth was better, but still affected by the mercury.

October the 27th. Soon after the date of the last report, Mrs. Hatton imprudently left her bed-room, and exposed herself to the draughts of air in a room with three doors. She appeared to take cold in consequence; and a degree of difficulty of deglutition, and a loss of the voice formerly regained, was the effect. She came once more to Nottingham; she was once more put upon a course of the ung. hydrarg.; and in proportion as this remedy induced ptyalism, the dysphagia disappeared entirely, and the voice became again improved. To-day, two months after the operation, she only suffers from the effect of the

mercury on the mouth; the respiration and the swallowing are quite natural, and the general health and appetite are good. She returns home, with the recommendation to continue the use of the ung. hydrarg. for a time, to put on flannel, and cautiously to avoid exposure to cold.

This state of amendment still continued on the 16th of December, and on the 8th of January, 1819, when Mr. H. called to give the most satisfactory account of Mrs. H.'s recovery and general health.

It may, I think, be fairly concluded that by means of laryngotomy and of mercury this poor sufferer was saved from an inevitable death. This case affords, therefore, a striking instance of the efficacy of *modern medicine and surgery*; for it is but justice to state, that the means employed were adopted principally on the suggestions of living authors, and especially of those whose names have been already mentioned.

CHAPTER L.

ON A SOURCE OF DIAGNOSIS IN LARYNGITIS.

IN pure laryngitis, the patient cannot 'snuff up:' see p. 342. The *volume* of air so admitted into the larynx, though its due velocity be not wanting, is insufficient to produce that effect.

Laryngitis, in which there is thickening of the lining mucous membrane of the glottis or larynx, and consequent diminution of this orifice, is distinguished in this manner from tuberculous ulceration of the glottis or larynx, in which, so far from there being diminution, there is augmentation of the orifice.

The effort to 'snuff up,' in laryngitis, has the most peculiar effect. Instead of the *expected* noise in the nostril, there is an *unexpected* sound in the larynx.

But not only is the *fact* of diminution of the laryngeal orifice ascertained in this manner, but the *degree* of that diminution is marked by the greater or less *degree* in which the power of 'snuffing up' exists, and therefore the greater or less *degree* of urgency of the case! In the same manner, the diminution or augmentation of the disease is accurately marked.

The same observations have a certain relation to the *double* danger of this disease—from—1, *immediate*, and 2, *secondary*, asphyxia.

CHAPTER LI.

ON THE TREATMENT OF THE ATROPHY OF PARALYTIC LIMBS ; BY WILLIAM FREDERICK BARLOW, ESQ.

THE condition of paralytic limbs is too much neglected. The atrophy they so commonly undergo, is a very serious occurrence ; and yet nothing is done for it. The cause of that atrophy, every one knows, is want of the exercise of their muscles ; and yet no one, as far as I am aware, has proposed that *involuntary* contractions should be excited in them *with a view to their nutrition*.

I would suggest, in order that atrophied or wasted limbs, which are deprived of the influence of the will, may be duly nourished, that galvanism be used, at intervals more or less lengthened as circumstances indicate, or tickling, friction, and temperature be employed, if these be found to occasion reflex actions.

I do not mention strychnia, that peculiar and powerful excitant of muscular action ; for this would often be objectionable, from exciting both the nervous and circulating systems where these should be kept tranquil ; whereas means are required to produce a local effect, and that simply.

CHAPTER LII.

ON THE RELATION OF THE SPINAL MARROW TO PARTURITION ; BY W. TYLER SMITH, M.B.

“ AT the time of labour, a new principle supersedes those of ascension and descent. This gives to the uterus the power to exclude whatever is contained in its cavity, and the effect produced is in proportion to the energy of this principle and the power of the uterus. A perfect intelligence of this principle, and of the mode of its operation, would probably be OF INFINITE USE IN PRACTICE ; as we might be enabled to *suppress the action thereby occasioned when premature, strengthen it when too feeble, and regulate it in a variety of ways conducive to the welfare of our patients.* On the knowledge we at present have of the manner in which this principle operates, and the circumstances by which it is influenced, the assistance which science can give, in cases of difficult parturition and expected abortions, very much depends.”
—DENMAN.

THE Spinal Marrow is the central organ presiding over the motor actions of the uterus.

All the physiological uterine motor actions are reflex in their nature.

Contraction of the uterus from irritation of the mammary excitor nerves, as in the sucking of the child, is a pure instance of *reflex* spinal action.

Other causes of uterine contraction are, *direct* or *centric* spinal action, the influence of *emotion*, and *muscular irritability*.

Contraction of the uterus from the administration of ergot, is an example of *direct* or *centric* spinal action.

Contraction of the uterus from fear, is an instance of the influence of *emotion*.

Contraction of the uterus from the application of galvanism, is an instance of uterine action from *muscular irritability*.

Volition may increase the action of the expiratory muscles ; but the motor forces dependent on the *will*, and on *emotion*, are *accessory*, not *essential*, to the process of parturition ; delivery may take place in paraplegia, or in profound coma.

The *type* of uterine action is rhythmic, the pains succeeding each other at regular intervals.

The *mode* of uterine action is probably peristaltic ; the contractions appear to commence at the cervix and to extend to the fundus uteri.

The *rhythm* is probably dependent on the spinal marrow, being synchronous with the action of the abdominal muscles, which is in part true spinal, in part voluntary.

The peristaltic *mode* of action appears to depend on the ganglionic nerves. Is peristaltic action any thing more than the muscular irritability of parts supplied by the ganglionic system ?

The uterus contracts so as to expel its contents even after death. In the œsophagus, which, like the uterus, is endowed both with *peristaltic* action and *reflex* spinal motion, I have observed distinct contractions after death.

The excitors of reflex spinal actions in the uterus are numerous.

First in importance are the incident nerves of the whole parturient canal, from the fundus uteri to the constrictor vaginæ.

Irritation of the incident spinal mammary nerves, the cutaneous nerves of the abdomen and general surface, the nerves of the stomach, bladder, and rectum, all excite reflex uterine actions.

A definite *order* is observed in the phenomena of labour.

In the *first* stage, the body and fundus contract periodically, and at the same time the os uteri and the vagina dilate. The *dilatation* of these organs, like that of the cardia in vomiting, or in deglutition, is *active*.

In the *second* stage of labour, the vagina becomes a powerful excitor of reflex action; the presence of the head of the child in the vagina excites involuntary reflex action of the expiratory muscles. At the height of a pain in this stage, the glottis and cardia are *closed*, the abdominal and intercostal muscles contracted, and the diaphragm inert, as in vomiting. The action of the uterus continues as before, except that the os uteri is now fully dilated.

In the *third* stage, the birth of the child is effected by the powerful action of the expiratory muscles, with the glottis and cardia closed, and by simultaneous contraction of the uterus and the whole parturient canal. *Active dilatation* of the sphincter ani

is excited, and the vagina is probably retracted at the moment of birth by the action of the levatores ani. After delivery, the action of the uterus is mixed, being periodical but sphincter-like between the pains till its return to the condition of the unimpregnated uterus.

Many of the symptoms and diseases of pregnancy are excito-motory in their nature. Vomiting is caused by irritation of the uterine excitor nerves. The nervous cough of pregnancy is purely reflex. I have known a patient suffer from spasmodic asthma during pregnancy, and at no other time. The cramps of pregnancy are reflex and spinal, though usually referred to the effect of pressure. The tenesmus and strangury are also of reflex origin. Is not the bearing-down pain, so frequently complained of by pregnant females, sometimes owing to spasmodic contraction of the os uteri, a sort of tenesmus of this organ? And may it not be to the irregular contractions of the uterus during gestation that mal-presentations are attributable?

The treatment of these affections consists chiefly in soothing the excito-motor system, by removing irritation from the exciters connected with the uterine system, particularly the gastric and rectal incident nerves; and by diminishing the centric causes of spinal action, such as plethoric or anæmic states of the vascular action.

All the more important *extra-uterine* causes of abortion are spinal in their action.

The chief causes of abortion from *direct* or *centric* spinal action are mental emotion,—the ergot of rye, or savin,—anæmia, fulness of the circulation, especially of the venous system, and the respiration of carbonic acid gas.

The principal *reflex* or *eccentric* causes of abortion are, irritation of the rectum, from purgatives, constipation, or ascarides; of the bladder, from calculi and other causes; of the mammæ, from suckling; and improper food in the stomach. The induction of premature labour by plugging the vagina, or puncturing the membranes, and abortion from sexual excesses, are also reflex motor phenomena.

A knowledge of the principle on which these extra-uterine causes of abortion depend, suggests the means by which they should be met. We perceive the importance of diminishing, in cases of threatened abortion, the causes of *direct* spinal action; and of removing those which act *eccentrically* on excitor nerves.

By excessive centric action, or by excessive reflex motor action, either from uterine irritation, or irritation of extra-uterine incident nerves, an important class of precipitate labours are produced. On the other hand, deficient reflex uterine action is one of the great causes of uterine inertia and tardy labour. The causes producing the one are the remedies for the other. In uterine inertia, we should stimulate the incident nerves of the parturient canal, the associated spinal excitors, and the centric organ. In pre-

cipitate labour, we should exert ourselves to diminish spinal irritation of every kind. Frequent examinations, early rupture of the membranes, the upright position, and irritation of the gastric, rectal, and vesical nerves, hasten the progress of parturition, and should therefore be avoided.

Uterine hæmorrhage from the fundus or body of the uterus depends on the separation of the placenta, with uterine inertia. Hæmorrhage from the os and cervix uteri is generally dependent on placental presentation.

In hæmorrhage from the fundus, efficient uterine contractions arrest the flow of blood. *Reflex* actions may be excited by manual irritation of the uterus, through the abdominal parieties, or by the introduction of the hand into its cavity, by the injection of cold water into the uterus, swallowing a gulp of cold liquid, the cold douche applied to the abdomen, and the application of the child to the breast.

Direct or *centric* spinal action may be induced, in cases of hæmorrhage, by the exhibition of the ergot.

In hæmorrhage from the os and cervix, uterine action increases the flooding by dilating the os uteri. Hæmorrhage of this kind may be *diminished* by bringing the feet and body of the child through the os uteri, so as to act as a compress on the bleeding vessels; but it can only be completely *arrested* by delivery, and the subsequent sphincter-like contraction of the uterus.

The tampon is another remedy which has been used in both forms of uterine hæmorrhage: when the flooding is from the os or cervix, or when the uterus is very small, as in early pregnancy, it may act as a mechanical compress; but when the hæmorrhage is from the cavity of the uterus, the plug can only act efficiently by exciting reflex uterine action.

The chief causes of rupture of the uterus are excessive contractions of the os and cervix uteri at the moment of birth, or the forcible propulsion of the head of the child through the os uteri, by the action of the uterus and the expiratory muscles. Both these causes are aggravated by irritation of the excitor-nerves of the parturient passage, through excessive manipulation, or the use of instruments, and by the centric action of the ergot and other centric stimuli.

The great cause of laceration of the perinæum is the too rapid advance of the head. All the causes of precipitate labour are therefore causes of this accident. One source of the accident is the pressure generally made on the posterior part of the vagina (perinæum) to prevent it—such pressure increasing, by reflex action, the force of the pains.

Puerperal convulsion is a disease of the true spinal marrow; and its causes may be either centric or reflex.

The principal *centric* causes of convulsion are, mental emotion, vascular repletion, loss of blood, and cerebral pressure on the medulla oblongata.

The chief reflex causes of convulsion are, irritation of the uterus and vagina, of the rectum, bladder, stomach, breasts, the membranes of the brain, and other organs possessing spinal excitor nerves.

To prevent puerperal convulsions when threatened, we must avoid or remove the different sources of centric irritation, and refrain as much as possible from irritating the excitor surfaces, carefully removing all sources of irritation from excitor nerves, particularly those of the rectum, bladder, and stomach.

In cases of convulsion either before or during labour, the contents of the uterus form a grand source of spinal excitement. Some authorities look to artificial delivery, in such cases, as the great means of cure. In every case, before such a step is decided on, it ought to be considered whether the operation of delivery is likely to cause more irritation of the spinal system than the continuance of the fœtus in utero, and the delivery by natural means.

The term 'irritation,' so frequently used in the present sketch, has, in its application to true spinal physiology and pathology, a peculiar meaning, very different from sensation, or irritation in the ordinary sense. There is no relation whatever between pain and spinal action. When the spinal marrow and its excitor and motor nerves are in a state of great excitability, gentle manipulation of the os uteri may produce greater results than actual rupture of the organ at other times.

The common practice of 'taking pains' without any reference to the condition of the excito-motor system, has caused as many accidents and fatal cases as the ruder forms of mal-praxis. The uterus has, in fact, been ruptured by 'taking a pain,' however carefully, and a fatal convulsion excited by even the cautious introduction of the hand into the uterus. This idea and these facts alone cannot fail hereafter to effect an important change in the practice of midwifery.



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