

An essay on the nature of pain: with some considerations on its principal varieties as connected with disease; and remarks on the treatment ... / Now translated [from his dissertation 'De dolore'] with additions.

Contributors

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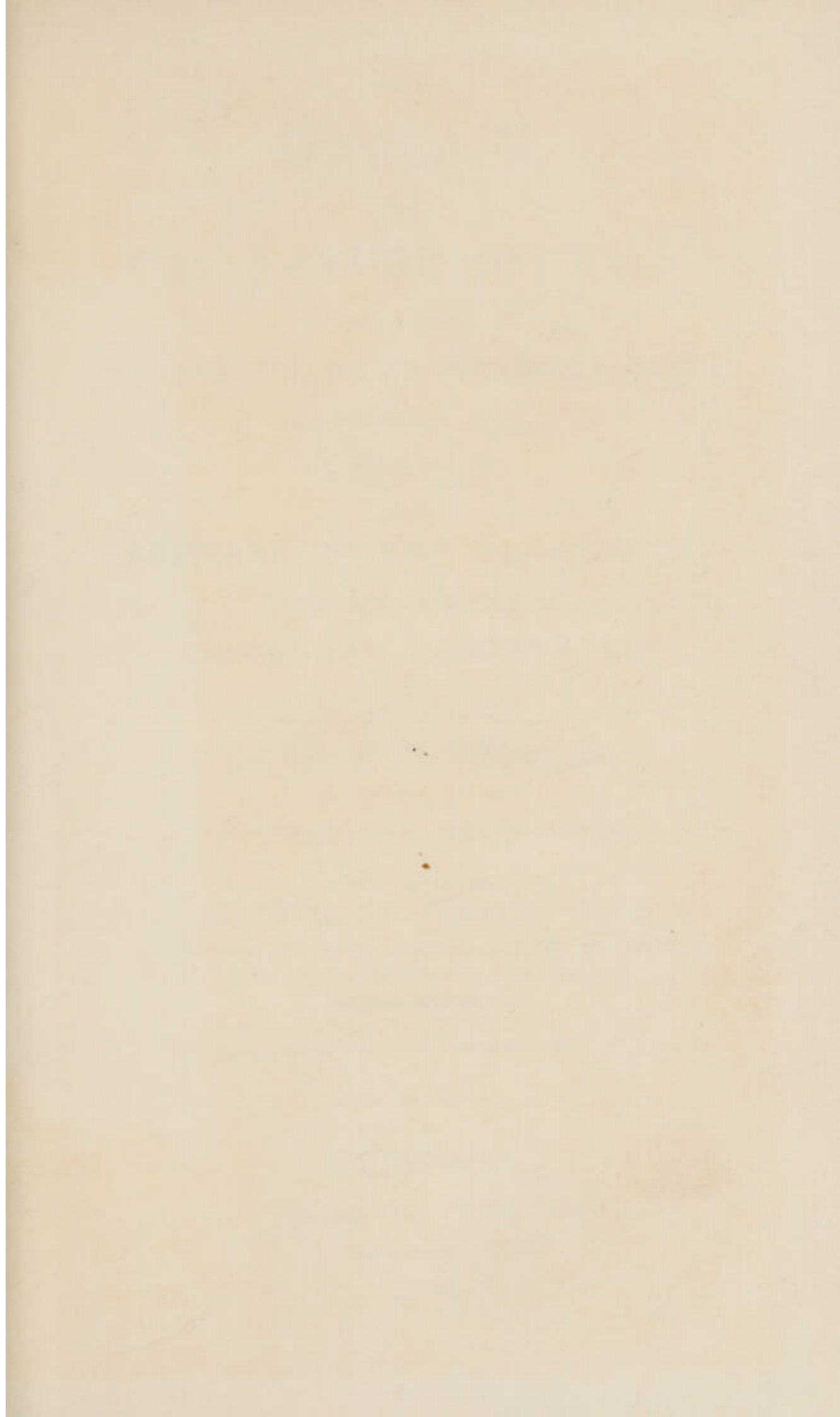
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AN
ESSAY
ON
THE NATURE OF PAIN:
WITH SOME
CONSIDERATIONS ON ITS PRINCIPAL VARIETIES
AS CONNECTED WITH
DISEASE;
AND
REMARKS ON THE TREATMENT:
BEING THE SUBJECT OF AN
INAUGURAL DISSERTATION
DELIVERED AT THE
University of Edinburgh.

NOW TRANSLATED, WITH ADDITIONS.

BY WILLIAM GRIFFIN, M.D.
MEMBER OF THE ROYAL COLLEGE OF SURGEONS, EDINBURGH,
LICENTIATE IN MIDWIFERY, &c. &c.

"Ah! qu'une nuit est longue à la douleur qui veille."---ANON.

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BY THE AUTHOR,

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ADVERTISEMENT.

THOUGH the following paper originated in a remark made by Dr Johnson, in a number of his excellent periodical, the London Medico-Chirurgical Review, "That a useful and ingenious essay might be written on pain," it was commenced rather because the subject had not been lately treated of by any English writer, than with a hope of accomplishing the suggestion of the reviewer. To the French authors, who have been particularly engaged in investigating the laws of sensation, the writer is indebted for many interesting observations. It was his intention to consider pain particularly as diagnostic of disease; but want of leisure, and of the vast store of observation necessary, precluded the possibility of accomplishing it for the present.

Doctor Munro

with the Respectful Compliments
of his pupil
The Author

Nos organes agissent-ils librement et selon les lois ordinaires de l'organisation, les sentiments qui en resultent sont agréables, peuvent, même nous causer un plaisir très-vif; mais nos fonctions sont-elles troublées, nos organes sont-ils blessés, malades, y a-t-il empêchement à leur action: les sensations internes sont douloureuses, et, selon l'espèce d'empêchement ou de lésion, elles ont un caractère particulier. C'est pourquoi la douleur doit être un objet important dans les études du médecin.

MAGENDIE, *Precis Élémentaire de Physiologie.*

AN ESSAY ON PAIN.

CHAP. I.

OF PAIN GENERALLY.

PAIN, from time immemorial, has been classed, at least popularly, not only among the most formidable miseries of human life, but the most gratuitously cruel, with which Providence has ordained we should be tormented. The natural antipathy or horror of it, with which Nature has so wisely impressed us---the melancholy scenes of sorrow and suffering so often presented to our view wherever we turn to---the degree in which the slightest uneasiness interrupts our sense of well-being,---and, in fine, the disposition we have rather to consider things in detail, and as they affect us individually, than in their general design or effects, all contribute strongly to infix these feelings; so that in truth one can scarce wonder it should so long have been held an absolute and unalloyed evil, never apprehended but with fear, and seldom endured but with impatience.

The Stoical philosophy, although it left us some magnanimous instances of human fortitude and resolution, and had (in its pretensions to rid mankind of every thing like misery) something of allurements, was so totally opposed to the very instincts of our nature, as to be altogether unfitted to lead to correct views on the subject. It was only in later times, when the beneficent designs of Providence in all her works became more strikingly obvious, and when the origin of evil came to be a matter of marvel and of discussion among philosophers, that pain and disease were considered as possibly conducive to some ultimately useful end. Unfortunately, however, the two, by a kind of association of the symptom with the cause, were almost invariably confounded—the terms were used almost synonymously; and hence, as in very many instances, it was difficult, if not impossible, to reconcile the occurrence of disease with any conservative design, the same inference was held with respect to pain.

But whatever opinion may be held in regard to the former, there is perhaps no position so literally or so generally true as the exploded and half-forgotten one, that pain is no evil,—since nothing can be truly considered so, that under existing relations contributes and is necessary to our welfare. Abstractedly considered, there seems no absolute necessity for its existence any

more than for that of pleasure; but created as we are, sensitive creatures, so finely constructed that the breathing of the wind or the dropping of the dew may derange the mechanism of our frames---subject to a thousand injuries or diseases---and in the midst of elements tending continually to our destruction, what could be more admirably adapted for our preservation and well-being, than that pain should be annexed to every thing that could possibly injure or annoy us? To its sensations we owe a thousand salutary habits of action, which are so familiar that we forget to refer them to their origin; and hence it is that it has been so much or rather so totally undervalued. We go from heat to cold--from an impure to a pure air,--we change injurious positions an hundred times by day or by night, with scarce a consciousness of the uneasiness that impels or directs us. Lassitude obliges to rest---hunger to eat---thirst to drink,--nay, to fit us for very pleasure there is no preparative like pain. No one enjoys prosperity like the man who has suffered, which was perhaps the occasion of Montaigne's remark :---
“ *La Nature fit la douleur pour l'honneur et le service de la volupté.*”

Perhaps, however, there is no way in which the advantages resulting from it become so obvious, as by supposing for a moment how we should be circumstanced without it. There could then be no such sensations as fear or apprehen-

sion. We should have our limbs mutilated or torn off almost without caring, often without knowing it.* We should have men crawling with fractured legs through the streets in despite of entreaty or advice, or sitting at their wine cups in the mid-stage of inflammation. Where no uneasiness was felt, no remedies would be looked for, until men tumbled on their floors through debility ; and should the physician be at length sent for, he would be quite as puzzled to discover as the patient to describe the seat or nature of his complaint. But yet more, no one would have warning of his danger,—the result of which necessarily would be, a general and constant apprehension, or an utter recklessness of death ; our nearest and dearest friends would usually drop dead at our boards or our firesides, many of whom could perhaps have been saved, if we had but a few hours previous intimation of their danger,—that intimation which pain now gives us.

But it is often not simply a monitor ; in very many instances it not only intimates the disease, but

* Dr YELLOWLY relates an interesting case in the Medico-Chirurgical Transactions, of an old man, who, having lost the sensibility of his hands and legs, accidentally put one of his feet into boiling water, but was no otherwise aware of the high temperature than by finding the whole surface a complete blister on removing it.

suggests, impels us to seek for, nay, enforces the remedy ; and I doubt, that, even in a state of nature, the want of medical assistance is so deplorable an evil as might at first be imagined. In such a state, internal diseases are rare, and in almost all external ones, especially in those produced by fracture of the limbs, or injury of the joints, the cure consists in keeping the parts quiet and motionless, in avoiding unnecessary pressure, in preserving the muscles in a state of relaxation, and in the abstraction of heat. All these indications are commonly suggested, and often rigorously enforced by that most vigilant of physicians, Pain. I have always been strongly disposed to believe there is something in the quality of the sensation itself that holds some extraordinary relation to the means of relief independent of experience,—some such as exists between the instinct of imitation in the child, and the motions of the limbs and modulations of the voice, by means of which it is to walk and to speak, or between the taste and the food that gratifies it, which leads animals to choose wholesome and nutritious herbs in pastures abounding with those of a poisonous nature.* It is probably

* This relation is highly illustrated by GALEN's curious experiment: "I found, says he" "on dissecting a goat great with young, a brisk embryo; and having detached it from the matrix, and snatching it away before it saw its dam, I brought it into

from some instinct of the kind that the Indians, when afflicted with tetanus, first resorted to the practice of rolling themselves under cascades or waterfalls,—that dyspeptic patients eat chalk, and those affected with fever call for acids and cold water. Of the same description are the longings these latter sometimes express for things apparently more exceptionable, as porter, wine, meats, which, however, are very generally the result of some change in the state of the system, although perhaps not very obvious to the physician. Dr Hastings, in his treatise on Chronic Bronchitis, details a case communicated to him by Dr Malden, of a Miss A—— being one of many on record, exemplifying the truth of this opinion in a striking manner : She was affected for some time with chronic disease of the liver and bronchia, and latterly suffered exceedingly from excruciating pain of the head, which, she said, felt as a waggon-wheel were crushing it. This was not relieved by spontaneous vomiting as formerly, and emetics aggravated it. The tem-

a certain room where there were many vessels, some filled with wine, others with oil, some with honey, others with milk or some other liquor, and in others were grains and fruits. We first observed the young animal get upon its feet and walk ; then it shook itself, and afterwards scratched its side with one of its feet : Then we saw it smelling to every one of these things that were set in the room ; and when it had smelt to them all, it drank up the milk.”—*Lib. VI. de locis, cap. 6.*

poral artery was once opened, and leeches were frequently applied, without any diminution of this symptom. It was accompanied with distressing nausea, *and a violent craving for ardent spirits, the use of which had been forbidden.* But her sufferings continued so severe, that her friends could no longer resist her solicitations for brandy. The nausea and the pain ceased soon after the brandy was taken, and upon a return of these symptoms this remedy unerringly succeeded. The spiritus ammoniæ aromat. and æther sulphuricus were successively tried as substitutes, *but they afforded no relief.**

It is not a little remarkable that the celebrated Paley, although highly impressed with many of the useful ends to which pain is subservient, endeavours to reconcile its existence with the Divine benevolence, chiefly on the principle that it was not an object of direct contrivance. Per-

* I recollect Mr ABERNETHY was accustomed to mention in his Lectures the case of a poor woman in Bartholomew's Hospital, who was attacked with fever and a vomiting almost impossible to allay, I believe the consequence of some operation. Every thing that medical skill could suggest was made use of in vain, when at length the poor creature requested a little beer with a few grains of ginger in it; upon drinking which, the stomach immediately became quieted, she fell into a profound sleep, and awoke refreshed and in every sense improved in the morning.

haps there is no fact so strikingly illustrative of its being so, and not merely incidental to any other, as that, in those instances wherein the end for which we suppose it was contrived is wholly unattainable, all pain ceases: Thus we have a gradual aggravation of it as inflammation proceeds, precisely as if it laid more anxious and earnest claims on the attention in proportion to the danger; but when once gangrene has set in, it torments no longer; the time when remedies could avail anything is then gone by, and the few last hours of existence are allowed to pass away in comparative quiet. The same fact is observable with respect to burns; the agony attendant upon these every one is acquainted with, yet if they occur to such an extent that recovery is impossible, and the powers of the system are merely equal to sustain life for a few hours, there is little or no suffering.

It seems to be wisely ordered that, while moderate injuries from which the constitution has a power of retrieving itself are invariably and often powerfully stimulant, those of an excessively violent and destructive nature possess a directly sedative effect. Thus moderate shocks from the Galvanic battery are powerfully stimulant to the nervous system, while those of a stronger kind deprive it of all life and energy; the same may be said of electricity and lightning.

Even arsenic and tartar emetic in extreme doses have produced death by inducing a state of permanent syncope without their usual effects of pain or vomiting, as in the instance of the former mentioned by Dr Yellowly and of the latter by Orfila; and we every day meet with persons dreadfully mangled by mills, who have died within a few hours with little complaint, without either hemorrhage or inflammation, from a kind of collapse or gradual decline of the powers of life,—as if Nature, aware of the destruction which had taken place, felt that even a struggle would be cruel and unavailable.

A melancholy instance, highly illustrative of this, occurred in St Bartholomew's Hospital many years since. A man was brought in whose head had been crushed between the wheels of two cars passing in different directions; the bones separated at the transverse suture, and the whole face and lower jaw were torn away. No imagination could picture any thing so horrible as the spectacle he presented when led into the ward: the eyes hung dangling from the fractured sockets, and little else remained of the human countenance but the forehead; there was however little hemorrhage, and, what was yet more remarkable, there was little pain. This poor wretch lived for 24 or 30 hours, and then gradually sunk and died, but neither from loss of blood, nor inflammation, nor any other very ostensible cause.

He took warm milk several times seemingly with satisfaction, by means of a tube passed down the œsophagus, and arose in the night and returned to bed again without assistance. The cause of his death furnished an interesting subject of debate to the Medical Society at the time.

Pain in this view must be considered as for the most part connected with such diseases as are merely restorative processes of nature to overcome the effects of injuries, or such at least as admit of improvement or alleviation. I am quite aware how very difficult it is to reconcile the occurrence of it in many others, whose tendency with respect to the general system is invariably destructive. It includes the same difficulties in all our reasonings as the occurrence of the diseases themselves, as fevers, plagues, cancers, &c. But certainly the immense evidence we have of the beneficent ends for which pain was contrived, should incline us to believe that many of these, simply from the fact of their being attended by it in such horrible extremes, are not so totally incurable as the extent of our present remedial means would lead us to conclude. It can scarce be reasonably inferred, if they were intended for the mere purpose of destruction, that so much unnecessary and excruciating agony as characterizes many of them should be superadded, since we see injuries when they are most dreadful, and plagues when most fatal, produce a com-

paratively quiet and almost uncomplaining death. Wherever there is great pain, there would seem to be a very strong probability that the disease is, in one shape or another, capable of cure or alleviation. Such inductions must of course be liable to numerous exceptions, and received with great limitation.

In gout, and in some other diseases whose cure has for the most part been confided to patience and flannel, the pain may appear to be as unnecessary as it is tormenting; and possibly the *bon vivant* has often sighed forth a wish "that if he must have it, he might at least have it quietly." He does not see that it is suffering alone that can interrupt his excesses—that can compel the abstinence and fasting to which he is to owe his recovery, and offer a lesson, on the management of his future life, more impressive than the doctrines of the moralist, or the reasonings of the physician.

If, finally, it is sometimes felt where possibly it can answer no useful end, but become a source of misery to the individual, it must be regarded as one of those isolated or accidental evils which are almost invariably connected with general laws; but even in those instances, as has been truly remarked by Paley, it has its intermissions, its alleviations,—insomuch that the subsequent ease often amounts to a positive pleasure. I would not perhaps be quite so paradoxical as to

assert that it can ever be an equivalent for the suffering, as I have never yet met an individual who would purchase the pleasure at the pain; but though it be dear at such a price, it is not without its estimate—it offers some remuneration for the necessary suffering endured, and may, in many instances, usefully contribute to enhance in our minds the value of health, which, of all earthly blessings, is perhaps the one that we least know the worth of, until we lose it.

CHAP. II.

OF THE NATURE OF PAIN.

MANY definitions of pain have been given by the modern French medical writers,* not essentially differing from that of Gaubius. He calls it “a perception or sensation which the soul would rather not experience than experience;” but it must be confessed, with M. Hipp. Bilon, that no definition can give so correct an idea of it as the word itself.

* PRESSAVIN calls it “un sentiment poussé à son dernier periode”—(Traité de Mal des Nerfs.) MARC ANT. PETIT (Disc. sur la Douleur) says, “que cet état de l’ame, qui, comparant sa position présente à son état passé, juge que le corps éprouvé, dans quelques-unes de ses parties sensibles ou dans son ensemble, des déchiremens, ou des alterations qui en derangent l’harmonie.”

In its more extensive sense, it has been usually treated of under the very familiar divisions of physical and moral, the one depending upon sensation, the other originating in the passions, either depressing or exciting, and both so intimately connected that they act reciprocally on one another.

Physical pain may be said to arise from almost all sensations produced by any unnatural or unaccustomed stimulus, or by a natural and usual one in a part preternaturally excited, in both of which cases the healthy relation is destroyed. It may be said, that scarce any material deviation from health can take place, except where it consists in the actual abolition of sensation, without its being experienced in a greater or less degree; and hence the absurdity, as has been often remarked, of nosologists making an order of painful diseases. On the more intimate essence of pain, physiologists have in all times reflected with considerable interest. Some have supposed it to consist in a motion of the organs of sense, others in a motion of the soul occasioned by those organs, and many, among whom was the celebrated Boerhaave, have attributed it immediately to a stretching of the nerves. But these, and indeed other more probable conjectures, can at best be regarded merely as ingenious, and are much on a par with the speculations which have been so often and so unsuccessfully hazarded in

attempts to explain the physiology of sensation, of which pain is but a modification.

There are few of our sensations, even those usually held as indifferent, that are not agreeable or disagreeable; vivid degrees of the first constituting pleasure, of the latter pain. We know that the nerves are the organs by which those impressions are received and conveyed to the brain, that there only perception or consciousness takes place with a rapidity inconceivable, and this is nearly all that we know. We are ignorant by what means the nerves maintain a communication with each other, or with the brain,—whether by the tremors and oscillations of Hartley like the strings of musical instruments, or by the hollow cylinders of Sydenham, or the solid capillaments or conductors of Rolando transmitting an electric aura. What the real nature of that influence is, whether it be identic with the Galvanic power, or a peculiar secretion of the brain, whether of that organ alone, or the nerves have also an independent power of producing it, the former being merely their radix? whether different modifications of the same influence, or two distinct influences, produce sensation and motion, or whether they are produced by the same or separate nervous fibres? and in fine, how the qualities of bodies or the texture of the parts with which they come in contact, should occasion such very various impressions,—

these are among the mysteries of Nature, which, perhaps, we shall never be able to explain until the physiology of life or the living power itself be understood.

Notwithstanding our imperfect acquaintance with the real nature or essence of pain, it is so various in character and degree, that it often becomes a very efficient and sometimes our only diagnosis in disease, when considered in its relations to the many injuries or affections to which the human body is liable, or the susceptibility of the different tissues to be affected by it. The nervous tissue, as might be anticipated, is highly sensible in health, and terribly painful when irritated or inflamed, that portion of it excepted which has no direct connection with the cerebral mass, as the sympathetic and its ganglions. The same insensibility is said to exist in those nerves which are supposed to be peculiarly subservient to the motive power, as the fascial, and even in the brain itself, which may be cut away, except inferiorly, near the origin of the nerves, without the animal complaining,—a remarkable fact, when we recollect that it is the centre to which all sensation is referable.

The serous and synovial tissues are perfectly insensible in their natural state, in which no nerves can be detected in them; they are, however, subject to excruciating pain when diseased, as is highly illustrated among the former by

acute inflammation of the pleura or peritoneum, and, among the latter, by acute rheumatic affections of the joints, or inflammation of the synovial lining of the tendons in whitlow.—Acuteness of pain, in internal inflammation, has been considered as almost indubitably characteristic of an affection of the serous membrane or envelopement, the dull of the parenchymatous substance of an organ; and the correctness of the induction appears to be very generally admitted. Of late, however, Dr Wilson Philip has expressed doubts whether the seat of the inflammation can be truly inferred from the nature or degree of the pain.

The fibrous, the fibro-serous, the cartilaginous, the fibro-cartilaginous, and, finally, the osseous systems, exhibit the same characteristics as the two foregoing, being all totally devoid of sensibility in their healthy state, but excessively painful when diseased. There was a time when the total insensibility of bone led to the conclusion that it was unendowed with life; yet the agony it occasions when in a state of inflammation, frequently exceeds any thing that has been felt in the most exquisite affections of other parts. The probable cause of this will be adverted to in speaking of inflammatory pain.

The healthy mucous tissue, in every part of the body, possesses the greatest delicacy of tact, as is evident in the great sensibility of the lips,

the tongue, the tunica conjunctiva, the pituitary membrane of the nose, the mucous membrane of the trachea, the urethra, the vagina. When inflamed, it attains, as all inflamed parts do, an increased susceptibility of impression, and yet occasions but little suffering. It is in a state of excessive tenderness rather than pain; and when the latter prevails, it is gravitative or obtuse, scarcely ever acute, and is for the most part very much extended, and not, as in the serous, frequently confined to a particular spot or point. This distinction is especially observable in chronic bronchitis, when contrasted with inflammation of the pleura. Inflammation of the internal coat of the intestinal canal may be said to form an exception to the above observation, as it is generally accompanied with considerable suffering, producing extreme thirst, with a sense of burning heat, often sharp, tearing pain, tenderness of abdomen, nausea, vomiting, diarrhoea, and dysentery.

Possessing the same delicacy of tact as the dermoid tissue, the mucous is also susceptible of many of its peculiar sensations, as pricking, tingling, itching, tickling, &c. which are frequently experienced in the nostrils, tongue, extremity of the rectum, and vagina. The muscular tissue consists of the voluntary and involuntary muscles, or those of animal and organic life. The former are subject to the sensations of lassitude,

formication, numbness, contusion, weight, heat, tension, and sometimes of shooting or wandering pains, such as so frequently accompany rheumatism. The latter are little sensible, except when in a state of inflammation, and their affections are generally characterized by sensations horridly distressing rather than by pain. Both the voluntary and involuntary muscles are subject to violent spasmodic contractions or cramps, which are always excessively painful; in the one, usually induced by some irritation in the intestinal canal, or cold, or the lesion of a nerve or organic affection of the brain; in the other by metastasis of gout, rheumatism, &c.

The glandular system seems susceptible of all gradations of pain, according to the particular part affected, or nature of the attack. Affections of the lacrymal, of the parotid gland, the mamma, the liver, the kidneys, the prostate gland, and testis, are acutely painful in the order in which they are mentioned, the latter exquisitely so.

The dermoid or cutaneous tissue is extremely sensible to all kinds of irritants. It is capable of almost every possible variety of sensation which can affect the others, and of many peculiar to itself, and perhaps the mucous structure, as those of pricking, tingling, itching, tickling, &c. &c. It is also endowed with different degrees of sensibility in different parts, the skin covering the ends of the fingers when it becomes

the organ of touch, possessing it in the greatest perfection. When inflamed, the same difference does not seem to exist, the pain being usually very acute, whatever part is affected.

It thus appears, that not only are our sensations varied to a great degree by the many different causes which excite them, but various parts of our bodies are endowed with peculiar sensibilities, giving rise to a series of different impressions when acted on by the same cause or affected by the same disease, so that it may be truly said the shadowings of pain are infinite.

The ancient writers divide it into the gravitative, in which there is a sense of weight in the part affected,—pulsative, which Galen says always succeeds some remarkable inflammation in the containing parts,—and tensive, called also distending, as being excited by the distention of some nervous, muscular, or membranous part, either from some humour or flatulence; but there are numerous painful sensations which this classification omits. It has lately, with much greater correctness and simplicity, been treated of as inflammatory, spasmodic, and as occasioned by the operation of external agents, the sensations occasioned by those last being separately considered, as they are produced by mechanical or chemical action, or by some immediate effect on the sentient system.

But even this arrangement, unless the word

spasmodic be interpreted in a very unlimited and incongruous way, omits many painful affections which claim a very paramount consideration. Perhaps the simplest and most complete of all is that of Darwin, who considered every species of pain as originating either in excess or in defect of motion, (*i. e.* the natural action of any part,) and these are, he says, distinguishable from each other by this circumstance, that the former are attended with heat of the pained part or of the whole body, whereas the latter exist without increase of heat, and are generally attended with coldness of the extremities.

The correctness of this classification, however, depends altogether upon the truth of the position laid down, which although supported by very ingenious reasoning includes some insuperable difficulties when examined in detail. In fact, recollecting our absolute ignorance of the more intimate nature of pain, any arrangement which depends on mere theory could not be properly adopted in a paper whose object is directly practical. It seems quite sufficient to seize the analogies or relations that obviously and undeniably exist between the various descriptions of it, and make some such general division as those may permit. Thus it is quite certain, as we shall show hereafter, a large class of pains depends upon tension of parts which may or

may not possess increased sensibility. To this description the old name of tensive would seem very well to apply. It is also certain that another extensive class does not depend upon tension, and is attended by a deficiency rather than an increase of excitement. These pains are usually connected with weakness and mobility of the nervous system, and may be very correctly, as indeed they are usually termed, nervous pains.

It is not intended here to speak of pain as produced by the operation of external agents. All other descriptions possessing obvious relations come within the above divisions, if I except those sensations which, in the common acceptance of the word, are not painful, though usually treated of by medical writers as such. To avoid making use of the term pain out of its familiar acceptance, they may form a third class, under the name of uneasy or distressing sensations. The more particular and important distinctions between these classes will claim attention when they are individually considered.

The perception of pain includes certain necessary conditions which demand attention : An irritating cause or impression ; its transmission to the brain, which supposes not only a healthy and perfect conductor or nerve, but the time necessary for the transmission ; and, lastly, the ac-

tion of the brain, or consciousness, which includes the soundness of that organ.

The irritating causes inducing pain are innumerable, as must be readily inferred from what has been already stated, and from the fact that the mildest and most innoxious matter we are acquainted with may become relatively highly stimulant. Thus, in certain diseased states, the light we look at, the air we breathe, and the food necessary to our existence, excite the most distressing sensations.

That the nerves are merely conductors, and the transmission of the impression to the brain is essentially necessary to perception, is directly proved by interrupting the communication, as in dividing or making pressure on one in any part of its course, when the organs it supplies become instantly devoid of sensation. Affections of that part of the brain where a nerve originates produce the same effect.

With respect to a certain space of time being necessary to produce sensation or consciousness, it is a fact that applies to all our senses, though perhaps more capable of being familiarly illustrated in the sense of vision. If a body passes before the eye with a moderate degree of velocity, as in the flight of a bird, its dimensions or length, and its regular change of place, are accurately distinguishable. If it pass with yet greater swiftness, as a rocket, its precise length

or change of place cannot possibly be estimated ; it presents one long train of fire almost from the spot it was projected to where it falls. This arises from the exceeding swiftness with which the object moves, a new impression being momentarily made on the eye before the old has died away, so that in fact it is one continuous chain of perceptions. This is more familiarly illustrated by the whirling round of a firestick by night ; a complete circle of fire is presented, although we are aware the absolute position of the stick at any determined moment can be only at some minute point of it.

If the velocity of the moving body, however, be yet greater than this, as when a ball is discharged from a musket, no perception takes place at all ; the ball passes as absolutely before the eye as the bird or the rocket, but it is not seen ; its speed is so great, that the whole time it is within the sphere of vision is not sufficient to produce a single impression.

This is precisely the case with the sense of feeling ; the perceptions are distinct or continuous, or altogether wanting, in proportion to the velocity of the body which makes the impression. In this way, we can readily conceive why a man may have his leg carried away by a cannon ball, without experiencing any pain at the moment, or indeed being aware of his loss until he has fallen for want of the usual support,—a pheno-

menon that appears so extravagant to those who are unacquainted with the laws by which all sensation is regulated, and yet every day exemplified in the little pain produced by a sudden gash from a sharp knife, that, if executed deliberately, would be a very serious operation. I recollect being called once to see a man who had fractured his leg in vaulting over a high gate, by the mere force with which he came to the ground on the opposite side. He assured me, that he was for several moments ignorant of his having sustained any injury; and that when he heard the crash of the bones, (for it was perfectly audible,) he thought it was one of the bars of the gate which had given way. An officer, who received a ball through the lungs in the battle of Salamanca, informed me, that it was several minutes before he discovered he was wounded: He staggered and fell at the moment, and got up somewhat confused, but totally ignorant of the cause. Proceeding a few paces, he felt something warm trickling inside his linen, and putting in his hand, to his astonishment, on withdrawing it, found it covered with blood. The usual distressing symptoms of course soon supervened.

The knowledge of this law is of exceeding importance to the surgeon, as it shews the necessity not only of performing an operation well, but quickly,—of allowing the most painful parts to occupy the shortest possible space of time. It is

truly inhuman the way in which operations are sometimes got through in some very respectable public hospitals ; although the world are certainly highly advantaged by the improvements in this respect, which the improved surgery of modern times has suggested. We have now almost forgotten the actual cautery, the expedient of amputating with red-hot knives, and many other horrible resources of the infancy of the science. It was imagined, not long since, by Dr Moore of London, that even the pain of the knife might be eluded by making compression on the nerve, supplying the diseased limb with sensibility, and thus preventing the transmission of the impression to the brain. The experiment was tried both in France and England ; but though M. Baron Percy appears not to think unfavourably of it, the plan seems eventually to have fallen into disrepute. Patients under amputation still exhibited considerable variety in the apparent degree of suffering ; yet as they had not experienced the pain of amputation without compression, it was excessively difficult to estimate the comparative merits of the two modes. A patient was at length operated on in St. Bartholomew's Hospital, who had formerly had a limb amputated in the usual manner ; but he complained loudly of the numbness produced by the compression, and, so far from conceiving his suffering alleviated, declared

that he would much rather have the operation performed without it.

There is no law connected with sensation so extraordinary or so demonstrative of the beneficent intentions of the Great Artificer of the animal machine, than that which becomes obvious to us in the duration of pain. If it be excessively acute, however continual the cause, it cannot last long—death puts a period to the agony, or the vitality of the part, or of the system, is worn out by the continued excitement. If it be chronic, it is necessarily liable to linger for a very indefinite period. Such pain, however, is not only for the most part very bearable in the first instance, but becomes much more so by time; in consequence of the power which the constitution possesses of habituating and accommodating itself to it.

The impossibility that acute pain should last long, may perhaps account for the astonishing fortitude with which men have submitted to the most excruciating torment. It is probable, in impaling, racking, flaying, and all the other most horrible modes of putting men to death, they do not suffer in any degree proportionate to our conceptions. The vitality, and of course sensibility of the tortured part, is first worn out, and the sensorium itself becomes at last exhausted. Soldiers when flogged soon lose all sensibility in the back, and only cry out or exhibit an expres-

sion of pain when the whip cuts in a new place ; but if the punishment be long continued, they faint or fall into a comatose state. Persons have sometimes fallen into natural slumber from exhaustion in the midst of torture, and have been aroused only by some new device which the vengeance of their persecutors suggested.

But as the vast majority of mankind are much more liable to become the victims of chronic rather than of acute pain, the power which the constitution possesses of accommodating itself to the former, is after all of more real advantage than that of eluding the latter by temporary insensibility. It is truly surprising to what an extent this power reaches. " Les visceres, les plus precieux," says Marc. Ant. Petit, " se détruisent sous " l'action insensible du temps ; les membres les " plus importans se déplacent, les corps les plus " volumineux s'interposent entre nos parties, sans " que nous soyons avertis du danger ; les fonctions se plient sans effort à ce nouvel état." This accounts for the vast disorganization and destruction which we often meet in *post mortem* examinations, in instances where the patient complained little during life.

It is not a little remarkable, that, when the system has for a series of years been habituated to pain, it almost becomes a necessary stimulus, and cannot always be suddenly relieved without risk. A patient was operated on, in St Bartho-

lomey's Hospital, for the stone, who had suffered constant agony from it for a great length of time. The operation was well performed,---there was no hemorrhage, and the man was removed to bed with complete relief from the pain: but this was a stimulus which the system could not now be suddenly deprived of with impunity---he gradually sunk, and although wine, brandy, and the most powerful excitants were freely administered, died in a few hours.

It is necessary to observe, that the power of habit on our sensations is limited to those which may be considered relative. Pain has been called relative and absolute; the former, such as is produced by the simple contact of bodies without any actual lesion of the tissue which it affects---the latter by whatever destroys the texture of an organ, as tearing, lacerating, &c. Relative pain is essentially within the influence of habit, and is thus always gradually worn away to the point of indifference. Every foreign body in contact, for the first time, with a mucous membrane, is creative of a disagreeable sensation, which by degrees is diminished and gradually becomes imperceptible. Impressions on the skin are subject to the same law. We soon lose the disagreeable feel produced by wearing flannel; and it is probable those religious enthusiasts in former times, who wore habits specially contrived to keep them in a continual state of annoy-

ance, became quite easy in them in the course of a few weeks. In like manner the unpleasant sensation experienced in passing from a hot to a cold atmosphere, or from a cold to a hot one, soon wears away. "In proportion," says Bichat, "as the same sensations are repeated, the less impression do they make upon us, because the comparison between the present and the past becomes less sensible. The more sensations accumulated upon that which has been painful, the more does it enfeeble the sentiment of comparison between what we are and what we were. Thus pain as well as pleasure naturally tends to its own annihilation."

The ostensible effects of pain on mind and body furnish subjects of extreme interest to the physician. On the former its effects are very variable. In its more violent extremes, it occasions stupor, delirium, or madness, any of which may relieve, and seldom fail to alleviate it. When more moderate and endurable, it sometimes exalts the imagination, and increases the progress of the mind, which may account for the precocity of understanding which we often meet with in sickly children, and the vast improvement of the character, and even of the intellect, which is sometimes developed on the sick-bed in more advanced life. On the other hand, if it continue long, it not unfrequently destroys both imagination and memory, induces gloom, sadness, peevish-

ness, discontent, despair, saps the foundation of the most determined resolution, and weakens the strength of the most elevated minds. It is in resisting its influence in this way, that women often evince a fortitude so much exceeding that of men.

Real pain is frequently the most effectual cure for the imaginary, as has often been exemplified in hypochondriacs. The man who fancied he had glass limbs is said to have been cured by a blow of a broomstick. Cardan made use of it for the sake of its depressing effect. He used to say, when he did not suffer, he felt such a violent impetuosity of spirits that he was obliged to procure himself pain. It has even been asserted, however paradoxical it may appear, that men who have exhausted every source of enjoyment, and thus become insensible to all ordinary sensations, have sought out causes of pain, and seemed to enjoy their results.

The effects of pain on the body, like those produced on the mind, are exceedingly various, according to its degree, or the constitution and temperament of the patient. It often excites sympathetic affections, interrupts the functions of many organs, especially of the stomach, or excites general irritation and fever. Occasionally it wears away life by little and little, inducing but slight apprehension or complaint, and yet more frequently excites cries, tears, convulsions,

and all the more common appearances of suffering. Of the two former, which are the first and most natural expressions of pain with all the more perfect animals, a few observations may be permitted.

The cry, or native voice, as it has been called to distinguish it from that which is acquired, is easily distinguished from all other vocal sounds, is susceptible of variation in tone, intensity, and expression, is possessed by man in every condition, whether idiotic or deaf, savage or civilized, and is almost the only language of brutes. By the cry all vivid sensations are expressed, whether derived from without or within, agreeable or painful—it is the voice of our instinctive wants, and of our natural passions.

Darwin, with his usual ingenuity, has endeavoured to explain its production by supposing it a voluntary effort to relieve pain, like setting the teeth, compressing the lips, or any other usual violent motion under suffering; and it is made use of most naturally by children, he says, in preference to other exertions, because the muscles of respiration are those which children most frequently and most powerfully throw into action in the first moments of their lives.

That violent muscular exertions of whatever kind have a tendency to relieve pain, and that we may be most inclined to make use of those which were earliest accustomed to violent action,

will not readily be denied ; but the expressions of the passions, as crying, laughing, &c. establish too important relations among mankind, and serve too many essential purposes, to imagine for a moment that they could occur, as it were, by accident, in our choice of a mode to relieve distressing sensation. Neither would this view of the subject explain why we use screaming rather than laughter for the purpose, or why, when the distressing stimulus of unmixed pleasure excites us, we do not seek relief by crying. Is it not very preposterous, when a bird sits singing on the bough on a summer's evening, to suppose the notes an effort to relieve the pain of pleasure, as Darwin calls it, rather than a mode of expression which the Almighty has connected with the creature's sensations of happiness, independent of, although possessing, other relations?

The cock erects his plumes, the dog growls, and the horse throws back his ears, when angry, yet these were not the motions which they were most accustomed to exert in the commencement of their lives. In truth, the various expression of the passions seems to have been as directly intended for them as the tongue to taste, or the eye to see. We have a smile for the witty, a laugh for the humorous, a cry for the painful, and a tear for the sad ; in short, a sensation can scarce be named that has not its own peculiar

sign, either in the intonations of the voice or the movements of the countenance.

The endurance of suffering, without betraying any of its natural symptoms, was the great boast of the Stoics ; but true philosophy rather humiliates itself to the hand of Nature, and without directly becoming the slave, acknowledges the empire of pain. No natural emotion can be completely subdued with impunity ; and whatever way we may choose to account for the relief experienced in its gratification, the fact is unquestionable. Every one is aware how much tears and sighs tend to alleviate either mental or bodily distress ; and the facility and freedom with which children weep is probably one of the great reasons why, in them, we meet with so few evil consequences from sorrow or suffering. Hence, too, the idea that silent grief is the most lasting and dangerous, a common adage, which did not escape our great dramatic poet. When tidings are brought to Macduff of the death of his wife and children, Malcolm exclaims,

“ What, man ! ne’er pull your hat upon your brows ;
Give sorrow words : the grief that does not speak,
Whispers the o’er-fraught heart, and bids it break.”

The French surgeons seem to make it a particular point that their patients should not restrain their feelings under operations ; these are sometimes even advised to cry out if they should

evinced too much hardihood or resolution; but M. le Baron Percy runs quite beyond an English imagination in his ideas on the subject. Speaking of those persons who possess sufficient firmness and *obstinacy* to resist the disposition to cry, he says, the operator regards, “avec surprise et avec regret le sujet qui fait si rare exception à la commune loi.” “En un mot,” he continues, “une grande opération, une opération vraiment douloureuse ne doit pas se passer sans cris, de la part de celui qui la subit.” Several examples are cited to illustrate the truth of the assertion. Anne of Austria, in obedience to the injunctions of her confessor, made no complaint during the excision of a cancer, but was soon after seized with fatal oppressions or stiflings. A young man, operated on for a popliteal aneurism, behaved with the most imperturbable calmness, but suffered dreadful spasms and cramps after the operation; and the case of a woman is related, of such accomplished piety, that she smiled during the amputation of her breast, kissing a crucifix which she held in her hand: she was afterwards, however, attacked with an affection of the nerves which endangered her life, and protracted her recovery.

It may be well imagined, that the evils here stated might have been natural results of the operations in peculiar habits, however ill or well borne, but there are too many reasons inducing one

to believe that the utter extinction of all natural complaints is injurious, at least under extreme agony, to dispute such instances. Moans and tears are, without question, a favourable sign in an operation, exclusive of the relief they bring the mind; they are accompanied by a general relaxation and softening of the parts, not only favourable to the operator at the moment, but to the after progress of the wound.

It has been usual to instil into patients about to suffer, lessons of fortitude and resolution, but here the object seems to be reversed. The truth is, in whatever light we view it, the system already pursued requires little alteration. Our natural dispositions and instincts under vivid emotions are so powerful, that, with our best endeavours to restrain them, they are generally indulged sufficiently to prevent injurious effects, and, in fact, these last can be apprehended only in extreme cases. Baron Percy seems to have been exceedingly puzzled how he should reconcile his doctrine of crying to the military, among whom he suspected the strongest objections might lie. The manner in which it is attempted is really amusing, and, only that it is delivered with such gravity, could hardly be considered serious. “*Le brave guerrier,*” says he, “*peut sans honte crier sons l’instrument qui doit le délivrer du projectile dont il a été atteint, ou retrancher un membre qu’on ne peut absolu-*

“ ment lui conserver ; mais il faut que ses cris
“ soient encore des accens militaires ; il faut qu’ils
“ se ressentent de cette impetuosité de courage,
“ de cette belliqueuse ardeur, que le sort des
“ combat a malheureusement trahies.”

Men seem to differ as considerably in their susceptibility of pain as in their power of enduring it. Age, sex, temperament, the seasons, climate, habit, individual disposition, all occasion numerous modifications in our sensations, so that the same stimulus can scarce be said to produce precisely the same effect on any two individuals. Infants feel pain acutely, but generally it does not last long, and is forgotten soon. Their transitions from pleasure to pain are astonishingly rapid. A child possesses as it were an exuberance of life ; and it is in this especially, as Baron Percy truly remarks, the resemblance between infirm age and infancy fails, for in the old man life is on the point of being extinguished.

Women, like children, are more susceptible of pain than men, and hence are much more fearful of it. They will, nevertheless, frequently endure its extremes more patiently, and thus, although inferior in absolute courage, surpass them in fortitude. Mechanics and tradesmen, residing in cities, are said to bear operations with more manliness than the hardy husbandman from the plough ; the grave, the serious, and silent, than the gay or the petulant ; those of the

bilious than those of the sanguine temperament; and phlegmatic individuals are sometimes met with whom nothing can move, of which two remarkable instances occurred in my own practice,—in the one, a girl of seven years of age submitted to the removal of an encysted tumour from the cheek, not only without complaining, but without evincing any change of feature that could indicate acute pain. This apparent resolution could not have been the effect of education, as she was a peasant girl with whom very little trouble seemed to have been taken by her parents. In the other instance, an old man had the whole cheek torn open by a bite from a horse. A day had elapsed before he applied for assistance, and the swelling of the torn part rendered it impossible to replace it without cutting some portion away. He endured the operation with the most indifferent and imperturbable countenance I ever witnessed, and, in fact, suffered very little pain. Baron Percy, whom I have so often had occasion to quote, tells us that he assisted in an operation for the stone in an old man, who, when repeatedly recommended to cry, always answered, that he had no pain.

There are two states in which men are found to complain little in operations,—when they absolutely feel no uneasiness, as in the cases just mentioned, and when the shock and pain are so dreadful that they absorb all the attention and

reign solely, all other sensations being extinct. In such instances, the neck and chest swell, the hair stands on end, the mouth is closed and convulsed, all the muscles contracted, and the face pale and depressed, the eye is fixed and has somewhat of ferociousness about it, and a dull noise is made in the throat, but they forget to relieve themselves by crying.

Climate seems to have some influence on our susceptibilities to pain. Speaking generally, the northern nations are more phlegmatic and feel less acutely than the southern, which is more especially remarkable in certain savages on the western side of North America. M. Percy seems to think there is little difference between the Poles, the Russians, and their southern neighbours. The Egyptians, Arabs, and other eastern nations are however usually deemed much more sensible to pain.

But of all the causes which exercise a control over our sensations, whether agreeable or otherwise, the passions seem to be the most powerful. It would be idle to relate instances in which enthusiasm in religion has enabled young and timid females to suffer at the block or the stake with calmness and resignation, or the privations or sufferings the uncurbed savage will undergo, without complaint, to gratify his appetite for revenge. The love of fame, of glory, and of country, have each developed their influence in the pages of history ;

and perhaps human pride and human vanity have made more martyrs than an unsophisticated love of truth. Indeed, mankind are for the most part little disposed to suffer much for abstract principles,—such as are in no way connected with their affections, or associated with their self-love, although splendid examples of the contrary seem occasionally to occur. It is not as one might anticipate, the grave and the thinking, the severe and inflexible characters, that are most readily influenced by those high feelings of principle and resolution, which enable them to mount the pile or tread the scaffold without trembling, but the gay, the light-hearted, those who possess a devotedness and fervency of feeling, making them lovers and worshippers in every thing. The Hindoos, though naturally a mild and timid people, often meet death with a fortitude truly heroic: They are in ordinary life cheerful and lively, fond of conversation and amusement, particularly dancing, and possess great sensibility; in short, all that kind of character which chiefly distinguishes women from men, and which, when conjoined with a sanguine disposition and warm imagination, is so liable to glide into enthusiasm. Mr Howell gives an account of a female Hindoo, who, when about to be burned with her husband, being told of the pain she must suffer in consuming, (with a view to dissuade her,) put her finger into the fire, and kept it there a considerable time, after

which she put fire on the palm of her hand, with incense upon it, and fumigated the Bramins who were present.

But since the origin of mankind no people have ever furnished such dreadful and extraordinary instances of human fortitude, or rather the command which savage passion and early education give over the strongest instincts of our nature, as the North American Indians. In the common intercourse of life, they are humane and compassionate; but vengeance and fortitude, in the midst of torment, are duties which they consider as sacred, and depend upon principles instilled into them from their very infancy;*

* It is usual when they war with one another to torture to death such as are made prisoners in battle. One shudders even to think on the horrible expedients they resort to for this purpose; plucking out the nails by the roots, crunching the fingers in the mouth and tearing off the flesh, putting the mangled end into the bowl of a pipe; pounding the toes and fingers between stones; cutting circles about the joints and searing them with red-hot iron, cutting, burning, and pinching them alternately; pulling off the flesh, mangled and roasted, bit by bit; twisting the nerves and tendons on irons and snapping them; while others are employed in extending the limbs in every possible way that can increase the torment. This continues five or six hours, and sometimes even days together. Whenever they desist, to give a breathing to their fury, and think what new tortures they shall inflict, the sufferer often falls into so profound a sleep that they are obliged to apply fire to awake him.

hence they glut themselves with a kind of remorseless delight in the one, or exult to the last pang in the other.

To conclude, when pain has become so excruciating as to exceed all bounds of remedy or endurance, human nature sinks suddenly, exhausted

They then stick him all over with small matches of wood that easily take fire and burn slowly ; they continually run sharp reeds into every part of his body ; they drag out his teeth with pincers, and thrust out his eyes ; and, lastly, after having burned his flesh from the bones with slow fires, after mangling the body until it is all one wound, after mutilating the face until there is nothing human in it, peeling the skin from the head, and pouring boiling water or red-hot coals on the naked skull, they once more unbind the wretch, who, blind and staggering with pain and weakness, assaulted on every side with clubs and stones, runs now up, now down, falling into their fires at every step, until one of their chiefs, whether out of compassion or weariness, puts an end to his life with a club or dagger.

The prisoner is said to smoke, converse unconcernedly, and on indifferent matters, with his tormentors ; it seems a contest which shall exceed, they in inflicting, or he in bearing the most horrible torments with a firmness and constancy almost superhuman. Not a sigh or groan escapes him ; he even taunts his persecutors, and tells them of the tortures he inflicted on their countrymen, and how ignorant they are in the art ; nay, even points out more exquisite methods and sensible parts of the body to be afflicted ! Such is the wonderful power of an early institution and a ferocious thirst of glory. “ I do not fear death nor any kind of tortures,” exclaims the savage in the face of his tormentors, “ those who do so are cowards.”—*Robertson's America*.

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in whom animation has been restored after its cessation for minutes, and sometimes for hours, in the occurrence of which they must have suffered all that man could in dying. Death produced by acrid poison seems to be one of the most painful, as that by gun-shot or the guillotine is the least so. When a musket bullet passes through the brain, it takes place before there can possibly be time for either thought or sensation ;—the individual is blotted from the world without either mental or corporeal consciousness of what has happened.* The same may also be said when men die by the guillotine, although, if we were to credit the extravagant notions of some ingenious men, no death could be more shocking. The celebrated anatomists Scemmering and M. J. J. Sue, used to maintain the possibility of the head continuing sensible after its separation :—the latter even says, that sensation may be prolonged for a quarter of an hour in different parts of it ; that thought, so far from being extinguished, exists perfectly ; and that what is most horrible to it is, that it is deprived of the means of imparting to the crowd its won-

* When Charles the XII. was shot through the head at the siege of Frederickshaldt, it is said he was seen to clap his hand on the hilt of his sword :—the ball probably passed through the superior parts of the brain, which seem possessed of but little vitality.

derful conceptions ; that during the convulsive movements of the eye-lids, lips, features, and, beyond all, of the eyes, which appear wild and sparkling, the sensorium hears, sees, thinks, and reflects on the separation of its being ; and that even the limbs themselves experience pain, although their communication with the brain be cut off. Cabanis and others readily refuted this doctrine, and shewed that the action of the brain is directly dependant on its receiving a constant supply of blood, and that the moment the intercourse between it and the heart is interrupted, sensation must inevitably be destroyed.

One of the great reasons why even natural death is, in our imaginations, generally invested with terror and agony, seems to be, that we are so much accustomed to associate convulsive motions of either countenance or limbs with profound pain, we can scarce persuade ourselves they can exist without it ; and thus the spasmodic contractions of the features, and restlessness or writhing of the trunk, which so frequently precede the expiring of life, are viewed as symptoms of an anguish that has no other mode of expressing itself. But these motions are seldom dependant upon pain, and never necessarily so. In the epileptic, the writhing of the body—the distortion of the countenance—the rapidity with which the eyes sometimes open and shut—the gnashing of the teeth, or the sudden twirlings of the mouth,

are altogether frightful and inconceivable; yet, when the patient arises from the fit, he is ignorant of what has passed. With the most striking signs of intense agony, he is yet insensible during the period of the paroxysm, and absolutely endures no more pain than he should had it occurred to another person.

It is thus in the last struggle in natural death, the exhaustion of the sensorium, or previous agony of the disease, so clouds the senses that consciousness seldom remains, and pain is not felt even when the features and expression would seem to indicate it. Buffon elegantly observes on this subject, "As the first pangs of sickness
"are probably greater than the last struggles of
"departure, why should we fear that moment
"which is prepared by a thousand others of the
"same kind?"—"Death," he continues, "is a
"spectre which frights us at a distance, but
"which disappears when we come to approach it
"more closely, our ideas of its terrors are conceived in prejudice and dressed up by fancy;
"we regard it not only as the greatest misfortune, but also as an evil accompanied with the
"most excruciating torture: We have even increased our apprehensions by reasoning on
"the extent of our suffering. 'It must be dreadful,' say some, 'since it is sufficient to separate
"the soul from the body; it must be long, since
"our sufferings are proportioned to the success-

“ sion of our ideas, and these being painful, must
“ succeed each other with extreme rapidity.’ In
“ this manner has false philosophy laboured to
“ augment the miseries of our nature, and to ag-
“ gravate that period which nature has kindly
“ covered with insensibility. Neither the mind
“ nor the body can suffer these calamities ; the
“ mind is at that time mostly without ideas, and
“ the body too much enfeebled to be capable of
“ perceiving its pain. A very acute pain pro-
“ duces either death or fainting : the body can
“ suffer but to a certain degree ; if the torture be
“ excessive, it annihilates itself ; and the mind
“ ceases to perceive when the body can no longer
“ endure. Thus excessive pain admits of no re-
“ flection ; and whenever there are any signs of
“ it, we may be sure that the sufferings of the
“ patient are no greater than what we ourselves
“ may have remembered to endure.”

CHAP. III.

PROGNOSIS OF PAIN.

THE older writers, and more especially Hip-
pocrates, have made numerous, and often valu-
able, observations on the prognosis of pain as af-
fecting the different tissues or organs of the body :
But as it would be quite foreign to the purpose

of a short essay to enter into detail on a subject more or less connected with every disease to which the human frame is liable, it may here be treated merely in a general way.

If pain, as it would appear from what has been before stated, be a contrivance of nature for a particular end, it will necessarily be supposed it should be peculiarly fitted to that end, or, in other words, that it should bear some proportion to the danger or the necessity for it; and this is absolutely the general law which it seems to observe. In affections trivial in their nature, or not immediately endangering life, we have but slight pain; but where it is assailed more directly and imminently, the agony is often terrific and indescribable. It may be fairly urged, that very many affections, of very little import as regards the event, are yet attended with excruciating pain. The tooth-ach and *tic douloureux*, how distressing? the anguish experienced from a whitlow or slight burn, how severe? but with none of these does the idea of danger enter the mind. It should be considered, however, that nature is equally solicitous in the preservation of every part of the body, and that those diseases, however unimportant as regards life or death, are seriously alarming as regards the pained part, not unfrequently terminating in its total destruction;—to the local disease, then, the pain is not disproportionate. It may be observed, too,

that acute pain is the more necessary in affections of comparatively unimportant parts, when they are in danger, as they are seldom accompanied by those powerful and striking derangements of the general system, invariably attendant on diseases of the vital or more essential organs, or even by any prominent local symptoms which could claim or command our attention.

Possibly another objection might be, that the description of pain called nervous, while it is almost always less dangerous, is often more violent than the inflammatory; but this can be considered true only with respect to their usual results. The danger exists in both, of which we have full proof in the fact, that death has often occurred almost instantaneously, from the indescribable violence of nervous or spasmodic pain, a very rare event in that of inflammation. If the danger, therefore, were to be estimated from the frequency of sudden death, the spasmodic should be held the most alarming. It must be recollected, however, that the effect of pain on the system is not commonly so much in proportion to its direct momentary intensity as to its unremitting duration. In the intermissions or remissions of the nervous there is a rest, a quiet which, however transient, is more or less restorative; but in inflammation the pain is permanent---there is no ease---no remission---and life necessarily becomes incompatible with the long

existence of such a state. The difference between both the character and effect of the two descriptions of pain is excellently illustrated by that which attends the contraction of the uterus in protracted labour, contrasted with that which is observable in inflammation of the same organ. In difficult labour, nothing sometimes can exceed the sufferings of the patient, inso-much that it really becomes wonderful how human nature can hold out; but the truth is, advantage is taken of the intermissions, and the woman dozes, and recruits between the pains. This cannot take place in inflammation. There, is a burning, during heat, which gives no rest or ease, and which gradually increases, until interrupted by the use of efficient remedies, or terminated by death.

It may be also remarked, that the event in nervous or spasmodic pain is more generally favourable, because of the greater facility with which the exciting cause is removed. Inflammation is always more or less connected with organic changes; and, to restore parts to their original state often requires time; but nervous pain is frequently a mere increase of the natural action, as in spasmodic affections, and is often, even when most violent, capable of being relieved in a moment.

In considering pain, therefore, as indicative of danger, much is to be taken into account besides

its apparent intensity. The prognosis is unfavourable :

First, In proportion to the constancy of the pain ; for as it often exhausts the vital energy as rapidly as the utmost muscular exertion, the power of endurance in the system must depend upon the intermissions.

Secondly, In regard to its seat ; for pain, though essentially the same in nature and degree, is much more dangerous when affecting vital organs, than parts of less importance, by immediately interfering with the functions of life : thus cramp or a spasmodic affection of the stomach or heart, is attended with infinitely more peril than when it seizes the muscles of the extremities.

Thirdly, In regard to various symptoms with which it may be connected as ; when it is attended by vomitings after operations, by vomiting and rigors in protracted labours, &c.

Fourthly, When it induces a state of great nervous irritation or debility, as it sometimes does after the application of caustics, blisters, or other stimulants, but more frequently after wounds, especially of the nerves. In these cases it may occasion convulsions, delirium, mania, or death.

It should be held always in view, that whatever the cause, or character, or situation of pain may be, there is a point of intensity and duration

beyond which if it reach, the danger becomes imminent. In estimating the occurrence or the approach of this state, we are to be guided by its effect on the system, and these are inferred chiefly from the countenance and manner. This may be a question of tact and experience, but it is soon learned by an accurate observer ; thus, though the sufferings of a patient be little evinced in his cries or complaints, if he seem deeply impressed with a sense of danger ; if the expression of the countenance be altered, the features sunk, the cheeks wan, the eyes dull and listless, if there be a kind of worn hopelessness, and depression of look about him, a very frightful degree of exhaustion is denoted, and these are often the chief or only symptom indicative of it in insidious diseases.

From the position before laid down, that pain is proportioned to the danger or necessity, we may draw two inferences, the recollection of which, though of little apparent value, will be found useful in considering the remedial means. That the aggravation of pain denotes an aggravation of the disease, or the supervention of some new irritation ; and that its diminution or cessation, denote either a diminution or cessation of the disease,—a diminution of the sensibility, or the death of the part.

CHAP. IV.

OF TENSIVE PAIN.

TENSIVE pain is that produced by a stretching of the fibres from whatever cause, and is perhaps immediately dependent upon the pressure which these exert in such states on the minute filaments of nerves distributed through them; it is of two kinds, that which is unattended by increased sensibility of the parts*, as in sprains, dislocations; putting criminals to the question, by suspending them by an arm and then hanging weights to the feet, &c.; and that which is invariably accompanied, and in a great measure arises from such increased sensibility, as in inflammatory pain. It is of this we have chiefly to speak. It is acute or chronic; and the tension which seems to occasion it, is mostly the necessary result of increased determination and effusion in the cellular substance.

Increased sensibility is that state commonly called tenderness, and is so invariably connected

* The pain which occurs in accidental congestions in the head, lungs, &c. would appear to be sometimes of this description, as it is often observed where no increased action prevails, and seems to depend upon simple distention; of the same nature is that produced by distention of the cutaneous tissue in dropsies.

with the increased vascularity occurring in inflammations, that we necessarily infer its dependence upon it. Even in health, parts possessing high vascularity are always endowed with a more exquisite sensibility; and that the pain of inflammation consists in the tension of such as have acquired it, is abundantly evident from the facts observable in common phlegmon, in which no remarkable pain occurs until increased vascularity, and perhaps effusion, have begun, and in which, when once established, it holds through the whole progress of the disease a fair proportion with both. Its sudden subsidence, too, (however excruciating,) the moment the tumour bursts or is laid open, is not the least striking of the phenomena, when contrasted with the dreadful torture, and often very alarming constitutional symptoms, which occur whenever the effused or secreted matter has a difficulty of exit, as in deep suppurations, where it is bound down by dense fascia, or the less alarming, though scarcely less painful ones, when it takes place in the thecae or sheaths of tendons. The exquisite tenderness in those cases is never confined wholly to one particular tissue; it is more or less diffused among all the dissimilar parts which may be engaged in the inflammation, so that the very coats of the arteries seem to become sensible to the passage of the blood, the pain occurring at each diastole. This is the pulsative pain of Ga-

len, and is more evident as suppuration approaches, or when, in inflammation in the extremities, they are kept in a dependent position. The relief obtained, especially in rheumatic attacks, from cold and pressure, when the state of the parts at all admit of them, is a further proof of the foregoing opinions; and one might even refer to the pain reproduced by the action of straining in blistered parts, even when they are about to heal; it is merely temporary, though sufficiently acute, and depends upon the momentary congestion in the cutaneous capillary vessels, those only experiencing the pain which had been recently in a state of inflammation.

Inflammatory pain, in short, seems to be little else than a kind of internal diffused pressure on inflamed and highly sensible surfaces; and, perhaps, the exquisite suffering which accompanies inflammations of bones, cartilages, and the denser membranes, so utterly insensible in their sound state, may be explained on the principle of their little dilatability, and the consequent increased compression the inflamed vessels and nerves distributed through them must experience. This seems further probable, when we recollect the direct contrast that exists in the distress occasioned by inflammation of mucous and serous membranes;—in the former, which are readily dilatable, there is little pain—this has been said to depend on the greater facility with

which they pour out their secretions, and thus relieve themselves; but before secretion occurs, and when the inflammation is at its height, the pain is comparatively trifling. Dull pain has been supposed indicative of inflammation of the parenchyma of any viscus, on the same principle of its ready dilatibility; and, perhaps, it is a certain diagnostic of the texture affected, when taken with the state of the pulse. I believe it will always be found, that the pulse rises with much less rapidity in inflammation of the parenchyma of any organ than in that of its envelope, the serous membrane.

Chronic pain is that sub-acute sensation which attends a more moderate degree of excitement. The distinction between it and the acute depends not so much upon the difference of tension, as of sensibility. Being for the most part very endurable it may subsist a great length of time, without wearing life away, even when dependent on slow visceral inflammation, as it commonly is. Chronic rheumatism affecting the muscular, osseous, or synovial tissues occasions this kind of pain. There is always more or less of tenderness accompanying it: when that symptom is absent, the affection should be considered as belonging to the nervous class.

The treatment of tensive pain consists in all such remedies as are calculated to remove the cause, and in that arising from tension alone is

quite simple. In the inflammatory species it will be moreover necessary to diminish or remove the increased sensibility. This may be done especially by blood-letting or by opium. The latter when not preceded by powerful evacuations of some kind would seem to be a very questionable remedy in inflammatory attacks. Small doses are certainly injurious; they act as direct stimulants without either lessening the pain or irritation. When employed as a contra-stimulant, it should be given to such an extent as insures its sedative effect; and must not this be excessively dangerous where great plethora and high excitement prevail? I can readily understand its great value when the system has been previously so lowered as to fall readily beneath its influence.

Evaporating lotions—fomentations—poultices, are all useful in particular instances, either in lessening the excitement or relaxing the parts. There has been much discussion amongst medical men whether cold or hot applications are most beneficial. Nature has solved the question in the simplest manner possible, by shewing that most benefit will be invariably derived from such as are most agreeable to the patient,—a new proof of that extraordinary relation that exists between our sensations and the means of relief, so often arising in opposition to the best theories of the physician.

In the treatment of chronic inflammatory pain, local bleedings, gentle evacuants, and counter-irritants, are usual and sometimes effectual remedies. The bleedings should seldom be considerable, and would sometimes appear to be wholly inapplicable. I have seen cases of debilitated habits, in whom the tenderness or morbid sensibility, remaining for a length of time after acute inflammation, seemed merely a new or acquired habitude, and not dependent upon increased action. The painful parts, it might be said, were in a state approaching or excessively disposed to chronic inflammation rather than actually affected by it.

As to medicine, the whole of the *Materia Medica* has been exhausted in search of some drug that should act directly on whatever diseased viscus might be the seat of this obstinate pain; but organic disease continues still so completely to baffle all specifics, that we are driven back to nature's primeval remedies—simplicity of diet, air, exercise, change of scene and cheerfulness of mind. These, though generally slow in their effects, are frequently the most powerful, if we could but think so.

The influence of the passions or mental emotions on organic life, affords a striking proof of the necessity of treatment of the mind in those diseases. Bichat correctly observes, that in the very long series of chronic or acute affections,

the sad attribute of the pulmonary system, we must often look to the passions to find the principle of the complaint; and Desault has remarked, that diseases of the heart and aneurisms of the aorta were augmented in number during the revolution, in proportion to the evils it produced. But why are we to wonder at such effects from profound sorrow or long despondency, when we have every day instances occurring before us, in which the most important functions are instantly deranged by some momentary and sometimes trivial emotion. Fear or apprehension has produced fainting, and often totally interdicted both rest and sleep, even when the body has been exhausted by fatigue. The sight of a beetle has induced vomiting; and the sudden announcement of interesting news, or recollections of a distressing event, completely banished the sensation of hunger. Thus Imogen, when she recollects her husband's desertion, says,

“ My dear Lord !
Thou art one o' the false ones. Now I think on thee
My hunger's gone: but even before, I was
At point to sink for food.—”

There is scarcely any one who, when engaged in some interesting pursuit, has not at some time allowed his usual period of repast to pass unconsciously away. The story told of Sir Isaac Newton is familiar to every one; and it is observable that

children who amuse themselves with the usual sports at their age, eat less than those who are idle and indolent.* Such facts tend to shew that scarce any mental emotion can take place without some corresponding corporeal one—some physical movement or change which, though often imperceptible, abundantly betrays itself in other instances.

If the depressing passions or emotions produce injurious effects on the frame, we may readily infer that proportionate advantages follow those

* This is a fact that intelligent mothers readily enough perceive, and that all should be acquainted with. The stomach in infancy is exceedingly active; the growth of the various parts demands a frequent supply of aliment; and there is, as a necessary consequence, an increased power of digestion. Unlike adults, who are disciples of habit and conventional modes of diet, children, who are allowed to go in the open air and mingle with their playmates, rarely eat to repletion. When the mind is occupied, the wants of nature must be absolute before the attention is likely to be directed to them; but if the unhappy and mismanaged little sufferer be confined within doors, prohibited from play, and with little to interest him, the slightest uneasy sensation in the stomach catches his attention, and produces an instant demand for food; nay, the very ennui of his situation is sometimes sufficient, and he will eat in such circumstances if it were only for pastime. Can we wonder the digestive organs should at last be overworked, and that dyspepsia, and an atonic state of the whole system, should soon follow. For these reasons it is, that, even in early infancy, one of the most important parts of good nursing consists in the amusement of the child.

which are agreeable or delightful ; hence the utility of change of scene, cheerfulness, and exercise even in health. But the influence of these as remedies in chronic disease, appears to have been much undervalued ; they have been generally looked upon, rather as adviseable adjuncts to the curative plan, than as instruments whose action could be considered in any degree direct. It is known that they promote the secretions and the healthy performance of all the functions of the system ; and change of scene, by affording new excitement to the mind, has been supposed to act as a kind of tonic, but they have yet, if I mistake not, another mode of action, more easy of comprehension, and explaining how they may very directly and absolutely produce an effect upon local disease.

The nervous or vital power, whatever it may be, is evidently capable of replenishment and exhaustion, and seems, in fact, a result of organic action, or a secretion of the brain, which can be accumulated only in proportion to that action. The sum of our vitality, therefore, or that power by which we move, think, and are susceptible of impression, is limited, and, if directed into any particular channel, a deficiency must be experienced in every other. This determination may be given, whether to the muscles or organs of sensation, or of perception, not only by volition, as in racing, listening, watching, thinking, but

even by emotions of the mind and accidental ideas over which the will has little control. A man paying attention or giving himself up to any sensation, increases its intensity ; but if he turn from it to other subjects, the nervous influence is immediately otherwise directed, and the excitement or vital action upon which that intensity depended is as immediately diminished. What we term diverting the mind is therefore an actual physical derivation from diseased parts ; and when it is said that employment or change of scene makes the invalid forget his pain, more is denoted than the simple fact ; the pain is not only forgotten, but is absolutely for the time gone or subdued ; the patient is well of it ; the diseased action that occasioned it is suspended. The effect is temporary, like that of medicine, but its repetition is easier and less objectionable, as in the successive interest excited by new exertions or impressions, and the result is often infinitely more favourable. Apprehension suspends the pains of labour by producing this sudden derivation, and diminishing the vital action of the uterus : those pains arise from healthy action of the part, and Hope, again, by restoring the balance, brings them on. Fear, in the same way, suspends the aching when a man is about to have a tooth drawn, even where opium and henbane, and all the most powerful narcotics and antispasmodics, have failed to alleviate it. How mo-

mentary and indifferent an idea in the mind may produce those physical changes or movements we have an instance of, in the fact, that if a man resolve not to swallow his saliva, he is almost immediately compelled to swallow it ; the very resolve, or thinking of the parts, produces increased determination, and consequently a greater flow of saliva than usual. Perhaps in this way the ill effect that arises from continually thinking on our pains may in part be accounted for.

Though so much has been said on this subject, I find it scarce possible to conclude, without quoting a curious tale which has been related by Sydenham, strikingly illustrative of the truth of the foregoing opinions. It was of a gentleman who had consulted him for a long time and was little relieved : the Doctor told him, he really could do no more for him, but there was a Dr Robinson of Inverness, who was wonderfully clever in such complaints as his ; that he would give him a letter to him, and he was confident he would come back cured. The patient was a gentleman of fortune, and was therefore soon able to begin his journey. When he arrived at Inverness, he found there was no physician of that name, nor ever had been in the memory of any person there. So this gentleman came back, vowing every thing that was hostile to the peace of Dr Sydenham. When he arrived he was in very ill humour, and told him, he thought he

had used him very ill, to send him a journey of so many hundred miles for nothing. "Well," says he, "are you better in health?"—"Yes, I am well now, but no thanks to you."—"No," says Dr S., "but you may thank Dr Robinson for curing you. I wanted to send you a journey with an object in view; I knew it would do you good: in going, you had Dr Robinson in contemplation, and in returning you were equally busy in thinking of scolding me."

CHAP. V.

OF NERVOUS PAIN.

NERVOUS pain is chiefly characterized by the absence of increased action—by the occurrence of intermissions,—and by the rapidity with which an increase or diminution of the pain may take place; it sometimes observes regular periods, and though occasionally of local origin, much more frequently depends upon some general constitutional derangement.

As the mode of cure in inflammatory and nervous pain is exceedingly dissimilar, the distinctions between them become of vast importance. The former is generally gradual in its accession, increases progressively, and, except relieved by remedies, seldom or never intermits. The latter

often attains its utmost degree of intensity in a moment, increases or decreases by fits, and never continues for many hours without some interval of relief. Inflammatory pain is aggravated on motion and pressure, and is mostly attended by a full and frequent pulse, with increased excitement. In the nervous, there is evidence of rather a diminished action in the coldness of the part and feebleness of the pulse, and pressure is generally grateful, except in those instances in which the continuance of the pain has induced tenderness,—a very common result. When shiverings or rigors occur early in either, they always precede the pain in inflammatory affections, but succeed it in the nervous or spasmodic.

A very marked distinction may also be drawn between the two, from the countenance and manner of the patient. In nervous or spasmodic pain, the contraction of the muscles, and sometimes dreadful distortion of the features, occasionally relax, betraying an obvious appearance of at least comparative ease. In the inflammatory, the contraction and distortion are much less, but more permanent. In the former, as in neuralgia faciei, the patient at one moment starts up, screams, and paces the floor like a madman, or perhaps flings himself on the bed, and writhes to and fro, while he stifles his cries in the clothes; by and by he arises quietly, moves slowly to a chair with his hands pressed to his

face, and rests his elbows on the table—a low moaning now and then being the only indication of the continuance of the pain. In inflammation we see agony and restlessness, it is true, but never these sudden transitions; there we have constant cries or moanings, or sometimes a silent, intense anxiety of countenance with quickened respiration,—and we occasionally meet with an uncomplaining endurance in the expression of the features, as if the mind had too deep a feeling or consciousness of the danger to indulge itself in fruitless wailing; the eye looks enquiringly at us if we stand by the bed-side, or follows us anxiously through the room, but neither moan nor sound are heard, which becomes peculiarly striking when contrasted with the querulousness and impatience so often manifested by those suffering under nervous pain. The modifications of nervous pain depend both on its nature and seat, and may be arranged as follows:

1. *Pain following the course of the trunk or branch of a nerve, or fixed at its extremity.*—Of this description is the neuralgia faciei, whether arising from constitutional disease or lesion of a nerve,* the toothach, and some species of rheuma-

* It is very important to notice that the neuralgia arising from lesion of a nerve is a local disease, and as distinct from that of constitutional origin as idiopathic toothach from that which is merely symptomatic of rheumatism. Excision of the

tism. This last seems capable of affecting every tissue, especially in its chronic shape, and is often when it attacks the nerves mistaken for tic douloureux; they are in part to be distinguished by the situation, the latter affecting only the facial, the mammary, and the subcutaneous nerves of foot or arm. The paroxysm, too, is generally shorter, the pang more lancinating and pungent, and it yields to very different remedies. Dr Mason Good thinks the distinction easy, conceiving that rheumatism never divaricates in the course of the facial nerves; but in this I apprehend he is deceived. There is another description of pain which falls under this head, of an intermittent and periodical character. It is called ague-pain, is usually seated in the supraorbital nerve, and has always a constitutional origin.

2. *Pain from some irritation or affection of the trunk of a nerve referred to its extreme branches.*—

pained part is a rational mode of cure in the one, in the other it is merely a resource, scarcely warranted even by the imperfection of our art, as Mr Thomas' case, which has been called successful, and is quoted by Dr Darwin in the second part of his *Zoonomia*, strikingly illustrates. Relieving pain when it depends upon some morbid state of the general habit, by totally destroying the sensibility of the part it occupies, furnishes but a wretched specimen of the progress of medical science, and, in an abstract view, is just as reasonable as dividing the ischiatic nerve in rheumatic affections of the lower extremities.

This order of pain is of a very extraordinary description; it is quite inexplicable why irritation affecting the trunk of a nerve should be felt at the terminations of its extreme branches, as when in cutting the nerves of the thigh in amputation the patient complains of his foot, or fancies he has pains in it even days after it is removed. I should be inclined to explain it, by saying, that natural impressions can be made only on the minute terminations of nerves, the trunks or branches being deeply seated, and that as we have no experience of an impression transmitted by these last, when such does occur by lesion or disease, the sensation is as usual referred to its extremity. But there are obvious objections to this; there seems no good reason why one extreme branch should be affected rather than another, or why a degree of tenderness, or sometimes actual inflammation or disease, should take place in the part to which the pain is referred if it be merely imaginary.

It is of extreme importance to be perfectly acquainted with these pains, as well as those in the succeeding order, since mistakes are daily committed about the seats of disease through ignorance of them. The most usual are those affecting the knee, shin, ankle, or sole of the foot from affection of the hip joint, whether rheumatic, scrophulous, or accidental, and sometimes from disease of the spine. There is often in those cases

no pain whatsoever in the part really diseased, and what is yet more curious and inexplicable, it is found that the part which is merely sympathetically affected is often relieved by applications to it. Thus Mr Brodie found blisters to the knee useful in allaying the excruciating torture excited in it by diseased hip, though the most effectual practice seemed to be, establishing an issue over the trunk of the crural nerve. I have myself in more than one instance seen pain affecting the top of the shoulder, evidently from diseased liver, relieved by a blister or liniment. Even the primary disease seems at times to be benefited by these distant applications, at least in rheumatic cases, and hence perhaps it is, that Cotunnus of Naples, and more lately Lænnec, advise blisters to be applied to the head of the fibula in sciatica, and that they should be kept open with savine cerate. These are mentioned as extraordinary facts, and not with a view to the regular treatment; of course that must be chiefly directed to the real seat of disease.

3. *Pain at the extremity of one branch of a nerve from irritation acting on the extremity of another, or of one nerve sympathising with another by some obvious connection.*—To this head principally belong the sympathetic pains affecting branches of nerves; as the pain at the top of the shoulder in diseased liver, the irritation at the epiglottis in diseases of the lungs; the pain in the

skin of the abdomen and outside of the thigh, when the kidney is affected ; or those imitating the symptoms of calculus of that organ in cases of stone in the bladder, and *vice versa* ;—those affecting the glans penis, in irritations of the bladder, or the knee joint in stricture of the urethra ; and, lastly, those attacking the calves of the legs, from compression of the sacral nerves in labour, or from some acrimony, in cholera and gout, acting on the minute filaments distributed through the intestinal canal. The cure of these necessarily consists in the removal of the primary affection.

4. *Pain affecting the capillary filaments of nerves through whatever tissue distributed.*---This order includes a very various description of pains :

The Sympathetic, or those which arise from a sympathy of one part with another, where no direct nervous intercourse can be traced. This sympathy may be continuous, as that which subsists between the remote extremities of the same tissue, obvious in the pain that occurs at the hepatic termination of the bile duct from the stimulus of a gall-stone, or at the interior termination of the urethra from a stone in the bladder, or at the tendinous extremity of a torn muscle, the lesion occurring in the centre. Or it may be distinct ; such as subsists between remote parts engaged in a common chain of action, of which we have an illustration in the harmony, whether

of energy or weakness, between the chylific and assimilating organs, or between the mamma and the uterus, or the stomach and the fauces, &c. Darwin, and, more lately, Dr Mason Good, give interesting expositions of the law in which these originate. The latter says, "that a sympathy always prevails throughout the whole of any chain of organs, whether continuous or distinct, engaged in a common function; so that let a morbid action commence in whatever part of the chain it may, the extremities, in many instances, become the chief seat of distress, and even of danger." This is, however, but clearly stating a physiological fact. It does not explain either the mode or dependence; and there are numerous sympathies, which, as their common action is little evident, remain still unexplained.

To this genus may be referred all those headaches originating in affections of the stomach, or morbid state of the chylopoietic viscera. The sick headach, the diseased action in the stomach or bowels inducing, which is little understood, the dull, (like the pain of a bruise,) which generally occurs at the commencement of fevers; and the hemicrania or megrim, which is perhaps idiopathic. A description of this last originates in affections of the teeth. When from decay of the dens sapientiae or other of the upper jaw, the pain is usually over the eye or temple of that side. A similar pain is induced

by decay of those in the lower jaw, but it is sometimes seated in the middle of the parietal bone, like the *clavus hystericus*. A most excruciating headach is sometimes occasioned when the nerves of the stomach are not acted on by an accustomed stimulus ; it sometimes occurs from mere hunger, but is not then so severe, and is readily relieved by eating. It occurs in its most aggravated shape in nervous habits, when the usual morning beverage of tea or coffee is omitted, or even delayed beyond the accustomed time. It seems very inexplicable why such dreadful pain should occur in those apparently minor derangements of stomach, when there is none in obstinate pyrosis, or even in schirrous or cancer of that organ !

The Rheumatic—when of a chronic nature, whether affecting the synovial, or muscular, or other tissues. It may be active or passive ; the former, which is often called nervous rheumatism, being felt whether in motion or at rest, the latter on motion of the parts only. The active kind, though more distressing, is always more easy of relief than the other, in which, however, it often terminates. When affecting the muscles, it is often relieved by friction or compression, or even by pounding and bruising them. When attacking the head, the pain is always obtuse, with a sense of heaviness. It is sometimes intermittent, and often, like all rheumatic attacks,

recurs with certain states of the atmosphere, as at the approach of rain or thunder, to a most distressing degree. With regard to pain on motion, when other parts are affected, as the joints, it should never interdict moderate exercise, except when the disease approaches to the acute. What has been said on chronic inflammatory pain applies even more particularly here. No fact in physiology seems better established, than that a morbid habit once established does not require the primary cause or stimulus for its continuance. Whenever the case lingers, the pain on motion, therefore, probably arises rather from an acquired habitude of the part, than from a continuance of the disease ; or, perhaps, it is dependent upon distention of vessels which lost their tone by previous excitement. Be the explanation what it may, the stimulus of exercise frequently effects the cure, and rest is almost always injurious.

The Hysterical,—or those occurring in hysterical habits, in which the peculiar character of the pain, as well as every other feature of any disease, is so readily simulated. These are excessively perplexing, as they are often accompanied by almost every possible symptom that could assist in the deceit. They are, notwithstanding, readily enough detected by the attentive observer, and are chiefly indicated by the almost

invariable presence of some one incongruous symptom, however trifling.

A peculiar pain in the head, as though a nail were driven into it, often accompanies hysteria; I have also met with it at the commencement of typhoid fever, in which it was little relieved by blood-letting. All the usual causes of headach, whether existing in the stomach, or in some morbid state of the general system, seem to induce it more readily in hysterical habits than in others, and, for the most part, in a very violent degree. I know not whether the throbbing headach, which follows large and sudden evacuations in constitutions possessed of great mobility, and which is often accompanied by a reaction of the arterial system, should always be referred to this head. Like hysteric pain, though relieved for the time, its recurrence is ensured by blood-letting, and its cure is best effected by gentle aperients, with tonic remedies, and an occasional sedative. Mr Brodie describes hysterical affections of the larger joints scarce distinguishable from those more important diseases which they resemble, and which are always aggravated and kept up by being made the subject of constant anxiety and attention. It is a remarkable fact observed in public hospitals, that if a patient with an hysterical affection be brought into a ward, the person in the bed adjoining to hers of-

ten becomes similarly attacked, from the mere influence of imitation.

The Irritative.—The last description of pains belonging to this order are dependant on local irritation, occasionally developing itself in every tissue of the body by a kind of chronic variable pain. This sometimes intermits even under the continued action of the stimulus originating it, which may be calcareous matter in the lungs, gall-bladder, or kidney, or an ossific deposition within the cranium, or a depressed fragment of the internal table. The pain sometimes suddenly becomes acute, and often excites spasms or convulsions, especially if seated in the brain. In this organ it most frequently assumes the chronic headach, evinced in the vehement pain and sense of tension, though the presence of what has been called the *stupid*, seems to be sometimes denoted in its obtuseness, with the accompanying sensation of heaviness. Its cure is generally difficult, and must be regulated altogether by the particular cause.

5. *Pain excited or accompanied by inordinate action of the muscular fibre.*—The sensibility of every part of the system being proportioned to the functions it had to perform, any inordinate action necessarily becomes an excessive stimulus, and excites pain. It seems unnecessary, therefore, with Darwin, to resolve all spasmodic action into an effect rather than a cause of pain.

Sensation, the operations of the intellect, and muscular motion, all belong to animal life; and, as he has himself so ingeniously explained, deriving their supply from the same fountain, cannot act individually with any intensity, unless at the expense of one another. Hence, if any one of these be painfully exerted---putting either of the others into energetic action, gives instantaneous ease, and thus spasms and convulsions come to be on the part of nature a kind of instinctive attempt at relief in extreme suffering. But as the most intense degree of suffering, or of intellectual action, may exist independent of spasmodic action, so it may be fairly inferred, that this last often occurs in its more violent forms independent of them. This appears to be evidently the case in some forms of epilepsy, and in cramp from cold. The former is often neither preceded, accompanied, nor terminated by pain, and in the latter the muscular contraction could hardly be said to originate in the *pain* of cold, being out of all proportion violent for so slight a stimulus. Spasmodic pain may therefore be said to be produced by irritants, whether by exciting pain or by their own peculiar stimulus acting directly on the muscular fibre, or affecting it by acting on a distant organ with which it holds some unknown sympathy, as when cramp of the gastrocnemii muscles is induced by irritation in the intestinal canal.

The cure of spasmodic pain, wherever situated, is generally accomplished by the same class of remedies. Bleeding is not often necessary, except where the contraction is of a spastic nature, and excessively obstinate. Antispasmodics, and opium, above all, are the most effectual remedies. With respect to this last, it is well to recollect an observation of Dr Fothergill's, that a small dose will often give perfect relief in the commencement of the attack; while a much larger, or, in fact, any dose may prove inefficacious when it has subsisted for some time.

There is one description of pain, perhaps more horrible than any which have come under consideration, that I have not been able to refer to any particular class,—the *Dolor Rodens*, or gnawing pain. It occurs in extensive solutions of continuity from ulceration, generally cancerous. Surgeons sometimes shew humanity in avoiding operations which promise little success; but in cancerous affections, those who know their nature, use the knife as a mercy. There has been always relief at least after excision, and, even in those in whom it repeatedly failed, life has been prolonged, as well as rendered more endurable. A patient who was attended by Alibert, used to say to him, in describing his torture, "*Il me semble, que de chiens affamés mordent et dévorent mes chairs.*" He soon after strangled himself with a chord which was suspended from the ceiling of his bed.

CHAP. VI.

UNEASY OR DISTRESSING SENSATIONS.

THIS paper has run out so much beyond the original intention, that but few of this extensive class can be adverted to, and those for the most part only as they are connected with disease.

A sense of gravitation is often a very troublesome symptom. It is a usual attendant on collections of fluid in the cavities of the body, on most glandular obstructions, and on chronic visceral inflammations. It also occurs from calculus in the bladder, and the presence of a dead foetus in utero, and is sometimes one of the most distressing features of affections of the heart.

Restlessness.—This is an affection which in health is called the fidgets; it is then general, and arises from a redundancy of sensorial power, either for want of due exhaustion, or from inordinate excitement; but that sensation which refers to disease is more properly a kind of anxiety or restlessness, as Dr Good defines it, chiefly affecting the praecordia, with depression of spirits, and a perpetual desire of locomotion. It is said that it occurs as an idiopathic affection, but it is most commonly seen in the first attack of fevers, in nausea, in various affections of the praecordia, and most powerfully in hydrophobia. I have

myself met with it, in its most violent degree, after large hemorrhage, and occasionally as a symptom of exhaustion in protracted labour. It is in these cases a mark of very imminent danger, and in the former is often preceded by yawning.

Palpitation.—This is chiefly experienced in the heart, and is very frequently dependent upon organic disease; but it also arises from a morbid irritability of the arterial system, and sometimes of the whole constitution. It often occurs from simple debility in irritable habits; but in many instances its cause is altogether obscure. It is generally excessively distressing, especially when originating in organic disease. “Chaque palpitation que je sens,” said a young physician, describing his sensations to M. Antoine Petit, “me semble un coup de pioche donné pour ma fosse.”

There are some sensations whose seat is in the cutaneous system, which are often very troublesome attendants upon disease, as formication, itching, tickling. The first of these, a feel as if insects were creeping on the parts, occurs in paralysis, hysteria, and epilepsy. Itching is met with in psora, tetter, leprosy, and numerous other diseases of the skin; but often, in its highest and most intolerable degree, in eruptions arising from jaundice. It has been called *Dolorifica Voluptas*, as being one of the few distress-

ing sensations in which the remedy is attended with a kind of pleasure, independent of the relief it affords ; whence, I suppose, the vulgar proverb, that no one but a king should have the privilege of relieving himself “ par les ongles.”

The sensation of tickling is a very peculiar one, and but a rare attendant on disease : It is mentioned here chiefly as being, when excited by art, one of the most powerful stimulants to the nervous system with which we are acquainted. Thus, the faintest touch of a feather may induce laughter, syncope, convulsions, and even death. The Moravian Brothers, a sect of Anabaptists, having a horror of shedding human blood, at one time bethought them of executing criminals condemned to the last punishment in this way.* There is certainly something very humane, when we are pushing a man from the stage of life, in allowing him at least the privilege of going off in a roar of laughter. The idea did not become popular, or we should have had some unique specimens of a merry death.

With somewhat more rationality, from the power it possesses of exciting muscular action, tickling has latterly been resorted to for the cure of paralytic affections, and in some instances with

* Saint Foix, *Essais Historiques sur Paris*, Tom. V. p. 54.

the anticipated success. It is very extraordinary why no one can ever excite this sensation in himself. Darwin has endeavoured to account for it, but the explanation is unsatisfactory.

THE END.

