Neuralgia : its various forms, pathology, and treatment : being the Jacksonian prize essay of the Royal college of surgeons for 1850 : with some additions / by C. Toogood Downing.

JACKSONIAN PRIZE ESSAY.

Si quid novisti rectius istis,
Candidus imperti;—si non, his utere mecum.

Hor.

NEURALGIA:

ITS VARIOUS FORMS, PATHOLOGY, AND TREATMENT.

BEING

The Jacksonian Prize Essay

OF

THE ROYAL COLLEGE OF SURGEONS

FOR 1850,

WITH SOME ADDITIONS.

BY

C. TOOGOOD DOWNING, M.D., M.R.C.S.

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TO

SIR BENJAMIN BRODIE, BART., F.R.S.

SERGEANT-SURGEON TO THE QUEEN,

ETC. ETC. ETC.

THIS WORK

IS,

BY EXPRESS PERMISSION,

Respectfully Dedicated,

IN TOKEN OF

HIS HIGH PROFESSIONAL CHARACTER AND PRIVATE WORTH,

BY THE AUTHOR.

PREFACE.

It is not without some degree of anxiety that the following pages are submitted to the medical profession.

Notwithstanding the favourable auspices under which the work appears, stamped by the approval of the Royal College of Surgeons, yet I confess to some little uneasiness, when I reflect on the high character of the previous Jacksonian Essays, and how much will naturally be expected from those that bear the same honourable title. In preparing it for the press, I have therefore availed myself of the kind permission of the Council, and incorporated such facts and observations, of a practical nature, as subsequent thought and experience suggested, in the hope that it might be rendered somewhat more worthy of consideration.

The subject Neuralgia, when considered in all

its bearings — its various forms, pathology, and treatment—is not only replete with interest and importance, but very extensive in its range. Numerous large works have been written upon it in France, England, Italy, and Germany. That it required further investigation, notwithstanding the labour and talent that had already been bestowed, may be inferred from the acknowledged obscurity in which the chief points connected with it were involved, and the extremely conflicting opinions regarding them. Hence we may suppose it was selected as the theme for competition.

What advance towards elucidation has been made in the present volume, it is not for me to determine. Most certainly I have not the folly to imagine that I have supplied all the desiderata, or cleared up every mystery connected with these painful affections. My task has rather been, with all due diligence and research, to prepare a digest of the various facts and observations scattered through previous and contemporaneous authors, and to educe from them certain fixed and general principles. In this I have been aided by rather a large share of personal experience, among all classes of society; more especially since the publication, a

short time back, of a small work on the same subject.*

The limits of a volume like the present, precluded any lengthened discussion of many important topics. Yet I believe, it ranges over a wider field than its predecessors. The section devoted to Traumatic Neuralgia is quite novel, and although but a sketch, may serve as the basis for future investigations of great interest to the surgeon. A new plan of treatment is also described—the same advocated in my pamphlet—and is introduced simply from the fact, that I have found it highly beneficial in cases that had resisted every other system of management. Many of these are detailed, but more for the purpose of illustrating the various forms of the malady, than of advocating any special application.

That all my conclusions will meet with unqualified approval is more than I have a right to expect. Many of the opinions advanced, I am aware, are open to criticism—some may even be considered fanciful. But it should be borne in mind, that the subject is rather of a speculative nature, involving the most secret workings of the vis nervosa, and

* On Painful Affections of the Nerves. Churchill.

not capable of demonstration by either the scalpel or microscope of the pathologist. All is thus left to observation and hypothesis. It would have been easy to have compiled a treatise more in accordance with the received doctrines of the day, which would have escaped censure if it did not meet with approbation. But I preferred stating my opinions freely, however peculiar they might seem, as they were the result of impartial inquiry, and selecting for my motto the words of the Roman poet,

Si quid novisti rectius istis,
Candidus imperti; — si non, his utere mecum.

C. T. Downing.

42, *Great Russell Street.*
November, 1851.

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NEURALGIA:

ITS VARIOUS FORMS, PATHOLOGY, AND TREATMENT.

NEURALGIA (*νεῦρον—ἄλγος*) is the term now generally understood to apply to all those painful disorders, which are apparently unconnected with inflammation or recognisable lesion of a part: a morbid exaltation of sensibility, without perceptible organic change. It may be described as a more or less violent thrilling agony, occurring in paroxysms, and shooting along the course of a nerve at variable intervals. This definition is, however, by no means perfect, or applicable to all cases; as the pain is frequently confined to one small spot, or radiates from a centre in various directions, without apparently traversing the nervous trunks in its vicinity. Still it is usually, as its name implies, a disorder or *pain of a well-known nerve.*

As the nerves are distributed throughout the frame, so may this derangement be seated in any part of the system. Thus we may have neuralgia of the head and face, of the upper or lower extremities, of the foot, hand, or little finger. It may be placed in the neck, mamma, or testis; or run along the course of the sciatic, intercostal, or ilio-lumbar nerves. Physicians of the present day, especially the continental, also assign it a place among the affections of the internal organs of the body, under the different titles of hepatalgia, gastralgia, enteralgia, or nephralgia. It therefore comprises a large class of important and characteristic disorders, which, from their severity, persistence, and obscurity, demand a close and careful investigation.

The distinction of *nervous* from other pains is due to modern pathologists. It would be wrong to suppose that neuralgia is a new disease. The *name* only is novel. Painful affections of the nerves in various parts of the body, we learn from the scattered allusions of authors, existed in the most ancient times, and went by a variety of designations. According to the seat of the suffering they were called toothache, periodical headache, disease in the antrum maxillare, clavus hystericus, rheumatism, or gout.

Neither did the recognition of the several forms of neuralgia proceed *pari passu*. There are some which are due to the researches of our own day, whereas others were distinguished in the very earliest epochs of medicine. Amongst the latter, sciatica may be mentioned. This complaint was so designated in the writings of Hippocrates, and was described by Arabian authors centuries before the work of Cotugnus appeared, in 1764.* The following passage from Sydenham proves that facial neuralgia was recognised by that acute physician in 1681, although he believed it to be only one of the symptoms of hysteria:—"Sed neque ipsi dentes (quod vix credas) ab hujusce morbi insultu se possunt defendere: licet neque vel minima cavitas, neque humoris alicujus defluxus, saltem qui percipi queat, dolori sive ansam præbuerit, sive vehiculum: qui nihilo minus nec mitior est, nec contractior, aut expugnatu facilior. Isti verò tum dolores, tum tumores quibus afficiuntur partes exteriores, quas supra memoravimus, eas precipuè fœminas adoriuntur, quæ, longâ paroxysmorum hystericorum serie ac impetu violento tantùm non examinatæ, vitam ducunt vix vitalem."† Degener in 1724 published some remarks upon it under the

* De Isch. Nerv. Comment. Neapoli, 1764.

† Dissertatio Epistolaris, p. 110.

title, "De dolore quodam perraro acerboque, maxillæ sinistræ partes occupante et per paroxysmos recurrente."* Cœlius Aurelianus,† and Aretæus,‡ also describe its characters with tolerable accuracy. An unusual prevalence of such disorders about the head and face, at a particular epoch, may have first directed the attention of André and Fothergill to them as a distinct affection. Subsequent observers confirmed the diagnosis, and the disease thus became universally recognised. The history of the term bronchitis, and some other names, is similar. They are due to the researches and refinements of modern science.

Neither is neuralgia by any means so rare a disease as is generally imagined. In one form or other it is very prevalent, especially in particular districts. Cases are to be found within the walls of most of our metropolitan and provincial hospitals. Sufferers from it apply continually at the dispensaries for relief; and there are few surgeons but must have met with several instances in the course of private practice. The malady is well known to exist, unrelieved, rather extensively, among the nobility and members of the highest aristocracy. Possibly some countries are comparatively more

* Act. Nat. Cur., vol. 1. † Cœlius Aurelianus, lib. 2, cap. 2.
‡ De Morb. Diuturn. lib. 1, cap. 2.

free from it than others, yet there can be no doubt that it exists throughout the world. In France, Italy, and Germany, it is probably as abundant as in England. Late observers find that it is very common in India and Persia. Dr. Macculloch ascertained that it prevailed in the West India Islands.* I have myself noticed it among the Chinese of Whampoa and Canton.

All painful affections of the nerves are not of the same kind. They may, in general, be referred to three species. That which is understood as genuine tic douloureux, I propose to call the *Spasmodic* Neuralgia, in contradistinction from the *Rheumatic* and *Hysterical* varieties. In this order I will now consider them more in detail.

SPASMODIC NEURALGIA.

ALTHOUGH there are several well-marked forms of this disorder, depending in great measure on the nerves or tissues implicated, possibly also on the originating causes, yet there are certain characteristic peculiarities or general features which attach to it in all situations. By a description of these, I hope to be able to point out the real distinctions existing between neuralgia and the various disorders with which it is likely to be confounded, and

* Essay on Marsh Fever and Neuralgia, vol. ii. p. 9.

the nicer shades of difference separating it from affections with which it is more or less allied.

CHARACTERISTIC SYMPTOMS.

The attack is sudden, — instantaneous, — and usually without warning. A person, apparently in good health, is seized in a moment with a violent pain in some part of the body. He cannot account for it. He has met with no accident at the time, and, on examination, discovers neither redness nor swelling. The suffering is perhaps moderate at first, and ceases in a few minutes. It then recurs after a brief space, again without warning or apparent cause, and increases in severity and duration. Ultimately, when the disease is fully established, the suffering occurs at intervals, and often amounts to paroxysms of excruciating agony.

Then it is that some premonitory symptoms may be noticed before the attack, and an exciting cause may often be evident. But the patient alone is sensible of the approaching fit. Nothing can be detected by the medical attendant to indicate it, either in the part or the general demeanour, except, perhaps, a little more watchfulness in the countenance. The patient is on the alert—is roused by some indefinable internal sensations. Sometimes he describes a strange feeling in the part, as of heat

or cold, or a breath like that of the aura epileptica. Occasionally, there will be felt a tingling and smarting, or a distinct painless spasm previous to the paroxysm.

From careful inquiry, I have ascertained that the usual process is this:—The previous fit having passed off, the nerve has an interval of rest. It sleeps, as it were, in order to recruit its exhausted strength. When this is effected, indications are given that it is now prepared for renewed action. Possibly similar sensations are experienced by the patient as are felt by a woman before the uterus renews its action during labour. It is well known that she is able to give warning of a coming pain, before any indications are afforded to the accoucheur. In cases of neuralgia, the parts, previously relaxed in rest, begin to brace up—so to speak. They assume a state of great excitability. Slight painless shocks are experienced; and these are succeeded by others of gradually increasing intensity, until the paroxysm is fully established. Such are the premonitory symptoms in the majority of cases. They may have preceded the original attack, but were unnoticed—disregarded.

However difficult it may be to trace the exciting causes of the first neuralgic seizure, those which bring on the succeeding ones are often apparent.

Indeed, the facility with which paroxysms of intense suffering may be induced by the most trivial causes, forms one of the peculiar characters of the disorder. The parts have such exquisite sensibility, such increased excitability in most cases, that it is more difficult to say what will not, than what will, bring on the neuralgic action. The patient cannot bear the slightest touch or movement of the part. The titillation of a feather, or a breath of air on the spot, will often excite excruciating torment. I have reason to think that even thoughts, emotions, or associations of ideas, will occasionally act as excitants. An intelligent lady, many years a sufferer from tic douloureux in the face, tells me that at one time the disease was so severe, and the tendency to its recurrence so great, that she was afraid to let any one approach her, for fear of inducing a paroxysm. She has sat up many times in her bed of a morning, quite free from pain, and hoping to continue so throughout the day. She has heard her servant rattle the cups and saucers on the stairs. The very thought of eating and drinking has excited the paroxysm; so that the servant, on arriving at the chamber, has found her mistress shrieking with agony.

The *character* of the pain is peculiar. Patients describe it as sharp, piercing, thrilling. Some call

it a plunging pain. Occasionally it is throbbing. It is a common thing for persons to compare it to repeated shocks of electricity through the part. This I should judge is the ordinary sensation, when the trunk or main branch of a nerve is affected. I have stood by a patient several times during a paroxysm, and noticed a flash, as it were, passing from one point to another. Not a flash of light, but a quick movement of the skin over the disordered nerve—from the eye to the angle of the jaw, for instance. During the paroxysms of facial neuralgia, more or less motion will always, on careful examination, be noticed about the eye, lips, or other parts where the skin is loose and delicate. It is a trembling, vibratory motion, not always consistent with the idea of muscular action. Sometimes the muscles, indeed, are subjected to dreadful spasms in the vicinity of neuralgic nerves, producing great distortion of the features or limbs; but this slight thrilling movement will, I believe, always be present during the accessions of agony.

But the character of the pain will vary much in different instances, according to the nerves or parts of nerves implicated. Thus, in an old Jewish woman, a patient at a dispensary, the skin of the eyebrow, eyelid, and upper parts of the cheek, was affected. She described the pain as pricking,

tingling—as if pins and needles were being run into the flesh. This sensation was often intolerable. In an elderly lady, where the deeper and probably larger branches of the same nerves were diseased, there was the thrilling, plunging agony, accompanied by the sensation of vivid flashes of light from one point to another. An old man lately under my care compared the anguish in his cheek to the successive discharges of a steam gun.

Neuralgia is often perfectly *intermittent.* The paroxysms come on, continue a certain time, and then subside, as suddenly and unaccountably as they have approached. The paroxysms are also, as it were, *grouped together;* that is, a fit will perhaps come on, last five or six minutes, intermit, return in a short time, and pass off again as before, to be succeeded by others of similar duration. This succession will continue for two, four, or six hours; after which there will be a perfect rest or intermission, until the same time the next or following day. Considerable variety obtains in these particulars. Occasionally there will be a distinct *periodicity* in the intermissions of neuralgia. The fits will observe all the regularity of agues in their accession. They will be quotidian, tertian, or quartan. Sometimes the hours will be exactly similar. More often they follow no type, but have regular times of intermis-

sion and return. They will come on with precision at a certain hour of the morning or evening for many days or weeks together, and then suddenly alter their course. I have observed that this periodicity is more frequently noticed in some forms of neuralgia than in others, and is always a favourable symptom. In certain varieties, which I shall afterwards specify, I believe it is never observed.

The intermissions of neuralgia are by no means always perfect. Very often there is only a *remission* of the symptoms. There is a dull, aching pain during the intervals. Sometimes this amounts to a mere uneasiness—an uncomfortable feeling in the part. It is suggestive of chronic neuritis or other local disease, although this cannot generally be determined. I am inclined to think, from the often gradual subsidence and augmentation of the symptoms, that this feeling of uneasiness is merely a minor degree of neuralgic action. When the disease is thus remittent, the paroxysms are apt to recur with the same periodicity as if it were entirely intermittent.

The extent of *surface* occupied by a neuralgic affection is extremely uncertain, and varies at different times. Often the seat of agony may be covered by the point of the finger. It is as if a

nail were driven into the part. The most severe cases are sometimes of this kind. More often the complaint is extensive. Thus, the entire side of the head, face, and neck, or a considerable portion of the upper or lower extremity may be involved. I saw a lady a short time back, the whole of the integuments of whose arm, shoulder, back, and thorax, were affected. It is not uncommon for intercostal neuralgia to involve one-half of the body, extending up to the neck and head, and down the arm and leg of the same side.

When the disease is evidently seated in the principal branch of a long nerve, it will often *traverse* it from one extremity to the other. In this way the entire cubital or sciatic nerve is affected. The pain seems to shoot along the track, in the way we believe the electric fluid traverses the wires of a telegraph. It is instantaneous, and causes an exclamation of surprise as well as suffering. The apparent velocity is, however, sometimes much slower. The pain creeps along in a feeble, continuous stream. Usually the *direction* of the agony is from within outwards—from the centre towards the periphery. Occasionally it will take a retrograde course. More rarely it will traverse backwards and forwards, or rather inwards and outwards, alternately.

Another feature of neuralgia is its tendency to propagate itself—to *spread* from the point at which it commenced to the neighbouring parts. This fact I have often verified. It will begin at the point of the little finger, and spread upwards until the whole arm and shoulder are affected. It will then subside again to the same point. In facial neuralgia this tendency is particularly observable; and, as a rule, is in proportion to the *intensity* of the diseased action. Thus, for example, the patient, although quite ignorant of anatomy, will place his finger accurately over the mental foramen, as the *fons et origo* of the malady. He will then point out the course which the pain takes, at certain periods, along the mandibulo-labralis nerve to the chin and lip; when, meeting with branches from the portio dura and superior maxillary nerves, it will gradually extend itself along them, until the whole side of the head and face is affected. In its subsidence, it retreats, step by step, to its original position, and the spot over the mental foramen is the last to cease aching. That this is invariably the case, I am not prepared to aver. I have certainly noticed it myself in several instances. If the complaint has yielded to remedies again, the first spot affected has been the last to give up the contest.

But often neuralgia does not seem to be seated in, or take the course of, any large nervous branch. Of course, no part of the integument is free from sensitive fibrils, and, therefore, the nerves may still be the seat of the irritation. With this exception, the diseased action is apparently placed in the skin alone. In this case, it will originate from a fixed spot, or, as the French call it, a *foyer*, or focus; and spread thence in lines in various directions, without following the course of any known fibril.

Ordinarily, the same parts or the same nerves are implicated in each successive attack. Occasionally, although rarely, the pain will shift its seat suddenly, and invade, in succession, various parts of the body. This, I should imagine, is a true metastasis, indicative of the neuralgic diathesis.

Another tendency of the disease is to observe the *mesial line* of the body. One side of the face, one side of the nose, or one side of the tongue, alone is affected. This peculiarity is doubtless due to the anatomical arrangement of the nerves. The line of demarcation is sometimes, however, overstepped. In bad cases of tic douloureux, the principle of extension is too powerful to be restrained; and this chiefly takes place where large nervous fibrils coalesce most freely. Thus I have more than once

noticed the irritation gradually spread over the vertex, and affect both sides of the scalp.

It is often a matter of surprise that so little indication is afforded externally of the local excitement. The most intense agony may exist in a part, without affording the slightest sign of disturbance. On this point all authorities are agreed. I have myself repeatedly examined persons afflicted with this dreadful malady, and have failed to detect, by either sight or touch, any departure, during the intervals of the paroxysms, from the healthy standard. This absence of the usual evidence of topical disturbance, however, is not without exception. Upon a careful inspection of long-standing cases, some change from the normal condition will occasionally be discovered. There is no increase of temperature in pure, uncombined neuralgia, certainly; but there is some slight degree of swelling—a thickening of the parts, as if from effusion of lymph in the tissues. In the case of the lady above alluded to, the integuments of the arm and shoulder were very much hypertrophied. When the cheek has been the seat of suffering, there has been more or less hardness and swelling of the parotid gland.

The skin, also, in suspected instances of neuralgia of the portio dura, has felt hard and rough,

and has conveyed the sensation of rigidity to the patient. How far these are the effects of the local action, will be considered hereafter.

Rarely, if ever, is the surface permanently discoloured. During the paroxysms, a blush of less or greater intensity is sometimes seen over the skin of the painful parts. This tinge is scarcely perceptible on the trunk or extremities, but is very apparent in the face and head. The cheek in one or two instances I have noticed to become intensely red and glistening. The mucous membrane is also highly injected when the eyeball is the seat of pain. After the paroxysm, the vessels return to their wonted condition, with the exception, perhaps, of those of the conjunctiva, which generally remain somewhat congested.

Another rather delicate indication of local action is afforded by the tongue, when that organ happens to be implicated, and one side of it alone affected by the pain. Upon examination, that half will be observed drier and whiter than the other. It is in a state of febrile excitement, while its fellow is quiet and healthy. The line of union between the two halves is beautifully marked.

The *general circulation* is not affected in uncombined spasmodic neuralgia. However intense the suffering, it has little or no effect upon the heart

and arteries. The pulse at the wrist beats as temperately as if there were nothing the matter. During the fits, however, I have noticed that if there is an arterial twig in the focus of the pain, it throbs with greater energy, although not with more frequency, than that of the opposite side. I allude more particularly to cases of tic douloureux of the superficial branches of the superior maxillary nerve. The artery can be felt at the orifice of the inferior orbital foramen.

Whenever the neuralgia is seated in the vicinity of *secreting glands* or *surfaces*, these are brought into unwonted action. Thus the tears flow abundantly when the eye is in neuralgic pain. Mucus runs from the nostrils, and saliva dribbles from the mouth, when that and the second division of the trifacial nerve are involved in agony. I have not noticed that these increased secretions have any influence on, or bring any relief to, the neuralgic symptoms. They are merely indications of local excitement.

Great difference will be observed in the *tenderness* of neuralgic parts, and the way in which they will bear handling. Generally the surface is, as I have said, exquisitely sensitive, and the slightest touch cannot be borne. Sometimes the case is quite different. The sufferers can not only bear pressure,

but they prefer it, and gain relief from its application. A firm and strong pressure over the neuralgic focus with the point of the thumb or finger, is resorted to by them on every paroxysmal seizure. A well-known nobleman is in the habit of compressing a spot just in front of the ear in this manner. The Earl of G—— employs a piece of wood for this purpose. Sometimes great relief is afforded by rubbing the part violently. The Jewess before referred to always used friction with her pocket-handkerchief. She would rub strongly during the continuance of the paroxysm. A brother practitioner tells me that he had once a lady patient under his care afflicted with neuralgia of the second division of the fifth. At her earnest request he has rubbed her cheek during the paroxysms with his finger, and sometimes to that extent that the cuticle has been entirely abraded—the surface quite raw—before he has finished. Thus there seems to be much discrepancy in respect to sensitiveness. The rule I presume to be, that neuralgic, like certain other sensitive parts, are exquisitely obnoxious to slight impressions, but may be handled firmly and decisively with impunity.

The *general health* suffers but little even after repeated attacks of this formidable disorder. Neur-

algia seems to have little influence in undermining the constitution. Patients are sometimes worn out by protracted suffering and want of rest, or even driven mad by intensity of agony, but there is ordinarily very little if any disturbance perceptible. Whatever organic change has taken place, is rarely perceptible during life. The viscera of the chest and abdomen are generally healthy in structure, and their functions are performed with regularity. Undoubtedly neuralgia is very apt to be associated with derangement of the chylo-poietic viscera. But I am convinced from repeated observation that this is by no means always the case. In some of the most frightful cases that I have ever witnessed, there has not been the slightest indication of gastric disturbance, except that produced by the disease itself. But I must revert to this subject when considering the causes of the complaint. The contents of the cranium rarely give indication of the mischief that is there too often accumulating. Seldom is any distinct pain referred to the brain or its membrane. The mind is usually remarkably active, clear, and vigorous. The senses appear to be continually on the *qui vive*—roused up into more than ordinary acuteness.

Yet, notwithstanding the absence of any decided symptoms of general disturbance, the countenance

betrays deranged health. The *physiognomy* of neuralgic patients is perhaps worthy of some consideration. When the disease is genuine, true neuralgia, such as I have hitherto been considering, a peculiar aspect may usually be observed, especially in elderly people. They do not look healthy. The complexion is sallow and the skin dry, harsh, and preternaturally wrinkled, with the peculiar expression of persons exposed to miasmata. The countenance improves as the complaint yields to treatment.

The usual *course* and *termination* of neuralgia next deserve consideration. What is its tendency? Is it inclined to subside and die away by itself after a certain term, or will it persist during the life-time of the sufferer? These are very important questions. We meet with persons continually who have had neuralgia for a short period, at one time or other of their lives, and are now free from it. If we ask them how they got rid of it, they cannot tell—it went by itself. We see others who have been tortured for years, and who also suddenly and unaccountably get well. In a few instances the disease gradually wears itself out. It is therefore evident that there is sometimes a tendency to a natural resolution or termination.

On the other hand, there can be no doubt but

that cases will arise where the complaint, instead of subsiding, goes on increasing in severity year after year, and only terminates with the life of the sufferer. Since I have directed my inquiries to this subject, I have ascertained that there are scores of persons in this unhappy situation, who are tired of trying remedies, and are passing their lives in hopeless misery. Many such instances recur to my memory. Perhaps there cannot be a better illustration than is afforded by a couple of ladies of Cheltenham, mother and daughter, the latter of whom I went down to see lately. The mother had the first attack of the disease when she was seventy years of age, and it persisted with increasing severity until her death at the age of eighty-five. The daughter, a lady in her fifty-ninth year, has had the complaint more than *forty years;* and there seems every probability of her carrying it with her to the grave, as her parent did, as there is not the slightest mitigation of the symptoms.

We infer from these facts, that however little power neuralgia has to shorten the term of human life, it has very little inclination to loosen its grasp of a favourable victim. How then are we to reconcile these conflicting views? The truth I believe to be this: neuralgia has a tendency to subside when its causes are removed. When it dies away natu-

rally, such we may presume to be the case; but when it persists throughout life, the exciting, if not the predisposing, causes are still, occultly, in existence.

RHEUMATIC NEURALGIA.

This is probably the same disorder as the former, modified by the rheumatic diathesis. Its characteristics were first pointed out by Dr. Elliotson, in a paper read before the Medico-Chirurgical Society, and I believe the distinction to be most just and useful. It is far more common than the spasmodic variety, and differs from it in intensity as well as in subjection to remedial agents. It may be inflammatory or not, acute or chronic, hot or cold, just as in rheumatism of other tissues.

The symptoms of rheumatic neuralgia are, heat, pain, and tenderness of the surface, along the course of a particular nerve. The suffering is not of the character previously described. There is generally, if not invariably, a *constant dull aching pain*, with aggravation at intervals; but not the violent thrilling, plunging agony, increased by the least shake of the patient or touch of the surface, as in the former variety. Rheumatism of the nerves is frequently periodical, the attacks coming on at certain times of the day and night. Sometimes a

regular paroxysm is experienced about six o'clock in the evening, although more often the fits are irregular in their accession. Its origin may be traced to exposure to cold and wet, but it is liable to increase from a variety of causes—external warmth, for example. Rheumatism in some other part of the body is generally attendant.

This spurious or rheumatic neuralgia may thus be distinguished from genuine tic douloureux by its *history;* by its *origin* in *cold* (although this is no great criterion); by the *difference* of the *pain;* and by there being more or less *heat* of the *surface*, with *rheumatism* of other *parts*. Another mode of distinction may be drawn from the effect of remedies.

This diagnosis, it must be understood, is applicable only to that form of rheumatic neuralgia attended by heat of surface, and aggravated by the warmth of bed—the inflammatory kind. It does not apply to that which Dr. Elliotson considers the analogue to the *cold variety* of rheumatism—namely, having no heat of surface, and being relieved by hot applications. This species, of the existence of which I have had no experience, would be extremely difficult to diagnose.

It must be confessed that the means of discrimination between the two kinds of neuralgia appear obscure by description. The distinction is more

readily made in practice. I would suggest, moreover, as an additional means of distinguishing the two complaints, and on which most probably the treatment will depend, that attention be paid to that which I am apt to consider the pathognomic sign of genuine neuralgia. I mean the spasmodic action of the muscles, or nervous twitchings of the skin over the part. These symptoms do not, I believe, attend the rheumatic variety.

HYSTERICAL NEURALGIA.

There can be no doubt but that persons who are troubled with that well-marked class of symptoms denominated hysterical, are subject to pains nearly approaching the neuralgic character. Hysteria assumes so many shapes and forms, imitates so closely other disorders, that we can readily believe it would do so in this instance. Some little care is required to determine the true nature of such cases.

An extreme sensibility of the skin, in particular localities, will often be noticed among the phenomena of this Protean malady. This tenderness will sometimes be diffused over a considerable extent of surface, or be most circumscribed in its area. The whole side of the chest, for instance, will be thus affected, or a spot readily covered with

the point of the finger. Upon examination by the eye, not the slightest deviation from the natural condition of the integument is detectable. The part is not more warm, red, or swollen, than the rest, yet the patient shrinks from the slightest touch.

The suffering induced by this extreme sensibility often amounts to agony, but the pain differs greatly from that in spasmodic neuralgia. Thus, when it is confined to one small spot, giving rise to the symptom called *clavus hystericus*, the suffering, undoubtedly, is often most severe, as if a nail were really being driven into the part, but, as far as I can judge, it is unattended by those peculiar spasmodic, electric, plunges previously described. It will be observed also that the pain is seated in the skin, and appears neither to course along nerves, nor to start from a focus in various directions.

From these peculiarities the diagnosis may often be determined. In addition, the judgment may be greatly assisted by concomitant circumstances. The hysterical diathesis will be more or less apparent, with the probable accompaniment of fits of emotional excitement, the globus hystericus, intestinal flatus, and flow of limpid urine. It is almost unnecessary to remark that these symptoms of hysteria are not confined to the female sex exclusively; although, when they occur in young women,

they are generally accompanied by some disturbance of the catamenial function.

There are certain situations in which hysterical pains are most frequently felt, and this fact will also aid investigation. Dr. Copland thus enumerates them:—"*a*, The head, often attended by the clavus hystericus; *b*, below the left mamma, or at the margin of the ribs; *c*, in the region of the stomach and spleen; *d*, in the course of the descending colon, and in the left iliac region; *e*, above the pubis; *f*, in various parts of the abdomen, or in the abdomen generally; *g*, in the region of the kidneys, sometimes extending in the course of the ureters; *h*, in one or more of the lower dorsal or lumbar vertebræ; *i*, in the sacrum; *k*, in the hip or knee-joint; *l*, in the mamma."*

These are the principal classes of neuralgic affections, to one or other of which the cases met with in practice may generally be referred. There may possibly be other varieties, determined by constitutional causes, as the character of *these* is mainly dependent upon the prevailing diathesis.

But it would be erroneous to suppose that every case can be placed, clearly and distinctly, under one or other of these heads. Sometimes neuralgic

* Copland's Dictionary, Art. Hysteria.

affections are of a mixed character, and partake so much of the qualities of the different species, that it is difficult to say to which they belong. It is possible, also, that they may co-exist, or gradually merge from one into the other. This will readily be conceded, when it is borne in mind, that the symptoms vary continually, both in type and character, at different periods. The advantage of attending to these distinctions cannot be too much insisted on. Not only do we thus gain a clue to the solution of many difficulties connected with the subject, but can understand why remedies should be so powerful in some cases, but totally inoperative in others. By the greater number of writers, not excepting the continental, all instances have been confounded together under one common title, and treated accordingly.

CAUSES OF NEURALGIA.

Setting aside the rheumatic and the hysterical varieties of neuralgia, the origin of which is pretty well understood, let me now endeavour to elucidate the causes of that which I have termed the spasmodic or true tic douloureux.

This local excitation of nerves may be produced in a great variety of ways. The subject is often extremely obscure, but yet deserves the closest investigation, as it should considerably influence the treatment. Whoever attempts to cure neuralgia without reference to the origin of the complaint, will probably do more mischief than good. Again, he who imagines that the disease is always dependent upon one exciting cause, is as much mistaken as he will find himself who tries to cure every case with a single remedy. The investigation of the *fons et origo* of maladies is one of the most sacred duties of the surgeon, and on which much of his success in practice will depend. In this complaint

the sources of irritation frequently elude his search; but yet, if by perseverance he is fortunate enough to discover them occasionally, he is amply rewarded for his trouble. As in other disorders, the causes are predisposing, exciting, and proximate. Let me first consider the

PREDISPOSING CAUSES.

These include age, sex, temperament, mode of life, and hereditary predisposition.

Possibly no *age* is altogether exempt from attacks of some forms of neuralgia. Pains are experienced, the true nature of which it is extremely difficult, if not impossible, to determine. This applies more particularly to those afflicting young persons. A child may cry or even scream with anguish, who can only point to the part, but is incapable of describing the nature of its sufferings. Yet it seems to be the general impression of authors, that genuine neuralgia is a disease of middle life; that its ravages are confined to persons in their prime; attacking neither the young nor the very old. This is not in accordance with my own experience. The greater number of cases certainly that I have met with, have occurred between the ages of thirty and fifty. Yet I have no doubt that it does occasionally

trouble the youthful. Distinct cases are cited by writers, (Valleix, Rowland.) Those sharp, shooting twinges to which children are subject, and to which the title of *growing pains* is given, are doubtless neuralgic. So are those following attacks of herpes zoster, as well as those accompanying the process of dentition.

There is decidedly no exemption in favour of advanced life. Many cases of tic douloureux, in its most violent and obstinate form, have come under my notice in persons of extreme old age. They have, in fact, died of senility, without the least mitigation of their sufferings. Among the well-known aristocratic martyrs to this frightful malady, are several far advanced in years. Continental writers describe other instances. Thouret details the cases of two ladies suffering from facial neuralgia: one of seventy-eight, the other eighty-five years of age. Our own countryman, Dr. Haighton, in his "Medical Recollections and Researches," alludes to one full seventy years of age. I have myself mentioned above, the case of a lady at Cheltenham, who died with the disease at eighty-five. Very lately I was fortunate enough to relieve the sufferings of a man in his eighty-first year. The latest investigations on this subject in France would appear to be com-

prised in the following statistical table of M. Chaponnière:—*

From	1	to	10	years	. . .	2
„	10	„	20	„	. . .	12
„	20	„	30	„	. . .	26
„	30	„	40	„	. . .	23
„	40	„	50	„	. . .	24
„	50	„	60	„	. . .	17
„	60	„	70	„	. . .	11
„	70	„	80	„	. . .	4
				Total	. .	119 cases.

Although, from these and other inquiries, we find that extreme youth and age are not exempt from this formidable complaint, yet we are warranted in concluding, that the four periods of ten years each, comprised between twenty and sixty, are those most obnoxious to its attacks; and that the disorder is pretty equally divided between those periods. The nervous system is then in its highest state of development and vigour; and in proportion as life farther advances, the sensations become deadened, and the excitability to impressions is so lessened and reduced, that stimuli no longer excite the paroxysms. In this way we may account for the gradual, and often perfect, cessation of the morbid irritability occasionally observed in the decline of

* Valleix, p. 134.

life. When the disease is protracted into the sere and yellow leaf, I have observed that it is then particularly excruciating and inveterate. Age, therefore, can scarcely be considered a predisposing cause of neuralgia.

Sex.—We should conceive *a priori*, that as there is a higher development of the nervous system in the female, there would be a greater proneness to neuralgic affections. Yet it is doubtful if this is the case. Sex appears to exercise little influence over the disorder. Some authors, such as Thouret, Bellingeri, and J. Frank, thought that neuralgia was more frequent among men; while a host of others, including Fothergill, Siebold, Hartman, Pujol, Hutchinson, and Meglin, held an opinion exactly contrary. The conjoined testimony of MM. Chaponnière and Valleix is as follows:—

Men	124
Women	143
Total . .	267

If we rely on the number of witnesses, the evidence is decidedly in favour of the female sex. But I think that too much reliance should not be placed upon these statements, or even on the statistical accounts, as it is more than doubtful that other than cases of spasmodic neuralgia were included in the category.

As far as my own personal observations are concerned, the preponderance of cases has been on the female side. By the following passage, it would appear that the experience of the venerable Heberden was similar. "Uterque sexus obnoxius est huic morbo: maxime autem feminæ: nulla ætas secura est, a pueritiâ usque ad octogesimum vitæ annum."*

Temperament and Constitution. — When we consider that neuralgia is associated with an extreme excitability of a part of the nervous system, we shall not be inclined to underrate the influence of these causes. There can be little doubt but that those of a nervous, or more particularly, nervo-sanguineous temperament, are especially predisposed to neuralgia. Instances however have not been wanting, where the disease has appeared in all its virulence in persons in whom the lymphatic or bilious system has predominated. I had lately under my care a gentleman afflicted with tic douloureux, whose skin was habitually tinged with bile, and the conjunctiva always yellow. He had all the characteristics of the bilious diathesis.

The opinions of writers vary on the subject. Pujol† insisted upon the greater susceptibility of

* Heberdeni Comment.

† Essai sur le Tic Douloureux. Paris, 1787.

those of nervous, hysterical, hypochondriac, and melancholic temperaments; Bellingeri referred to the bilious, sanguine, plethoric, and muscular; Leuthner,* to the leuco-phlegmatic, lymphatic, and scrofulous. This great diversity of opinion points forcibly to the mixture of rheumatic and hysterical with genuine cases.

For my own part, although I have not invariably noticed one particular temperament in spasmodic neuralgia, yet there has always existed an irritable, excitable state of the constitution. This habit of body, which we may call the *neuralgic diathesis*, is sometimes so remarkable, that the slightest causes will bring on attacks in various parts of the system. Whatever tends, again, to develop this impressionable character will favour the accession of neuralgia. Thus, it prevails more among the inhabitants of cities than of country districts, except the latter be malarious; and is particularly engendered by living in crowded and ill-ventilated apartments.

Habits and Mode of Life have, I believe, more influence even than temperament and constitution, in the production of tic douloureux. It has long been noticed that it prevails especially among refined and highly civilized communities. Those who feast sumptuously every day, and drain the

* De Dolore Faciei, &c. Wurceburgi, 1787.

cup of pleasure to the dregs, will frequently prepare the way for this terrible enemy. Often will an attack of tic douloureux be the punishment for a life of indolence and luxury. Not that its ravages are by any means confined entirely to the higher ranks of life; for you will meet with many cases, both in the metropolis and country, among the most squalid of the poor. Of course, it did not in these instances arise from luxurious living; but a dozen causes, tending equally to debilitate the system and render it more irritable, were in operation.

On this point I cannot do better than adduce the testimony of Dr. Macculloch. He remarks* very judiciously: "To be noticed as a case of this disease (tic douloureux), the pain must be excessive, and must also be limited to a peculiar part of the face; and further it must be found in the opulent, or in those who, little accustomed or willing to bear the pain, fly to physic for relief, and thus call attention to themselves and their cases. There are thousands who suffer from it, under forms less marked; and thousands, in the middling and lower classes, who endure it, even in its worst forms, but of whom the public never hears. He who will thus seek it out, will soon be convinced of the truth of this assertion, as I have long since been; and

* Op. cit. p. 7.

though he may find a much greater number of the cases not decidedly marked by the strongest and most peculiar features of this disorder, and therefore not known by this new popular term, he will be singularly unfortunate if he does not also meet many of the best defined and most intense character, generally endured as best they may, and seldom forming objects of attention to the great mass of practitioners. If, in a single and not very extensive tract of this country, I have produced, among the labouring classes, not less than a hundred cases in the course of a very brief investigation, it would be very extraordinary should others, with the same care, not meet similar success."

Hereditary Transmission.—Like other affections of the nervous system, neuralgia would appear to be sometimes transmitted from parent to child. This predisposition has been doubted by some high authorities. The evidence of M. Valleix is scarcely satisfactory. He says,* "that from all the cases he had come across, eight only could be selected as giving a colour to the supposition. In two instances the father or the mother of the sufferer experienced excruciating pains in the course of one or several of the nerves of the body, without showing the least trace of it externally. One

* Op. cit. p. 139.

patient told him, that her mother had suffered from the migraine once or twice a month. The father of another had been troubled with gout during several years. In the other cases there was nothing of the same kind in the family. It was, therefore, in a very small proportion of cases that the disease gave semblance of hereditary transmission." He therefore seems to be extremely doubtful on the subject.

The evidence I have to offer individually is very conclusive to my own mind. I think there cannot be a shadow of doubt that the neuralgic diathesis, and even special forms of the affection, are occasionally derived from parentage. I have made a point always to inquire carefully into this matter, and insert the result in my note-book. Often, generally indeed, no transmission can be detected: neither father, mother, nor brothers have had the same kind of pains. Sometimes the clue is clear and distinct. I will mention one or two instances. Mrs. M——, a widow lady, aged fifty-eight, residing in a country town, has suffered from facial neuralgia for a great many years—since she was a child, more or less. Her mother had many similar attacks of the same disease, and one particularly which lasted for the last fifteen years of her life. When pregnant with Mrs. M——, the

senior lady had the tic severely over the left eye, accompanied by much congestion. The child, at its birth, had its left eye closed and swollen, and this has ever since been the focus of neuralgia.

Mrs. S—— informed me that she had the tic douloureux of the whole of the left side of the face, during the nine months she was carrying her second child—a girl. The eye was chiefly the seat of the pain, which subsided by itself a week after her confinement. The child had the left eye manifestly smaller (less prominent) than the other, with a tear continually in the corner. It put its hand to the part repeatedly, and evidently suffered great pain there. For a long time afterwards the neuralgia continued.

A lecturer on surgery in this metropolis has suffered for the last five-and-twenty years from occasional attacks of neuralgia in the median nerve. His father had a similar affection—the self-same symptoms,—but seated in the leg and foot. The Earl of —— has been a martyr to tic douloureux for about sixteen years. He is the nephew to a nobleman, who has been afflicted in the same way ever since the battle of Waterloo.

Season.—The influence of season in predisposing to attacks of neuralgia should not be lost sight of. Cold weather seems especially favourable to their

accession. Upon investigation, it will be found that the greater number of cases originate in the winter months; and, when the disease has become established, the paroxysms are then both more severe and frequent. I have known several instances, where the patients were tolerably free from the complaint during the summer season, but were invariably laid up in winter. A lady sufferer whom I know, is obliged to keep to her bed-room regularly during one-half of the year. Cold weather is, therefore, very unfavourable for such affections. The months of January and February will be found to try patients most severely. Some whom I have had under my care have been threatened with attacks during a thunder-storm, or upon a sudden change of wind to the north-east.

In addition to these more prominent predisposing causes of neuralgia, there are doubtless others that are occasionally brought into action. Anything, in fact, that tends to debilitate the system and induce an irritable condition of the nerves, may generate the neuralgic diathesis. Among these causes should be enumerated great fatigue, excitement or anxiety of mind, profuse discharges, prolonged dyspepsia, and excessive venereal indulgences.

EXCITING CAUSES.

We have been considering the causes which weaken the nervous system, and thus predispose to attacks of neuralgia. Let us now direct attention to the agents which stimulate the particular nerve, and thus excite the first as well as subsequent paroxysms. It would be as well to premise however, that it is not always possible to distinguish between the two classes of agents. For some of the causes that predispose to the disease will act under certain circumstances as its excitants.

The exciting causes may be divided into the *local* and the *distant;* or those which act directly on the nerve itself, and such as influence it by sympathy with a distant organ. As a general rule, it may be observed that the irritation proceeds from the centre towards the periphery, although there are not wanting instances of a contrary tendency.

There has been great discrepancy of opinion as to the influence of *derangement of the alimentary canal* in the production of neuralgia. Some have maintained that it is the chief—nay, the only—exciting cause of tic douloureux. Others, again, have denied its agency almost altogether. As this is a very important subject, on which the treatment

may entirely depend, it should be investigated with care and patience.

The much-respected Mr. Abernethy was fully impressed with the validity of this source of disturbance. At page 95 of his "Surgical Observations," he says:—"That local nervous pains may depend on general nervous disorder, seems to me very probable; at least, I can take on me to affirm, that I have known nervous pains cured by correcting the disorder which in these cases existed in the digestive organs. In the cases also of tic douloureux which have fallen under my observation, there has been great disorder of the digestive organs; and I have known cases resembling those of tic douloureux, cured by correcting the unhealthy state of those organs." Elsewhere, several cases are related in illustration.

Sir Charles Bell, who was one of the principal champions of the doctrine, founded his opinion on the following reasoning:—"The sympathetic nerve we have seen to be a whole system of nerves, spreading everywhere, possessed neither of sensibility nor power over voluntary muscles; it is nevertheless acknowledged to have important offices in controlling and combining the whole economy of the system, and to have its centre in the abdominal viscera. The very circumstance of its affording no

phenomena like other nerves, should lead us to conjecture that, as the system resembles in structure the nerves of sensibility and motion, it must have powerful though secret influences. I was careful to point out to you (addressing his pupils) that the connexions of this system of nerves are universal. Are we to admit or to deny then the influence of deranged bowels—of visceral irritation—in producing external pains, local paralysis, or partial spasms? No man who attends to disease can deny the existence of this influence. Taking this as admitted, the line of connexion is clearly laid down in the anatomy. Nor can we deny, I think, the effect of the confluence and mixing of internal nerves with such as go to parts external and exquisitely sensible; and that, through this connexion, external pains become significant of internal disease, or more commonly of irritation and disordered function. To sum up, I feel authorized to say, that the tic douloureux is of that class of pains where the irritation of the internal parts affects an external and sensitive nerve; where the disease is not actually seated in the nerve, but results from a remote irritation. I feel confident that the disease is in the abdominal viscera—not arising from disease otherwise formidable, but rather from disordered function; which I apprehend

to be the reason why patients suffer for a long succession of years, unsubdued in strength, unless by sleeplessness and the exhibition of poisonous medicines which are in vogue."*

Sir B. Brodie has written somewhat to the same effect, although he by no means assigns the alimentary canal as the universal habitat of neuralgic irritation. His words are:—"The mucous membrane of the stomach and intestines presents a very extended surface, on which a multitude of nervous filaments are distributed, maintaining an extensive sympathy between these organs and the rest of the system. This membrane is subject to various causes of irritation, to which nervous affections, showing themselves even in distant parts of the body, may not unfrequently be traced. Hence it is that these diseases are, in some instances, relieved or cured by an adherence to a well-regulated diet, by the exhibition of purgatives, of what are called alterative medicines, and of others which tend to improve the disordered secretions of the stomach and liver."† The late Dr. James Johnson looked not beyond the primæ viæ for the origin of the malady; and dozens of cases have been recorded by other practitioners tending in the same direction.

* Nervous System, p. 356.

† Local Nervous Affections.

There can be no question that numerous instances have occurred where the disease could be distinctly, clearly, traced to this source. Irritation in the primæ viæ is undoubtedly capable of exciting tic douloureux. As Dr. Rowland* has properly observed, in many cases this evidence is as direct and positive as it is possible to arrive at in reasoning upon medical subjects. Many cases are recorded where neuralgic attacks have been suddenly excited by the presence of indigestible food in the stomach, and have as suddenly disappeared upon its rejection, in patients not subject to the disease, and where no other cause for the malady could be discovered. Thus the irritation of the intestines, in consequence of worms, has given rise to neuralgic pains, which cease immediately upon their expulsion. Mr. Joseph Swan was acquainted with a gentleman in whom pains of the fingers were excited whenever he had a motion. I have a gentleman under my care at this time who has pains in his hips and legs, under exactly the same circumstances. The case related by Sir B. Brodie† of Dr. Wollaston has been often quoted, but can scarcely be omitted in this treatise:—"He ate some ice-cream after dinner, which his stomach

* Treatise on Neuralgia, p. 25.

† Op. cit., p. 11.

seemed to be incapable of digesting. Some time afterwards, when he had left the dinner-table to go to the drawing-room, he found himself lame from a violent pain in one ankle. Suddenly he became sick; the ice-cream was rejected from the stomach, and this was followed by an instantaneous relief of the pain in the foot."

Another anecdote by Sir Benjamin is equally illustrative:—"A gentleman awoke in the middle of the night, labouring under a severe pain in one foot, at the same time that some other sensation, to which he was not accustomed, indicated the existence of an unusual quantity of acid in the stomach. To relieve the latter, he swallowed a large dose of an alkaline medicine. Immediately on the acid in the stomach having been neutralized, the pain in the foot left him."

Other writers have detailed cases where neuralgia was closely connected with hæmorrhoids and fæcal accumulations in the rectum, and sigmoid flexure of the colon,* or alternated with functional derangement and pains in the liver. Most medical practitioners must have met with similar instances. I have noticed several—among others, that of Mr. T., the editor of a weekly newspaper, who is subject to a kind of facial neuralgia, whenever the stomach is

* Copland, p. 886.

deranged; although other causes, such as foul air, a heated theatre, &c., will equally excite it.

These details sufficiently prove that disorder of the primæ viæ may, and often does, give rise to neuralgia. They also more clearly establish the fact of the frequent *connexion* of the two derangements—of the sympathy existing between the one part of the system and the other. But this is all. They by no means prove that the one is invariably dependent on the other. I believe that neuralgia often exists without abdominal disturbance; and even where there is such disturbance, it is by no means to be regarded always as the exciting cause of the pain in the nerve.

It is true that, during the paroxysms of facial neuralgia, there is generally seen a dry and white condition of the tongue. This is to be accounted for, in addition to nervous excitement, by the necessity which the patient feels of keeping the organ perfectly quiet, and the mouth half open. If there be flatulence or borborygmus, this may often be referred to the want of sufficient solid nourishment. The appetite is good, but eating is impracticable. The inclination for food is often craving; but the fear of increasing the agony prevents the slightest indulgence. I have seen persons who have been habitually *bon vivants*, suddenly reduced

to live on slops for three or four weeks at a time. This of itself is quite enough to bring on dyspeptic symptoms, even if they had not previously existed. When the attack has ceased, or there has been the least intermission of the agony, nourishment has been taken with avidity.

Even when, therefore, dyspeptic symptoms are observed simultaneously with tic douloureux, the neuralgia may with equal probability have caused the dyspepsia, as the indigestion the neuralgia. The pain alone is often quite sufficient to account for any disturbance of the chylo-poietic viscera. We know that the stomach sympathises with local pain, from any cause arising—a whitlow or thorn in the finger, for example. In ordinary toothache the appetite is destroyed—in teething, much more so. That intimate connexion which is known to exist between the nerves of the stomach and those of the face, will serve just as readily to convey irritation from the trifacial to the solar plexus, as vice versâ.

To determine as to cause and effect in these cases, the ordinary rule of priority should, in fairness, be employed. Often when tic douloureux arises, not the slightest indication of previous stomachic disturbance can be discovered. When it has continued some time, and by its severity induced great suffering, there is generally more or less

derangement. We may therefore infer, that in such instances the stomach and bowels sympathise with the face.

The effect of attention to diet, &c., in allaying the irritation, affords but negative evidence of its origin. When Mr. Abernethy says, " in the cases of tic douloureux that have fallen under my observation, the digestive organs have been greatly disordered, I have cured patients of the former malady by correcting the latter," doubtless he was correct. Attention to the general health will influence many local disorders. The centre is in unison with the periphery, and they act and react on each other equally. Thus neuralgia may give origin to dyspepsia, but the dyspepsia may maintain and aggravate the painful irritation.

Still less should we infer that neuralgic pains depend upon intestinal irritation, produced by noxious matters in the primæ viæ, because they sometimes disappear under the long-continued employment of purgative medicines. These agents, as Dr. Alison long ago pointed out, act powerfully upon the system, considerably modifying the circulating fluids, both in quantity and distribution. They are also potent revulsives—counter-irritants. In either or both these ways they may be serviceable in neuralgia, just as they are found beneficial

in affections of the head and other parts. Again, if certain forms of neuralgia depended on irritation in the primæ viæ, I cannot see how croton oil, which is itself an irritant, can allay this irritation. It seems to me that its continued exhibition, which is the usual practice, would be more likely to aggravate than allay the disorder.

In confirmation of these arguments we have the direct testimony of our senses. Frequently during a neuralgic attack there is not the slightest apparent disturbance of the alimentary functions, especially when those nerves are affected that have less direct connexion with the stomach. The tongue is clean and moist, the appetite good, digestion perfect, bowels regular, and stools natural. No indication is there of worms, hæmorrhoids, or other source of intestinal irritation. The epigastric and hypogastric regions are free from pain or tenderness on pressure. I have often verified these facts. Montfalcon, and more lately Dr. Elliotson, have drawn attention to them. I therefore feel bound to conclude that the exciting cause should be sought elsewhere.

Heat and Cold.—Changes of temperature from atmospherical vicissitude are fruitful sources of neuralgic pains. Nor does it appear at all unlikely that they should be so, when we consider that they are the most frequent exciting causes of other local

affections, such as inflammation and rheumatism. A draught of cold air thrown upon the surface when the body is heated, or exposure to an extreme cold wind or snow-storm, is quite sufficient, under certain circumstances, to induce the first paroxysm. We know how readily these agents act in reproducing the affection when it has already been manifested.

The influence of temperature on the nerves is well exemplified in the dental branches. When the parts are predisposed, an attack of toothache may be instantly brought on by taking anything, either too hot or too cold, into the mouth. I myself have sometimes, through a catarrh or other cause, had the nerves of the incisor teeth of the upper jaw so sensitive—so readily thrown from their equilibrium—that I could induce pain in them at will, by simply drawing my breath through them during inspiration. This pain would continue and increase, but that I had the power of as quickly restoring the nervous balance by placing my tongue against the teeth in pain, and thus restoring the temperature necessary to healthy action.

In practice, cases will occur where the origin of the disease can be distinctly traced to this head. Great heat or great cold will equally prove an exciting cause, but the latter more frequently. In the instance of a baronet, with whose family medical

attendant I was in consultation, it was quite clear that the complaint (facial neuralgia) originated in exposure to cold rain, snow, and wind, while hunting. The paroxysms were frequently reproduced by the same cause. He was passionately attached to field sports, and could not resist the temptation, although he felt certain he should pay dearly for his amusement. Cases of tic douloureux excited by cold will be related hereafter, as well as instances arising from currents of air and moisture.

It is more difficult to trace the origin of the disease to excess of temperature—to exposure to great heat ; yet I have been enabled to do so in more than one instance. A young clergyman, I remember, had paroxysms of neuralgia in the second division of the fifth nerve for two years and a half. It originated in a bad habit he acquired at college, of reading by the light of his fire for an hour or two every evening during the winter months. As he sat in one position, and held his book quite close to the bars, not only did the right side of the face become neuralgic, but the sight of the eye was nearly lost. In the cases of Vasper and Pullen, detailed hereafter, the disease arose undoubtedly from exposure to the heat of a fire. They were both cooks, and in the course of their vocation were necessarily exposed to intense heat.

Pullen has told me, that when preparing for a large dinner-party, she has often been obliged to stand over the flames until her head has been nearly roasted.

Osseous Deposit, and Disease of Bone.—Since the publication of Sir Henry Halford's valuable "Essay on Tic Douloureux,"* preternatural growth of bone, or a deposition of bone in a part of the animal economy where it is not usually found in a sound and healthy condition of the system, or diseased bone, must be regarded as occasional exciting causes of neuralgia. Yet I by no means agree with that learned physician in supposing (page 35) that facial tic douloureux is always connected with osseous disease, but as one only of the many excitants of that affection. Neither do I think his notion altogether original, since disease of the antrum, with exfoliation of the alveolar processes, was regarded as the immediate cause of facial pain by the oldest writers. Nevertheless, the very interesting evidence adduced, throws considerable light on the possible origin of the complaint in cases which otherwise are involved in total obscurity, and affords room for much curious speculation and conjecture.

Thus the history of the disorder in the much-

* Essays and Orations. Third Edit. 1842.

respected Dr. Pemberton is very instructive. This gentleman, it is well known, was a victim to the tic douloureux during a considerable part of his life, and finally fell a sacrifice to the dispensation. On examining his head after death, there was found an unusual thickness of the os frontis, where it had been sawn through above the sinuses, and at its juncture with the parietal bones. In the falciform process of the dura mater also, at a little distance from the crista galli, a small osseous substance was discovered, about three-eighths of an inch in length, rather less in breadth, and about a line in thickness. In the case of a lady whose sufferings were also terminated by apoplexy, there was observed an enormous thickening of the frontal, ethmoidal, and sphenoidal bones, with general hypertrophy of the cranium. Sir Astley Cooper once showed Sir H. Halford the skull of a person who had died of this disease in the country. The internal surface of the frontal bone was a perfect rock-work.

These cases seem to establish the fact that facial neuralgia may be dependent on an osseous deposit within the cranium, pressing upon and irritating the origin of the nerves. In the absence of all other obvious cause, may we not suspect that this lesion has taken place in aged people, who have

always a tendency to bony deposition about the nervous centres? I was acquainted with a fine, hearty-looking old gentleman, who had occasional, but smart, neuralgic pains about the head and face. No obvious exciting cause could be discovered; but, on careful auscultation, signs of ossific deposit in the large vessels about the heart were detected. He died lately of valvular disease. The arteries within the cranium and substance of the cerebrum were much ossified.

Disease of the bones of the *face* is known to give origin occasionally to tic douloureux. An instance is afforded by Sir H. Halford in the case of the Duke of G——, who suffered from facial neuralgia for some time, until it ceased completely upon the exfoliation of a portion of the antrum Highmorianum. The most remarkable case of this kind that has fallen under my notice is that of Mrs. Manheimer (related hereafter), whose facial neuralgia of many years' continuance was evidently dependent on necrosis of the vomer.

Disease of the Brain.—Instances have been recorded where neuralgia appeared attributable to injury of the cerebrum, even where no prominent symptoms during life awakened suspicion of its existence. Andral and others have described cases in which softening of the brain, or tumours

pressing upon the origins of the nerves, have been detected after the death of neuralgic patients. That such organic lesions coexisted with the painful affection there can be no doubt, but it is not always possible to determine their relations. It is by no means clear which was the cause and which the effect.

And this remark applies not only to these diseases of the brain, but to those depositions of ossific matter within the cranium observed by Sir H. Halford. It appears to me more probable that the continued neuralgic irritation occasioned the structural change, than that the latter gave rise to the former. The evidence seems to preponderate on that side. We know, for instance, that tumours, abscesses, ramollissement and osseous deposit, have been often discovered within the skull, without corresponding local disturbance during life. On the other hand, we can understand how long-continued irritation of a nerve may occasion mischief at its root. In neuralgia, a state of morbid excitability exists. The functions of the nerve are exalted, so that the parts to which it is distributed are stimulated. Glands and secreting surfaces in the vicinity pour out an increased quantity of fluid during the paroxysms, as in the case of the tears and saliva when the trifacial

nerves are affected. In a case of neuralgia testis, alluded to by Dr. Macculloch, there was an abundant discharge of semen on similar occasions. The function of nutrition is also generally augmented, and often perhaps perverted; as is shown by the congestion of the parts during the excitement, and the subsequent hypertrophy of the tissues. If these changes occur externally, at the periphery of the nerve, may not analogous effects be produced at its origin? The nervous centres can scarcely be expected to escape disturbance, under the continued effects of painful impressions from the sentient extremities of the nerves with which they communicate. In this way I should account for the epileptic, paralytic, and apoplectic seizures occasionally following these attacks, as well as the delirium and mania to which they sometimes give origin.

I would therefore suggest, that possibly those extensive ossific deposits, and some organic lesions noticed in the cranium, may have originated from long-continued irritation of the sentient nerves. They may be regarded as signs and evidences after death of a previous local nervous excitement. The same kind of reasoning is now applied with plausibility to spinal irritation. The opinion is now held by many, that this is not in general an idiopathic

disorder of the medulla, but that it is merely the consequence, and the index, as it were, of morbid action in other regions.

Caries of the Teeth.—Any lengthened remarks on this cause of neuralgia I would wish to reserve until those forms of tic douloureux affecting the face are discussed, on which I believe it often exercises considerable influence. That it is a real excitant, is proved by the fact of a carious tooth sometimes originating the disease in a distant part of the body, by some unaccountable sympathy. In addition to the instances I could cite from Mr. Bell* and M. Piorry,† more than one has been furnished by my own experience.

Malaria.—We are indebted to Dr. Macculloch for drawing attention to this very probable source of neuralgia. In the work to which allusion has already been made,‡ various arguments are employed to prove this connexion, and some of considerable force and plausibility. In the course of his indefatigable researches, that gentleman noticed that the skin, of the face more especially, became pale and shrunken in consequence of neuralgic attacks, and assumed the expression peculiar to those subjected to miasmic

* On the Anatomy &c. of the Teeth.

† L'Unique Medicale.

‡ Essay on Marsh Fever and Neuralgia. Lond. 1828.

influence. Neuralgic affections were observed to prevail especially in malarious districts, to become endemic in fact, and to assume the type of the prevailing disorders acknowledged to arise from marsh poison. Moreover, they were often associated or alternated with those ailments, so that the same decided and ascertained cause applied, in the same place, to many different persons or even to one individual, produced the whole of them. Of this he gives a very remarkable instance in the following passage:—"In this case the situation was so decidedly subject to malaria, that scarcely any individual, out of many different families that had resided in it, had escaped intermittent at some period of their stay. In one season, and in one family consisting of twelve or fourteen persons, the following were the effects in as many individuals:—One tertian; one double quotidian headache; another tertian; one diseased spleen; in one individual, aged only eighteen, a temporary hemiplegia with obscure quotidian; a second case of palsy in one leg in a person of twenty, with obscure quotidian and symptoms of diseased spleen; a regular neuralgia of the face, of double tertian type. In a following, distant, season, and in some of the same persons, there occurred—palsy of the face with imperfect speech, an attack lasting beyond a week,

and replaced by quotidian neuralgia (tic); a double tertian, common intermittent, terminating in a quotidian, or double tertian neuralgia; a quotidian, with neuralgia in the shin-bone; the same patient having had, in a preceding season, a common tertian so obscurely marked that he was ordered to Italy for a consumption, (a consumption which was cured by two ounces of bark, and a change of place to ten miles' distance!) and, in a following one, having been attacked again with a double tertian, of which one fit was attended by the neuralgia of the shin, and the other by a headache."*

In support of these views of Dr. Macculloch I may mention, that I have often noticed the physiognomy alluded to, in patients whose neuralgia may probably have arisen from malaria—in cases where the disease assumed a remittent or intermittent form. That it is liable to attack persons going into districts where ague is endemic, I had, among others, a curious illustration a short time back. A lady consulted me, who had suffered from facial tic douloureux for several years. Previous to living in a certain part of Essex she was strong and healthy, but soon fell away and became pale and debilitated. On first reaching the place, she was told by the residents that she would certainly have either the

* Op. cit., vol. ii. p. 323.

ague or the tic douloureux; so strong had experience impressed the conviction on the minds of the inhabitants. In less than two months the latter was her portion.

That malaria will produce neuralgia there can, therefore, be no doubt. Yet it is difficult to say whether it is more an exciting than a predisposing cause. Marsh poison tends to debilitate the system, and thus fit it for the invasion of any accidental local excitant, such as cold or rheumatism. But the periodic character occasionally observed in tic douloureux cannot be considered sufficient to establish its origin in miasm, but should rather be regarded as one of the phenomena of nervous action. We may suspect the neuralgia to arise from this cause, when we find it associated with ague, or the patient has clearly been exposed to miasmic vapours in a low, marshy district. I am inclined to think that malaria modifies the character, rather than excites the paroxysms, of these painful affections.

A few words must suffice for the remaining exciting causes of neuralgia. Some of them are doubtless important, but at the same time obscure. It has not been my fortune to trace the disease distinctly to either of them, although one or other

has been occasionally suspected. They should be enumerated, if only for the purpose of reference in doubtful cases. Thus, in addition to rheumatism and hysteria, which have already been considered, some writers insist upon acute or chronic neuritis, syphilis, epilepsy, and hypochondriasis. Certain French authors allude to derangement of the catamenial function, others to anæmia, while some English authorities rely almost exclusively upon spinal irritation.

In reviewing this long list of the known or supposed exciting causes of neuralgia, we may naturally inquire which of them most frequently gives origin to the disease?—which is the most ordinary disturber of the nervous equilibrium? These questions scarcely admit of a satisfactory answer, in consequence of the *local causes* of disturbance to which each form is distinctly liable. Yet cold may be considered as the chief excitant, closely followed by dyspeptic irritation and malaria—two causes which are almost ignored by our continental neighbours.

But it is impossible to arrive at any thing like an accurate calculation on this point. In an immense number, by far the larger proportion, of cases, no

probable cause can be assigned for the first onset of the malady. We can gather nothing satisfactory from our patient. He knows not *how* or *why*, but only *when*, it came. It is often a most mysterious infliction or dispensation of Providence, on those who are not, at least particularly, distinguished for vice or folly. No act of imprudence can be alleged as the offensive agent. Often will neuralgia select for its victim the temperate, the prudent, and the good, without the slightest warning or premonitory symptom. The opinion of the French on this point is doubtless expressed by Valleix.* Speaking of facial tic douloureux, he says—'Of fourteen patients under my care, in eight the neuralgia attacked them without apparent cause. They had neither been exposed to cold nor committed any excess. They had received no blow, neither was there a carious tooth in their mouths that had ached, or given indication of having originated their sufferings. In five out of the remaining six cases, the production of the neuralgia could be traced to cold."*

The following table from the same author relates to sixty-seven cases of various forms of neuralgia. The disease was developed—

* Op. cit., p. 143.

Without apparent cause	46 times
After exposure to cold, more or less prolonged .	17 „
Upon suppression of the catamenia	1 „
Through a sudden movement of the part . . .	2 „
After a blow	1 „
	67

Among authorities in our own country, I cannot do better than quote the words of Sir Benjamin Brodie to the same effect. "There are cases," he says, "in which you cannot trace the tic douloureux to its real source. There is something or other, somewhere or other, in the system, which acts as a source of irritation to the nerves. But where that something is, and what it is, we cannot discover. Indeed, generally speaking, I should say that nothing is more difficult than to trace any local nervous affection to its real source. The disease may be in one part of the body, and the pain or spasm which it produces may be in another. I have known a patient have violent neuralgia of the foot, which depended on a stricture of the urethra; and which, whenever it occurred, was invariably relieved by the use of the bougie. I have known another patient have neuralgia of the foot depending upon internal piles, which came on when the piles were protruded, but went away when the piles were reduced."

LOCAL CAUSES.

One other very interesting question remains to be considered. Whether neuralgic pains seated in a particular nerve or spot are not due to some local determinant cause? I am firmly of opinion that they are. In most of those cases where the pains are persistent—not flying and erratic, but fixed for years to one place—some such cause exists, although it may be impossible always to demonstrate it. Why should otherwise the pain be determined to one particular part? Why should one nerve, or branch of a nerve, be selected (so to speak) to bear the anguish? Possibly it is often but a trivial agent that gives the pain localization, when the neuralgic diathesis is established, as the slightest chill or draught of cold air is sufficient to direct rheumatism to the shoulder, the back, or the scalp, when the blood is inflamed. Often may the local predisposition be traced to an accident that has occurred long before, all recollection of which is forgotten, until brought to mind by close inquiry and questioning.

The ample testimony which Dr. Rowland has collected on this point is deserving of close attention. He says "that several authors have related cases of neuralgia which arose from contusion;

and some well-authenticated facts are recorded, where the disease proceeding from this cause continued for months and even years after the accident, and where the symptoms have been subsequently proved to originate in this manner, by their immediate subsidence, upon making a crucial incision over the contused part. Ponteau relates the case of a young man who received a kick on the tibia, which shortly afterwards was succeeded by severe pains, extending from the thigh to the leg and foot; this pain continued for many years, and was finally removed by making a crucial incision over the affected part. Larrey had a patient who was attacked with severe facial neuralgia, subsequently to receiving a blow with a foil, over the course of the infra-orbital nerve. In Elizabeth Hawker, the complaint seems to have had a similar origin: she was attacked with severe pains on the side of the neck and temples, which she attributed to a severe blow received upon the scalp, in falling against a grate, six months previously."

The disease has, in some instances, been traced to the irritation arising from an old cicatrix. "We find cases," Dr. Bright observes,* "which lead us to believe that tic douloureux sometimes originates in affections of the extremities of the nerves, and may

* Treatise on Neuralgia, p. 17.

be derived from wounds of fleshy parts, and cured by applications to the cicatrix." Lentin met with a case of facial neuralgia, which apparently proceeded from a cicatrix remaining after a wound of the face. E. B., aged sixteen, had suffered for several weeks from acute lancinating pains of the left temple and side of head, for which many remedies had been tried without effect. Upon inquiry into the history of the case, it was discovered that some years before, she had received a severe cut over the right parietal bone, which had been long healing, and that this spot had always been tender since the accident. When the hair was removed, a large uneven cicatrix was observed.

Dr. Copland* mentions the fact of severe neuralgia occurring in a member of his own family, from the irritation of the larvæ of insects in the frontal sinuses, and ceasing immediately upon their expulsion by sneezing. Dr. Macculloch,† notwithstanding his prejudices in favour of malaria, fully admits the influence of local excitants, and relates three or four very apposite cases that occurred in his own experience. In one of these the patient was a young woman, and the injury was simply the prick of a needle in the end of the middle finger;

* Copland's Dic., Art. Neuralgic Affections.

† Op. cit., p. 151.

but the result was a regular periodical neuralgia, extending from the hand up to the shoulder. In the second and third instances, blows had been received; while in the fourth, a fragment of glass was buried in the skin, and gave rise to severe intermittent neuralgia for several years.

Numerous other instances could be quoted to the same purpose, more especially in relation to facial neuralgia. The pains following *herpes zoster* are decidedly neuralgic, and may often be relieved by the local application of nitrate of silver. Tumours pressing on, or spiculæ of bone running into, nerves are well known to have occasioned these pains. Preparations of such lesions are to be found in the Hunterian Museum, presented chiefly by Mr. Swan; who, if I recollect rightly, has related the case of a lady who suffered excruciating neuralgic agony in the fauces, which was relieved immediately and permanently by the removal of a small point of bone irritating the side of the tongue. To surgeons of hospitals, neuralgia following operations, or occurring in the stump after amputation of a limb, must be familiar. Three cases of this kind which I have myself carefully examined, will be described hereafter.

In neuralgia, for which no other cause can be assigned than hereditary predisposition, we may

suppose that there exists some peculiarity of anatomical structure or organization in relation to the nerves, to cause them to be especially obnoxious to exciting causes.

Another argument in favour of this local derangement is drawn from the facility with which paroxysms of neuralgia may be induced by agents acting solely on the part, which could scarcely occur if the pain were merely sympathetic. In addition, we should look to the action of remedies. Neuralgia may, it is true, frequently be cured by medicines that act upon the system in general. But when these signally fail in subduing the symptoms, then the happiest results often follow the employment of local agents. Indeed, I believe as many cases of tic douloureux have been relieved by topical applications as by systemic remedies.

From these facts and considerations we are warranted in regarding neuralgia as in many instances strictly a local disease, depending on topical causes; and therefore as much within the domain of the surgeon as the physician. The judicious practitioner will hence perceive the advantage of minutely examining the neuralgic focus, as he may thus detect the source of error, and by removing it, be enabled to put a period at once to the sufferings of his patient.

PROXIMATE CAUSE.

CONSIDERABLE difficulties impede investigation into the intimate nature of nervous pains. These obstacles arise from the imperfect state of our knowledge of the functions of the nerves in health, and the mode of action of that force which is designated the vis nervosa. The physiology of the subject is not sufficiently established to allow of any certain pathological deductions. Hence the theories promulgated at various times to account for the phenomena have been generally purely hypothetical, taking their tone from the prevailing doctrines of the period. Some of them are so fanciful that they scarcely require a serious refutation; while others deserve more consideration on account of their plausibility, and apparent foundation on observed morbific change. Yet there can be no doubt that the discovery of the proximate cause of neuralgia would be productive of decided advantages; by uniting, under one leading principle, phenomena which now appear discordant, and suggesting a rational, unempirical system of treatment.

The ancients attributed the malady to some acrid matter poured out around the nerve, by which it was continually irritated. Others believed

that the fibril was physically compressed and penetrated by this substance; or even, in the language of André, actually strangled. Some modern authorities have admitted the existence of such material irritants. Chaussier had not the slightest doubt with regard to them; and Bellengeri also accounted for tic douloureux by the presence of an acrimonious matter in the cranial nerves. Pinel remarks—"Différentes observations semblent devoir faire conclure, que dans la neuralgie il existe une cause matérielle d'irritation fixée sur le nerf; que cette cause n'est pas la même dans tous les cas, et qu'ainsi il faut la connaître pour établir un traitement efficace."*

The occurrence of a harder or softer condition of the nerves, with increased vascularity in some instances, has given origin to the idea that neuralgia depends upon acute or chronic inflammation. The Baron Larrey was of this opinion,† describing tic douloureux as a chronic and inflammatory turgescence of the neurilemma, which envelopes the nerves of the part affected. Descot, Montfalcon,‡ and others, write to the same effect. It would be a medical heresy to deny that the nerves, like other

* Pinel, Nosograph. Philosoph., vol. iii.

† On the Use of the Moxa.

‡ Dict. Des Sciences Médicales; Art. Neuralgia.

tissues, are liable to inflammation; and if this be of the chronic kind, it may be very difficult to discriminate from neuralgia. In my opinion, neuritis may be concomitant with tic douloureux, but the proofs are rather in favour of its giving origin to, than its being identical with, that painful affection.

Dr. Rowland,* judging rightly that it is of the greatest importance to examine into the facts upon which these and other authors rely, in support of their views respecting the nature of this disease, and to ascertain whether it can be established as a pathological axiom that neuralgia and neuritis are one and the same affection, gives the following summary of the arguments.

The circumstances connected with the general history of the complaint supposed to favour this view are, that its exciting causes are often of a description well known to induce inflammation of other organs, such as exposure to wet and cold, contusions, external irritants, &c.; that the disease is generally seated in the superficial nerves, which are most exposed to the action of these causes; that the pain is often confined to the track of a nerve or of nervous filaments; that it is increased on pressure, and that occasionally there is a tendency in the

* Op. cit., p. 53.

disease to spread along the course of a nerve, after the manner of some forms of inflammation.

To these arguments, however, it may be replied, that the cutaneous nerves are often the seat of the pain, from spinal or cerebral disorder, or from other causes not acting as direct irritants of the affected nerves. And, in fact, this is one of the most invariable characters of the disease, that although the pain is excited by the contact of a light substance, it is often relieved by firm pressure; and that it sometimes attacks a nerve, and follows its course with anatomical precision, when disorder of the primæ viæ is the cause of the disease.

There are other phenomena connected with neuralgic affections which it is difficult to reconcile with an inflammatory origin; such as their sudden accession, their abrupt termination, their periodicity; the total freedom from febrile excitement or heat in the part; the absence of pus or other effusion; the ill effects of depletion, and the decided beneficial influence of remedies which would be injurious in inflammation.

It has been supposed that whatever may be the origin of the disease, the affected nerves are in a state of hyperæmia during a neuralgic paroxysm. This opinion has arisen in consequence of the skin over the affected nerve being sometimes observed

to change into a deep red colour during the attacks. But when this process is carefully watched, it will be found that the colour becomes deeper as the pains grow more intense; and that, when this local action of the vessels is greatest, the paroxysm begins to subside, and the skin gradually to assume its natural appearance. It is plain, therefore, that this symptom ought not to be regarded as the cause of the paroxysm, but, on the contrary, as the consequence of the irritation occasioned by the pain—in accordance with the medical axiom, "Ubi stimulus, ibi fluxus."

It might be supposed that the scalpel would at once set this matter at rest. But the truth is, the evidence on this subject derived from post-mortem anatomy is extremely conflicting and unsatisfactory. Opportunities for the investigation of morbid changes, if any such really occur, are seldom afforded; and when they are detected, it is not always possible to determine to what cause they are due. The following are the chief data:—"J'ai eu occasion," says M. Rousset,* "de dissequer avec Dupuytren le nerf facial d'un homme qui avait été tourmenté fort longtemps d'un tic douloureux de la face; le volume de ce nerf était de beaucoup supérieur à celui du côté opposé; *sa nutrition était*

* Dissert. sur la Sciat. Nerv. Thèse, Paris, 1801.

évidemment accrue, ce qui nous parut l'effet d'une longue irritation excitée en lui par le tic douloureux, bien plutôt que la cause de la maladie." Here there was an *enlargement* of the nerve. Sir Astley Cooper, on the other hand, tells us in his Lectures, that, in a case of suborbital neuralgia examined by Mr. Thomas, the disordered nerve was *much smaller* than that on the opposite side. In an instance of severe facial neuralgia, related by M. Montault, in the " Journal de Physiologie" for 1829, a tumour as large as a nut was discovered in the cranium. It was hard and heavy, creaked under the scalpel, and when cut into, presented a fibrous structure, with red and violet points disseminated throughout. In addition to the changes presented by the neighbouring tissues, the condition of the nerves was much altered. The fifth pair was flattened and infiltrated, together with the Gasserian ganglion. The seventh and eighth pair were absorbed into the tumour, of which they formed the inferior and inner boundaries. The other cranial nerves were unaltered.

Lesions have been noticed in other nerves besides those of the head and face. Thus, Swan found the median, which had been affected with neuralgic pain, thinner than natural; while Siebold discovered an intercostal nerve, in which the irritation had

been seated, redder than usual, and much wasted. Similar observations were made by other authors.

But by far the greater number and most important of these morbid changes have been noticed in connexion with certain forms of neuralgia of the lower extremities. Thus, in a vague and complicated case of sciatica related by Cotugno,* the affected nerve, from its origin to its termination, was found of a deeper colour than usual, and the neurilemma was unusually thick, and contained a large quantity of serum. "Ad ischiadicum dextrum nervum nos convertimus. Quo detecto, sic visum. Erat nervus, adhuc vaginis indutus, a coxa ad tibiam *solito coloratior;* non jam vasorum vaginas percurrentium magnitudine aut plenitate, sed intinctu quodam novo ambientium membranarum; omnes enim *flavebant.* Itaque vaginis nervi extremis incisis, detersoque vapore, quo certe non præter naturalem modum imbuebantur, vidimus vaginas *crassiores consueto, colorem illum non appictum, sed imbutum* possidere, quo ne ipse quidem nervus, etsi certe pallidior, erat immunis. A fibulæ autem capite ad pedem unum albidior erat nervus, *pleniorque vapore; cujus, a medio tibiæ inferius, copia tanta supererat, ut insigniter vaginæ a*

* Loc. cit., cap. xxxv. Dissectio Cadaveris Hominis Ischiadem passi.

nervo incluso distarent, quo locum facerent vapori." Tissot is said to have discovered a similar collection of fluid in the sheath of the sciatic nerve.*

According to MM. Rousset and Peyrude,† Bichat carefully examined the limb of a person long affected with sciatica, and found the veins, which penetrated into the interior of the upper portion of the nerve, in a varicose state. Other gentlemen have noticed similar appearances. In the same malady, Cerillo‡ found the sciatic nerve increased one-third in volume and hardened to the consistence of cartilage.

The following case from Gendrin§ is illustrative of neuralgia associated with an inflammatory condition of the nerves. The patient was a waggoner, fifty-eight years of age, who had suffered from acute pains in the right knee, numbness of the feet, and painful shootings along the course of the sciatic and external saphena nerves. These had continued several days, frequently shifting their seat, and even attacking the opposite limb, when he was seized with pneumonia, for which he was taken to the hospital, and died eight days afterwards. Upon

* J. Frank, vol. iii. p. 209.

† Dissertation sur la Sciatique Nerveuse. Paris, 1804.

‡ Cerillo, Prakt. Bemurkung.

§ Hist. Anat. de l'Inflammation.

examination, the right sciatic nerve from the lower fourth of the thigh, the tibial nerve to the point where it passes between the gastrocnemii muscles, and the external saphena nerve in nearly its whole length, were inflamed. The inflammation was characterized by a slight redness, with serous infiltration, and a moderate degree of tumefaction of the above nerves, particularly of the saphena nerve at its commencement. This nerve was at least double its natural size, of a uniform scarlet colour, and of a hard, fleshy texture. In endeavouring to dissect the numerous fibres both from above and below towards this spot, they broke, and appeared to be involved in a spongy cord, which was infiltrated with blood, and resistent to the touch; a section of this cord showed nothing but small coagula of blood. In contact with the inflamed saphena nerve, below the gastrocnemii, was a collection of pus, rather effused into the cellular membrane than inclosed within an abscess, and not penetrating the substance of the nerve. The filaments of the sciatic and tibial nerves were separated, and as it were dissected, by means of infiltrated serum, to a considerable distance both above and below the seat of the inflammation.

To the evidence of organic change now adduced, testimony of equal authority may be cited in direct

opposition. Many eminent men have made careful search without discovering any pathological lesion in the nerves. Thus, Dr. Elliotson* says he has found nothing abnormal after death. Sir Charles Bell and M. Magendie both examined neuralgic nerves with the same result. In two cases of facial neuralgia examined by Dessault,† the nerves on the side affected were exactly in the same condition as those on the opposite. Martinet‡ dissected several cases of neuralgia without discovering any morbid appearance. Sir Astley Cooper was equally unsuccessful with the irritable testis. Andral§ dissected the body of a woman, who, during the latter months of her life, had suffered severely from pains of the occiput and side of the head, which had all the characters of neuralgia. The nerves of the axillary and cervical plexus were followed with the greatest caution throughout their ramifications, and were found to retain their healthy appearance in every respect. Piorry‖ also examined the body of a patient who had been affected with acute pains in the left

* Lectures, p. 505. † Valleix, p. 131.

‡ Revue Médicale, 1824.

§ Andral, Précis. d'Anat. Pathol., vol. ii.

‖ Clinique Médicale.

shoulder, which also extended over the left side of the thorax, and down the arm to the fingers. The nerves of the brachial plexus and those of the neck were dissected with the greatest care, but no lesion could be discovered in them.

It would be useless to pursue this subject further. A sufficient number of facts have been adduced to justify us in concluding, that the nature of neuralgia is not to be discovered by morbid anatomy. In a very small proportion of cases only have alterations been perceptible, and these of very diverse character. Even these were far from pertaining to the nervous affection, but were referrible rather to neuritis or rheumatism. Moreover, it is proved by an abundance of facts, that neuralgia can exist with severity for a number of years without leaving any appreciable lesion after death. We must therefore discard, as unfounded on observation, all those theories which attribute neuralgia to an inflammation, acrid irritation, hypertrophy, or atrophy of the nerves. There is reason for regret that no investigations on this subject have been made with the microscope, as possibly some structural change would be detected which escapes the unaided eye. But with our present information, everything tends to demonstrate

that this painful malady consists in a functional derangement, the organic cause of which eludes us completely.

In speculating upon the nature of this derangement, the important fact should never be lost sight of, that neuralgia, although generally a *constitutional*, is sometimes strictly a *local* disorder. The former is indicated by the neuralgic diathesis,—a certain disturbance of the system, by which it is rendered more irritable,—and by the pains being erratic, shifting their position repeatedly without obvious cause; the latter is marked by a permanence and persistence of the suffering, its recurring constantly in the same nerve, and its being produced by a topical excitant. Possibly the function of the painful nerve is similarly affected in both cases. There is probably the same local disturbance; but the sources of irritation are evidently distinct and peculiar.

The notion of Fothergill that neuralgia is dependent on a cancerous diathesis is now generally allowed to be chimerical. The theory of its syphilitic nature is equally fanciful; although, as I shall presently show, either cancer or syphilis may be instrumental in its production. The cases that are due to a rheumatic condition of the system I have already distinguished; and would merely observe,

that they possess characters by which they may be readily recognised.

The hypothesis of Dr. Macculloch is the most plausible that has been advanced of late years, and therefore demands investigation. That acute and pains-taking physician considered neuralgia as a mode or variety of intermittent; a kind of obscure ague, in fact. Possibly his attention may have been directed to the analogy existing between the two affections, by the writings of Van Swieten, Sauvages, and Coquereau; although he himself investigated the subject with great ingenuity and success. The following are some of the data on which he relies.*

"The paroxysm of neuralgia presents all the phenomena of an ague fit. Immediately before the attack, if the pulse be examined, it will be found to put on that character which it possesses in the cold stage of an intermittent; while, through the progress of the paroxysm, it passes through the other analogous changes. If also a watchful patient, at least when directed to do so by his physician, attends to his previous feelings, he will find that there are most commonly some indications of a cold stage, generally obscure, it is true, as is the case in most of the anomalous and chronic inter-

* Op. cit., vol. ii. p. 19, et infra.

mittents, but still discernible; while doubtless it may sometimes be wanting, or difficult to make out, as is too often the case in such obscure intermittents. When most distinct, it is like the sensation of cold water applied to some part of the face, or trickling over it, being indeed often thus described by patients; or there may sometimes be a sensation of cold, more general, if also transitory. The skin, at least of the face, also becomes pale and shrunk, with that peculiar physiognomy attending ague, so indicative of all these diseases, if so perpetually overlooked: and this is a symptom which, if unnoticed by the patient, ought never to escape the eye of an observing physician, explanatory and often useful as it is. Occasionally this paleness is local instead of general; and I have seen cases where I could pronounce that the paroxysm was threatening, from one side of the face turning suddenly white, while the other retained its natural aspect and colour.

"If this is the cold stage of this particular intermitting disease, the fit of pain appears to belong to the hot one, or thus at least has it always seemed to my experience; and if, as a hot stage, it is not a very marked febrile state, it is sometimes sufficiently apparent in an increase of heat, local if not general, in the change of the pulse, and in a thirst which

occasionally accompanies it. And if it is a slightly marked hot fit, it is not slighter than that which often occurs in chronic intermittent, when other kinds of local symptoms are present, or even when the cases are pure; while in such cases, as well as in this and other neuralgiæ, the sweating stage is rarely well marked, or is, perhaps, only discovered by the facility with which that effect is produced by exertion."

The regularity of the return of neuralgic paroxysms; their often assuming the type of intermittent fevers; their prevalence in marshy districts, and obvious origin in malaria; their co-existence with ague or alternation with it; and the applicability of the same remedies to both disorders; all seem to point, in the opinion of Dr. Macculloch, to this identity. His views on these points are thus summarily expressed:—

"The abstract in question is therefore the following, passing over the community of remittent and intermittent fevers, as an admitted fact. Intermittent fevers arise from malaria, certainly as principally, and from mere cold possibly; but are renewable by mere cold when once they have existed. They are often attended by peculiar local symptoms producing the anomalous varieties; while, when the febrile state is slight or obscure, these

local disorders appear to be the chief disease. Such local disorders are either affections of the nervous system, or of an inflammatory character.

"The same intermittent fevers, more or less distinct, are accompanied by all the neuralgiæ that have been described, whether these consist of simple pain, or are attended by inflammation; and when the febrile state is slight or obscure, these local affections appear to form the chief disease.

"If intermittent fevers alternate with all the anomalous local symptoms or diseases, so do they with all the neuralgic diseases; and in such cases, the supervention of one is the removal of the other. Thus, also, all those local diseases, including all the neuralgiæ, alternate with each other; or the appearance of one form is the cure of a preceding one.

"Many of the neuralgiæ will exist almost simultaneously, or else in alternating paroxysms; these having any of the types of intermittent. They also exist in alternating paroxysms with simple intermittent: or a particular doubled type will consist alternately of a paroxysm of pure fever and a paroxysm of neuralgia.

"The same individual, under a persevering intermittent, will experience many of the anomalous forms of that disease, and also many of the neuralgic diseases, in alternation or succession, or else in

union; and, in such cases, the type, and the hour of recurrence, will be the same for all the forms, even through a long course of years.

"Malaria will produce the neuralgic diseases directly, as probably will mere cold; but they are renewable by mere cold when once they have existed; and in these cases, though the intermittent fever is probably always present, it may be so slight as to be overlooked. In this the first cause, neuralgia, in all its forms, resembles intermittent; but it differs, inasmuch as it can be excited by direct injury of a nerve; a difference, however, which is of no moment as to the general identity, because we know of no means of thus injuring the entire nervous system so as to produce general intermittent.

"The same malaria, in the same spot, acting on different individuals at the same time, will produce either intermittent or neuralgia, and every form of each.

"Intermittent and neuralgia, in all their forms, are cured by the same remedies, and injured by the same wrong treatment; and those remedies are constitutional ones, whether the disease be local or general; while, very particularly, the local and the general diseases both are cured by operations on the imagination. The conspicuously wrong treat-

ment for all these diseases, whether neuralgic or intermittent, consists in the debilitating practice, as the right treatment is found in what is esteemed the reverse; and whatever be the disease, be it local or general, when that practice is pushed so far as to become injurious, the injury is always of the same character, affecting the entire nervous system."

The learned Doctor further strengthens his position by pointing out the analogy between the consequences of marsh fever and neuralgia; their occasional termination in apoplexy, but more frequently in local or general paralysis. On the whole, a very strong case is made out in favour of the doctrine, although this is yet open to some serious objections. It is certainly not applicable to all cases, such as those arising from local causes, or gastric disturbance; for in them but a portion of the analogical phenomena appear, and these will bear a different interpretation. It is perhaps only suitable to neuralgia arising from malaria, where regular periodicity of intermittence and the miasmic physiognomy are evinced; and even here it may be doubtful whether the painful affection is not merely modified in its characters by the prevailing poison —just as any other complaint would be under similar circumstances.

Even by conceding that the diathesis in ague and in neuralgia are identical, which in some cases is very probable, we arrive no nearer to the solution of the chief difficulty, as to the *nature* of this diathesis; but must conclude that it is a form of debility, in which the nervous system is extremely excitable, and liable to derangement from a great variety of general and local causes.

What then is the condition of the nerve itself during a paroxysm of neuralgia? That it is in an abnormal state may be inferred, not only from the sensations of the sufferer, but from the direct effect of topical remedies. We have seen that the most violent neuralgia may have existed for years, without leaving the slightest indication of organic change after death. I believe that in true, uncomplicated, tic douloureux this would always be the case. What then can have been the pathological condition? Undoubtedly some functional disturbance, by which a morbid excitability has been produced. The proximate cause of tic douloureux, we may therefore conclude, consists in an abnormal irritability of the nervous fibre; a preternatural local exaltation of function, without corresponding excitement of the vascular system.

It may be doubted whether there is not something more than this. I am inclined to think that

some phenomena are added in consequence of this disturbance. How, otherwise, can we account for that peculiar sensation of constriction or spasm, taking the course of the nerves affected, so constantly experienced by neuralgic patients? This is the most characteristic of all the symptoms. A single well-known nerve affected with neuralgia has been felt, we are told, prominent beneath the skin during the paroxysms. This I have not myself noticed, but I have often observed the parts about the mouth and eye drawn into lines, as it were by the constriction of fibres. When, apparently, the portio dura has been affected with neuralgic pain, the integuments have been obviously drawn towards the root of the nerve; and the sufferers have complained of this dragging sensation, compared by them to a gooseberry-bush pulled across the cheek, or a network of wire enclosing it. The loose skin of the neck appears to be often contracted in this way, when the descending branches of the facial nerve are involved in the agony.

It may be doubted whether this motion arises entirely from spasm of the small muscles, or even fibres of those muscles, for it does not by any means always take their course. Can it be produced through a *contractile action* or *motion* of the *nerves themselves?* This question, wild as it at first sight

appears, is yet deserving of some consideration. Several eminent physiologists, with whom I have conversed, consider it by no means improbable.

In the first place, it should be borne in mind that the mode of nervous action is still involved in total obscurity. The arguments against the electric theory are incontrovertible, and it is just as probable that it will eventually be found that the vis nervosa consists of a motive force, as of a circulating fluid. Many reasons lead to the belief that a molecular change takes place when impressions are received and volition is exercised. In disease, and under excitement, this action may amount to a sensible disturbance.

It cannot be supposed that the neurile matter itself is possessed of contractility. The power must reside, if at all, in the neurilemma, the structureless membrane enclosing it, identical with the sarcolemma of unstriped muscular fibre. This tissue, enveloping each fibrilla, must constitute a considerable part of the bulk of each nerve. Its properties have been little investigated. It is known to possess elasticity. Contractility is the most universal principle of the living system. It resides in most of the tissues, and is capable of being roused into activity by appropriate stimuli. It may exist in the neurilemma, although ordinarily quiescent. No great liberty is taken, therefore, in supposing

that this tissue is susceptible of extraordinary excitement under disease, and, by compressing and extending the neurile matter, giving rise to the severest local pains.

We may reasonably infer that other nerves are capable of this contraction, by our feelings when those of the leg are irritated. The sensations are, I should say, exactly similar to those in spasmodic neuralgia, except that the latter are attended by more pain. For the purpose of observing the phenomena, I often, as the saying is, *send my leg to sleep*, by allowing the limb to rest on a hard substance placed in the ham. Upon removing it, I find the well-known tingling sensation to ensue, with alternate heats and chills. After a time these feelings pass off, and then the limb remains with scarcely a thrill, while in a quiescent state; but the instant it is moved and the ankle or even toe joint bent, the whole leg and foot seem suddenly encircled by tight-drawn cords and wires. After this excitement has continued for a few moments it subsides, to be renewed again instantaneously, although with gradually decreasing energy, upon the slightest motion. The sensation conveyed to the mind is as if the *nerves* were suddenly called into spasmodic action. You can scarcely be deceived in the matter. Their whole course and distribution are

plainly revealed to the mind's eye, and you feel them distinctly drawn up and contracted. The foot is compressed, as it were, in a wire net. All these sensations of motion occur, it should be observed, without the slightest movement of the limb indicating muscular action. Somewhat similar phenomena may be noticed in the fore-arm, when the ulnar nerve is compressed at the elbow.

Although the idea of this spasmodic theory arose in my own mind spontaneously, I am much pleased to ascertain that it is supported by the opinions of others. I find that Sauvages* attributed all neuralgic pains to spasm of the nerve-fibre; but whether the notion originated with himself, or was the prevailing doctrine of his time in France, I cannot learn. After describing accurately the symptoms of hemicrania, clavus, lumbago, ischias, &c., he says:—"Causa est fibrarum nervearum distractio, cum solutionis periculo ab animâ percepto." This curious passage is thus translated in the Paris edition:—"Leur cause est le tiraillement des fibres nerveuses, joint au danger de leur rupture, que l'ame sent très bien."

Mr. Joseph Swan, who may be considered one of the highest authorities on all subjects connected with the nervous system, is decidedly of opinion

* Pathologia Methodica. Amst. 1752, p. 233.

that neuralgia frequently depends upon spasm of the nerve. His views are slightly sketched in the following passage from one of his works:— "Whether there be action so as to produce motion for the ordinary functions of the nerves, is not determined. But from the great retraction after their division, and the sometimes straight and sometimes waved and tortuous appearance of the fibrils, it is most probable that their state is not altogether passive. I conceive that in some cases there is a contraction of the nerve itself, which produces pain. I have often observed a quivering motion of the cutaneous nerves underneath the skin on the outside of the leg, which appeared very similar to the action of muscles in an animal recently killed. In one of the cases of a wounded thumb, related in the chapter on partial division of nerves, motions could be observed in different parts; and from the description of the patient, I could not help thinking that what she called spasms were contractions of the nerves producing shocks. These motions are not always attended with pain, but I conceive that contractions of the nerves may take place and produce pain, in the same manner as those of the muscles during their violent action in cramp or tetanus."*

* Diseases of the Nerves, p. 4.

In recent conversations with Mr. Swan, I find that time has served to strengthen these views. He speaks positively with respect to the tremulous, vibrillatory motion of the cutaneous nerves in parts where muscular fibres do not exist—the back of the hand and outside of the leg, for example. The sensations experienced after compression of nerves have appeared to him confirmatory. As the case alluded to above is highly instructive, I think I may venture to give an abstract of it.*

Case.—Mrs. E——, about forty years of age, received a cut on the inside of the first phalanx of the left thumb. Immediately after the accident she felt a numbness in the arm, and a sense of fulness, as if the skin would burst. These sensations continued for a fortnight, and the wound healed very well. At the end of this time violent pain came on, when a *tremulous motion* could be *seen* in the part that it occupied. The pain was termed startings or spasms by the patient, and was felt in different ways, but the *muscles were not affected.* These spasms were felt all over the body, though they were by far the most frequent in the upper half of it. She frequently felt a great heat in the chest and abdomen, but more particularly the latter, and the same startings in other parts of the

* Op. cit., p. 124.

body. The sensations were sometimes as if the flesh were pinched with hot irons; sometimes a great heat, as if hot water were poured down the back. The spasms were not confined to the left arm, but she had them at the same time in the right, and frequently in the right when she had none in the left. The forefinger was as painful as the thumb, and if anything touched either of them, spasms were produced which continued many days. A variety of medicines, and electricity, were tried with little success. The patient continued in this state about six months, after which the spasms were less frequent; but if the thumb or forefinger was touched or moved at any time, the spasms were reproduced. Every succeeding year brought a mitigation of her symptoms. But although seven years had elapsed since the accident, that extreme susceptibility of the nervous system remained, and she continued to be affected by the spasms, or rather electric shocks, in every part of her body. At length, about nine years and six months after the accident, she died, to all appearance worn out by her sufferings.

The feature most worthy of remark in this case, selected from numerous instances where the same phenomena have been noticed by others, is the peculiar *spasm* in the arm, and other parts of the

body. The great talents and habits of close investigation of Mr. Swan, together with his accurate knowledge of the distribution of the nervous fibrillæ, are, I presume, a sufficient guarantee for the correctness of his observations. It is probable, therefore, that the movements were due to *spasms* of the *nerves*, and not of the muscular fibres. This entirely accords with what I have myself frequently noticed in cases of tic douloureux. There has been a quivering, spasmodic motion, quite obvious to my eye as well as to the feelings of the patient. That the muscles are frequently implicated in the diseased action there can be no doubt; but to me it appears probable that a spasm of the parts may occur quite independent of them.

That there is a real spasmodic action in neuralgic nerves is, I think, further supported by the fact of patients suddenly putting the hand to the painful focus upon the accession of the paroxysm, and pressing there with all their force, as if to restrain and control the spasm. They certainly say they do it for that purpose. That peculiar sensation, to which I shall again allude, is illustrative of the same point: I mean the feeling of the sufferer, as if something were moving within the cheek and vibrating like the pendulum of a clock.

The great difficulty in these cases is to determine

that these motions are not really the contractions of muscular fibre. The grounds on which I am inclined to think they are not, are:—1st, That the spasmodic action takes a direction sometimes opposed to, at all events not consentaneous with, any known muscular fibres. 2nd. It may be present where there is not muscular fibre, as on the crown of the head, &c. 3rd. This spasm may occur, and be severe and frequent, without the least distortion of the parts that would be moved if muscular fibres were involved in the action. 4th. Section of the *nerve* will sometimes entirely destroy the spasmodic motion.

That nerves are capable of motion has never yet, to my knowledge, been actually demonstrated. There may be great difficulties in accomplishing this. We know that the irritability of muscular fibre is lost a certain number of hours after death, so that it will not contract under the galvanic stimulus. The nerves very probably lose theirs much sooner, perhaps instantaneously. Experiments upon the living tissue are unsatisfactory, because of the difficulty, almost impossibility, of entirely separating a nerve from the surrounding parts without destroying its vitality. If it remains attached to any, the slightest, portion of muscular fibre, any motion observable would be attributed

to it. If, however, the abdominal nerve of a leech be carefully extracted, and placed under the microscope, a very distinct movement will be observed. It will form graceful, eel-like undulations, and move without and within the field of vision. This motion will continue for some time, without any stimulus being applied to the nerve. The experiment was first shown me by Dr. Redfern, Professor of Comparative Anatomy at Aberdeen, and, although not free from objections, is very interesting.

Neuralgia therefore, with these views, would appear to depend essentially on a *morbid excitability* of particular *nerves*, or parts of nerves, leading to *violent* and *painful spasm of their fibres*. I would by no means be understood to put implicit faith in this doctrine, but submit it, with deference, to the judgment of my professional brethren.

MORBID ASSOCIATIONS.

It is somewhat on the principle of the maxim, *noscitur a sociis*, that this becomes a subject of importance. If we find tic douloureux preceded, accompanied, or followed by certain other disorders, we must infer that it either partakes closely of the character of such disorders, or has been produced by similar exciting causes. In this way, we have seen that neuralgia has been considered a form of intermittent fever, and to arise from malaria, in consequence of its frequent close association with quotidian or tertian ague. The intimate connexion existing between neuralgic, convulsive, and paralytic maladies, viewed in this light, points to the similarity of their origin, if not to the approximation of their pathological condition. From the preceding observations on the physical exciting causes of these painful affections, the reason is obvious. As Dr. Copland expresses it, "various structural changes, seated at the origin of a nerve, or in the nerve itself, or in contact with it, or so near it as indirectly to implicate it, may occasion either pain or spasm, or both, or palsy, according to the manner in which they either irritate the fibrils devoted to sensation or to

motion, or entirely interrupt one or both of those functions."

Muscular spasm sometimes precedes neuralgic attacks, but very commonly accompanies the paroxysms, more especially when they are severe. The countenance is occasionally much convulsed in facial neuralgia, and from this circumstance is said to have arisen its name of tic douloureux. I have seen the arms thrown back with great violence when the cubital nerve has been affected. But the best illustration is afforded by the stumps of limbs, when neuralgic after amputation. Here, there is very frequently a continual spasm of the muscles —a turning, writhing, and twisting of the limb, accompanied by intense suffering. In a case lately under the care of Mr. Hancock, at the Charing Cross Hospital, the stump seemed to be endowed with the gift of perpetual motion; the only rest consisting in a change, at long intervals, from clonic to tonic spasm of the muscles.

In all these cases, we may suppose that either an irritant exists, which involves both motor and sensitive fibrils, or that it is communicated from one to the other. When pain precedes spasm and there is reason to believe gives origin to it, it may be by direct excitation of contiguous parts, or by reflex action, through extension of the disease to

the nervous centres. When excited, the muscular motion doubtless maintains and aggravates the painful condition.

Paralysis, in conjunction with neuralgia, is evinced by a greater or less degree of *numbness* in the parts to which the particular nerve is distributed. It is not often that these symptoms precede the painful ones; but when they do, they generally cease upon the accession of the neuralgic irritation or are only partially displayed. The anæsthesia gives place to unwonted sensitiveness. The nerves about the face and head are those chiefly affected in this way. It is by no means unusual for patients to describe among the earliest premonitory symptoms a dulness or deadness of the skin, feeling as if it were made of wood or leather, and depending doubtless upon partial palsy of the nerve.

It is far more common for the paralysis to be a sequel to the painful state. This occurs very frequently in sciatica; and the palsy is rigidly confined to the parts which receive their nerves from the affected trunk, beneath the diseased or painful focus. Hence the limping and dragging of the limb so remarkable in long-standing cases. The neuralgic pain generally ceases completely when the palsy is fully established, and rarely returns.

In some few instances, an *alternation* between the two disorders may be observed; the one giving place to the other in rapid succession. This was very remarkable in the case of a poor man some time since under my care. He had palsy of one side of the face, in conjunction with tic douloureux. The one succeeded the other perfectly several distinct times. Whenever the neuralgic paroxysm took place there was no distortion of the features; but as soon as the pain had ceased, the same hideous disfigurement returned. The poor fellow was relieved ultimately of both the ailments.

These various circumstances, while they establish a close connexion between partial palsy and neuralgia, indicate some very different pathological condition; the one showing a too great, the other a too little vitality or functional excitement in the nerve. In both cases, we may suppose that the exciting lesion has consisted in some form of *pressure* on the nerve, either at its root or in some part of its course; such as would arise from inflammatory swelling of the surrounding tissues, or effusion into them. When the pain follows the numbness, this pressure has apparently ceased; but it has increased to the extent of totally impeding the function of the nerve, when perfect paralysis has supervened on the local excitement. Or it may be, that in the latter

case the palsy is merely *functional*, depending on exhaustion of the vis nervosa through the preceding excessive irritation. These views are in accordance with the observed effects of long-continued pressure on nerves, by agents external to the body, such as by the use of crutches,* or the tourniquet.

An effect somewhat similar to this lingering anæsthesia is the influence which neuralgia occasionally exercises in destroying the energy of the mind, and extinguishing the courage even of those habitually brave and reckless. A striking illustration of this was afforded by a Spanish officer of high rank,† who had been engaged in the most perilous situations during the long war in the Peninsula; and who acknowledged that he had immediately become an absolute coward—while fully aware of the cause—from an attack of neuralgia of the face. The disease in this case lasted long, while this ardent spirit had become almost a woman, shedding tears on the most trivial occasions.

* Mayo's Pathology, p. 142. † Macculloch, vol. 2. p. 343.

DIAGNOSIS.

When I treat of the special forms of neuralgia, I shall have occasion to point out various complaints of the same parts, with which it is liable to be confounded. But, as I have already shown the distinction to be made between the true spasmodic tic douloureux and that which is modified by the hysterical and rheumatic diatheses, it remains but to distinguish it from active inflammation of the nerves,—a disease, by-the-bye, of very rare occurrence.

Acute neuritis is characterized by a severe, burning, throbbing pain along the course of the nerve. The suffering is continuous, accompanied by much constitutional disturbance. The tongue is white, the pulse rapid, and there is more or less sympathetic fever. The urine is also turbid.

When seated superficially, the nerve itself is often found thickened and prominent. When more deeply placed, its course may be traced by a line of increased vascularity on the skin, while pressure over this part increases the suffering.

Acute neuritis may therefore be known from neuralgia by the general character and persistence of the pain, the tenderness on pressure, and the sym-

pathetic fever. It is also a disease of much shorter continuance,—leading quickly to a subsidence of the symptoms or organic change. With a little tact, therefore, there can be no difficulty in recognising the nature of the ailment.

TREATMENT.

In the original Jacksonian Essay, I described the various forms of neuralgia previous to entering into the subject of their treatment. It now appears to me most advisable, in the first place to discuss the *general principles* of management, and the relative value of remedies, in order that I may then be able to point out their special applicability to individual cases and circumstances.

I must crave indulgence for a certain amount of repetition, which, in any arrangement of the subject, seems almost unavoidable.

We have seen that tic douloureux depends essentially on the morbid excitement of a nerve, and that this excitement is both occasioned and augmented by a great variety of distant and local causes. The principles of treatment therefore resolve themselves into *three chief indications*:—

1st. To remove the predisposing and exciting causes. 2nd. To avoid all possible sources of irritation. 3rd. To allay the morbid irritability of the nerve affected. To each of these three heads I shall now particularly direct attention.

Removal of Causes.—One of the wisest maxims of the medical profession, which is impressed on every tyro by his teacher, is that which inculcates the necessity and advantage of investigating and removing the causes of disease. In fact, it is so self-evident, so based upon common sense and observation, that we may suppose it to be the grand fundamental principle in the art of healing.

Upon the removal of the cause, a complaint generally ceases spontaneously. *Sublatâ causâ, tollitur effectus.* The *vis medicatrix naturæ* completes the cure. This is not always the case with neuralgia, which forms an exception to the general rule. It is well known that this disease will occasionally continue in all its virulence after the removal of the exciting cause. But such is a rare occurrence. When the irritant has been discovered and eradicated, the excitement of the nerve most frequently subsides altogether, or abates so considerably in its violence as to yield readily to treatment. Therefore the cause or causes of neuralgia should be sought after most diligently. Unfortunately, they

cannot always be found. In many instances, they cannot be removed even when discovered. Still it is our duty in the first place to search for them thoroughly.

Our inquiries should be conducted with the greatest care and minuteness. No matter, however apparently trivial, should be allowed to escape scrutiny, as on that possibly the whole disease may depend. The history of the case may throw light upon the subject. The patient should be questioned closely as to the origin of the first symptoms, and his state of health at the time; whether he had had a blow on the part, or suffered from dyspepsia or ague. In this way we may be directed to a solution of the difficulty.

For the sake of illustration, let us suppose a case of suborbital neuralgia. The investigation may begin at the face. The surface of the skin should be examined, especially over the seat of pain, to see if there be the remains of a cut, or the cicatrix of a sore or burn. Sometimes, as I have before mentioned, this will be the occasion of the malady, and a crucial incision over the part the only sure remedy. The contour or shape of the features should be noted, to discover a disease of the bones or a tumour pressing on the nerves. If there be tenderness of the surface—not the peculiar spasm

or thrill of tic douloureux, but a dull, throbbing pain—there may be more or less inflammation, which will require to be treated with antiphlogistics. Disease of the antrum and caries of the bones of the face should always be thought of; and if there be reason to suspect a collection of matter in the maxillary sinus an exploratory opening should be made. The glands beneath the jaw should also be felt, as I once had reason to believe that enlargement of one of them, pressing upon the branches of a nerve, gave rise to the pain.

The examination of the mouth should be conducted in the most careful manner. If there be obvious caries of one or more teeth, I think there cannot be two opinions as to the propriety of extracting them. For, although they may not have been the actual exciting cause of the malady, yet they were quite capable of keeping up the irritation. The same may be said of stumps remaining in the sockets. They give rise to inflammation of the gums, and, like foreign bodies, produce much nervous excitement.

When, upon inspection, the crowns of the teeth are found free from decay, a nice judgment is sometimes required to determine whether there be mischief going on in the fangs. This is often indicated by a discoloration of the tooth, by its being more

prominent than natural, or being looser in the socket. Or, the gum may recede from the neck and be more or less congested and tender. The finger-nail, carefully inserted beneath, and made to press upon the fang, will be a good explorer in such cases. But after all, these signs and symptoms are sometimes absent, and we can then only arrive at a knowledge of the fact of unsoundness, by striking the crowns of all the teeth in succession with some hard substance. This operation will occasion no pain to the sound teeth; but the instant the real diseased one is touched great agony ensues. In this way, we may often detect an exostosis on the fang of a tooth.

It is quite different when the neuralgic pain is referred to one or other of the teeth, and upon the closest examination no indication of disease can be discovered; and when there is no reason to suspect mischief below the gum, after employing the test above described. In such cases, we may be assured that the neuralgia of the dental nerves is but a secondary affection—that the irritation has travelled inwards from the surface of the face. The extraction of sound teeth, under these circumstances, cannot be too much deprecated. The irritation of the nerve, instead of being lessened, is likely to be greatly increased by such a measure.

We may next proceed to ascertain whether the teeth are suffering from *lateral pressure*. This generally arises from their being too much crowded in the jaw, and thus brought into such close contact that an action is set up by nature to separate them. In other words, the adjoining surfaces are removed by absorption, which process gives rise to a good deal of irritation. The incisors are generally the most affected by this kind of derangement. When suspected, the gums should be carefully examined; and if there be but a tenderness of one part, the finger-nail should be gently insinuated between it and the tooth, and pressed upon the periosteum of the neck as before indicated. If the part be in a state of irritation from lateral pressure, an immediate aggravation of the symptoms will be induced. The skilful dentist will readily remove this cause of disease, by effecting a passage between the contiguous teeth, by means of a small flat file or a watch-spring saw.*

The mouth should be also carefully examined, to ascertain if there be any disease of the bones, exfoliation of the alveolar processes, or tumour of the gums. I have previously alluded to one or two instances where such causes of irritation have existed. Mr. Swan says,†—"In one case, where the

* Bew. p. 85. † Op. cit. p. 43.

patient suffered the most excruciating pain in the tongue and throat, and could only swallow with the greatest difficulty, a small portion of the alveolar process irritated the tongue. I removed this with my finger, and the pain immediately ceased and did not return."

If, after the most rigid investigation of the parts in the neighbourhood of the neuralgic pain, no sufficient exciting cause can be discovered, we must then proceed to examine the more distant organs of the body. The state of the abdominal viscera and digestive functions should first claim attention. As far as treatment is concerned, it seems of little importance whether the derangement of the chylopoietic apparatus be the cause or merely the consequence of the neuralgia, provided it be present. All symptoms of dyspepsia should be combated by strict attention to diet and suitable medicines. When the liver is deranged, a course of alteratives will be desirable. If there be reason to suspect scybala, worms, or other source of irritation in the bowels, they should be dislodged without delay. The oil of turpentine I have found answer the purpose admirably. From half-an-ounce to six drachms may be taken, combined with castor oil or infusion of senna.

In the same way, careful inquiry should be made

as to the presence of hæmorrhoids, stricture of the urethra, disease or derangement of the uterus, and leucorrhœa. Each of these has been known to occasion neuralgia. I knew an instance of a lady, whose facial tic douloureux depended on pruritus of the generative organs. At all events, it ceased upon the cure of that complaint.

The *second indication* is, as I have said, to avoid all possible sources of irritation. If it is beneficial to remove carefully the original excitants of the malady, it is equally necessary to prevent others, of like potent nature, from interfering with the cure. This is often entirely disregarded. Some persons, who are under treatment for neuralgia, expose themselves to cold winds and eat rich pastry, although these are among the best-ascertained promoters of the disease. I am acquainted with a gentleman, who wonders at the repeated and severe returns he experiences when he thinks he has entirely conquered the complaint. The moment he has an intermission from his sufferings he goes out to enjoy the sports of the field, and is thus exposed to wet feet and cold winds. A lady, who is laid up one half of the year with this cruel disorder, spends the other half in laying the foundation for its future visits. She cannot resist the temptations of the

table. A stout gentleman, who is occasionally troubled with cranial neuralgia, will submit to any treatment to be temporarily relieved from his sufferings; yet cannot be persuaded to discontinue joining convivial parties and drinking several glasses of wine daily, although these are the obvious causes of the mischief in his case.

It has previously been shown that, when once established, the slightest irritation is capable of inducing the paroxysms of neuralgia. Therefore all those agents that have been enumerated as exciting causes should be borne in mind and, as much as possible, avoided. The painful part should be kept in a state of rest, and at a uniform moderate temperature. The diet should be carefully regulated, excess of all kinds being regarded as an evil. In fine, the general health should be assiduously attended to, and the constitution invigorated by a strict and persevering observance of the ordinary hygienic regulations. By these means alone, many bad cases of neuralgia will speedily subside, and require no further treatment. In all instances, the cure will be much facilitated by a preliminary course of alterative medicines, should the system seem to require them.

We now come to inquire, in reference to the *third*

indication, what are the resources of art in cases of confirmed neuralgia? They are manifold. There is scarcely a drug, in or out of the materia medica, or a remedial agent, that has not been used in the treatment of this painful affection, at one time or another. Some of these have maintained a high reputation, and have even been regarded as *specifics*. But it is needless to say, that there is no real specific for tic douloureux. There is no one agent that will cure all cases, or even the majority of cases. This is amply proved by the number of persons doomed to suffer a life-martyrdom from this distressing malady, whose position and circumstances lead one to believe that everything has been tried that offered a fair prospect of relief.

Yet it cannot be doubted but that several of those remedies have been often essentially serviceable. It is only when they are exclusively relied on that they disappoint the hopes of the medical practitioner. They may be divided into the *general* and the *local;* or those that act upon the disordered nerve by means of an impression made upon the system, and such as, being applied directly to the part, tend to allay at once the topical irritation. Each class has been found, I believe, nearly equal in efficacy—as many cures have been effected with one set of agents as the other. From the views I

entertain of the essential nature of neuralgia, I cannot avoid thinking that local applications are too much slighted. Although I would by no means trust to them alone, yet I feel convinced they may always be combined with general remedies advantageously. Let me now go through the list of remedies *seriatim*, and, after pointing out their mode of administration and action, endeavour to estimate their relative value and importance.

SYSTEMIC REMEDIES.

One of the most prominent of the internal remedies, generally employed in the treatment of neuralgia, is the Sesquicarbonate, or CARBONATE OF IRON. This medicine was introduced to notice by a Mr. Hutchinson, of Southwell. In the second edition of his work, published in 1822,* many cases are recorded of its successful administration. But, as has been acutely remarked, those of failure are not alluded to. At first, the greatest hopes were entertained that this preparation of steel was a real specific for the tic douloureux. Experience has shown, however, that it cannot be depended on. Sometimes it has been eminently successful; at others, quite useless.

* Hutchinson on Tic Douloureux.

Dr. Elliotson, who is a great advocate of this mineral, says of it:—"Although it is the best medicine at present known under these circumstances (neuralgia), it frequently fails altogether: and still more frequently the disease returns, but perhaps yields again and again to it."* The cases which this gentleman has detailed, in the Medico-Chirurgical Transactions, afford, perhaps, the most direct and decided evidence of the power of iron over this disease. They are much better than those of the original discoverer; for, in several instances, Mr. Hutchinson employed active agents at the same time. M. Valleix has shrewdly remarked this, for he says (Op. cit. p. 185): "But in estimating the value of the remedy, there is another point that deserves consideration. Was the subcarbonate of iron the only agent employed? In five of the cases that I have taken from Hutchinson, the treatment was complicated; and the remedies employed with the salt of iron were by no means powerless agents, as we shall see. Two patients were rubbed with tartar-emetic ointment, until a crop of pustules arose on the surface. Two others took the datura stramonium, with great regularity, during a considerable period of their affliction. With the fifth, pills of calomel, antimony and opium, were given

* Cyclop. of Medicine, art. Neuralgia.

night and morning, in addition to belladonna and other narcotics. In a sixth case, it is not stated whether the iron was used alone, or combined with other remedies. It is therefore very difficult to determine what effects were produced by the sub-carbonate. In one case only could the cure be distinctly traced to its employment. In this instance, all the other remedies which had been tried and found useless were suspended, and the amelioration commenced directly the steel was administered by itself. Mr. Hutchinson himself, in his postscript, candidly admits that he never trusted to his favourite preparation alone."

That the sesquicarbonate of iron will not always cure neuralgia the most ample testimony is afforded. I will venture to assert, that in every one of the chronic, reported-incurable cases now existing in this country, this favourite remedy has been repeatedly tried. Many of my patients have told me that they have swallowed very great quantities of *rust-iron*, as they call it, sometimes with a little, often with no benefit. Sir H. Halford mentions the case of a lady, who took, during the course of her illness, *twenty-seven pounds* of the carbonate, and yet died the victim of neuralgia.*

Notwithstanding these drawbacks, I consider it

* Essays and Orations, p. 42.

a valuable remedy. When the patient is not plethoric, and has no tendency to determination of blood to the head, it should always be tried. It is most likely to be serviceable when the disease is associated with debility and anæmia. If the patient have a weak, small pulse, with coldness and paleness of the surface, the happiest effects may be expected from its employment. In moderate doses, it tends to improve the general health. In larger quantities, it is a tonic to the nervous system: allaying, in a specific manner, that excitability on which the neuralgic paroxysm depends. If it disagrees with the stomach, or produces restlessness and fever, it should be discontinued, as itself a sufficient exciting cause of the malady.

Great care should be taken in the selection of the medicine, as there is a great difference in the quality of various samples. The best preparation is the *precipitated* sesquicarbonate, and it should be newly made, otherwise it may have passed into the comparatively inert oxide. That manufactured by Howard I believe to be the best.

It may be given in large and frequently-repeated doses. Mr. Hutchinson gave, it appears, about ninety grains in the twenty-four hours. Dr. Elliotson has since most satisfactorily shown that it may be taken, with safety, in much larger quan-

tities. In fact, as much may be swallowed as can be borne on the stomach. It will rarely constipate when taken in twice its weight of treacle; and this is therefore the usual vehicle in which it is administered. A smart aperient should be given now and then, to obviate the ill effects that would arise from accumulation of so bulky a material. It should be persevered with for some time.

Other ferruginous compounds may be employed when the carbonate disagrees: the *sulphate* in full doses, for instance, or the *muriated tincture*. For persons of delicate stomach, the elegant preparation called *citrate of iron* may be prescribed. The *magnetic oxide* has been lately introduced. Where steel is decidedly indicated, I have found it advisable to change the form frequently, in order to ensure its full and permanent effect on the system.

Previous to the trial of this and other tonic remedies, *great care should be taken that the cases are suitable*—otherwise more harm than good will follow their administration. It is assumed by most people, that neuralgia is a disease of debility, and that the nerves require strengthening, or bracing as it is called. It was the opinion of Sir A. Cooper,* that they were rather below par than otherwise in this complaint, and therefore required

* Lectures. Diseases of the Testis.

to be brought up to the healthy standard. Yet it cannot be denied that, occasionally, neuralgia is associated with a plethoric condition of the system, and a tendency to determination of blood to the head. Dr. Copland has cited one or two remarkable cases, where the disease seemed to depend upon such congestion, and was cured by general and local bloodletting. Hence it will always be advisable to take precautionary measures, and preface the iron by the application of a few leeches to the head if necessary, or the administration of a brisk purgative. As a general rule, it will be found that these tonic remedies are only serviceable when the tongue is clean, and the mucous membranes in a healthy condition.

Bark, Quinine, and Arsenic.—These are medicines that should be classed together, as they act in a similar manner upon the system. They are tonic and antiperiodic. Their power in ague and other intermittent diseases probably suggested their employment in neuralgia, which we know is characterized occasionally by some aguish phenomena. Their value in the treatment of tic douloureux is in proportion to its periodicity. When the paroxysms recur at stated fixed intervals—at six o'clock every evening for instance, with an entire

absence of pain at other times—they are especially serviceable. They should be tried also, whenever the pains are transient, or fly about from one point to another.

With respect to the comparative qualities of these drugs something should be said. The *quinine* is an elegant preparation, and is well borne by the stomach. It should be given in large doses; two, three, or four grains three times a-day. Ten grains administered just before the anticipated accession of a paroxysm, will sometimes cut it short altogether, as it does in ague. It has, I believe, more power over tic douloureux in the liquid than in the solid form. In deference, however, to the opinion of Dr. Elliotson, the powder should be tried if the solution fail.

A combination of this drug with a salt of iron will often be found to act most beneficially. A physician of large practice in this metropolis is in the habit, I understand, of prescribing for his neuralgic patients very large quantities of these medicines—ten grains of quinine and five of the sulphate of iron every fourth hour. As such very heroic doses are rarely well borne, I have generally adopted some such formula as the following, in cases of neuralgia attended with debility and an anæmic condition of the system:—

℞ Quininæ Disulphatis gr. xxiv.
Ferri Sulphatis gr. viij.
Tinct. Cinnam. co. ʒiij.
Infus. Rosæ. ʒviij.
Misce, fiat mistura. Sumat æger unciam bis terve die.

The *citrate of iron and quinine* is an admirable preparation, well adapted to young and delicate females.

Sometimes, when quinine has failed altogether a cure has been effected by the Peruvian Bark itself. We know that *all* the virtues of the latter do not reside in its alkaloid. Some of the best qualities and the full effect of the cinchona are only to be obtained by having recourse to the original drug. It will be well therefore, in certain cases, to try the powder or decoction. The *liquor cinchonæ flavæ* of Mr. Battley is a very efficient preparation. In the hands of Mr. Robarts* it appears to have been very serviceable. It is useless, however, to persevere in the administration of this or any other form of cinchona beyond a week or ten days together, as the beneficial influence, if at all, is evinced in a very short time.

When the bark and its alkaloid are found to disagree, or fail to relieve the symptoms, a trial may be made of *arsenic*. Of course, great care must be

* Lond. and Edin. Journ. of Medical Science, vol. i.

taken that the system be in a fit state for its exhibition.

Some gentlemen have great faith in the virtues of this mineral in neuralgia, as it was the sheet-anchor of Dr. Macculloch. It is said to be especially beneficial in cases arising from malaria, as well as where the disease is very chronic and irregular. A modern writer,* who advocates strongly its employment, thus describes its qualities and the cases in which it should be administered:— "Arsenic operates most favourably on persons who are of lax fibre, accompanied by a languid state of the circulation; and whose secretions are rather profuse than otherwise; the urine pale and plentiful; and more especially on those whose skin is cold and moist. In persons of this description, while arsenic, to an extent far beyond any other medicine, relieves the neuralgic pain, it improves the general health, and gives firmness and vigour to the constitution." Dr. Hunt recommends that it should be given in full doses, and continued until its effects are felt on the system. As soon as symptoms of poisoning appear it should be discontinued, but not before; as it is then only that its specific effect is manifested. A case that came under my own care a while back will serve to illus-

* Dr. Hunt on Tic Douloureux, p. 173.

trate the mode of administration, and the effects of this powerful auxiliary:—

CASE.—*Neuralgia treated with arsenic.*

A. H., aged 35, a lumper in the East India Docks, living in the Isle of Dogs, complained, Sept. 11, 1848, of violent pain in the right temple, shooting from thence up to the top of the head, down the neck and to the back of the ear. This had seized him suddenly upon returning home from work one afternoon about a fortnight before. Obliged to give up his employment. Could not sleep at night. Appetite gone altogether.

Upon inquiry, found that the pain was remittent. It never left him entirely, but came on with increased severity at times—about four in the morning, and from six to seven in the evening. The paroxysms returned also at uncertain intervals during the night. The pain not increased by warmth or pressure. Teeth sound. Tongue clean but rather white.

Concluded that the tic douloureux originated in malaria, so, after regulating the secretions, I prescribed—

Sept. 14. ℞ Liq. Potassæ Arsenitis ʒss.
Tinct. Zingib. ʒj. Misce.

Of this medicine the patient took ten drops, gradually increased to twenty, three times a day, after meals.

Sept. 21.—The pains have considerably abated, but still are troublesome. Increased the dose to thirty drops.

28.—Patient reports himself perfectly free from pain in the head and face, but complains of a burning sensation at the pit of the stomach, with feverishness. Urine scanty

and high coloured. As these symptoms were considered to be indicative of the full action of the arsenic, that medicine was discontinued, and ordered to be resumed upon their subsidence.

Oct. 5.—The pains in the head have returned with some severity. They vanished however, as before, as soon as the system was affected by the mineral.

Two other attacks were similarly treated.

By using great care not to push the action of the remedy too far, and by steady perseverance in its use, all symptoms of the disease yielded before the expiration of the month, and did not return.

This is perhaps a favourable instance of the remedial power of arsenic in neuralgia. The effect is by no means always so perfect or permanent. The disease generally returns after the symptoms of poisoning have passed off. An inspection of the recorded cases will show this. Very often it exercises no influence whatever on the neuralgic symptoms. A good illustration of this was furnished a short time since in the case of a baronet, a patient of Mr. E. Wilson, who was suffering severely from frontal tic douloureux, although fully under the influence of Fowler's solution for the cure of a skin affection.

Arsenic, like quinine, will in some rare cases be found to answer better in the solid than in the liquid form. Care should, of course, be taken that it be properly divided. Dr. Macculloch employed

it rubbed up with sugar. The following is a good formula for pills:—

℞ Arsenici Albi gr. j.
Pulv. Capsici gr. v.
Ext. Gentianæ gr. v. Misce, ut fiant pilulæ xx.

Of these, one, afterwards two, should be taken three times a-day after meals.

Zinc.—A French practitioner, named Meglin, some time since published an account of several cases of neuralgia that he had cured by this mineral. I believe that the pills of Meglin still constitute a favorite remedy on the continent. They are prepared as follows:—

℞ Ext. Hyoscy. Nig.
Oxydi Zinci Sublimati aa. gr. j. Fiat pilula.

Sometimes to this is added a grain of *extract of valerian.*

Meglin began* with one pill night and morning, and doubled the dose each day, until there was a sensible amelioration of the symptoms or a derangement of the stomach. In this compound-interest way the Frenchman administered, they say without inconvenience, as many as from thirty-six to forty-eight of his pills in the four-and-twenty hours, and these large doses were continued for some considerable time.

In this country they find little favour, on account

* Valleix, p. 181.

of the supposed inactive nature of one at least of the ingredients. The *oxide* is generally superseded by the *sulphate* of zinc. It is rarely given alone however, but combined with belladonna in the following proportions:—

℞ Zinci Sulphatis gr. iss.
Ext. Belladonnæ gr. ss.
Ext. Anthemidis gr. ij. Fiat pilula.

This is taken three times a day, and the doses carefully augmented, until either the stomach is affected by the mineral, or the head by the vegetable, preparation. It is, I am given to understand, a favourite remedy with some medical men. For my own part, I must confess that I have never succeeded in *curing* a case of true neuralgia with it alone, although I have found it *alleviate* the symptoms of several.

The sulphate of zinc is tonic and antiperiodic in its action, and should thus be classed with the preparations of iron and bark. In addition, it is supposed to exert a peculiar sedative influence upon the nervous system, and is hence employed largely in the treatment of epilepsy and chorea. The stomach becomes very irritable, however, during its use; and it may therefore be questioned whether we act altogether wisely in rejecting the continental medicine, which, although mild in its operation, may be persisted in for a much longer period, and

thus has a more permanent influence in allaying the nervous irritability.

Nux-Vomica and Strychnine.—These should be enumerated among the favourite remedies in neuralgia, and classed with the tonics, as they act by invigorating the system, and thus checking the tendency to periodicity. They are said to be especially serviceable when the disorder is of a remittent or intermittent character.

Strychnia may be given internally, in doses of a twelfth or an eighth of a grain, two or three times a day, to persons of a leuco-phlegmatic temperament. The *alcoholic extract of nux-vomica* is, however, a much safer and more manageable preparation. It may be given in the form of pill two or three times a day, in doses of from a quarter of a grain to a grain.

Croton Oil.—Those who hold the opinion that neuralgia of the head and other parts of the body is dependent on disorders of the stomach and bowels, put their chief trust in the use of purgatives for its cure, and for this purpose croton oil is by them especially recommended.

Undoubtedly it has been at times most serviceable. Sir Charles Bell, its chief advocate, details several instances of its successful employment. Dr. Allnatt and other writers have added to the list. But it appears to me that the virtues of croton oil, and

aperients in general, have been too much overrated. I have tried them repeatedly, and in the exact manner recommended by the above gentlemen, without benefit. Still I can well imagine cases, obviously depending upon derangement of the primæ viæ, where their administration is plainly indicated. As previously suggested, it would be well to begin the treatment, in all instances, by a course of alterative aperients, as a suitable prelude to the exhibition of more potent remedies. They do good in various ways. They remove possible sources of irritation, restore the secretions to a healthy standard, improve the general health, and determine from the head and chest.

The form of medicine employed by Sir C. Bell* was the following:

℞ Ol. Tiglii Crotonis, gutt. j.
Mas. pil. Colocynth. Co. ʒj.
Misce et fiant pilulæ xij.
Mitte Pil. Galbani Comp. xij.

One of the purgative and two of the gum pills to be taken on going to bed. By perseverance in their use, as often as the strength of the patient would admit, Sir Charles says, he cured five patients in succession; but, singular enough, he was not so successful in subsequent trials. In some cases they

* Nervous System of the Human Body, p. 355.

appeared only to relieve a little; in others to be quite useless. In this great surgeon's hands, therefore, this medicine was by no means a specific.

Other practitioners give the croton oil in small divided doses, combined with stomachic aperients, as in the following formula:

℞ Ol. Crotonis, ♏ j.
Pil. Rhei Co. ʒj. Fiant pilulæ xij.

This is perhaps as good a method of administration as any. One or two of the pills should be taken each night at bed-time. Sometimes I have combined the oil with syrup of ginger or orange-peel, so that a teaspoonful contained a dose.

Sedatives.—In a complaint attended with so much suffering as neuralgia, this class of remedies would naturally be resorted to. When employed internally,—and it is to this method of administration I would at this moment exclusively advert,—I believe they have been found more serviceable in giving temporary relief than in effecting a radical cure. Many practitioners of eminence have spoken highly of their virtues; while others, with equal opportunities for observation, have no faith whatever in them. The effects must vary greatly in different cases. In all instances of chronic neuralgia that have come under my observation, these remedies have been repeatedly tried without avail.

Often, in very severe cases, not the slightest, even temporary, relief has followed the administration of very considerable doses. The experience of continental writers is to the same purport.* Still, as the recurrence of paroxysms of agony continually draws attention to these agents, it will be well to consider which of them are most deserving of trial and confidence.

Opium does not seem to exert its usual soothing effect, at all events in so marked a manner, in this disease as in most others. Indeed, sometimes it appears to heighten the paroxysms. Even when it has a sedative influence, this is only exercised at certain times. Thus it has been noticed that it produces little or no effect during the day-time, when its power is manifest at night. This peculiarity is rare, I should say; but still it points to the advantage of giving the opium in full doses at bed-time.

The *Acetate* or *Muriate of Morphia* may be used instead of the preparations of opium. They are about equal to them in point of efficacy. It is astonishing what large doses will be borne. I have given lately to an old gentleman two and even three grains of the muriate of morphia each night at bed-time, without the slightest mitigation of his sufferings. Another patient, a gentleman labour-

* Valleix, p. 190.

ing under facial neuralgia, was in the habit of holding in his mouth a strong solution of the acetate, apparently sufficient to poison him, in order to obtain temporary benefit, and this was occasionally swallowed with impunity. In allaying the spasmodic action of the muscles sometimes accompanying tic douloureux, either opium or morphia will be found serviceable, and should always be resorted to for that purpose. In fact, it always will be employed by the sufferers, in the hope of producing some mitigation of the symptoms.

It may be as well to remark here, that whatever medicines are given for the cure of neuralgia, should be administered in the *fullest doses*, or for such a time as to ensure a *saturation* of the system. For it may frequently be noticed, that the neuralgic affection will resist the action of the drug until it is exhibited up to this point; when being discontinued, in consequence of the appearance of symptoms of poisoning, the pains have speedily ceased. This is very evident when arsenic or zinc is employed. That it is equally applicable to opiates the following statement, related by M. Sandras, of a patient under his care at the Hôpital Beaujon, is adduced,—"After taking a julep of acetate of morphia for some time without apparent benefit, the woman lost her appetite, complained of vertigo,

nausea, &c. The morphia was discontinued, in consequence of these symptoms; and the neuralgic pains, which had continued up to this time, ceased.*

STRAMONIUM and BELLADONNA are both valuable adjuvants as well as ACONITE. Many cases of cure effected by them are on record. They require to be used with extreme caution; and particular care should be taken in the selection of the drug. A tincture of the leaves has been recommended, but the extract prepared *in vacuo* is more often employed. The extracts of aconite and stramonium may be given by themselves, in full doses, two or three times a day. The extract of belladonna, likewise, should be carefully pushed until its full action is evident. From half a grain to a grain may be given every four hours, either alone or combined with the sulphate of zinc.

Little can be said in recommendation of *henbane* or *conium* uncombined, although they may sometimes, from varying circumstances, be peculiarly applicable. The extract or tincture of *tobacco* is also worthy of trial.

There is another drug which is not much known in this country, although it is held in high estimation in its native clime. I allude to the CANNABIS INDICA, or INDIAN HEMP. This medicine has been

* Medical Times, Jan. 6, 1849.

deemed uncertain in its effects—often powerless; but this may arise from the drug not being genuine, or being injured in its transit from the East. Some botanists and pharmaciens have maintained that there is no essential difference between the Cannabis Sativa and the Cannabis Indica. Hence, probably, the herb of one species has been substituted for the other, which is a great error. The Indian is a much more potent agent than the English plant, and is, in fact, a very powerful auxiliary. With great pains I procured a genuine supply some time since, and found it to exert considerable influence over certain forms of neuralgia. As a sedative, I prefer it to all others in this disease, with the exception of morphia. A baronet of Norfolk, who has been a martyr to facial tic douloureux for several years, says that he has found more relief from this drug than from any other. Such difficulty had he, however, in procuring it genuine in this country, that he ordered it to be sent to him regularly from Calcutta.

To this list of the internal remedies for neuralgia many others might be added, the claims of which have been advocated at various times. The sulphate of copper, colchicum in the form of tincture or acetous extract, and valerian, are perhaps the

most deserving of notice. The oil of turpentine may be mentioned as especially useful in sciatica, and the hydrocyanic acid in neuralgia of the viscera. I may add the iodide of potassium, as especially useful in the rheumatic variety of tic douloureux.

LOCAL APPLICATIONS.

The local means at our disposal are various at the present day. In addition to the usual appliances of leeches, fomentations, poultices, lotions, and anodyne embrocations, which are of little avail in this disease, we have

Blisters.—In that kind of tic douloureux distinguished as rheumatic neuralgia, a succession of blisters is calculated to be of great service. In the spasmodic disease they are of little use, except perhaps in very rare instances. Dr. Macculloch believes them to be positively injurious. The result of his extensive experience justified him in saying:* "I have never yet seen a case where, if the blister was applied near to the disordered nerve, the pain was not aggravated. Such also, I have since found, was the experience of Heberden. And very often, when that particular pain was not

* Op. cit. vol. ii. p. 387.

present before, it is induced by those applications; while, in the other cases, the extent as well as the severity is often increased in an extraordinary manner, particularly should the application be extensive or persisted in. What is called a perpetual blister is almost always a positive aggravation, not only of the local disease itself, but of the general irritability and disorder of the system, which are often sufficiently severe in themselves. But I can understand how blistering, particularly if severe, applied to a somewhat distant part, may sometimes relieve the neuralgia, on the principle already laid down, of exciting a counter-impression, or a new disease—an effect, indeed, which may even follow where this remedy has been applied in the part itself. Such is the explanation of Pearson's case."

In the hands of M. Valleix on the contrary, the Spanish fly appears to have produced a great alleviation of the symptoms and sometimes a cure. His plan was to apply a succession of small blisters over the *points* in the course of the nerve which were painful on pressure. These *foyers*, as I previously mentioned, are often very numerous. The cases adduced in support of this practice are certainly very striking. From the detailed particulars however, I think that in all of them there existed

either rheumatic or chronic *inflammation* in the nerves, as the foundation of the neuralgic pain.

The same principles are applicable to *issues* and *setons* as to blisters. It will be easy to see where the local disease, thus artificially produced, will increase the local evil; as well as the dangers attending evacuating and debilitating measures in a disorder which requires remedies of a tonic and invigorating kind.

It has appeared to me that the efficacy of epispastic agents has been generally in proportion to their quickness of action. Hence I prefer the liquid to the plaster blister; as by its means the epidermis may be raised in a much shorter time.

The Liquor Ammoniæ Fortiss. will be found a most serviceable stimulant for this purpose. The solution should be very strong, and may be applied in the following manner, as first suggested, I believe, by the late Dr. James Johnson:—Pieces of thick lint are cut into a round form, and fitted into the lid of a common chip ointment-box. After being moistened with the ammoniacal solution, they are to be applied to the part affected. The cuticle will be raised by this method in a few seconds. A patient of mine, who was frequently troubled with neuralgic pains about the head and face, always had recourse to the volatile alkali upon the recur-

rence of the attacks. He would simply moisten a piece of cotton wool with the solution, and hold it himself to the part. As soon as rubefaction came on the pains left him. But the effect was very transient.

The Moxa was once employed extensively in the treatment of neuralgia, more especially on the recommendation of the Baron Larrey. Upon an examination of the writings of this great army surgeon, it will be found however, that there is little, either in his theory or practice, to warrant its future application. Thus he says,*—"When the convulsive and habitual movements of certain muscles (which characterize the tic douloureux) have become chronic, whatever may have been the cause, or are the result of some mechanical agent, which has weakened the nervous tissue of its muscles, the moxa is completely indicated: but it should be applied as near as possible to the seat of the disease, and over the course of the injured nerves. This injury consists of a chronic and inflammatory turgescence (*engorgement*) in the *néurilème*, which envelopes the nerves of the parts affected. This remedy communicates an excitation to these organs, produces a salutary derivation of the morbid prin-

* On the Use of the Moxa. Translated by R. Dunglison. London, 1822. p. 20.

ciple which alters their tissue, and re-establishes the course of the nervous fluid. The moxa would not be equally indicated in acute neuralgia proceeding from spontaneous causes, or in tetanic affections, because it increases the irritation."

In this extract it will be perceived that two statements are made, which are by no means indisputable. Neuralgia is by no means essentially characterized by convulsive muscular motion; for this is a symptom which is only occasionally evinced. The definition of the Baron would render it doubtful whether he did not apply the term tic douloureux to cases of simple irritation of the muscles unaccompanied by pain—"nervous twitches" as we call them. Again, I think I have satisfactorily shown that neuralgia does not consist in either an acute or chronic inflammation of the nerves. If it did, possibly no remedy would be more generally applicable to it than that now under consideration.

The three cases adduced are extremely vague and unsatisfactory, although, in the opinion of the Baron, "they leave no doubt respecting the success of the moxa in the chronic tic douloureux, a disease which almost all physicians consider incurable." The first relates to a young soldier of the ex-imperial guard, labouring under a tic douloureux of the left side of the face, who was sent to the military hos-

pital of Gros Caillou, in 1811, six months after having received a blow with a fencing-foil on the cheek-bone of the same side. Six moxas placed over the course of the infra-orbital nerve, and the corresponding branches of the facial, *entirely removed the involuntary convulsion and almost habitual contractions* which he had experienced in the affected part.

Madame D* * * had been afflicted for many years with a tic douloureux, which began in front of the right ear and extended in diverging rays, following the direction of the branches of the temporal nerve towards the top of the head, the forehead, and to the eyelids of the corresponding eye. The attacks were periodical, but very violent. They were followed by headache, sudden palpitation of the heart and oppression, with spasms and icy coldness of the extremities. The convulsive contractions of the muscles of the eyelids occasioned a complete occlusion of the eye, and prevented the patient from seeing even the light on that side during the paroxysms. A great number of remedies, more or less recommended, had been ineffectually tried in this country as well as in Paris.

After having seen this lady in one of these paroxysms, "I," says the Baron, "examined attentively the affected parts, and made myself ac-

quainted with everything that could throw any light upon the causes and progress of the disease. *The principal temporal branches of the facial nerve were easily felt by the finger, in the form and of the firmness of small violin strings*, and the gentlest pressure made upon them caused the most acute pain. After correcting the derangement of the organs of internal life, a number of moxas were applied over the course of the nerves above mentioned. Each application was followed by a sensible amelioration, and every nervous symptom finally disappeared.

The third instance is that of an old lady, who had been affected for many years with a tic douloureux of all the left side of the face, along with an incipient hemiplegia of the same side, the symptoms of which showed themselves particularly during the paroxysms of neuralgia. Previous to the use of the moxa, cupping-glasses were applied and other means which were indicated. She likewise *underwent a treatment* adapted for combating the morbid cause of the neuralgia, which, says M. Larrey, "I should not have been able to cure permanently without such means." What these means were he does not state.

These cases go but a little way, therefore, towards establishing the value of the moxa in this complaint. In the first, it may be doubted whether

there was any neuralgia at all; the disease in the second was founded on, if not in itself, neuritis; in the third, stated generally to be a case of very severe tic douloureux, the principal and most effective treatment consisted in the administration of internal remedies for a considerable length of time.

Stimulating Ointments.—Mr. John Scott, in the year 1834, drew particular attention to these agents, which had often before been incidentally alluded to by others. His object was, "to produce such an effect upon the part as would control the disease; and to keep up the impression of the remedy to such an extent and for such a length of time, as would remove the morbid condition of the nerve."* At first he employed the tartar-emetic, combined with mercurial ointments; but in order to ensure more irritation of the skin, the *bin-iodide of mercury* was adopted, in the proportion of two scruples to the ounce of lard. This was rubbed into the part night and morning until its full effects were produced; and Mr. Scott affirms that by its means he succeeded in curing many cases of obstinate neuralgia. This method of treatment has had a fair trial by other surgeons, but in their hands has not been equally beneficial. I have myself several times employed it without advantage.

* Cases of Tic Douloureux. By John Scott.

Stimulating liniments should of course be included in the same category as the preceding, and those compounded of croton oil are among the best of the kind. The only chance of deriving benefit from such applications is by employing them in the manner recommended by Mr. Pearson in the eighth volume of the *Med.-Chir. Transactions*—viz., by persisting in their use until a considerable extent of the surface of the body is covered with an eruption, attended by the usual concomitants of certain exanthemata. The process is painful and inconvenient, but is free from danger.

The form of liniment employed by Mr. Pearson is worthy of attention; and the more so that it is similar to that recommended by Sir B. Brodie in his work on the Joints:—

℞ Ol. Olivæ, ʒiiss.
Ol. Terebinthinæ, ʒiss.
Acidi Sulphur. ʒj ad ʒij. Misce.

The VEGETABLE ALKALOIDS have been introduced of late years as local applications in this disease. They are generally employed in the form of ointment, and as they are extremely powerful agents should be used with great caution. Their influence is most variable. There can be no doubt but that, occasionally, a single application of one or other of them has sufficed for the total and perma-

nent cure of the complaint. In numerous other instances no advantage has followed their employment. They generally relieve at first, but after each successive trial their power diminishes until they produce no effect whatever, except perhaps an injurious one.

The most active of these remedies is the *aconitine.* A minute portion of this substance, mixed with lard, should be rubbed into the part with the point of the finger. A numbness succeeds, and with it more or less mitigation of the pain. Of course, from its highly poisonous qualities, the alkaloid can only be employed in those cases where the agony is centred in one or two points—not where it is erratic or occupies a large surface.

The *Veratria* ointment is usually prepared in the proportion of a scruple of the alkaloid to the ounce of lard. A disagreeable, tingling, pricking sensation succeeds to the inunction, and continues for some time. When this goes off, the pain generally returns.

Strychnine may be employed in the same manner, in the proportion of two grains to the ounce. It is said to have one advantage over the veratrine; that it does not excite the same disagreeable, pricking sensation.

Morphia has also been used in the form of oint-

ment, but found of even less power than when employed internally. The value of this drug, as an external application, has been however unequivocally displayed when administered by

The Endermic Method.—This is a most valuable resource in certain cases of *localized* neuralgia. Two means of practising it are in use: both, I believe, due to the ingenuity of our French neighbours. One process consists in raising the cuticle from a small portion of the surface by the aid of blistering-plaster, and then sprinkling a grain or two of one of the salts of morphia on the sore. Absorption of the drug ensues, followed sometimes by immediate and permanent relief of the symptoms. The pain vanishes entirely. More often it recurs after an interval of some hours; when, the effused lymph having been wiped from the blistered surface, a fresh supply of the salt may be used. In the same manner strychnine, veratrine, and other alkaloids have been employed, but, I believe, with less success. Numerous cases are recorded by French writers of cures effected by the morphia, used in the way above indicated. It has been found serviceable in some instances in this country. When I have employed it, the beneficial effect has rarely been more than temporary.

The other endermic method alluded to is that by

Inoculation, and is performed in the following manner. A portion of the alkaloid or its salt is made into a paste with water. I prefer dissolving it in a minute portion of alcohol, dilute muriatic or acetic acid, according to its nature. The point of a lancet having been nicely covered with this paste or concentrated solution, is inserted obliquely under the skin at the neuralgic focus. By a little management, a considerable portion of the fluid may be passed beneath the cuticle. Soon afterwards an itching sensation is experienced in the part. A hard, white tubercle appears upon the skin, similar to the eruption in nettle-rash, and this is soon surrounded by an inflamed areola. These symptoms of irritation continue for an hour or two, and then pass off, leaving the skin free from blemish.

This process has some advantages over the other endermic method in certain cases. Thus, it will be found especially useful, morphia being employed, when the tic is seated in the gum or other part of the mouth, as no blister could be well applied there. In order to lessen as much as possible the alarm of patients at the idea of an *operation*, which the production of a lancet is apt to occasion, I have used a *grooved needle* and found it equally serviceable.

Certain modern writers in the French periodicals

speak in extravagant terms of the value of this remedy. But their experience is strangely contrasted with that of our own countrymen. Dr. Rowland, it appears,* tried it in at least twenty cases, but in one only was it at all beneficial.

CHLOROFORM.—Since the discovery and extensive employment of anæsthetic agents, it may readily be imagined that they would be tried in neuralgic affections. Their well-known power in allaying pain during surgical operations, naturally led to the hope that they would be serviceable in these chronic ailments, where the suffering is perhaps as severe. But the result is not satisfactory. When employed by inhalation, chloroform certainly speedily destroys the sensibility of the neuralgic, as it would of any other, patient. But the effect is quite transient. As soon as the stupor is over, the agony returns with the same violence as before: perhaps even with increased power. There may possibly have been an isolated case here and there, wherein it was permanently serviceable; but I believe the feeling of the profession is that of disappointment and regret.

The *local effect* of this powerful agent has yet to be fully tried. No mode of application has hitherto

* Op. cit. p. 89.

been hit upon that is worthy of confidence. In the only cases where it has been employed that I have heard of, the result has been both trifling and ephemeral.

There are two or three other remedial agents to which I should wish slightly to advert, previous to leaving this part of the subject. One of these is GALVANISM, a long-continued current of which is said to be very serviceable in certain forms of neuralgia, more especially of the lower extremities. The electro-magnetic battery is usually employed for its administration. The application is stimulating, and exerts its influence by exhausting the local nervous excitement. No great reliance should be placed on it, as it is extremely uncertain in its action.

Various modes of applying HEAT, some of them very ingenious, have been devised, and always found more or less serviceable. Formerly the *actual cautery* was employed, but is now properly abandoned, as it is found that measures of a milder character are equally beneficial. Of this kind is the *thermic treatment* of Dr. Corrigan of Dublin; which consists in the application of a *heated button* to the neuralgic surface. Dr. Day has latterly endeavoured to improve upon this plan, by the sub-

stitution of what he calls a *thermic hammer* for the button. This little steel instrument is warmed in the flame of a spirit-lamp, and passed briskly over the surface, along the course of the nerve in pain. Contrivances for the application of warm air, either dry or combined with moisture, have in addition been recommended. Such applications are by no means to be despised, as they are calculated to be of service in many instances, more especially in aid of general remedies. Dr. Macculloch, whose experience in these complaints was extensive, speaks very highly of such auxiliaries.

With the apparent inconsistency of medical writers, a system totally opposed to the foregoing has been very lately advocated. A gentleman of Brighton has called attention to the local application of *benumbing cold* in the treatment of neuralgia. My experience of this plan of management has been hitherto unfavourable. Temporary anæsthesia certainly is produced by freezing the skin; but this passes off as soon as the circulation is restored, leaving the part still more irritable. The practice seems to me scarcely in accordance with principle, for cold is known to be one of the most frequent excitants of the complaint.

In the application of these various remedies to

individual cases, much must necessarily be left to the judgment and discretion of the medical practitioner. I would simply remark that experience has shown that some of the agents above enumerated are found more applicable to certain forms of neuralgia than to others; and that the spasmodic, rheumatic, and hysterical varieties require different methods of treatment. Again, it is almost unnecessary to say, that the same remark applies with still greater force to neuralgia when seated on the surface, and when placed in the interior of the body.

Of the MODE OF ACTION of the *internal* remedies for tic douloureux one or two suggestions may be offered. Independently of the purgative drugs, which act, as I have previously intimated, both by removing causes of irritation in the *primæ viæ* and by counter-irritation or revulsion, the rest are either of a *tonic* or a *sedative* character; the one destroying excitability by fortifying the system, and thus making it less servile to morbid actions; the other dulling the vis nervosa, so as to render the nerves impassive to noxious impressions.

The various *local* agents appear to act also either as stimulants or sedatives. We can gain some insight, I believe, into the reason why these

opposing agents tend to the same result, by considering the healthy action of the nerves, according to the latest physiological researches. Although "there is no alteration in the physical appearance of the nerve or its fibres, which can be detected by our aided or unaided vision, yet from the rapidity with which stimuli applied to them produce their effects on distant muscular parts, from the instantaneous cessation of their effects on the removal of the stimulus, and the speedy renewal of them on its re-application, we can refer the phenomena to nothing so well as to a *molecular change*, rapidly propagated along the course of the nerve from the point of application of the stimulus. And in the instantaneousness of its production, and the velocity of its propagation, we may compare it to that remarkable change in the particles of a piece of soft iron, in virtue of which it acquires the properties of a magnet, so long as it is maintained in a certain relation to a galvanic current; these properties being instantaneously communicated when the circuit is completed, and as instantaneously removed when it is broken. A *state of polarity* is induced in the particles of the nerve by the action of the stimulus, which is capable of exciting an analogous change in other particles, whether

muscular or nervous; whence results the peculiar effect of the nervous influence." *

The inference drawn from these and other considerations is, that the nerve is not a mere passive conductor, but is the seat of constant change. Now, it is found that this molecular action or polarity is modified by agents applied directly to the nerves. Thus they may be paralysed by soaking them in a solution of opium, belladonna, aconite, tobacco, or other narcotic substance; and they may be unduly excited by applying a solution of strychnine.†

Both stimulating and sedative agents produce therefore the like result—namely, temporary loss of the polar or erectile property, but in an opposite manner. The one directly poisons or paralyses the action, the other destroys it by over-stimulation. This latter effect is well illustrated by the galvanic current, as expressed in the words of Dr. Golding Bird, in his lectures before the College of Physicians:—"I will now cause a current of electricity to traverse the frog's leg, allowing the positive electricity to enter the nerve and leave at the toes. As might be expected, contractions instantly occur, but as instantly cease, although the electricity con-

* Todd and Bowman's Physiology, vol. i. p. 230.

† Op. cit. p. 235.

tinues still to traverse the limb, as shown by the needle of the galvanometer. I will now break contact with the battery, and again contractions occur; although, as indicated by the galvanometer, the current has ceased to traverse the limb. It is evident, from this experiment, that the nerves must undergo some change during the passage of the current—a change probably connected with an altered arrangement of some of their organic elements, which for the time paralyses the structure to the influence of the current. On arresting the passage of the electricity, the coercing influence of this agent ceases, and the return of the organic elements of the structure produces the second contraction. If, however, the *current* be *allowed* to *traverse* the nerve for *twenty minutes* or longer, *no contraction* will be manifested on breaking contact, the change produced in the structure being permanent, and it is left paralysed to the further influence of the agent."

SECTION OF THE NERVE.

This operation is to be regarded as the ultimate resource of art in the treatment of neuralgia; only to be employed when every other means has failed, and the patient is exhausted from suffering. Sir A.

Cooper justly observed, that it ought to be performed rather by the earnest desire of the patient than by the recommendation of the surgeon. This of course arises from the extreme uncertainty of the result; for experience has shown, that whatever temporary relief may be afforded by the division of a nerve, a permanent cure is rarely effected.

Upon a little reflection it will be apparent, that all cases of neuralgia are by no means equally fitted for the experiment. The pain should be exclusively seated in some well-known nervous trunk, which is easy of access. It should be permanently fixed there—have remained there perhaps for years—and have no disposition to wander from thence to other parts. Moreover, it should depend upon some local cause: that is, not be merely sympathetic of centric derangement, or the result of the neuralgic diathesis. If the operation be performed under other circumstances, the morbid excitement will speedily return, even if removed for the moment, or will be transferred to a neighbouring branch.

The nerves that have been chiefly operated on are those of the face; more especially the terminating branches of the second and third divisions of the fifth, after their exit from the infra-orbital and mental foramina. The trunk and main branches of the facial nerve have also been several times divided.

In the practice of Sir C. Bell and others in this country, no relief of the painful symptoms appears to have followed the section of the portio dura, but the side of the face became paralysed. We are informed by Chelius however, that Klein divided it close to the stylo-mastoid foramen in two instances, and the face-ache completely ceased. The wryness of the mouth and nose which ensued on the destruction of the nerve very soon subsided.*

The same author, or rather perhaps Mr. South, has collected the following examples of the division of nerves in other parts of the body. Delpech and Earle cut directly through the ulnar nerve, where it runs behind the inner condyle. Astley Cooper cut out half an inch of the radial, after laying it bare on the bone. Abernethy cut out half an inch of the digital nerve on the middle joint of the finger. Malagodi separated a semilunar piece of a finger's breadth from the ischiatic nerve in the region of the knee-joint. Swan cut through the perineal at the inner edge of the outer hamstring. Delpech divided the posterior tibial nerve whilst on the hinder edge of the shin bone. Bujalsky cut off, from the outer branches of both the accessory nerves of Willis, at their exit from the *m. sterno-mastoideus*, a piece three inches long. The result

* South's Chelius, vol. ii. p. 886.

of these operations was variable, but on the whole unsatisfactory.

I have myself met with three instances of tic douloureux, where nerves had been previously divided, and the fact that the patients were then suffering from the same pain is proof sufficient that they had derived no essential benefit. The first was that of a poor woman, where the radial had been uselessly cut some years before. Mr. Syme operated without success on the second, the Earl of ———. The third instance is that of another nobleman, which well illustrates the kind of benefit to be ordinarily expected from the operation. One of our chief metropolitan surgeons has divided the nerves of his lordship's face—chiefly the superficial branches of the second and third divisions of the fifth—*five several times*. The section produced at the moment immediate and perfect relief to the neuralgic agony, and the respite continued for about three months—at the end of which time the pain returned as bad as ever.

Various plans of operating have been resorted to. The nerve has been divided by a sub-cutaneous section; or it has been laid bare for that purpose by the knife or caustic. A portion of it has also been cut out by means of *resection;* and to prevent as much as possible all chance of that reunion, on

which the return of the neuralgic excitement is supposed to depend, the cut extremities have been severely cauterized. Some other formidable proceedings have been occasionally adopted.

At the present day the first of these methods, that of sub-cutal section, is, when the case admits of it, the only one practised. Its advantages are, that it produces little or no disfigurement, and is attended with but a trifling amount of pain, while the blood that is extravasated is soon absorbed. On the contrary, it may be objected that the division of the nerve is in every case more difficult, and it may even be missed altogether. We have the acknowledgment of some of the operators themselves, that it was doubtful whether they had succeeded in effecting the section.*

It becomes an important practical point to decide, when neuralgia affects the nerve of one of the extremities, whether the limb or member should be amputated. This operation may, on first consideration of the subject, appear severe; but when contrasted with the patient's sufferings and the danger of a fatal termination may with much prudence be taken into consideration. The great difficulty appears to be, to determine whether the neuralgic irritation depends upon general or local causes. It

* Valleix, p. 211.

would be plainly useless, probably mischievous, to sacrifice a valuable member if the fault were constitutional or centric; but it is quite otherwise if, with the limb, the exciting topical cause of the malady could be separated. Some observations applicable to this important subject will be made hereafter, under the head of "Traumatic Neuralgia."

A NEW METHOD OF TREATMENT.

NOTWITHSTANDING the great variety of general and local remedial agents above described, the cure of neuralgia is by no means always to be effected through their influence. There are a great number of cases, a number much larger than is generally imagined, which totally resist their employment. The fairest and fullest trial of their power is made, under the direction of the most enlightened physicians and surgeons of the day, without avail. The complaint remains intractable, and the patient is apparently condemned to live the victim to constant suffering and hopeless despondency.

Some years ago, I directed my attention to this subject, and tried to devise some additional plan of management for these refractory cases. The old measures having failed or being found inoperative, something new was imperatively required in order to afford a chance of success. The result of my

researches was published in a pamphlet,* in the year 1849, which was very favourably received by the medical profession. Although the plan of treatment therein suggested is far from being so perfect as I could wish, yet as great subsequent experience has tended to convince me of its value, it is my obvious duty to allude to it on the present occasion.

From considering tic douloureux as often a local disease, depending on a state of excessive irritability, sensibility, or spasm of a particular nerve, and from reflecting upon its causes, and observing the effect of topical sedatives, I was led to the conclusion that the most direct way of quieting this state was by the application of *warmth* and *sedative vapour* to the part, so as to soothe the nerves and calm them into regular action. For this purpose I devised an apparatus which answers the purpose sufficiently well. It is a kind of fumigating instrument, in which dried herbs are burned, and the heated vapour directed to any part of the body.

For a full description and engraving of this instrument, the reader is referred to the *brochure*. But it may here be stated that it is extremely simple in construction, and consists essentially of three parts, with their media of connexion—a

* On Painful Affections of the Nerves. Churchill.

cylinder, for igniting the vegetable matter; *bellows*, for maintaining a current of air through the burning material; and *tubes* and *cones* for directing and concentrating the stream of vapour.

The materials used in this apparatus are chiefly the leaves, slender stalks, and seeds of plants. After carefully selecting the herbs, to ascertain their genuineness and purity, they are thoroughly dried by a gentle heat. Each leaf, if it be a large one, is then taken separately and rubbed between the hands, so as to break up the parenchyma into small fragments, from which all stalks and woody fibre are excluded. The plants I have chiefly employed have been various mixtures of belladonna, henbane, cannabis indica, tobacco, hops, aconite, stramonium, hemlock, digitalis, &c. The seeds of various herbs have also been added under certain circumstances.

The chief medicinal effects I have noticed in the use of this instrument are those of a sedative character. But its remedial influence is not alone confined to the use of certain herbs. A considerable power is attributable to the warm current or intense heat generated. When the vegetable matter is ignited, and a current of air is made to pass through the burning mass, a small or great degree of heat can be produced at pleasure. Thus,

when the hand is gently pressed upon the bellows, a mild, warm stream of vapour is poured forth, which may act as a douche to irritable parts. But, by strongly and rapidly compressing the same receptacle, the fire within the cylinder is urged, like that of a smith's forge, and the blast becomes intensely hot and burning. In this way, any degree of rubefaction may be effected on a large or small surface, and by gradually augmenting the temperature, no bad substitute for the moxa is obtained. Thus we may produce in this apparatus the effects of both heat and medicated vapour, and either of these may be employed singly, or combined together in regulated proportion.

If we regard these powers attentively, we shall see that *theoretically* they are calculated to be very serviceable in neuralgic affections. The warm air alone would be beneficial. When we remember that three-fourths of these painful disorders arise from cold, more especially when combined with moisture,—that a draught of cold damp air falling upon the part, or exposure to wintry rain and sleet, is often evidently the cause of the attack,—and that the paroxysms are generally induced and aggravated by such influences,—we may conclude that currents of warm, dry air, would be not only an appropriate, but the natural remedy. If cold and

moisture engendered the pain, warmth and dryness are surely calculated to relieve it. And such is the fact. Heat in some form or other, as I previously mentioned, has always been considered favourable for these complaints. Many times they have been cured by its agency alone; for instance, by the instruments of Drs. Day and Corrigan, and the contrivances of other gentlemen.* Neuralgic patients may often pass the trying (winter) season tolerably, by retaining rather a high temperature in their apartments.

And here I should wish to reply to one or two objections that have been made to this mode of applying remedies. It has been supposed that the vapour is useless as a medicinal agent, because all the virtues of the herbs would be destroyed by the act of combustion. This I consider an error. If vegetable matter be subjected to a red heat in closed vessels, undoubtedly entire decomposition of the organic elements would take place, and whatever remedial properties they may have possessed would be dissipated. But here the great mass of the leaves are exposed to a moderate heat previous to ignition; a free current of air passing through them, the issuing vapour is strongly impregnated with active and efficient ingredients. The essen-

* See the Lancet for January, 1849.

tial oils and other important elements are distilled and condensed again upon the neuralgic surface. There is, I dare say, a considerable difference among vegetables in this respect, but that the sedative power of herbs is not always destroyed by gradual ignition is very apparent. Take, for instance, familiar examples. The Chinaman inhales the fumes of the white poppy, and becomes intoxicated, ultimately overpowered, by its strength. It is in the form of vapour that the Cavendish and Maryland tobacco is consumed, with such prostrating effects upon the youthful and inexperienced. Indeed, so powerful is this latter smoke that it is occasionally employed by surgeons to produce syncope in cases of impacted hernia, and is considered fully equal to the infusion of the herb. Stramonium, again, acts as a powerful sedative when drawn into the lungs; with many other of the drugs I employ, the effect is similar. The vapour of some is so oppressive, that I am almost afraid to use them in my apparatus, and have felt, for instance, seriously incommoded for several days after trying experiments with the varieties of aconite.

Again, it has been imagined that the vapour of herbs, even if of itself powerful, can exert no influence upon the nerves through the integuments; that, however powerful it may be when applied to

a mucous surface, such as exists in the lungs or the rectum, the skin would present an insurmountable barrier to its admission. This may be true to a certain extent under ordinary circumstances; but here the case is peculiar. If the painful nerve lay deep beneath a thick and dense skin, there would be considerable difficulty in reaching it effectually. But ordinarily in neuralgia the excited filament is close to the surface of a fine and delicate integument, and as the latter is generally in a state of excessive irritability, we must suppose that even the ultimate nervous fibrillæ are involved. Hence, the nerve may be said to be exposed almost uncovered to any influence, whether noxious or otherwise. The sedative vapour of burning herbs thus acts upon them in a way it would not do under ordinary circumstances. They are soothed and quieted by it in an extraordinary manner. That this effect is produced as much by the medication as by the pure warmth of the vapour is proved by the facts, that not only is the influence onsiderably modified by the employment of different herbs, but their peculiar constitutional effects are observable after absorption into the system. Thus the pupil has been sensibly dilated after the application of the vapour from belladonna to the back of the neck, and both nausea and vertigo have followed the use

of tobacco fumes to the thorax or even to the lower legs. Other persons present in the room not being influenced, and the systemic effects often appearing only an hour or two after the completion of the operation, show that the effects are not due to inhalation of the vapour, but to absorption into the circulation through the skin.

Of the *practical* working of this remedy I have now had ample experience. It has been tried in a considerable number of cases, more especially since the publication of my previous work on the subject. Several times I have been fortunate enough to cure the complaint, even when severe and chronic, by its employment alone, without giving the patient any internal remedy. More often I have brought it in aid, as a local agent, of the approved resources of medicine. And this I have observed, that when the administration of drugs by the stomach, in full and persevering doses, has failed altogether in producing a specific effect in allaying the local nervous excitement, the continued auxiliary use of this medicated vapour has brought about a speedy cure. And in this way, and with proper limitation, I would recommend its future employment. After the removal of the exciting causes as far as practicable, the secretions should be thoroughly corrected, and the constitution invigorated by diet

and medicine. When by these means the disorder becomes localized—consists merely of local nervous excitement—the sedative vapour may be employed with the greatest advantage. It is not by any means an infallible specific for neuralgia, nor is it applicable to all cases; but with discrimination and management it will be found a valuable adjunct to our remedial agents. It is satisfactory to add, that no ill effect has ever followed its administration.

Allusion will hereafter be made to this plan of management, when I treat of the various forms of tic douloureux; but I think it will be well to insert here a few instances of its successful application in illustration of the foregoing remarks.

CASE.—*Tic Douloureux.* A respectable married woman of the name of Manheimer, residing in Lambeth, was brought to me by a medical friend on the 19th of July, 1848, when the following note was taken :—

Patient has always been weakly and delicate, subject to leucorrhœa and aphthæ, yet has borne five children. Had one tooth drawn when sixteen years of age; but more have since been extracted in consequence of caries, arising from medicine taken and applications made to the face, to alleviate the pain of neuralgia. The origin and history of this affection is curious.

About six years previously, a friend sent her as a present the *chop of a bear.* After eating this delicacy she was picking the bone, when she fancied a small splinter of it

ran into her jaw, on the upper part of the right side, just beyond the teeth. Most probably a tooth was broken, or the alveolar process injured. Be this as it may, immediately afterwards she felt a numbness and disagreeable sensation on both sides of the face. This subsequently subsided on the left side, but continued unabated on the right.

Two or three days after the accident great pain came on up the right side of the face, extending from the lower jaw to the eye, *accompanied by dribbling of saliva.* This continued for two years, with only a slight interval of rest. The agony—which the patient describes as excruciating, at times occupying the whole side of the head and face, and even extending down the neck—was so great that she sometimes became delirious, so that her friends were obliged to have her strapped down in bed. Tried everything that could be devised to afford relief from the pain and procure sleep. Took half a bottle of brandy sometimes on going to bed, and sleeping draughts containing large quantities of opium and morphia.

A great number of eminent medical men prescribed for her at various times. Both general and local remedies were tried without avail. She remembers that full six and twenty blisters were applied, among other plans of treatment, to various parts of her body: the face, back of the neck, and the arm from the elbow to the shoulder. Morphia was frequently sprinkled over the blistered surface, and the sores were kept open for a considerable time. Very little even temporary relief followed.

Her funds being now well nigh exhausted, Mrs. M.

became an out-patient at the Middlesex Hospital. From thence she went to the Westminster, and her torment still continuing, she was received into the University College Hospital, under the care of Dr. W. This must have been about three years ago.

At this time the character of the pain had altered considerably. It was now *periodic*. It would tingle a little all the day long, but about two or three o'clock in the morning it would come on awfully. The disease now yielded to treatment that had often before been tried without effect. Dr. W., she says, gave her tonic medicine and prescribed generous diet, exercise, and amusement. Under this judicious management she greatly improved, so that she was able to leave the institution.

From this period the patient continued nearly well, until she became *enceinte* in March twelvemonth last, (1847.) The account she gives of this neuralgic attack is as follows: —Two or three months after she found herself pregnant, a little blister appeared on the palate, and subsequently a fistulous opening showed itself there. Soon afterwards she felt a little bit of something protrude from the orifice. This she gradually pushed back to the side of the jaw, and she fancies it is there now, lying loose under the mucous membrane. As soon as she had, as she imagined, pushed this body back, she felt the tic douloureux come on excruciatingly. It was exactly as on the previous occasion. The agony *has continued ever since.* Nothing seems to quiet it. The treatment that was so successful before now affords no alleviation.

When Mrs. M. was brought to me I made a careful

examination of the face and jaws. There was no swelling or disfigurement externally. Upon opening the mouth, a large hole was at once perceived in the palatal plate of the superior maxillary bone of the left side. When a probe was introduced through this opening, it grated distinctly against denuded osseous matter. The vomer was necrosed. The edge of the palate bone on the right side was enlarged, but I could detect no loose bone beneath the lining membrane, as the patient intimated. The remaining teeth were sound and the gums healthy. She was worn to a shadow with suffering.

At the time she entered my house, accompanied by her medical attendant, Mr. Earles, she was suffering the greatest agony. The pain seemed to originate in the second division of the fifth pair of nerves, but occupied also branches of the first and third portions. The facial nerve was also apparently implicated. Patient described the pain as darting—stabbing—as if knives were being run into her. There was always a dull, aching pain deep in the cheek and on the palate; but occasional exacerbations of intense suffering, extending from thence over the cheek and lower jaw, backwards to the ear, and upwards to the temple and side of head. These paroxysms came on at uncertain intervals. There was no distinct periodicity. The slightest cause would induce them, and they generally lasted from ten minutes to an hour or more. There was no swelling on the side of the face, neither was there any increase of temperature. Pressure over the seat of pain seemed neither to increase nor diminish the suffering. Patient described a sensation of stiffness of the skin of the

scalp and face of the affected side, and a sense of soreness when closing the eye. The general health was good. No disturbance of the bowels. Appetite moderate. Tongue clean, but rather white on the right side. Sleeps well, when undisturbed by the pain.

Here the exciting cause of the tic douloureux was very apparent. It evidently depended on irritation of the superior maxillary nerve by diseased bone. The trunk of that nerve may also have been in a state of chronic inflammation from the same cause. *This cause could not be removed.*

Under these unpromising circumstances I determined to try and allay the nervous excitement by local applications. As all internal remedies had been previously used without effect, I employed my apparatus, and directed a stream of warm medicated vapour to the side of the head and face, into the meatus auditorius, and by means of a curved tube into the fistulous opening in the palate. This was continued for a quarter of an hour, while the effect was carefully watched.

In a few minutes the patient said that the stiffness of the skin, before alluded to, was leaving her. Gradually a sense of dulness or numbness spread over the side of the face. Ultimately drowsiness and faintness came on, with nausea, until she went off into a slight coma, during which the pupils were dilated, especially that on the right side. Mrs. M. was then removed to a sofa, and in a few minutes recovered her consciousness. *All pain was gone.*

July 20th.—The tic douloureux has scarcely if at all returned since the last application. Repeated the use of

the vapour, but not to so great an extent. The same effects followed, but in a mitigated degree.

22nd.—Has had no return of the pain.

26th.—No return of the neuralgia.

Mrs. M. has been perfectly free from all pain since this time. I heard very lately that she remains quite well. That she will be free from attacks in future is more than I have a right to expect. Such an obvious and powerful exciting cause existing, it is only a source of wonder to myself that she should have remained so long without a return of the paroxysms. A temporary relief was all I anticipated, and the permanent benefit was equally unlooked for and satisfactory.

Case.—*Tic Douloureux.* S. P., employed in a gentleman's family in Woburn-square, applied to me in the early part of January, 1848. She is a widow, fifty years of age, of leuco-phlegmatic temperament and sallow complexion. Her general health has been tolerably good, although subject to occasional attacks of bronchitis. No hereditary tendency to neuralgia, gout, or rheumatic affections can be traced, and her two children are free from these ailments.

More than twelve months previously S. P. was attacked with neuralgia of the face. It came on suddenly without obvious cause, although it may fairly be referred to the nature of her occupation—that of a cook. In preparing for dinner parties, she was sometimes exposed for hours to the most intense heats from the fire, during which time she was generally covered with profuse perspiration. The head and face, of course, under these circumstances, were the parts most exposed, and therefore most likely to suffer.

Had not been troubled particularly with toothache, liver complaint, or derangement of the bowels. The tic douloureux has continued off and on ever since. Tried everything she could think of and others could suggest. Has been under the care of several medical men, who prescribed iron, quinine, arsenic, croton oil, &c., with little or no effect. Several teeth have been extracted, under the idea that the complaint originated with them. Their removal seemed rather to aggravate the disorder.

When I first saw the patient on the 12th January, the following symptoms presented themselves. Great pain on the right side of the face, extending to the ear, lower jaw, and forehead. Also very bad beneath the eye and in the upper lip. It was described as of a darting, digging character, sometimes so severe as to make her scream out in agony.

The physiognomy was very characteristic. As the slightest movement of the head or jaw would bring on instantly a violent paroxysm, these were kept rigidly and watchfully motionless. The lips were a little separated, with a handkerchief constantly below them, to catch the saliva, which flowed abundantly. A trembling motion could be observed in the upper lip, especially during a paroxysm; and this sometimes extended to the cheek, without producing any distortion of the features. The poor woman said that she felt at these moments a sensation on her cheek as if the pendulum of a clock were vibrating there. The whole expression was that of alarm and anxiety.

The pain was not continuous: it came on in paroxysms

every five or ten minutes. When the fit was over she felt very hungry, but was afraid to eat lest she should bring on a return of the agony. At times, the utterance of a word would induce a fit, but the least attempt to bite or masticate was sure to do so. The upper lip especially was so irritable that the touch of a feather or a breath of air falling upon it would inflict torture. The patient had suffered much from loss of sleep. Latterly she had not slept at all. Abdominal functions regular: bowels open: tongue clean, but rather white.

Here the tic douloureux was well marked; and evidently seated principally in the terminal branches of the superior maxillary nerve, in the mandibulo-labralis and some muscular twigs of the inferior maxillary, and in the pes anserinus of the portio dura.

Jan. 12th.—While in a paroxysm of suffering, applied the vapour to the side of the face and ear, and injected a stream into the meatus auditorius. This was continued for about a quarter of an hour. Some giddiness ensued, and the patient became faint and nauseated.

13th.—Has slept well all night. Pain much relieved. Repeated the process.

14th, 15th, 16th.—The apparatus used daily. No medicine given. All pain has left the side of the face, but remains in the upper lip. Some little suffering is occasioned also when the patient opens her mouth wide, or bites any hard substance. The tongue is losing its feverish whiteness, and becoming moist and red.

21st.—Has had the vapour applied daily, not only in the ear, but along the course of the nerve in pain. No ill

effect follows the application. At this date the patient says *she is quite well.* No motion whatever of the mouth will bring on the least pain or stiffness. She bites the hardest crusts with impunity.

CASE.—*Tic Douloureux.* This was another instance of neuralgia occurring in consequence of exposure to sudden change of temperature. It came under my notice also at the beginning of the year 1848.

Elizabeth V., cook in a gentleman's family in Woburn-place, is a widow thirty-three of years of age, of nervo-sanguineous temperament, costive habit of body, and a sufferer from dyspepsia. Catamenia regular. The history she gives of her neuralgic affection is this :—

She does not remember that either of her parents were troubled in the same way, but she herself has had occasional attacks of it since she was ten years of age. They came on every November, and lasted for three months or more, during which time she suffered intense agony. For six weeks together she has not been able to sleep in consequence. The tic douloureux had not troubled her for the last three years, until it returned in all its violence the previous winter. (This note was taken in January, 1848.) She supposed it to arise from a carious tooth, and had this extracted without benefit. Many medical men have prescribed for her, and latterly one of eminence in Oxford, (the late Mr. Parker.) Thinks this did her no good. Some of the remedies seemed to increase the ailment. Could not ascertain all the medicines she had been taking, but knows that tonics, purgatives, and iodine were among the number.

Saw E. V. on Jan. 7th, and ascertained that she was suffering from genuine tic douloureux. She had great agony in the face—a severe, darting, plunging pain extending from the ear across the cheek—in fact, taking the course of the portio dura and pes anserinus. The terminal branches of the superior maxillary nerve beneath the eye were also affected. The pain was not continuous, but the paroxysms came on occasionally with perfect intermissions. The periodicity was not, however, by any means perfect, nor did they take any particular type. They seemed to be determined by slight and accidental causes.

The general health pretty good. Viscera of the chest and abdomen healthy. The appetite is however bad, and the tongue foul. The bowels also are habitually constipated. Upon examination of the mouth found several carious teeth, which I recommended to be extracted as sources of irritation. Patient would not consent to this.

As there was evidence of more disturbance of the primæ viæ in this case than I have usually met with, I determined to try the full effect of remedies directed to that quarter. The bowels were therefore thoroughly unloaded by aperient medicine with croton oil, and a course of alteratives and stomachics. This was persevered in for some time. The result was, improvement of the appetite and cleanness of the tongue, but the pain raged with equal severity. Quinine and arsenic were then tried, with the same result; but seeming rather, in the opinion of the patient, to aggravate the symptoms, the carbonate of iron, in doses of a teaspoonful three times a day, was substituted. Little

improvement followed. The sufferer's patience was becoming exhausted, so that on Feb. 1st, I applied the warm medicated vapour to the seat of pain. The stream was poured into the ear and on the side of the face, along the course of the nerves affected. The application was continued until the patient felt a glow in the ear, and she became somewhat sick and faint.

2nd.—E. V. was sick after she got home. Pain much relieved; slept well during the night. To-day she complains of slight pains only in the course of the nerves.

9th.—Patient has not been able to attend regularly. The application has only once been made since the last date. Still the complaint is greatly mitigated, and she has good rest at night. The pain has entirely left the ear and cheek, and is centred only in the infra-orbital nerve. Vapour again applied.

17th.—Came to-day to say that she has been quite well for the last week: has had no symptom of the complaint. Ordered to have the vapour applied as opportunity serves. Saw E. V. several times during the succeeding six months; but she would not have the apparatus used, as she said it was unnecessary. No return of the complaint during that time.

Case.—*Tic Douloureux.* J. J., a tailor, applied at the Metropolitan Free Hospital, on the 19th of August, 1848. He is a tall, thin man, forty-five years of age, of meagre aspect and feeble constitution. About a twelvemonth previously was attacked with pain in the gums, and up the left side of the face. It came on suddenly without obvious

cause, continued for about three weeks, and then as suddenly left, returning and leaving at intervals. The present attack commenced about three weeks since.

Upon examination, observe an anxious countenance; left side of face drawn up a little. Says the pain shoots up the cheek to the forehead and towards the ear. Sometimes the eye is attacked, when there is an abundant flow of tears. A brilliant light appears to the patient to pass occasionally from the angle of the left eye towards the ear. The muscles of the face are sometimes agitated. The suffering comes on in paroxysms, but with no regular periodicity. The teeth always bad, from dyspepsia and mercury; all the back ones are now decaying or decayed. Has had several drawn for the toothache, or the complaint from which he is now suffering.

There is tenderness of the integuments of the chest, but the viscera are healthy. The bowels are costive, and he is much troubled with the thread worms; appetite good; tongue moist and tolerably clean; circulation natural.

The neuralgia in this case could, I believe, be traced satisfactorily to the state of the teeth and the condition of the alimentary canal. Ordering the patient aperient medicine and an aloetic enema, I at once applied the warm medicated vapour to the side of the face and ear. It had the effect of allaying the pain immediately.

Aug. 23rd.—Nearly well.

Two more applications completed the cure.

CASE.—*Frontal Neuralgia.* Mrs. ——, a lady residing in Eaton-square, consulted me (April, 1850,) for a severe pain in the forehead, from which she had suffered for the

previous two years. She is a fine, robust person, of fair complexion, and in her eight-and-twentieth year. No cause can be assigned for the attack, as the general health has been excellent, and only once has she suffered from rheumatism, in the form of acute lumbago.

The complaint consists in a sharp, plunging pain over the eye—sometimes in the eye. It is paroxysmal in character, but has no regular periodicity. Occasionally it is most severe, and then extends over the vertex, and even to the back of the head and neck; being always aggravated by exposure to cold air, especially if it be damp. This cause will bring it on at any time.

No local disturbance observable, except that the conjunctiva is rather yellow and somewhat congested. No functional derangement of the abdominal or pelvic viscera. The teeth are quite sound and the tongue clean, but rather white. Various tonic and aperient medicines have been taken without avail.

April 30th.—Applied the medicated vapour by means of one of the cones to the brow for about ten minutes. It completely quieted the pain.

May 4th.—The vapour again employed.

May 24th.—Received a note from Mrs. —— stating that she had had no return whatever of the suffering.

Case. — *Tic Douloureux.* William W., a surgical machinist, residing in Thorney-street, Bloomsbury, was recommended to me by Mr. Weedon the instrument-maker, in August, 1850, as a fit subject for the vapour, as he was then suffering excruciating agony from facial tic douloureux.

The patient, who was in his *eighty-first year*, supplied the following particulars of the origin of his malady.

Always healthy before the attack of neuralgia. No gout or rheumatism. About three years ago had a sciatica, occasioned, he supposed, by sleeping in a damp room. Pain extended all down the right side, even to the toes. Suffered at the same time from face-ache, more especially of the lower jaw of the left side, for which several teeth and stumps were extracted. This had a temporary effect, so that the pain gradually subsided. In the beginning of this year had a "constitutional bilious attack," and when this abated the pain in the jaw returned as before, but soon merged into regular tic douloureux, from which he has suffered more or less ever since. The "shoots," as he called them, came on at uncertain intervals, perhaps every quarter of an hour, and lasted from two to five minutes at a time. The agony was indescribable—"as if hot lead were being poured into the jaw." Sometimes it was like a steam-gun—"as if compressed hot air was driven along the bone and discharged in a stream by the ear." The suffering often caused him to bellow so as to disturb the neighbourhood. As it was worse at night than in the day, he has often rushed out of bed into the streets and wandered about distracted.

At the time this note was taken the neuralgia was chiefly seated in the third division of the fifth pair, but often extended to the sub-orbital and facial nerves, so as to involve the cheek and ear in the suffering. There was no swelling or discoloration of the parts—no tenderness on firm pressure, though the skin over the chin and lower lip

was most irritable. There was nothing within the mouth sufficient to account for the suffering. The gums of the left side were quite healthy and free from stumps. The tongue was rather coated. Appetite good when able to eat, which was not often, as the slightest motion of the jaws induced the agony. No pain or enlargement of the liver or other indication of visceral disease. The bladder was, however, very irritable.

As there was evidence of disturbance of the primæ viæ, a course of saline aperients was first prescribed, followed by gentle stomachic bitters with alkalis. These medicines producing no mitigation of the symptoms, the carbonate of iron was ordered, and persevered with for some time without benefit. At the beginning of September therefore, my vapour apparatus was put in requisition. Soon after the first application the pain was alleviated. At every succeeding trial it was lessened, so that he was able to move his jaws freely, to eat heartily, and sleep soundly. Still the complaint, in so very old a man, threatened to prove obstinate. Finding a distinct and decided benefit from the application, and seeing the advantage of its more frequent employment, his fellow-workmen clubbed together and made him an instrument for his own private use. By employing this diligently and perseveringly, according to my instructions, the tic douloureux was completely eradicated in a very short time and did not return.

THE FORMS OF NEURALGIA.

Under this title we are to consider, *seriatim*, those painful affections that occupy particular nerves, or are seated in individual parts of the system. Many of these in former times received special names, and were regarded as distinct diseases. Although we now, with more enlightened views of pathology, doubt the correctness of this judgment, and esteem neuralgia in all parts of the body as essentially the same: yet there are circumstances connected with the individual forms which render their separate investigation both interesting and useful. We are thus enabled to recognise the complaint more readily at its earliest epoch, and distinguish it from the various affections to which the same parts are liable. For the symptoms vary considerably, and assume a characteristic quality in the several regions, possibly in accordance with the structure,

functions, or connexions of the nerves implicated, and the local causes of disturbance.

As has been previously stated, neuralgia may be seated in any organ of the body, or occupy a portion or the whole of any particular set of nerves. It may be either external or internal, and, as far as we can judge, placed in both the excito-motory and sympathetic systems. I know not that any great advantage would accrue from a correct classification of these pains, although an improvement might readily be made upon the arrangement of Chaussier,* which requires some modification at the present day. The plan I propose to follow has no reference to this, but is based upon simple convenience. The more important and frequent affections of the head and face will first engage attention, followed by those of the trunk and extremities. Neuralgia of the external will precede that of the internal organs of the body. Finally, a distinct section will be devoted to those neuralgic pains arising from wounds and operations. Reference will be made to recorded instances; but if cases of the kind have occurred in my own practice, they will be adduced in illustration. By this means only can I hope to add to the stock of previous information.

* Table Synoptique de la Névralgie.

The usual habit of neuralgia is to be located in one particular spot or nerve. Whenever the paroxysms recur, they attack the same part. Sometimes, but very rarely, the pain will shift its seat by a kind of metastasis—from the face to the liver, for instance, or *vice-versâ*. Occasionally, however, a case is met with of what may be justly termed

GENERAL NEURALGIA.

Here the pain is not seated for any length of time in one particular part, but attacks sometimes one place, sometimes another. The face, the scalp, the hip, the finger, or the toe, is successively invaded, and then perhaps the back or thorax. Sensations are also experienced indicative of ganglionic implication. In fact, the whole system is so invaded by erratic suffering, that the unfortunate patient seems to have inherited the threatened doom of Caliban:—

> ——"Thou shalt have cramps,
> Side-stitches that shall pen thy breath up; urchins
> Shall, for that vast of night that they may work,
> All exercise upon thee: thou shalt be pinched
> As thick as honeycombs, each pinch more stinging
> Than bees that made them."

The pain is often very severe, of the usual sharp,

lancinating, plunging kind, and paroxysmal in character, with a frequent tendency to periodicity. It is evidently the result of the neuralgic diathesis—of some condition in which the entire nervous system is disturbed. Its cause is generally involved in considerable obscurity. Sometimes it is connected with derangement of the chylo-poietic viscera, but not always obviously so. More frequently it is occasioned, I believe, by malaria; whatever that agent is that exercises so baneful an influence upon the system. Dr. Macculloch, in the work previously quoted, alludes to this flying neuralgia occurring in marshy districts. Most of those whom I have seen suffering from it have had the characteristic *miasmic expression*.

As the disease is not localized, this form of neuralgia should obviously be treated by systemic remedies. Topical applications can only be palliative. A course of quinine, arsenic, or steel, offers the best chance of success, after the secretions have been corrected. And these tonic remedies should be persisted in for some length of time after the painful symptoms have ceased, otherwise they will recur again at a future period. It is extremely difficult to eradicate this diathesis. The effects of marsh poison remain often for years after removal to a more healthy district; and it is to counterbalance

this evil influence and eliminate it from the system, that invigorating measures are so imperatively called for. To all painful affections depending upon a constitutional or central cause, the same observation equally applies. The treatment should be continued long after the local excitement has subsided. The following case affords a good example of the form of neuralgia under consideration.

CASE.—*General Neuralgia.*

Dr. L., a gentleman of the Jewish persuasion, in his thirty-eighth year, has suffered for a long time past from this complaint in an aggravated form. He was formerly in extensive practice as a surgeon, but has latterly been quite incapable of following any employment.

The diathesis on which the disease is founded cannot apparently, in this instance, be attributed to malaria or dyspepsia. No distinct cause can be assigned, but there is every reason to believe that the complaint is hereditary—derived from his forefathers. His mother suffered long from similar flying pains. His uncle is a complete martyr to tic douloureux. His cousin suffers severely. All the family are nervous. He himself is of a highly nervous, excitable temperament, of unequal spirits, and subject to various hysterical symptoms.

About twelve years ago, the patient experienced little twitching pains in various parts of the body. At first these appeared but once in a month or six weeks. Gradually they increased in severity and frequency, and put on all

the characters of tic douloureux. Within the last three or four years, the paroxysms have acquired so much intensity that his life has been a burden. Compelled to relinquish his profession, he has devoted himself entirely to his ailments. In his own words, "he has tried everybody and everything," without effect. Quinine, iron, arsenic, have been taken in large and persevering doses. Consulted the most eminent members of the profession, and by their advice has relinquished all medicine, except the acetate of morphia, of which he takes three-quarters of a grain three times a day.

At the time Dr. L. consulted me (May 24, 1850), he had become excessively weak and emaciated. The neuralgic pains came on in paroxysms two or three times during the four-and-twenty hours, nearly as frequent in the night as the day. He could get no rest for them. Sometimes a fit of acute agony would supervene of a much more intense character than before, and last for about half an hour. This would cause him to shriek out lustily. The neuralgia has no fixed seat, even at present. It flies about from one part to another. Has had it in the face and head. Often it will attack the ribs or back, then appear in the lower limbs, following the course of the sciatic nerve to the patella, shoot from thence down to the foot, and inside the ankle, instep, or toe; and then again leave these parts suddenly, and torment the thumb, the arm, or the little finger. Capricious as these visits apparently are, any trivial cause will determine them to a particular spot. Thus, if accidentally a slight blow or kick is received, the part remains the focus of neuralgic suffering for a long time after. Yet

the complaint is never made worse by climate or temperature. The metastasis is perfect. The neuralgic focus for the time being seems to attract all the nervous excitement. The skin becomes excessively irritable over the part, so that the touch of a feather aggravates to an extreme degree all the painful symptoms.

Yet the general health, in spite of all these frightful sufferings, remains pretty good. There is a great want of power certainly, but no organic disease. The chest, abdomen, and spine, have been repeatedly examined without anything wrong being detected. The functions of the body are performed with regularity. The tongue is clean, but rather white. Appetite good. Teeth apparently sound. He never has been troubled with toothache; and sleeps well when undisturbed by the pain.

These are the leading circumstances of this very interesting case. As almost everything had been previously tried, I could suggest little for the relief of Dr. L., except a mild current of electro-magnetism. This was employed for a short time, but rather aggravated the symptoms. Subsequently, I induced him to try the effect of a stream of warm vapour applied to the spinal column. From this he derived some benefit as far as his general strength was concerned, but I fear the neuralgic affection continued much *in statu quo*. It was doubtless dependent on some serious change in the nervous centres, that is beyond the reach of art.

In this form, the neuralgic characters are more distinctly marked and more fearfully agonizing than elsewhere. Many elaborate treatises have been written on it, under a variety of designations. Dr. John Fothergill, who was about the first to direct attention to it in this country, called it simply "a painful affection of the face." André, a surgeon of Versailles, nearly at the same time styled it "Tic douloureux." Dr. Darwin described it as "Hemicrania idiopathica;" Sauvages as "Trismus dolorificus;" and "Trismus maxillare." Heberden termed it "Dolor capitis intermittens;" Dr. Samuel Fothergill, "Faciei morbus nervorum crucians;" Young, "Antalgia dolorosa." Chaussier, the French writer who pointed out the various species of the disease, gave it the title of "Neuralgia facialis," which was modified by Goode into "Neuralgia faciei." Dr. Kerrison and Mr. Hutchinson have nearly a similar designation of the malady: the one calling it "Neuralgia facialis spasmodica," the other "Neuralgia faciei spasmodica."

These names are certainly of little importance, but are here detailed because they point out admirably the leading symptoms of the malady, and the

idea which each of these distinguished individuals formed of the nature of the complaint. Some of them are decidedly objectionable, as leading to erroneous notions of the pathology; but others again have been loudly decried, as it appears to me, without sufficient reason.

The French term, "tic douloureux," for instance, may merit a moment's consideration. It has been objected to, because it was supposed to convey no distinct idea. There must be some mistake in this. The word *tic* signifies a convulsive movement or spasm; and therefore André, who suggested it, considered it very applicable, more especially to those cases where there was trepidation or convulsive twitching of the skin. Now it probably was unnoticed by that surgeon, but there are sensations experienced by patients suffering from facial neuralgia, which render the term not only expressive but admirable. I allude to the feeling during the paroxysms, as if something were moving in the cheek—something oscillating, and sounding like the pendulum of a clock. This odd sensation has been repeatedly described to me by patients, without any leading question being applied to them. Thus, an aged female, whom I had lately under my care, fancied she heard the vibration. "Here it is, sir," she would say, pointing to her cheek, "it goes

click, click, click." Another person, upon my asking who had told her the nature of her complaint, said, "I knew it was the tic douloureux, because I heard it go *tick, tick, tick.*"

Further investigation has shown me that this impression of a sounding oscillation is not entirely confined to the cheek. It was felt distinctly in the temple by a young lady suffering from frontal neuralgia; and in the side of the neck, over the sterno-mastoid muscle, by a lady in whom the descending branches of the facial nerve were neuralgic. Still more singular, the Earl of —— assures me that he has distinctly experienced the sensation in his back, about the situation of the third dorsal vertebra, immediately before the paroxysms of cervico-occipital tic douloureux.

Not to rest this matter entirely upon my individual observation, I adduce the testimony of others to the same effect. A patient of Mr. Hutchinson, a Mr. Servis of Cheswardine, says in one of his letters:—"It sometimes commences with a slight corruscation or ticking, somewhat similar to that of a pendulum, whence it may probably derive its name." Again, at page 91 of the same gentleman's work, a Mr. James Key, we are told, "used to compare the feel to the clicking of the pendulum of a clock, and every click (to use his own expression)

conveyed to him the sensation of a lancet, or the sharp point of a knife, penetrating his lip and nose." Dr. Carter, in describing the case of Thomas Wornstall, says, "at night he got no rest, owing to the pain and the beating at the temples, which, to use his own expression, was exactly like the ticking of a watch."

We can only guess at the cause of this sensation. It may, by possibility, be occasioned by the spasmodic action of the nerve itself during the paroxysm; or, which is more probable, result from the implication of the auditory nerve in the diseased action: —the idea of sound arising from irritation of the nerves of the ear, in the same way as flashes of light appear to the patient when those of the eye are disturbed. Although, therefore, the term was originally employed to designate those bad cases accompanied by distortion of the features, or, as the French term it, "spasme cynique," yet it aptly enough points to a symptom that is peculiar to this disease. Tic douloureux is hence, in my opinion, a good distinctive name for facial neuralgia.

Many circumstances concur to render the face more especially obnoxious to neuralgic affections. Certain points connected with the anatomical *distribution of the nerves* deserve consideration. In the first place, we are struck with the immense

number and size of the filaments supplied to the parts. The side of the face is quite covered with nervous branches. The pes anserinus itself forms a plexus upon the cheek and jaw, and, together with the second and third divisions of the fifth, the terminal branches of which are both large and numerous, forms a network of interlacements of extreme intricacy. Altogether, we may conclude that the face is supplied with a more than ordinary number of nerves, and these run immediately beneath a thin and delicate skin.

Next, we are led to consider the peculiar *connexion* that exists between the different fibrils; and this not only between branches from separate cerebral nerves, but between these again and the sympathetic. I would direct attention more particularly to the place and mode of union of the portio dura with the three divisions of the fifth. The principal point of contact is undoubtedly beneath the eye, between the cheek and the side of the nose. In the illustrations of Sir C. Bell and Mr. Swan this is well demonstrated. The transverse facial branches of the portio dura incorporate with the terminating offsets of the superior maxillary, after its emergence from the infra-orbital foramen. The facial nerve also unites with the buccal on the cheek, and with a twig of the nasal on the nose. The

second grand junction of the fifth and seventh nerves is between the mandibulo-labralis branch of the inferior maxillary, and the cervico-facial branches of the portio dura. This takes place on the chin and lower lip. The third union is on the temple and eyebrow, but more especially the latter, where the temporal branches of the facial come in contact with and form a strict league with the branches of the frontal nerve, just emerged from the supra-orbital notch. These are the three principal points of contact; but there are numerous other places where the two sets of nerves are connected. Thus they meet upon the side and crown of the head, on the eyelids, cheek, and lower jaw; and by means of a branch of the third division of the fifth, just in front of the ear. This is the point to which Sir C. Bell has particularly called attention.

The chief union of the nerves of the face with the sympathetic takes place in the spheno-maxillary fossa, by the junction of the superior maxillary with Meckel's ganglion. The course of that portion of the Vidian nerve called the chorda tympani is deserving of attention. By its means there is a direct communication between the spheno-maxillary ganglion and the gustatory branch of the inferior maxillary nerve. The relations of the semi-lunar,

the otic, and the submaxillary ganglia, are perhaps of less importance in relation to neuralgia.

Particular attention should also be directed to the relation of the nerves of the face to the lower jaw, the parotid gland, the teeth, and the surface of the body. The branches of the third division of the fifth are intimately connected with the inferior maxilla. The main portion of the nerve enters the dental canal; its mylo-hyoid branch is lodged in a groove on its inner surface; and its masseteric branch passes through the sigmoid notch of the bone. The portio dura is also closely connected with the jaw. These relations are possibly of little practical importance during health; but when the nerves are in a morbidly irritable condition, the slightest motion of the mouth will seriously affect them. This is well known to be the case. The position of the chorda tympani, in relation to the condyle of the lower maxilla, may be worthy of consideration. By emerging through the Glasserian fissure, it is liable to be pressed upon and irritated each time the mouth is opened, in cases where the joint is swollen by disease. I have more than once noticed tumefaction and tenderness about the joint in neuralgic patients.

The facial nerve, lying imbedded and forming a plexus in the parotid gland, would, we may readily

imagine, be affected by disease of that organ. Pressure on the nerve may be exerted by inflammation of its substance, or condensation through cold or other causes. The anatomical fact serves also to explain, why paroxysms of tic douloureux are brought on by the sight or even the thought of food, which I have repeatedly noticed.

The most casual observation will convince us that the nerves of the face are peculiarly situated with regard to the surface. They are much nearer than ordinary, and therefore more liable to be affected by atmospheric influences and malaria. Large branches, such as the facial and terminating twigs of the trigeminus, lie immediately under the skin, which is moreover very thin and fine. Others, like the nasal and portions of the ophthalmic, are covered merely by mucous membrane. The chorda tympani is also peculiarly exposed to atmospheric vicissitudes in its course, almost uncovered, through the tympanum. All these circumstances are calculated to exercise an influence in the production of facial neuralgia.

Physiology may assist somewhat in the elucidation of this obscure subject. The peculiar distribution of the nerves of the face renders it probable that they play a very important part in the animal economy. We may infer that this high function

predisposes to their derangement, as tissues are liable to disturbance in proportion to their organization. And here I may venture to call attention to the fact that, whereas in other parts of the body the nervous fibrils of motion and sensation run together in one sheath from their origin to their termination, here they coalesce only at their peripheral extremities. This arrangement may possibly of itself be sufficient to account for the disturbance to which they are so obnoxious when the nervous centres are deranged.

In connexion with neuralgia, it becomes interesting to ascertain the varied opinions of physiologists with respect to the functions of the several nerves of the face.

The portio dura is now universally, at least in this country, regarded as a motor nerve. If it be compressed or divided, paralysis takes place on the same side of the face. Besides conveying a voluntary power over the muscles, it produces, according to Sir C. Bell, that consent among them, with the organs of respiration, which continues after the voluntary power is gone. For the same reason it must be a nerve of expression, since the selfsame parts are the organs of expression and the organs of respiration. Mr. Swan has shown that sensitive fibres are enclosed in the same neurilemma with

some of the motor branches, and, being distributed with them, make the facial in some degree a nerve of mixed functions.

The trigeminus is regarded as the nerve of sensation. The first and second divisions are considered altogether sensory in function. The inferior maxillary nerve, by its union with the slender branch passing from the Gasserian ganglion, is a compound nerve. It furnishes also the gustatory, which is devoted to special sense.

From observing the large size and great number of the branches of the fifth pair distributed to the surface of the face, and the recorded effects of their division by surgical operation or accident, it is doubtful whether the whole of their function is limited to cenæsthesis and the afference of sensation to the brain. Whether they direct the organic functions in the face is not yet determined. Possibly they may play a more important, or at all events a more extended, part than is yet imagined. The phenomena of blushing would seem to indicate this.

The nerves of the sympathetic system are believed to be those of organic life, and to preside over nutrition and secretion. They do not, however, contribute to these functions anything essential to their performance, but they seem to exercise

that control necessary to bring them into relation with the system of animal life. The ganglia found on them, such as Meckel's, the otic, submaxillary, and ophthalmic, are regarded as so many subsidiary brains of organic life,—distinct sources of nervous energy. By means of the ganglionic system, the functions of the nerves of the face are made to sympathise with the vital actions of the thoracic and abdominal viscera. For the same reason they are liable to be disturbed by any derangement of those internal organs.

Chaussier describes *three varieties* of facial neuralgia: the supra-orbital or frontal, the infra or sub-orbital, and the maxillary. These are respectively seated, as their names imply, in the principal subdivisions of the trifacial nerve. To these should be added a fourth, namely, neuralgia of the portio dura; and I will presently state my reasons for this opinion. It may be as well to premise, however, that cases where the branches of one particular nerve alone are affected are rare, as the disease has a constant tendency to extend itself to the neighbouring parts. Frequently it involves all the nerves of one side of the face, apparently without distinction. Often, again, no large fibril is implicated; but the irritation is seated in one of those

points of the skin called by the French a *foyer*. Still, instances frequently occur where the disease is seated obviously in one nervous trunk alone, or even one fibrilla. When the complaint is thus localized, or seems to radiate from a known branch, the species is denominated accordingly.

Tic douloureux is usually confined to one side of the face. It affects one cheek, temple, or jaw alone, leaving the other perfectly healthy. I say usually, because I have met with cases where both sides were affected. In two ways this exception to the rule may be accounted for. Ordinarily the disease, which has a tendency to extend itself to the neighbouring nerves, respects the mesial line of the nose, lip, or eyebrows. But when the paroxysms are long-continued and severe, the painful excitement transgresses this, its natural boundary, to a greater or less extent. In other words, the propagating force, whatever it be, is so intense that it overcomes the ordinary obstacles. Sometimes, on the other hand, the same exciting cause will originate the malady on both sides at once, and the diseases will have a tendency to meet at the centre. This I have noticed in neuralgia arising from the irritation of the stumps of carious teeth, and where the complaint has been caused by malaria. Otherwise, facial tic douloureux shows

itself, I believe, pretty equally in either half of the body. It has no predilection for the right or the left side of the face in particular.

FRONTAL NEURALGIA.

This variety of tic douloureux is seated over the eye, but often extends to the temple and the crown of the head. The pain usually commences at the supra-orbital notch or foramen, and follows the course of the frontal branches of the ophthalmic nerve, over the super-ciliary ridge to the forehead. At times, it may be covered with the point of the finger on the eyebrow. More often the facial twigs on the temple or vertex are involved in the agony, and frequently the lacrymal, so that tears stream from the eye. The variety is still, however, maintained by the supra-orbital notch being referred to as the fountain of mischief, and the patient placing his finger firmly upon it during the paroxysms.

The character of the pain is pricking—shooting—lancinating; and perhaps more bearable than when the other nerves of the face are affected. The paroxysms of this species are also in general quite intermittent, and moreover observe a decided periodicity. Hence, the complaint is much more

controllable than the other varieties. The following are instances of this affection of the superficial branches of the nerve, in addition to those previously described in the present work.

CASE.—*Frontal Neuralgia.* Mr. H., a brushmaker, six-and-thirty years of age, residing in South Lambeth, came under my care on the 26th of August, 1848, when the ensuing note was taken.

Has had frontal neuralgia full twenty years. It came on suddenly without obvious cause. Believes he was exposed to wet and cold. Fits now ensue three or four times every year, and last for three weeks or a month. Was seized with the last attack when at work over pitch heated on a charcoal fire. Has always been exposed to such fumes, and thinks they are injurious to his health. During the period the fits are on, the pain continues all day. It comes on in the morning and leaves in the evening. It gradually steals on; commences with uneasiness in the eye, and then he knows what is coming. The eye "feels hot and dreadful sore." A sharp plunging pain then begins just over it. The patient places his finger accurately over the supra-orbital notch as the source of the suffering. From thence, he says, it extends across to the other brow, and upwards to the forehead and vertex. Sometimes the pain is so violent that he is distracted, and the eye runs with water. Is afraid to blow his nose at these times for fear of increasing the agony. When the fit is over the bone feels sore and tender, and the eye remains congested.

The general health is otherwise good. No sign of gastric disturbance. The tongue is clean and bowels regular. There is, however, the miasmic expression of the countenance.

By means of moderate doses of quinine, and the local application of warm vapour, Mr. H. got quite well in a few days. I have not heard whether the complaint has returned.

CASE.—*Frontal Neuralgia.* This was an instance of tic douloureux brought on apparently by the depressing effects of the influenza. J. G., a journeyman cabinet-maker, aged 40, living near the reservoir of the New River in Clerkenwell, came under my care at a Dispensary, on the 23rd of September, 1848. He had the influenza the previous spring, since which time has felt great depression of spirits and flying pains about the body.

He complains of weakness: the least exertion makes him perspire profusely. Excessive prostration, approaching to melancholy. Has nothing on his mind. Speaks reasonably on the subject. Has hallucinations, but knows them to be such. Is always in dread and fear.

Has sharp pain over the right eye, which sometimes shoots to the back of the head and to the ear. There is always a slight uneasiness, but sometimes paroxysms of great agony. It is intermittent, but not regular in its accessions. Sometimes, if he touches the nose, or blows it, the pain on the eye is brought on instantly. It is a darting, shooting pain. Tears run from the eye during the fits. Conjunctiva often bloodshot.

Appetite bad, especially of a morning. Tongue dry,

but not foul. Thirsty. Bowels pretty regular. Urine high-coloured, with deposit of copious white sediment. Pulse regular, 80.

The same treatment was adopted in this case as in the last. The pain was soon relieved, but it was some time before the general health was completely renovated. The dull, heavy sensation over the forehead persisted to the last.

CASE.—*Frontal Neuralgia.* E. H., a married woman, in humble circumstances, residing in Dolphin Place, Holborn, applied at a Dispensary, Nov. 1, 1848, for a severe pain over the left brow, which came on suddenly about a fortnight before while she was in bed, and has continued in paroxysms ever since. Last year about the same time had a similar seizure, for which the stumps of several teeth were extracted without benefit. Can assign no cause whatever for the attack.

She is a poor debilitated creature, about thirty years of age, ill fed and clothed. Has had three children, all of whom are dead. Does not appear to have inherited the complaint, but has been weakly and delicate from a child.

The present symptoms are: violent pain in the left eyebrow, which comes on and goes off suddenly. Some paroxysms are much worse than others—amounting at times to perfect agony. Patient places her finger on the supra-orbital notch to indicate the focus of suffering. It shoots thence up the forehead to the vertex. Sometimes it takes a course downwards to the neck, and even invades the arm as far as the forefinger. There is great irritability of the

skin over the eye when the pain is there; she dares not for her life touch it. Was suddenly caught this morning as she was coming across the square (Lincoln's Inn Fields,) with a violent paroxysm, seeming as if it would take her eye out altogether. The muscles of the eyelid were at the same time convulsed. Often feels violent twitchings as if wires were being pulled. Tears run scalding down the cheeks. After the fit passes off she feels very weak and exhausted. The eye especially is dim and heavy.

General health pretty good, with the exception of great debility. To this cause, to which undoubtedly exhausting discharges contribute, and exposure to cold, the complaint is to be attributed. The weak pulse, cold extremities, and anæmic countenance, all indicate a failure of the vital powers.

By attention to the secretions, tonic remedies, and a more generous diet, the patient soon recovered.

Case.—*Frontal Neuralgia.* Sir N. —— a baronet, in his fortieth year, consulted me, in the early part of May, 1850, for a severe pain over the eye, which he had had for several years. Says he knows no cause for it; but from the account given, it probably originated from dyspeptic and cutal irritation. In the autumn of 1839 he was in the south of Ireland, when suddenly he was seized with brow ague—a severe pain in the eye and brow, with congestion of the conjunctiva. This subsided in about a week, but recurred at intervals ever since, gradually assuming its present neuralgic form. The attacks last about a fortnight or three weeks, and then pass off as suddenly and unaccountably as they arise.

At the time this note was taken the pain was chiefly seated in the frontal nerves, but often extended to the other branches of the ophthalmic. There was slight uneasiness in the left eye, with congestion of its mucous covering. Neuralgic plunges commence in the brow, and shoot up the forehead to the vertex. Sometimes they seize the nose, and cause an abundant flow of mucus. Patient does not observe any premonitory symptoms—no disturbance of the stomach previous to the attacks,—but the paroxysms occur at uncertain times. At first he noticed a certain periodicity, but at present the fits are most irregular, and occur as often in the night as the day. Heat relieves the symptoms. This is in fact the only thing that seems to do good. Medicines rather aggravate the complaint.

The patient is of nervous temperament and excitable constitution. Bowels always irritable and digestion feeble. Suffers from an extensive skin disease (gouty psoriasis), for which he is now taking full doses of arsenic, under the superintendence of Mr. E. Wilson.

Case.—*Frontal Neuralgia.* May 23rd, 1850.—Mrs. H. is a widow, of nervo-sanguineous temperament, living in the Burlington Arcade. About a month ago felt an uneasy sensation across the forehead. It seemed to follow the influenza. Two days afterwards, had neuralgic pain in the supra-orbital region. Could then cover it with her finger; but afterwards it extended from thence outwards to the temple, and shot upwards to the head. Has had a succession of paroxysms every day since. They come on in the morning regularly about eleven, and last till three or four. Suffers great agony at these times. The tears flow abun-

dantly and seem to give relief. The eye is sometimes much congested.

The general health is good. No functional disturbance. Tongue clean, but rather white.

A few doses of quinine with sulphate of iron, completely quieted the nervous irritation.

CASE.—*Frontal Neuralgia.* A young lady of good family, in one of the midland counties, was placed under my care in the middle of January of the present year, suffering severely from this form of tic douloureux. Many peculiar features combine to render this case one of more than ordinary interest.

About four years ago, while residing at home, she first felt strange sensations over the brow—flying pains at intervals, which gradually increased in intensity and frequency, until they settled into regular neuralgia. For the last year or so there has been scarcely any intermission—that is, any lengthened remission of the sufferings. At the same time the general health began to fail, and the system to become so weak and debilitated that her friends naturally became exceedingly anxious respecting her condition.

The pain commences in the right temple, just outside the superciliary ridge. Often it remains there altogether, and is so localized that it may be covered with the point of the finger. Frequently it extends from this focus, and passes backwards and upwards so as to involve the whole side of the head. When the temporo-facial branches of the portio dura thus become affected, there is a distinct sense of rigidity—"as if harp-strings were drawn tight in the part." Many times, as if premonitory of the attacks, there is a

distinct beating in the temple which sounds like the ticking of a watch. The suffering comes on in paroxysms which observe some degree of periodicity, but not always. They are generally worse from four to six in the evening, and from two to four in the morning, although the pain is often constant throughout the day and night. There is no tenderness in the part, and pressure somewhat relieves the pain. Neither is there swelling—on the contrary, rather an emaciation or atrophy. The paroxysms are induced by very trivial causes; so that the act of coughing or sneezing immediately produces a great aggravation of the symptoms. Indeed, one of the most striking features of the case is the extreme nervous susceptibility of the young lady. The slightest noise makes her jump and start, and the pain is then instantly induced or augmented. All music is torture to her. The sound of a street organ or piano throws her into agony. For the same reason the ordinary conversation of company is unendurable.

No cause can be assigned for these symptoms by Miss —— or her friends. The mouth is not in a good condition certainly. All the back teeth of the right side of the upper jaw are gone, and many of the lower—lost previous to the neuralgic attack. Those remaining look unhealthy and the gums spongy. Yet patient has not suffered from toothache for many years. I should have suspected malaria, but am assured that the family residence is placed on a hill in a dry, healthy district—although very cold in winter—where ague is almost unheard of. The complaint must therefore be attributed entirely to cold acting upon a weak and delicate constitution. The abdominal and pelvic func-

tions are much out of order. The tongue is dry and furred, and the circulation languid, especially on the surface and extremities.

As might have been anticipated, the patient has been under the care of the most eminent physicians of the day, and tried a variety of remedies without avail—both local and general.

The plan of treatment I adopted, and which has happily proved successful, was the following:—After administering croton oil and saline aperients until the secretions were thoroughly corrected, and the tongue rendered clean and moist, a course of mild tonics was prescribed. Quinine with sulphate of iron in infusion of roses, the citrate of iron and quinine, decoction of bark with diluted acid, and the muriated tincture of iron with calumba, were successively administered; and to relieve the headache which was apt to supervene upon their employment, a couple of leeches were applied occasionally behind the ears. By these means, and careful attention to diet and regimen, the general health and strength began gradually to improve, although the local painful symptoms remained *in statu quo*. These I attempted to allay at first by Mr. Scott's method of counter-irritation: using the ointment of bin-iodide of mercury night and morning. After persisting with this for some time ineffectually, it was abandoned, and a more soothing system adopted. Warm medicated vapour was applied to the temple and side of head, by means of the apparatus which I have named the Aneuralgicon. This tended more than anything that had ever been used to

quiet the nervous irritation. Every time it was employed the pain was relieved, and therefore recourse was had to it on the accession of every paroxysm.

By this combined treatment the local and general excitability subsided; and the best proof of this was afforded not only by the patient's freedom from suffering, but by her greater tolerance of musical sounds. On the 25th of March, Miss —— was able to return into the country perfectly free from pain, with considerable *embonpoint* and capability of enjoying society. I have heard from her more than once since this period, and am much pleased to observe that her progress is highly satisfactory. She gains strength and flesh daily; and if ever, through extra fatigue or exertion, she feels an uneasy sensation in the neuralgic focus, the application of the medicated vapour dispels it immediately.

The foregoing remarks are applicable only to *frontal* neuralgia, strictly speaking; where the disease is confined, or nearly so, to the *external superficial* branches of the ophthalmic nerve. The cases are, as near as may be, illustrative of this condition. The phenomena are somewhat different when the excitement passes inwards and involves the deeper twigs. The symptoms are then generally more severe and obstinate. The intermittence and periodicity are also less marked, than when the superficial branches alone are affected. Possibly the causes are often of a more serious nature. For

these reasons, I am inclined to give to this affection the distinctive title of—

Ophthalmic Neuralgia.—All or any of the deeper branches of the ophthalmic nerve may be involved, and give rise to phenomena in accordance with their distribution and function. Thus, the lacrymal is known to be affected, by the increased flow of tears during the paroxysms. The nasal, by the abundant secretion of mucus. Even the filaments distributed to the globe of the eye, and the delicate tissues of its interior, are not exempted from this neuralgic excitement. Intense agony is felt in the eyeball during the fits, and illuminated rays, like lightning or electricity, appear to traverse the nerves. It will be perceived, by one of the cases subsequently adduced, that the interior of the optic globe is revealed occasionally to the patient at these times. Its conjunctival covering is also more or less injected during the attacks.

The increased flow of tears is often very remarkable. In some cases they almost stream from the eyes; and although scarcely noticed by the patient, are apt to be attributed by the bystanders to mental weakness, when, in fact, they are merely indicative of glandular irritation. When once the lacrymal nerves, again, have been materially affected by the

disease, they rarely recover their healthy state; and thus, in the words of an acute observer,* "tears continue to be not only easily excited in those who scarcely knew before what it was to shed one, but they frequently occur, and even in streams, without any mental cause at all; and not uncommonly in sleep, though no dreams are present; or at the time of awaking; often lasting a considerable time, and producing no small inconvenience." The following are instances of this form of tic douloureux:—

Case.—*Ophthalmic Neuralgia.* On November 30th, 1849, I was called to see Mr. H., an attendant in the library of the British Museum: a person of sanguine temperament and full habit of body, who was suffering excruciating agony in the face, compared by him to the flesh being torn off with hot and sharp pincers. The pain sprang from the temple, ran down to the cheek and eye, and often invaded the side of the nose and lower jaw, making them feel benumbed and irritable. The eye itself felt like a burning coal. A dull, aching pain was always perceptible in it, but exacerbations of intense suffering came on occasionally, with a flooding of tears. These made him shriek out, throw himself down on the ground, or run about the house distracted. The paroxysms were confined entirely to the day time. They came on at day-break, tormented him until the evening, and then ceased completely, so as to allow

* Macculloch, vol. ii. p. 18.

of sound sleep until the morning. The eye was considerably swollen and injected. Otherwise no disturbance. Stomach and bowels in order. Tongue clean, but rather white. Patient has not had the tooth-ache for six years.

The pain came on suddenly about a week before, without obvious cause. It was doubtless attributable to the influenza, from the debilitating effects of which he was then suffering. Being of such recent origin, it was readily relieved by attention to the general health. A sharp aperient, followed by a little saline medicine, rectified the feverish excitement of the system, and completely allayed the local irritation. The eye looks, however, weak and watery even at the present time.

CASE.—*Ophthalmic Neuralgia.* A. L., a Jewess, aged 70, residing in Holywell-street, applied at the Metropolitan Free Hospital, Sept. 30th, 1848, for a distressing pain in the face, from which she had suffered for the previous six years. It came on suddenly without obvious cause, by a shooting in the right eye, and from thence extended to the cheek and nose.

The present attack has lasted a fortnight. Patient describes it as like a "gathering" at first. The veins and skin over the eye swell. A pricking sensation follows, like needles and pins. This tingling pain, which is very severe and agonizing, is now seated over the eye and right side of forehead, and in the suborbital region and side of the nose. The eye is much injected, and tears flow over the cheek in abundance. She has no teeth, but the irritation sometimes seizes upon the gums of the upper jaw, and is very severe and lancinating. The water runs from her mouth

then, she says, "as if she were a baby cutting her teeth." The neuralgia does not follow the course of the nerves; but seems to be seated in the integuments and eyeball. There is always great irritation in these parts, but paroxysms of intense suffering come on at irregular intervals. These torment her all day long, and wake her out of her sleep at night. Can get no relief from anything, except from rubbing the parts violently with a silk handkerchief. In other respects the health of A. L. is very good—no local source of irritation can be discovered, and there is nothing indicative of gastric disturbance. The tongue is clean, although white. Appetite good, when the pain will allow of eating. Bowels rather costive—circulation natural.

Great pains were taken by myself, and subsequently by a medical friend, to afford relief in this case. Medicines of various kinds—purgatives, tonics, and sedatives, were employed without avail. Local measures were then suggested; but the old lady obstinately resisted their application, under the erroneous notion that some dreadful operation was intended.

The chief points of interest in this case were the peculiar pricking, tingling sensations experienced, arising probably from the ultimate fibrillæ of the nerves being alone affected, and the means taken by the patient to quiet them. Ordinarily, the slightest touch of the surface increases a hundredfold the torture, but here the most violent friction produced alleviation. The vigour with which the handkerchief was applied by the poor old Jewess was surprising.

Case.—*Ophthalmic Neuralgia.* Blenheim Street Dispensary, January 17th, 1849.—H. T., a needle-woman, aged

21, complains of a sharp, plunging pain running through the eye, affecting the sight, and causing the tears to flow over the cheek. The eye is much congested. Sometimes it extends upon the forehead, but more often attacks the bridge of the nose. The paroxysms are not regular in their accession, neither can they be induced by touching the part, although this is sore and tender.

The complaint is of recent origin—having made its appearance suddenly, about ten days ago, without obvious cause. Possibly it may arise from dyspepsia, as the patient had a bilious attack on the previous Friday, with which she is troubled about once in six months. Some little uterine disturbance is also present.

Ordered six drachms of turpentine and of castor oil, to be taken the next morning.

January 20th. This dose acted powerfully. The neuralgic symptoms are quite gone.

27th. Called to say she is quite well.

CASE.—*Ophthalmic Neuralgia.* C. B., a house painter, aged 22, applied about this time at the same dispensary, for violent neuralgia in the side of the face and head, occasioned, he believes, by a neglected cold caught a fortnight before. The pains are chiefly seated in the globe of the eye, but strike across the brow and on the side of the nose. There is a continual "heavy pressure," but occasional irregular paroxysms of intense suffering, during which the conjunctiva is injected, and the tears flow abundantly. Health otherwise unimpaired. Tongue clean, bowels regular, appetite good—no local cause discoverable.

Epsom salts in infusion of roses were prescribed; which,

assisted by warm vapour to the part, very soon allayed the nervous irritation.

CASE.—*Ophthalmic Neuralgia.* This interesting and distressing case of tic douloureux presented little at the time the following note was taken to entitle it to be ranged under the above term, except that the disease arose, and was for a long time centred, in the ophthalmic nerve. Latterly, the second and third divisions of the fifth pair have become much more disordered than the first. It is the instance formerly referred to, as furnishing so good an example of hereditary predisposition, and is doubtless dependent on some extensive organic change.

Feb. 1850. Mrs. —— aged 58, is the widow of an officer, residing with her friends at Cheltenham. Has suffered from facial neuralgia for a great number of years. Cannot account for it. Her mother was equally afflicted. When seventy years of age, the latter was seized suddenly with intense tic of the left side of the face, which continued with more or less intermission until her death at the age of eighty-five—a period of fifteen years. No cause for this was apparent. Her health was perfectly good before. When pregnant with Mrs. —— the old lady had, just before her confinement, a severe pain and swelling over the left eye. When the child was born its left eye was closed and swollen, and it has ever since been the focus of the malady.

When young, Mrs. —— was always delicate, and her health was completely destroyed by the typhus fever, from which she suffered in her eighteenth year. Pains then began to come on in the face, and have continued

ever since. They were chiefly centred in the left eye and brow, but often extended to the nose and cheek. After the severest paroxysms, a swelling the size of a pigeon's egg would appear on the brow, and remain for about four-and-twenty hours. About the year 1832, she awoke one morning with a feeling of numbness on the left side of the tongue and face—a partial paralysis. "The parts felt as if made of wood." This sensation has not entirely gone off. In 1840, the neuralgia was first attended with spasms of the cheek and lip. She was dining on *hare* at the time when this new feature showed itself, and this eating of well-kept game is the only reason she can assign for it. Two attacks of these spasms came on daily for some time, and they were much more excruciating than the previous sufferings. Veratrine ointment completely relieved them, and they continued absent for three years. Afterwards they returned when she was in London, and in spite of the same and other remedial measures, have recurred occasionally ever since, especially during the winter months. They caused intense agony. Had a sensation at these times, as if a harp-string were drawn tight in the cheek and then suddenly let go. About four years since Mrs. —— fractured the right carpus. This seemed to give a further impulse to the malady; for a week after the misfortune the agony came on with increased intensity.

At the time I was called to see Mrs. —— in Cheltenham, on the 16th of February, the symptoms were:—Constant pain round the lower jaw on both sides, but more especially the left. The suffering seems to originate at the left mental foramen, and extend itself thence to the cheek, ear, and

forehead. At times the nose, eye, and in fact the whole side of the head and face, are affected. Often the irritation travels inwards, and attacks the tongue and throat, conveying the sensation of swelling of those parts, although this is not the case. It comes on in paroxysms at variable intervals, and these are especially intense towards evening and during the night. Every other day it is decidedly worse, but at no particular hour.

There is no external disfigurement; but a trembling, twitching motion may be observed in the lip and cheek of the affected side. This is increased by the slightest touch. The eye appears weak and watery. Patient is afraid to move her mouth or talk, for fear of increasing the suffering. The teeth are unsound—the gums inflamed and tender. Although weak and nervous to an extreme degree, the general health seems good. The digestion is perfect—bowels regular. Tongue clean, but white. Many teeth have been lost in hopes of relief.

Mrs. —— had previously tried everything that could be suggested, both external and internal,—enormous doses of quinine and iron, veratria, aconitine, &c. Was taking, when I saw her, the citrate of iron, and the citrate of iron and quinine, with tincture of henbane at bedtime.

Maxillary Neuralgia.—In this form of tic douloureux the irritation is seated in the inferior maxillary nerve, and the point of radiation is at the mental foramen. Usually the disease takes an outward direction, attacking the trunk and branches of the mandibulo-labralis nerve. It follows its

ramifications over the chin and lip, and extends itself, as the complaint advances, to the facial and suborbital nerves. When thus superficial, the lower lip is agitated, during the paroxysms, by a slight tremor; and the patient places the point of the finger accurately upon the mental foramen, as the *fons et origo* of the malady. To this focus the pain gradually retreats as the paroxysm declines, and when relieved by medicine, this is the last part to cease aching.

This is the most bearable and manageable form of the complaint. Often the disease takes a retrograde course, and passing inwards through the same aperture, attacks the teeth of the lower jaw. When farther advanced, the primary and deep-seated branches of the inferior maxillary are affected. The gustatory nerve communicates the agony to the side of the tongue, while the motor branches convey the morbid influence to the ear and the cheek, often exciting the muscles to spasm. It is not at all unusual for the whole side of the face to become affected through further extension of the morbid influence.

This is considered a rare form or variety of neuralgia. I have, notwithstanding, met with a few well-marked instances, and therefore subjoin them. The case of the surgical-instrument maker,

previously related (page 179), was of this character. As far as my observation extends, the paroxysms in this form are not often regular in their accession; and I believe, when the more deeply-seated branches are involved, there is scarcely ever a perfect intermission. The exciting causes are possibly very similar to those in suborbital neuralgia, and the disease is generally considered very chronic and intractable.

CASE.—*Maxillary Neuralgia.* The following note was taken in November, 1848, when I first saw the patient:—

Mrs. B., a respectable married woman, keeping a dairy near Bedford Row, is fifty-five years of age. She is of strong robust constitution and sanguine temperament, the mother of eleven children. General health always good. About fourteen years ago had an attack of pain in the chin, which ran up the side of the head. Began every day at three in the afternoon. "The doctors called it tic douloureux." Knows no reason or cause for it. Went to every medical man she knew. Got no relief. It came on suddenly and left as suddenly, after tormenting her in paroxysms for six months. Had no return until two months back, when she was suddenly seized with the same kind of pain. It commenced at twelve o'clock one day and returned regularly at the same hour, steadily increasing in intensity. There was no warning or previous illness.

At the present time there is no periodicity. The pain seems to be principally seated in the mandibulo-labralis

nerve. Commences at the mental foramen, and goes along the jaw and up to the right temple. Sometimes shoots to the ear and within the ear. Occasionally the whole side of the face and head is affected. During the paroxysms, which last five or ten minutes, saliva flows abundantly from the mouth. The pain is so sharp and plunging, that in the words of the patient, "if you were to run a lance in, it could not be worse." Nearly all the teeth on that side of the jaw have fallen out since the neuralgia began. A lateral incisor is now protruding, and is tender to the touch. The other teeth seem sound. Has never suffered from toothache. No other sign of disturbance or symptoms of abdominal derangement. The appetite is good, bowels regular, and tongue clean.

Here the disease, the cause of which was involved in total obscurity, showed some tendency to periodicity. Bark, arsenic, iron, were notwithstanding tried without avail. It yielded completely, however, in a few days to the local application of warm medicated vapour, and did not return.*

CASE.—*Maxillary Neuralgia.* Mr. N., an excise surveyor of Brighton, came up by the train on May the 20th, 1850, to consult me. He is a widower, a fine healthy-looking man, fifty-four years of age, of florid complexion and sanguine temperament. Appears to have no hereditary tendency to the complaint, and has never suffered from gout or rheumatism.

In August 1844, the patient was driving with a friend, who got out of the carriage to purchase some pears. As soon as Mr. N. put one into his mouth, he felt a most

* See Pamphlet, p. 68.

excruciating pain in the right side of the face. He thought his head was off,—a severe, darting, lancinating pain. This continued with more or less severity for six weeks, when it seemed to centre itself in and around the second molar tooth. Was advised to have this extracted. Some temporary relief followed, but the pain soon returned. Two other teeth were then sacrificed without benefit. The neuralgia has continued with slight intermissions ever since. Various remedies have been tried,—carbonate of iron, quinine, galvanism, narcotics, aconitine, &c. No benefit obtained from external or internal remedies. Derives most relief from perfect quietude, but is always made worse by talking. Derangement of the stomach, and exposure to cold, also aggravate the symptoms.

At this time the patient is suffering severely. He places his finger on the right mental foramen, as the focus from whence all the pain springs. It seems to extend thence to the lip and ear. He is deaf on the same side. The gums are also affected. In his idea, there is a part of the inside of the cheek that is less protected than the rest—where he fancies the skin is thinner and the nerve more exposed. Nothing of the sort can be seen. Anything sour or salt, he says, applied to that part of the mouth brings on a paroxysm of pain immediately. He makes a sucking noise with his tongue continually, from putting it to the tender point in order to quiet the pain. During the fits, which assume no periodicity, the salivary glands are much stimulated, and the skin of the chin and lip becomes excessively irritable. The least touch over the mental foramen inflicts torture.

No clue to the cause of the malady can be obtained by

the most rigid examination. There is no swelling of the cheek, or other local disturbance. The remaining teeth are sound. With the exception of the time previously alluded to, never had toothache, or took mercury to salivation. The tongue is clean, but white. Appetite good, bowels regular. Sleeps well when undisturbed. General health excellent.

As a full trial had doubtless previously been made of the ordinary remedies, I at once applied warm vapour to the ear and side of the face by means of my apparatus, and prescribed small doses of calcined magnesia and precipitated sulphur. Mr. N. went down to Brighton immediately afterwards, and I expected little or no benefit would accrue from this single application. I was much pleased to receive a note from him some time afterwards, in which he says:—"I have much satisfaction in assuring you, I have had no return of those severe attacks of neuralgia since I was with you on the 20th of May last."

CASE.—*Maxillary Neuralgia.* Mrs. L., aged 33, housekeeper in a gentleman's family near Bedford Square, applied to me Oct. 14th, 1850. She has been suffering for months past from pain of the right side of the face, which shoots more especially along the lower jaw. "I knew it was the tic douloureux because I felt something *ticking* in my cheek, along the lower jaw. It made a *sound*, like *tick, tick, tick.*" The pain is sharp, plunging, and spasmodic, and comes on at irregular times, more especially in the night—as soon as she gets warm in bed. Knows no cause. Has flying rheumatic pains occasionally. Otherwise healthy. Tongue clean, appetite, &c., good.

Although the patient could assign no reason for her suffering, it was quite evident that it arose from dental irritation—perhaps assisted by cold. Formerly she suffered much from toothache. Has one tooth stopped and one artificial tooth in her mouth, besides several carious members and decayed stumps, more especially on the right side.

Desired her to have the stumps extracted. Two of the worst were taken out, and with a little further assistance the pain ceased. It will return unless the dentist be again applied to.

SUBORBITAL NEURALGIA.—This is the most common form of tic douloureux, but by no means the least severe. It is chiefly seated in the terminal branches of the superior maxillary nerve, after their emergence from the infra-orbital canal. It will be recollected that these branches are here both numerous and large in size, forming intimate connexions with the facial nerve at the upper part of the cheek, and on the malar protuberance. Hence, the focus of radiation is at the infra-orbital foramen, just below the orbit. In some rare instances, the pain is confined to that spot, and may be covered with the point of the finger, but more commonly it extends to the lower eyelid, the cheek, the side and ala of the nose, and the upper lip. Through the principle of extension, all the nervous filaments, with which these terminating branches of the superior maxillary are united, are liable to become

implicated in the malady, and hence the whole side of the face and head are frequently affected from this source.

Accompanying or succeeding this, which may be called the superficial malady of the nerve, the irritation occasionally travels inwards, through the bony canal, to the deep-seated parts, as in the preceding form. In this way the antrum, the soft palate, and the root of the tongue, become affected. Attacking the dental branches, agonizing pains are felt in the teeth, giving rise to the impression that a diseased state of these organs has excited the attack, and leading to the useless extraction of those in a sound condition. The effect has been mistaken for the cause. Sometimes the gums are tormented with the malady. Minute points of the palate also occasionally have all its venom concentrated in them, although there is neither swelling nor discoloration. When the deep-seated branches of these nerves are affected in this manner, the salivary glands are stimulated to increased secretion. Sometimes there is a perfect stream of saliva from this cause.

The ordinary characters of spasmodic neuralgia are generally well marked in these cases, such as the nature of the pain, its remission or intermission, great excitability of the surface, &c. Rarely

is any decided periodicity observable. Another characteristic symptom should not be omitted. I mean that peculiar twitching of the nervous fibril, or whatever it is, which gives the patient an idea of something alive under the skin,—or of the pendulum of a clock moving there. This, as I have previously stated, is not entirely confined to this locality, but is much more often noticed and more distinct in the cheek than elsewhere. This painless sensation, doubtless, often precedes the attack of tic douloureux, and should always be attended to, as its further development might then be prevented. The disorder might be checked ere habit had rendered it chronic and intractable. A gentleman lately consulted me, who had experienced this sensation in his cheek *three years* before the painful symptoms showed themselves.

During the paroxysms of this form of tic douloureux, it is not unusual for the small muscles of the cheek and lips to become excited. Occasionally these spasms are severe—convulsing and distorting the countenance in a horrible manner. The sufferings are then so awful, that persons with the strongest nerves are sickened at the sight. In one case of a lady who came under my care, the family medical attendant, a gentleman of great humanity and experience, refused to attend upon her any

longer, so much were his feelings shocked by the harrowing spectacle. It is but right to add, however, that such cases of extreme suffering and distortion are very rare. The description given by the early French writers would lead us to hope, that the disease is not generally so severe now as in former times.

In this painful affection of the trifacial nerve there is but little external indication of disease. In the intervals between the paroxysms the colour of the skin of the countenance is of its natural hue, perhaps rather paler than usual. There is no increase of temperature. During the fits, a slight blush may be observed on the integument, occasionally heightened to redness. In one lady, the cheek affected assumed the colour and glistening polish of a boiled shell-fish. When the tongue is neuralgic, the half which is affected is signally whiter and drier than the opposite—a condition that is due to the local nervous excitement. In addition to those previously cited at pages 167, 172, and 177, the following are instances of this particular form of tic douloureux.

CASE.—*Suborbital Neuralgia.* Mr. H., a cheesemonger in Goodge-street, a person of weakly constitution and lax fibre, came under treatment at the latter end of November, 1849. Complains of severe darting, plunging pains in the

left side of the face, chiefly in the cheek, but often extending around the jaw to the ear and up to the temple. It comes on in paroxysms at irregular intervals, during which the saliva streams from the mouth. The parts just beneath the eye and the side of the nose are particularly irritable. Dare not for his life touch them. Believes these symptoms are occasioned through the influenza, caught some weeks ago by standing at his shop-door in all weathers.

There is no disturbance of the stomach. The teeth are sound. The tongue looks white and feverish, and there is an expression of anxiety on the countenance. The mucous membrane of the mouth is somewhat inflamed, and so swollen that it almost covers the back teeth.

Saline aperient medicine was first prescribed, with Dover's powder at bed-time. Subsequently a lotion for the mouth was ordered, consisting of nitrate of potash in infusion of roses. The inflammation in the mouth soon subsided, and with it the neuralgic irritation. The disorder was recent, and the cause admitted of removal.

CASE.—*Suborbital Tic Douloureux.* Mrs. F., a lady, fifty-four years of age, applied to me Nov. 15, 1850. Has been afflicted with neuralgia of the left side of face for six years. Knows no cause for it. Was at dinner at a friend's house in the country, when suddenly she screamed out in agony, and her daughter perceived there was a tear on the cheek. This occurred in the autumn, at a village in Sussex which is considered particularly dry and healthy. The pain soon subsided; but the next year, being in the same place about the same time, she had another attack. For the last two years or so the pain has been constant, and seems to

increase in intensity. Has had several teeth extracted uselessly. Every remedy has been tried without much benefit, under the direction of the most eminent members of the profession.

The pain is sharp, plunging, electric. Its focus is at the infra-orbital foramen, which the patient points at, but dare not touch. Extends from thence in all directions, so as sometimes to cover the whole side of the head. The upper lip is especially excitable. There is the peculiar sensation of a pendulum in the cheek, which is somewhat swollen, possibly in consequence of the stimulating applications she has used. The paroxysms come on without regularity, as much during the night as the day. Can get no rest for them, although large quantities of morphia are taken. The jaws are fixed, and any attempt made to open the mouth brings on a paroxysm. All nourishment is taken in a liquid form, by being drawn through a straw. The dribbling of saliva is incessant.

The viscera of the chest are considered healthy, but those of the abdomen are considerably deranged. The tongue, as far as can be ascertained, is foul; the bowels costive; urine turbid. Yet by no attention to diet, or by the employment of alterative medicines, are the painful symptoms at all allayed. There is a feverishness of the system and other indications, which point to possible disorganization within the cranium.

CASE.—*Suborbital Neuralgia.* The Earl of ——, a nobleman in the prime of life, of nervo-sanguineous temperament and gouty diathesis, had suffered martyrdom from this form of facial neuralgia for about sixteen years, when

he did me the honour of consulting me early in January, 1850. The following note was then taken:—

When about eight-and-twenty years of age, his lordship was down in Devonshire during the winter season, boating, and otherwise a good deal exposed to the weather. He was suddenly attacked with pain of a shooting, plunging kind in one of the upper molar teeth of the right side, and the irritation quickly extended to the cheek beneath the eye, seeming to be particularly centred at the infra-orbital foramen. At first the paroxysms were periodical, but afterwards almost constant, although variable in violence. After remaining in these parts some time, it gradually increased in severity and extent. It spread by degrees to the eye, and caused the tears to flow abundantly. From thence it extended to the brow and up to the vertex. Travelling downwards, it invaded the lower jaw, chin, and lip. At a subsequent period, the excitement passed inwards and attacked the teeth, the side of the tongue, and the palate. The whole of the nerves of the face and head have been since more or less affected.

Everything that could be devised in Paris and London has been tried without effect. Several sound teeth have been sacrificed. "Often nearly poisoned by the powerful drugs administered." Chloroform has been used, and even homœopathy and mesmerism have been resorted to, in the faint hope that they might be serviceable. The only measure that has given temporary relief has been the division of the nerves. The superficial branches of the second and third divisions of the fifth have been cut several times,

each operation producing a respite from the suffering for about three months.

His lordship is now experiencing the symptoms he knows to be indicative of an approaching attack. There is great tenderness of the upper teeth of the right side. One or two points in the palate are excessively painful. There is also tenderness, and pains like a succession of electric shocks in the cheek and on the nose, with a little occasionally over the eyebrow. The surface is exceedingly irritable, more especially of a morning. If, in washing the face, the towel accidentally touches the whisker, very severe paroxysms of suffering are induced. Has great difficulty in opening the mouth or speaking loud. Eating at these times is out of the question. The pains come on in fits at irregular intervals, during which the salivary glands pour out an abundant secretion.

The general health is otherwise good and the intellect clear. The tongue is clean, but evidently whiter on the affected side. The remaining teeth are sound.

The cause of this severe affliction appears to have been cold and damp, acting upon a system predisposed by temperament, and perhaps hereditary tendency, to such attacks. More nerves have, I understand, been since divided.

CASE.—*Suborbital Tic Douloureux.* William W., a farm labourer, ætat. 62, residing near Newbury, applied to me June 8, 1850, and furnished the following particulars:

When young, patient was much troubled with tooth-ache. Between twenty and thirty years ago he suffered in this way, and therefore determined to have the tooth,

one of the molars of the right side, extracted. Applied to a barber for this purpose, who, being unskilful, broke it off close to the gum. Soon afterwards, a slight uneasiness was experienced occasionally in the stump. The pain gradually increased in severity, spreading into the cheek, until, for the last ten years or more, it has been agonizing. Has had the stump and several other teeth extracted to no purpose; neither have the remedies suggested been of any avail. The disease seems to be getting worse instead of better.

At this time the symptoms are decidedly those of genuine tic douloureux. The pain is on the right side of face, and seated chiefly in the second division of the fifth. It is paroxysmal, but not periodic. There will be a slight twitching, almost painless motion, in the cheek for days together, and then violent plungings of agony. During these fits the features are often convulsed, the angle of the mouth being drawn towards the ear, so as to cause frightful disfigurement. Latterly the pain has been in the cheek, over the infra-orbital foramen, and along the side of the nose. Both eyes and nose run during the paroxysm, and the mouth often waters much. Can trace the pain to the spot where the tooth was broken, but it often extends to the temples, forehead, and vertex. It comes on at uncertain times, equally by night and by day; and wakes him from sleep, however sound this may be.

The general health appears to be excellent. Appetite good: bowels regular. Tongue rather coated, but moist. A slight swelling may be distinguished on the jaw-bone, opposite the place injured. On examining the mouth, find

the gums on the affected side in a bad condition—loaded with tartar—in many places fungoid and inflamed near the remaining teeth. The other side of jaw is clean and healthy.

Advised patient to have the teeth scaled immediately, and the gums attended to by a skilful dentist. Meantime, applied medicated vapour to allay the irritation.

June 11th.—Has not yet had the teeth scaled. The neuralgia is, notwithstanding, much relieved. Feels it only in the nose now and then. Repeated application.

15th.—Patient has had his mouth put in order. This, as I expected, has temporarily increased the pain. He suffers dreadfully in the cheek and nose, and the face is much distorted. Applied the vapour once more, and with such effect that he left the house free from pain. He returned into the country the same day, and I heard no more of him.

Case.—*Suborbital Tic Douloureux.* May 30, 1850. —About ten years ago, Mrs. L., a lady residing near High Wycombe, had two teeth stopped; one on the upper, the other on the lower jaw, of the right side of the face. Two months after this she felt a violent twinge in them occasionally, which gradually increased in severity and frequency. She had the teeth removed, and subsequently four others, without mitigation of the symptoms. From this time, the pain has steadily increased on that side of the face and head, and become confirmed tic.

The patient is a stout, elderly lady, with by no means the shrivelled or sallow appearance usually observed in these cases. She appears to have no hereditary tendency

to the complaint, and was always healthy previous to these attacks. Has had ten children, two of whom, however, have had spinal disease, and another fits of epilepsy.

The present symptoms are—severe darting, plunging pains in the right cheek, upper lip, and side of nose. Sometimes they extend to the eye and ear, or even to the occiput. Although generally confined to the superficial, the deeper branches of the superior maxillary nerve are often affected. The teeth, gums, and side of the tongue are then in torment. Rarely is the face convulsed, although the saliva flows profusely during the paroxysms. Mrs. L. describes accurately the ticking sensation in her cheek. "It comes on," she says, "previous to a paroxysm, as if the nerves were being strung up, continues for some time clicking, and then suddenly the clock seems to run down—to break loose with violent spasms."

There is some little swelling of the side of the face, occasioned, the patient believes, by the blisters she has had so often applied there. The redness of the cheek she thinks due to the same cause, although there is always a peculiar glaziness of the skin on that side. The general health is good. Several eminent medical men have examined the chest and abdomen, without discovering anything abnormal. Is rather subject to hæmorrhoids, but that is the only ailment of the primæ viæ that she is aware of. The tongue is clean and bowels regular. Everything that skill and science could devise has been employed without avail to relieve the symptoms. She has fallen back, like others in the same predicament, upon the muriate of morphia.

26th.—Patient has had the vapour applied with great care

a few times, and is decidedly better. Only a slight stiffness about the cheek, and the peculiar glaziness of the countenance remain. The neuralgia is now confined to slight twinges about the nose and upper lip.

At this stage Mrs. L. returned into the country.

CASE.—*Suborbital Neuralgia.* Mr. B., aged 55, a saddler of Wandsworth, was sent to me Feb. 15th, 1850, by another neuralgic patient.

Three years ago, in the month of November, the patient first began to have pain in the face, on the right side. This ceased in a few days by using simple remedies. The succeeding winter the same kind of pain, but much more severe in character, attacked the left side, and has continued there more or less ever since. He knows no cause whatever for these seizures. Had always enjoyed tolerable health, and had not been particularly troubled with rheumatism. Had, though, several teeth extracted previously for caries, and many since on account of the pain. His medical attendant believed the tic was caused by derangement the liver, as there was some discoloration of the urine and conjunctiva at the time. Severe aching pains were also felt in the left hypochondriac region. Cupping somewhat relieved them, but he has had them more or less ever since in the same part. They seem to creep up to the shoulder-blade and down the left arm.

The tic douloureux is now seated principally in the left side of the face, but sometimes torments him in the right. It shoots from the corner of the mouth to the ear, and often along the side of the tongue. Occasionally a pricking and shooting is felt on the top of the head, the forehead, and the

nose. He is never without some pain, but every now and then it comes on in awful paroxysms. Feels on these occasions as if a gun were fired close to the ear. Many times he has put his hand up to the side of his head "to make sure that his ear has not been blown away." There is no periodicity in the attacks. The parts are so irritable that the slightest touch will bring them on. He is often unable to talk for fear of them, and can bite nothing either hard or soft.

In addition to the disturbances already noticed, the mouth is in bad order, and there is evidence of gastric derangement. Patient has only two molar teeth remaining on the left side. These are both loose, but not decayed. One or two teeth on the right side are carious, yet he has not suffered from toothache for a length of time. The tongue and breath are foul—bowels rather confined. Feels an appetite for solid food, but is obliged to live entirely on slops. Sleeps well when undisturbed.

As by the prescriptions it appeared that Mr. B. had been taking at various times the usual remedies, and as he came to me for the purpose of trying the medicated vapour, I at once applied it both to the ear and side of the face. After three or four applications there was a great improvement in his symptoms, and I had every reason to hope he would soon completely recover. But at this stage, finding his absence from business inconvenient, he ceased to attend.

Case.—*Suborbital Tic Douloureux.* Mrs. L., aged 57, the wife of a tradesman living in Charles-street, Hatton-garden, has (Sept. 9, 1850) been afflicted, more or less, with this form of neuralgia for the last ten years. It was occasioned apparently by exposure to wet and cold, while

residing at Stratford in Essex. Various remedies have been tried without avail, and several teeth uselessly extracted.

The present symptoms are, a grumbling, grinding pain constantly in the left cheek. At uncertain times violent paroxysms of shooting spasms come on, and extend right up to the top of the head, or attack the nose and eye. During these fits there is a sensation of great heat in the mouth on the same side, and the saliva flows abundantly. The sub-orbital foramen is the chief *foyer* of suffering.

As there was some evidence of gastric disturbance and inflammation of the mucous lining of the mouth, these symptoms were first attended to. The pain still continuing, the medicated vapour was applied to the parts daily, with perfect success.

Neuralgia of the Portio Dura.—This form of neuralgia is difficult to diagnose, on account of the intimate connexion of the pes anserinus with the trifacial nerve. Indeed, it is still an unsettled question, whether the facial nerve can ever be affected with this disease. I am inclined myself to support the affirmative proposition, but I would wish to advance the opinion with becoming deference.

In former times, the portio dura was considered the usual seat of tic douloureux. Many persons of eminence in this country still believe that it often is so, and their opinion is supported by MM. Thouret, Ribes, and Piorret, who cite illustrative

cases. On the contrary, it is assumed by Sir C. Bell and his followers, that the facial is entirely a *motor* nerve, and cannot therefore be troubled with a *sentient* disorder. Now, it seems to me doubtful whether the reasoning upon either of these points is quite conclusive. In the first place, its functions may be partly sensitive. Mr. Swan assures us, that sensitive fibres from the trifacial are bound up in the same sheath with it, join its branches, and are distributed with them.* An intimate connexion, or incorporation, is also established between the terminal branches of each. Again, the whole of the filaments of the portio dura are not distributed to the muscles. Many of them terminate upon the integuments of the face and head; thus showing, by the argument of distribution, the mixed character of the nerve.

Even if it be conceded that the portio dura is exclusively motor in function, it may be questioned whether it is on that account totally destitute of sensation; and if so, whether this may not be greatly increased by disease, in the same way as bone and ligament, which are nearly senseless during health, become highly excited and painful when inflamed. In spasmodic neuralgia a new and abnormal action is apparently superadded.

* Swan on the Nerves.

The argument derived from division of the nerve, on which Sir C. Bell greatly relied, is of very little weight. He noticed that when the supposed neuralgic portio dura was cut at the stylo-mastoid foramen, the malady was not checked. This is the case very often with the section of sensitive nerves; no relief of the pain follows. But other surgeons have been more fortunate with the operation. As I previously mentioned (page 155), Klein divided the nerve in two instances, and the face-ache completely ceased.

If the division of the portio dura at the stylo-mastoid foramen had invariably failed in arresting the suffering, but always produced palsy of the face, these effects would merely have proved that motion is communicated *by that channel* from the brain. Its sensation being derived from its union with the trifacial, the several junctions with the latter nerve should be cut off in order to test its power of suffering agony.

It has been objected, that if the motor nerve were affected with neuralgia there would be more or less paralysis of the muscles of the face; that this symptom would indicate it to a certainty. But it appears to me that the two disorders are opposed to each other;—palsy resulting from a loss of power in a nerve, whereas neuralgia is a state of excita-

tion, of increased irritability and innervation. Yet it is not at all uncommon to find symptoms of paralysis precede or accompany this form of tic douloureux. Some time since I met with the following case of *neuralgia alternating with paralysis of the facial nerve*, which appears conclusive as to its occasional excitement.

Case.—W. R., a porter, aged forty-two, applied at the Metropolitan Free Hospital, Nov. 1, 1848, for neuralgia, apparently of the portio dura. He is a stout man, of sanguine temperament, but in very indigent circumstances.

Patient says he has had occasional slight pain in the right side of the face for six months past. About three weeks ago it came on worse during the wet weather, to which, from the nature of his occupation, he is much exposed. It is now sharp and piercing. He points, as the source of the agony, to the front of the ear. It shoots from thence upwards to the head, downwards to the neck, and forwards to the mouth and nose. There are intermissions to the suffering, but no regular periodicity. Local measures of a sedative nature were employed.

Nov. 7th.—The pain is rapidly vanishing; but in proportion to its decrease palsy of the portio dura has come on. The features are now drawn to the opposite side. Patient cannot shut the right eye completely, and the globe is turned upwards. He was ordered a blister behind the ear, and purgative medicine.

11th.—Improving. There is less distortion of the

features, and more power over the muscles of expression.

18th.—He has almost entirely recovered the use of the muscles of the face. The tic douloureux, however, has returned in proportion. It is again in full activity.

27th.—The pain has been entirely absent for some days. Some palsy is still evident about the eye, and the skin of the cheek yet feels somewhat benumbed.

The arguments adduced to prove a neuralgic affection of the other nerves of the face should be equally admitted in the case of the portio dura. We infer that the frontal, suborbital, or maxillary nerves are affected, when the pain radiates from the orifices of the foramina from which they emerge. For the same reason, we have a right to conclude that the portio dura is diseased, when the agony springs distinctly from the stylo-mastoid foramen, and shoots along the well-known course of its branches. The convulsion of the small muscles to which these branches are distributed furnishes a further proof. If the neuralgia were to occupy the cheek-bone, or be confined to the front of the ear, we should be in doubt whether the facial nerve was implicated, because of the known branches of the trifacial occupying those positions. But when it distinctly and clearly traces out, on the side of the head, face, and neck, the origin, division, and

distribution of the motor nerve, we have a right to infer that that nerve is chiefly affected.

The symptoms indicating tic douloureux of the portio dura, in my opinion, are:—Pain of a convulsive, plunging character, occurring in paroxysms; seated on the side of the head and face, but more especially centred in front of the ear. The patient places his finger over the stylo-mastoid foramen, and traces the course of the agony along one or all of the branches of the nerve. The side of the face, or the whole head and neck, feel more or less benumbed and rigid. Tightened bands appear to the sufferer to pass under the skin in various directions, and to thrill and jump upon the slightest motion. The head is held perfectly steady, as the least movement to one side, or even forwards, will bring on a paroxysm. The opening or closing of the mouth will do so likewise. In addition, the muscles of expression are frequently brought into spasmodic action, so that the countenance is more or less distorted; and occasionally, when the temporo-facial branches are particularly affected, bright streams of light appear to the sufferer to pass along the nerves which are in agony. The slightest touch is sufficient to induce this luminous current.

Perhaps the most characteristic symptom is the *sensation of constriction* of the face and head. By

the description of patients, it would appear as if the pes anserinus was powerfully contracted, and enclosed the cheek in a net, whenever what they call "the spasms" come on. In conclusion, I have noticed one peculiarity in these cases where the motor nerve is principally disordered, which I hope to see confirmed by future observers. The character of the pain differs somewhat from that in tic douloureux of the sensitive nerves. The seizures are of a *tonic* rather than of a *clonic* nature; and suggest the idea of *tetanic* more than *convulsive spasm* of the nerves. The patients complain of a *dragging sensation*, continuous for some length of time—very different from the ordinary twitching, catching feelings, observed during the paroxysmal intermissions of other forms of neuralgia.

It is not often we meet with a case where the motor nerve is exclusively troubled with neuralgia, as the neighbouring sensitive fibres are generally more or less involved. The succeeding instances are, however, I believe, tolerably well marked.

CASE.—*Neuralgia of the Portio Dura.* Mrs. B., the wife of a butler in Russell Square, applied to me Nov. 20, 1850. She is a woman of feeble constitution and general bad health. Has been afflicted with facial neuralgia for the last two or three years. The present attack has lasted

a fortnight or more, and arose without apparent cause. The pain seems to *commence just in front of the ear*, then shoots along the jaw, across the cheek to the lip and nose, or up to the forehead and eye. Sometimes it strikes to the crown of the head, "seeming to take the senses away," or passes down the neck, when she feels a *dragging sensation*, "like so many strings drawing the shoulder up." The paroxysms occur with no regularity, as often during the night as the day. When they are on, the patient *places her thumb over the stylo-mastoid foramen*, and presses with all her force. This seems to relieve her. The whole face and head *feel stiff* and uncomfortable. The *slightest motion brings on a fit.*

The general health was much disordered, and the teeth in a bad condition. By attending to these matters, and by soothing applications, the pain of the face subsided.

CASE.—*Tic Douloureux of the Portio Dura.* Mrs. F., æt. 36, the wife of a varnish-manufacturer of Spitalfields, was sent to me by Mr. Saunders, the dentist, at the latter end of the last year, when the following note was taken :—

About two years before, patient suffered much from tooth-ache. Had several teeth extracted, and one, the first molar of the left lower jaw, was stopped. There was no pain felt in this afterwards, but for some length of time there was considerable swelling of the gum. Six months after the operation, that is, about a year and a half ago, neuralgic pains began to be experienced in the left side of the head; and these have been present more or less ever since, although greatly increased in intensity, in spite of all treatment.

The present symptoms are—pains of a strange, indescribable kind, occurring in paroxysms. They seem to commence just in front of the ear—sometimes in the temple—and start from these points in various directions. Often they attack the ear, shooting to the pinna, or darting into the interior, when singular noises are heard. Very frequently they run down the neck—in lines to the shoulder—"seeming like strings drawing the shoulder up." A beating or ticking is felt in the neck during these paroxysms. Occasionally the irritation passes across the cheek, when there is more or less swelling of the parotid gland and salivation. The fits are almost confined to the day-time. When lying down in bed the patient soon gets relief; and believes this arises from the pressure made on the nerves, as it does not take place unless she lies on the affected side with a hard pillow beneath her.

Mrs. F. is almost worn out with suffering. Otherwise her health is perfect. There is no perceptible disturbance whatever in the stomach or elsewhere. Mr. Saunders assures her that the remaining teeth are quite sound.

Probably the source of irritation is the stopping in the carious tooth.

CASE.—*Neuralgia of the Portio Dura.* The following particulars were furnished me by a country practitioner, in the autumn of 1848:—

The patient, an elderly baronet, in one of the eastern counties, has suffered for many years the most terrible attacks of pain in the left side of the head, and for several months past has been in the most pitiable state imaginable. The nerve affected is the portio dura in most of its

branches, but principally the pes anserinus. The least movement of the head to that side, or downwards and forwards, or the slightest attempts at deglutition, invariably bring on the paroxysms. He is most free from pain when in the open air and in violent exercise, but even this frequently fails to relieve the symptoms. Latterly, he is scarcely ever quite free from suffering; but when there were intermissions, no periodicity was observable.

Although the original cause of the malady is inexplicable, cold exercises considerable influence upon the complaint at the present time. Indeed, cold falling upon the cheek, or affecting the mucous membrane of the nose, always increases the violence of the paroxysms. The present attack was brought on by his remaining some time in wet clothes, and in a very cold air. It re-appeared on his taking cold while travelling, after being quite absent for some time. The state of the stomach seems also intimately connected with the malady. The patient suffers much from acidity, and, after a violent paroxysm, the eructation from the stomach is extraordinary. Otherwise, the general health is unimpaired. The appetite is good, and the bowels act naturally and well.

As may be conceived, the most eminent members of the profession have been consulted. The only drug that has relieved him is the Cannabis Indica. Even this seems now to have lost all power over the pain. Temporary, fugitive benefit has also been afforded by the external employment of aconitine and veratria.

Case.—*Neuralgia of the Facial Nerve.* Mr. S., a tradesman of Whitehaven, aged 45, applied to me, June 1,

1850, for this complaint, which was said to have originated in the following manner:—

About twenty years ago, he first observed a little lump in the left cheek, just in front of the ear. Believes this was occasioned by a blow, received some time before. It was then as large as a marble, and could be readily moved beneath the skin. Within the last three or four years, this tumour greatly increased in bulk, and formed adhesions. Ultimately it became as large as an egg, and was quite fixed. At this period, he began to experience an uneasiness or irritation in the cheek. Slight burning, pricking pains now and then were first noticed; but afterwards they increased in severity and frequency, especially during the night. To relieve the pain, leeches were applied to the tumour. Caught cold, he believes, in the part, when the leech-bites were still open. Then commenced the true neuralgic pains, in deep, shooting, plunging paroxysms.

Mr. S. came to town in the spring of this year, and was under the care of one of our eminent metropolitan surgeons, who advised the imediate removal of the tumour. The operation was performed in March. The swelling was described in *The Lancet* (April 20), as an enchondromatous tumour, the size of a small egg, situated at the internal side of the parotid gland, which was cut through in order to get at it. The facial nerve was exposed, but not divided. The wound healed well, but left a swelling of the cheek, which still remains. Mr. S. returned into the country about three weeks after the operation. No distinct neuralgic pains had appeared since that was performed, but they returned with increased severity when he arrived in Cum-

berland. This induced him once more to seek relief in the metropolis.

At this time (June 1), there is considerable swelling of the left side of the face. The pain, which is intermittent without periodicity, seems to originate just below the ear. Sometimes it passes into the ear, or is confined to the pinna. Often it passes down the neck, when it causes a sensation of water dropping on that part. At times it comes forward to the cheek and lips. There is a continual uneasiness, but paroxysms of plunging, pricking agony ensue on the slightest movement. Patient compares the ordinary sensation to "a tightening of the nerves." He cannot open his mouth freely. When he attempts to do so, he feels stiffness or pricking in the cheek. There is some numbness also—stiffness or "woodiness"—of the left side of both lips, arising from partial palsy. The paroxysms occur especially during the night. Otherwise the general health is excellent. Not the slightest sign of gastric disturbance. The teeth are perfectly sound, yet often pain is felt in them, and in the gums of the left side.

As Mr. S. came to me expressly for the purpose, the medicated vapour was applied to the cheek and head. It was only used twice, and produced considerable mitigation of the neuralgic symptoms.

CAUSES OF FACIAL NEURALGIA.

The predisposing and exciting causes of neuralgia in general having been previously discussed at some

length, it would be but a work of iteration to allude to them at present, further than is necessary to show their relative agency in the production of the present forms of the complaint.

The direct connexion of the sympathetic system with the trifacial nerve would lead us to suppose that tic douloureux, more than other forms of neuralgia, was dependent upon derangement of the primæ viæ. I believe this is not the case; or, at all events, the indications of it are very obscure and doubtful. My reasons for this opinion have been previously given. The neuralgic side of the tongue being paler than the opposite, shows that nervous excitement has much to do with any apparent disturbance of the stomach.

One main reason why the face is more often affected with neuralgia than other parts of the body is, that it is peculiarly exposed to changes of temperature. Cover up what we will—hands, feet, or neck—we never think in this country of enclosing the face. The greatest variations of heat and cold are thus allowed to act upon parts supplied with large nerves, and those allowedly the most sensitive in the body. It is a curious circumstance moreover, that the parts of the nerves affected are usually the superficial branches, after their emergence from the foramina and removal from the equalizing tempera-

ture of the head. In neuralgia of the portio dura—if it be conceded that there is such a complaint—cold must very frequently be the exciting cause.

There can be no doubt that *caries of the teeth* is an occasional, perhaps frequent, cause of facial neuralgia. Most writers acknowledge this. The only danger is, that it is liable to be regarded as the *sole* cause. The disease consisting, as I have previously explained, of irritation of the nerve, many states of the teeth may occasion it. Thus, the body of the tooth itself may be sound, but there may exist some change at its root, such as a fungus or an exostosis.

Caries itself may give rise to the disordered action, and the irritation be propagated along the dental twigs, until the whole side of the face is affected. That such a condition is capable of producing facial tic douloureux is fully proved, by the fact of its sometimes originating the disease, through some strange sympathy, in distant parts of the body.

The latest opinions of the French, on the influence of the teeth in the production of neuralgia, are thus expressed by M. Valleix:*—"In eleven cases only that have fallen under my observation and that of other writers (continental), the state of the teeth was alluded to. In nine of these, one or

* Op. cit. pp. 43-44.

more of the molars was carious. But four of these patients, three of whom had been afflicted with tic douloureux in all the three branches of the fifth, had never suffered from toothache Six others, of whom four had neuralgia of the three branches, having some pain of the gums, made us imagine that the root of the evil was to be found in the carious tooth. But we were soon undeceived, for their extraction brought no mitigation. Sometimes, even, it was followed by evident and permanent augmentation of the sufferings. The first symptoms of tic, in fact, commenced a quarter of an hour after the extraction of an eye-tooth for odontalgia, in a person who had previously experienced neuralgia. Thus, in one single case only we found an evident exciting cause, and that cause was not the caries of a tooth, but its extraction. These facts tend to confirm the opinion which M. Chaponnière has expressed in these terms:—"Caries or exostosis of the teeth must very rarely indeed be an exciting cause of neuralgia; for there are very few cases of neuralgia on record, in which we do not read that the sufferers have had several of their teeth extracted in the hope of finding relief, but have been grievously disappointed."

A much more frequent condition of the teeth, giving origin to facial neuralgia, is that where the

crowns are completely eaten away by caries, and the fangs remain even with, or below, the surface of the gums. Instances of such states of the masticatory organs are familiar enough to dentists. Since the introduction of chloroform into practice, four, six, eight, or even ten roots of decayed teeth have been extracted from one patient at a sitting. It is easy to imagine that these formed ample cause of neuralgic irritation.

I believe that these stumps act more particularly as predisposing causes of tic douloureux: the immediate exciting cause being cold, or disturbance of the digestive functions. Often no pain has been felt in the parts. The patient has not suffered from toothache, or but slightly; and yet, of a sudden, violent lancinating paroxysms attack the whole of the nerves of that side of the face. The dental twigs of the second and third divisions of the fifth have been irritated, perhaps for years, by these stumps; and this, not only through the morbid process of caries constantly going on, but by the efforts of nature to dislodge them, as foreign bodies, from the alveolar cavities. A general decay of the teeth, such as is observed occasionally in young people of the strumous diathesis and in certain provinces and districts, may also, in the same way, lay the foundation for tic douloureux. The previous

and present condition of the teeth should therefore, in my opinion, form an object of close inquiry in every case of neuralgia, wherever situated.

Allowing the great influence of an unsound condition of the teeth in the predisposition to, and actual production of, facial neuralgia, I would venture to suggest a warning against the too great reliance on this source of irritation. The teeth may be in great pain—one tooth, in particular, may be in agony—and yet may not be the cause of the general excitement. It may only be secondarily affected. The disease often, as I previously observed, travels in a retrograde course, and affects the dental twigs in its passage. In this way I have seen the point of the gums, in old people, the focus of tic douloureux, when there was not the vestige of a tooth or stump in the jaws. This should be borne in mind, otherwise tooth after tooth will be sacrificed without benefit—perhaps with much injury.

The following additional cases will serve to illustrate certain other points connected with facial neuralgia, such as its origin in malaria, its association with paralysis, and its occasional metastasis.

CASE.—*Facial Neuralgia, arising from Malaria.* Mrs. D., æt 56, a village schoolmistress of Northamptonshire,

came under my care Sept. 3rd, 1850. She is a person of spare habit of body, and nervous, excitable temperament.

Patient reports that she always enjoyed excellent health until she went to reside at ——, in Essex, five years ago. This she describes as a low, flat place, overflowed by a neighbouring river all the winter-time—and sometimes even in summer. When she went there, she was told she would either have the ague or the tic douloureux. Was seized with the latter after staying six months in the town. Suddenly one morning the pain commenced in the left cheek, and flew up to the temple and head. The jaw became stiff, so that she was unable to close the mouth. This attack lasted about a week, and then went off by the aid of bark. A month or two afterwards, upon catching cold, the neuralgia again showed itself, and subsequently appeared every damp season, especially during the winter, while she remained in the place. It occasioned infinite torture. The health gave way at the same time, so that she became excessively weak and depressed in spirits.

After leaving Essex, Mrs. D. went into Northamptonshire to a dry, healthy place—but the complaint was not left behind. It has troubled her more or less ever since. She takes bark and quinine continually, which always relieve the sufferings, but never completely cure them.

The present symptoms are,—Pain of a shooting, piercing character, apparently seated in the back teeth of the lower jaw, and darting from thence up to the left temple and vertex. The paroxysms come on at uncertain times during the day, but do not trouble her at night. When perfectly quiet she is free from suffering, but upon the least move-

ment of the jaws the pain is excruciating. This is particularly distressing, as, from the nature of her occupation, she is obliged to talk much. Latterly, all the teeth of the affected side of the jaw have been painful and loose. Has had several extracted, without benefit. Cannot eat on that side, and scarcely on the other. There is no swelling or redness of the cheek, but a little puffiness under the lid; and the eye itself is weak, and somewhat amaurotic. The lower jaw is very stiff—almost fixed. By no effort can it be either closed or opened completely. Otherwise, the general health is good, and tongue clean.

Three grains of quinine, with one and a half of sulphate of iron, were directed to be taken three times a day. In addition, as this was one of the cases in which the warm vapour was likely to be especially serviceable, the aneuralgicon was applied to the side of the face and ear.

Sept. 13th.—Patient left to-day for the country. She has had the apparatus used nearly every day, and always with advantage. At this time she has scarcely a trace of pain left—merely a slight uneasiness or soreness of the gums. The neuralgia has left the temple and cheek altogether. She is now able to move her jaws with perfect freedom, and can scold her pupils with impunity.

Case.—*Tic Douloureux arising from Malaria, suddenly shifting to the Legs, and accompanied by Palsy.*

J. H., Esq., a merchant of New Orleans, aged 63, consulted me last August, and kindly allowed me to state the following highly interesting and instructive particulars. He is a fine healthy-looking man, of good constitution, and appears to have no hereditary tendency to the complaint.

New Orleans, it is well known, is seated on the Delta of the Mississippi. The town is low and flat—the whole neighbourhood marshy and swampy. Ague and tic douloureux abound there. When Mr. H. went to reside in this city, in 1808, he was quite healthy. Soon afterwards he was attacked with ague, the fits of which continued off and on for two years or more, and then abated, leaving no sequela or visceral disease. Five or six years after all symptoms of the intermittent had left—that is, about thirty years since—a twitching was felt over the right mental foramen—a sensation of motion beneath the skin, without pain—"a nervous tic." This continued at intervals for three years, gradually getting worse, and at last was accompanied by some slight pain. Coming to London, Mr. H. consulted, among others, Mr. Bell the dentist, who examined the teeth and gums thoroughly, said they were quite sound, but that he was afraid it was the commencement of tic douloureux. The patient returned to New Orleans, and soon afterwards the fluttering left the right side of the lower jaw, and appeared in the left cheek, just over the infra-orbital foramen. This quickly developed itself into genuine neuralgia, evidenced by painful plunges, shooting upwards and downwards along the branches of the trifacial nerve. Sometimes it would appear on the other side, involving the second and third divisions of the fifth. The paroxysms were quite intermittent, but had no periodicity. During their accession, Mr. H. could neither eat nor speak, and the parts were so irritable that the slightest touch would increase the pain tenfold. He has had attacks occasionally ever since, but with variable intervals. Often three or four months

have intervened ; but once or twice, a couple of years have elapsed without the slightest symptoms.

In May, 1849, Mr. H. was labouring under a moderate attack of this facial tic douloureux, when he suddenly felt a stiffness in the backs of both legs, which caused a dragging of the limbs. After these symptoms had continued about three weeks, he began to feel excruciating pains from the knee to the toe, which were quite neuralgic in character. The palsy increased at the same time to such an extent, that he was taken completely off his feet, and was obliged to be carried about like an infant. At the end of eight months, the patient gradually recovered the use of his limbs up to a certain point, so as to be enabled to walk pretty well.

As soon as the neuralgia and paralysis of the lower extremities came on, the facial tic douloureux quite left him, as he supposed for ever; and his friends congratulated him upon the change. But in April of the present year (1851), two years after the last attack, the tic suddenly re-appeared in its old quarters. The agony was dreadful, and continued for forty-eight hours, with scarcely a minute's intermission. After tormenting him for about two months, the paroxysms gradually decreased in severity and frequency.

The most celebrated medical men in the United States and in Europe have been consulted, without benefit. External and internal applications have been tried, without avail. The two forms of neuralgia—the facial and crural—have gone on together, and troubled Mr. H. more or less

ever since. At the time he called on me, he was suffering pain in both parts.

CASE.—*Facial Neuralgia alternating with Hepatalgia.* Dr. Allnatt has described a case very similar to the following, which shows the close connexion occasionally existing between tic douloureux and hepatic derangement.

M. J. B., a young person residing in the city, applied at the Metropolitan Free Hospital, Sept. 2, 1850. Eight months ago, she was suddenly seized with violent pain in the right side of the face and head, apparently seated in the portio dura nerve. It returned in fits, without periodicity; shooting from the ear down the neck, and up to the vertex. The violence of the paroxysms ceased in about two months; but in proportion to their decline, pains of a similar character began to be experienced in the region of the liver. Latterly, there has been a regular alternation of these symptoms. Whenever the hepatalgia is bad, the face-ache ceases completely, but re-appears in all its violence as soon as the former gives way; and the side is quite well during the paroxysms of the facial tic.

The patient is much out of health. There is some tenderness on the right hypochondriac region and in the back. The tongue is much coated, the conjunctiva tinged, and a short, hacking cough almost always present. By attention to diet, assisted by mild mercurial alteratives, the symptoms were much mitigated.

CASE.—*Facial Neuralgia.* In August, 1848, I first visited Mrs. M., a lady, ætat. 64, residing in one of the suburban villas, who had suffered a martyrdom from this

form of tic douloureux for the previous ten or twelve years. The following particulars were noted at the time.

The patient, who is a person of small and delicate structure, with more spirits than strength, has always, from a child, been subject to toothache. Has lost fourteen teeth, —six in consequence of odontalgia, previous to the attack of tic, and the rest since, in hopes of relief. The neuralgia is not traceable to any distinct cause, although cold may have been the immediate excitant. The jaws were stiff at the time. The first attack lasted a week. It then went away as suddenly as it appeared, and remained absent a twelvemonth. One Sunday morning it re-appeared, and ever since it has continued permanent, but not always with the same intensity.

The pain is now confined to the right side of the face. It generally begins near the insertion of the canine tooth in the lower jaw. It shoots thence across the mouth, and rests in the infra-orbital region; and from this place it will occasionally extend to the temple, or backwards through the cheek to the ear, or even beyond it. The tic sensation is accurately described. It is with Mrs. M. a *movement*, not a *sound*, and generally precedes for some time the paroxysms. Often the agony seizes upon the deeper branches of the nerves;—the root of the tongue is invaded, as well as its side and apex, points of the palate, and the gums. The ophthalmic nerve, in its superficial and deep branches, is sometimes partially affected. Within the last two months, just about dusk every evening, flashes of light have streamed from the side of the right eye towards the

angle of the jaw. These, of course, are mere sensations, but Mrs. M. describes them as very distinct and vivid, resembling flashes of forked-lightning, or streams of electricity. Two or three of these flashes appear in succession, and are brought on or increased by the slightest motion of the head or jaw at certain times. The globe of the eye itself is now and then illuminated during the paroxysms. The interior structure appears revealed, and a zone of cerulean light plays around the pupil. The features are then fearfully convulsed.

The surface of the face is so irritable, that the spasms are induced upon the slightest touch. A draught of air, or the least movement of the jaws, brings on the agony. Even the thought of food inflicts torture. She shudders when she hears the maid coming up stairs with the breakfast, and loathes the very name of meals on that account.

Upon examination, I find five front teeth in the lower jaw—three in the upper—all in a bad condition; but secondarily affected I believe. One tooth is more prominent than natural, and gives a little pain. Its extraction affords no relief. The condyle of the lower jaw, on the affected side, is more prominent than it should be. The malar bone is also enlarged. Some increase of temperature is perceptible on the side of the head. The tongue is white and dry, more especially on the neuralgic half. Otherwise the general health is good. The patient, who is a remarkably shrewd and intelligent lady, scouts the idea of the neuralgia depending on gastric disturbance. It is always

aggravated by cold, and the month of February is especially dreaded.

Several physicians have been consulted, and all kinds of remedies have been tried. Sometimes a slight temporary relief has been afforded, but that is all.

CASE.—*Tic Douloureux.* Mrs. F., a poor woman, aged 40, residing near Temple Bar, applied at the Metropolitan Free Hospital, Oct. 11, 1848, with this form of neuralgia, from which she was then suffering severely. The disease was produced originally, she believes, by cold caught when she was out washing, The place was cold and damp and the window open.

The pain is now seated over the left malar bone, and shoots from thence down the lower jaw, along the course of the inferior dental nerve, and up to the temple. Sometimes the neuralgia attacks the ear, which then burns like fire. When in the cheek, it is darting, lancinating; and often, when the paroxysms are severe, it feels like a shock, "as if a door were slammed suddenly and violently close to the ear." The saliva runs from the mouth at these times in a clear stream, but even this seems to burn and pain as it flows. The fits have no periodicity, but come on at uncertain intervals, more especially during the night. They generally last about half-an-hour.

The patient has had toothache and bad teeth for years—mostly on the side affected. There is no swelling or discoloration of the face, but the surface is excessively irritable. The slightest touch brings on a paroxysm. Health otherwise good. No sign of disturbance of the digestive appa-

ratus. She is sometimes much pressed for food, but the appetite for it is always excellent. As the affection was of recent origin, it was relieved at once by the application of the warm medicated vapour.

CASE.—*Tic Douloureux from Dental Irritation.* G. D., ætat. 20, residing in Great Earl Street, applied at the same institution Oct. 11.

About a fortnight back, the patient was seized with violent pain in the whole of the teeth of the left side. She consulted a druggist, who told her that it arose from two carious molars of the upper jaw, and advised her to have them extracted. One came out well; the other was broken, and the stump remained in the socket. Since then, she has been in intolerable anguish. Violent paroxysms of pain come on at uncertain intervals in the cheek and palate, and shoot up at times to the temple and vertex. The slightest touch on those parts induces the agony.

There is considerable inflammation of the gums and mucous lining of the mouth, with some disturbance of the stomach. By means of saline aperient medicine, and a gargle, the irritation ceased in about two days.

CASE.—*Facial Neuralgia.* Within a week after the above note was taken, S. P., a poor married woman, ætat 30, residing in Hemlock Court, applied for relief from a somewhat similar affection.

Patient says that from a child she has suffered from face-ache, but not so badly as at present. The teeth have rotted away. Before she was seventeen years of age, she had lost all the top incisors and several molars. Many have gone since, so that she has now scarcely a sound tooth in

her head. Gradually, the symptoms of tic douloureux showed themselves, until they assumed their present form.

The pain now commences at the mental foramen. She places her finger directly upon it. It spreads thence forwards to the whole of the lower teeth, the chin, and lower lip. Sometimes it shoots to the cheek, being chiefly concentrated at the infra-orbital foramen. The mouth then waters much. Occasionally the irritation travels as far as the temple, when the tears flow abundantly. The complaint is not always confined to the left side of the face, but appears now and then on the opposite. It comes on in paroxysms, but at no regular hours. "When coming on, the teeth feel all ajar—as if something very sour had been eaten."

There is some tenderness on pressure over the mental foramen. The whole skin of the face is excitable—the lower lip especially, but there is no swelling or redness. The mouth is in a very bad condition, and the tongue foul. Various remedies have been tried, without avail. Many of the carious teeth and fangs have been extracted, in the hope of affording relief, but this rather made the neuralgia worse. The pain within the mouth is not referred to any of the carious teeth, but to the alveolar sockets from whence the stumps have been extracted.

In this case, after the secretions had been corrected by suitable medicines, the local irritation was very soon allayed by the medicated vapour. After a few applications, the patient stated she had not been so free from pain for years.

CASE.—*Incipient Tic Douloureux.* Nov. 1849.—Mrs. N., the concert singer, had a molar tooth stopped about

six years ago. Lately, feeling uneasiness in it, she picked the gold out with a pin, and continued to poke about the tooth with the same instrument. Irritation was set up, and soon extended to all the nerves of that side of the face. When I saw her, she complained of sharp, piercing, intermitting agony in the cheek, brought on by the slightest touch of the surface, extending downwards to the neck as far as the clavicle, upwards to the temple and vertex, and backwards to the ear—evidently incipient neuralgia. The tooth was not painful, but loose in the socket. It was extracted. The pain still remained severe, but yielded after a smart aperient and a sedative draught had been taken.

CASE.—*Tic Douloureux.* Mrs. G. H., æt. 30, residing in Brooke's Market, came under my care Dec. 3rd, 1849.

About eighteen months ago, she had what she considered rheumatism of the left side of the head and neck. In November, 1848, the character of the complaint altered into regular tic douloureux of the same parts—showing that most probably the previous were the incipient symptoms. The suffering now became intense. She was out of her mind in consequence for a fortnight together, and often tried to commit suicide. Epileptic fits of a very severe kind were also induced. The late Dr. Williams, of the Bishop's-court Dispensary, took great pains with her. Did her much good, but never completely relieved the pain. His treatment consisted of blisters, with morphia—purgatives and tonic medicines. After his death, she went to King's College and Bartholomew Hospitals.

At this time the patient has dreadful pain on the left side of the head. It seems to commence in the temple, just in

front of the ear; and shoots up to the top of the head and back of the neck, or down to the shoulder. Sometimes it runs along the arm to the fingers' ends, and leaves the limb benumbed for some time after. The severest paroxysms come on suddenly, more especially at night. They last about three minutes at a time, but a dull, dragging pain continually remains. All the back teeth of that side, both upper and lower, are gone. Five have been extracted to relieve the neuralgia.

The general health is much disordered. The tongue is foul, and appetite capricious. Patient is very low and nervous. The stomach is so irritable, that it will bear nothing upon it; and when the tic is bad, it sympathises to such an extent that vomiting is incessant.

After trying various other methods to allay the sickness and alleviate the pain—

Dec. 6th,—I applied the aneuralgicon until the patient felt slightly giddy. She left the house quite free from pain.

8th.—The process was repeated—to a slighter extent.

10th.—No neuralgic pain remains. Mrs. H. slept last night better than she has done for six months past. Sickness much better, and appetite returning.

20th.—Every bad symptom has disappeared. Patient reports herself quite well.

Feb. 14th, 1850.—Through some unwise exposure to the weather the neuralgia has returned, but *on the opposite side of the face.* There is no twinge or uneasiness on the left side. The sickness has returned as bad as ever. The vapour was applied, with temporary relief. I lost sight of Mrs. H. from this time.

Several reasons induce me to think that the cause in this instance is *centric*—perhaps some extensive disorganization in the cerebrum. The mania and epilepsy both point in that direction, as well as the shifting of the ailment from one to the other side of the body. The sympathy between the stomach and nerves of the face was perfect; but it was evident that the disorder of the former was dependent upon the facial excitement, by its ceasing as soon as the latter was allayed.

Case.—*Facial Neuralgia.* M. S., æt. 37, complains, Dec. 20th, 1849, of severe pain in the left side of her face. It commences in the middle of the cheek, and flies upwards to the temple, or round the gums of the lower jaw. There is a continual dull pain, as if the parts were benumbed, but occasional, irregular paroxysms of intense plunging agony, during which the tears and saliva flow abundantly. It came on about five weeks since, without evident cause. The general health is indifferent. Appetite bad; bowels irregular—yet the tongue is clean.

The symptoms were completely relieved by the medicated vapour, and a little aperient medicine.

Case.—*Tic Douloureux.* The following note was taken March 21st, 1850. Mrs. L., a lady of independent fortune, residing near town, is above seventy years of age, of bilio-sanguineous temperament, and slender figure. She went out young to Jamaica, was married there and had nine children. On returning to Europe fourteen years ago, she went to reside for a time in Scotland. Remained in Edinburgh during the winter, and the following spring was attacked with neuralgia. She always had excellent health be-

fore, and was in apparent health at the time. It came one morning while eating her breakfast—without obvious cause. Suddenly she put her hand to her face, and exclaimed,—"Good God! what's this?" "It was like a flash of lightning through the eye." The paroxysms persisting, Mrs. L. came to London for further advice; but, in spite of every effort, the disease has steadily increased in severity, and become almost constant, although subject to occasional violent exacerbations. Among other measures, three sound teeth were extracted, without avail. Sometimes the fits have put on an intermittent character, but no regular periodicity.

At the present time, the tic is chiefly seated in the first and second divisions of the fifth. Violent plunges shoot through the globe of the eye, which feels at the moment like a burning coal. If the head is held during a paroxysm, a sensation is conveyed as if strong shocks of electricity were being passed through it. The conjunctiva is then much congested. In addition to the irritation of the superficial branches of the nerve, which causes much convulsion of the features, the side of the tongue is sadly tormented with darting, pricking pains, while the veins beneath it become gorged with blood. Both lacrymation and salivation are occasionally present. Sometimes, though rarely, the neuralgia extends to the lower jaw and down the neck. The attacks come on at all times, and are as severe during the night as the day.

The general health is good, and the intellect perfect. The only apparent disturbance is in the stomach; but no medicine or attention to diet influences the removal,

or even mitigation, of the pain. The change from a hot to a cold climate probably occasioned the mischief.

CASE.—*Facial Neuralgia.* J. A., a sword-cutler, æt. 66, living in Clarence Gardens, was admitted as a patient at a dispensary June 3rd, 1850. He has been troubled for some weeks past with severe pain in the right side of the face, which came without obvious cause. It is seated in the second division of the fifth nerve—the side of nose, upper lip, and cheek being chiefly affected;—and comes on in paroxysms, without periodicity, during which the secretions flow from the eye, nose, and mouth. "It feels like a spring working up the side of the nose." The irritability of the surface is extreme.

As the tongue was foul and bowels constipated, croton oil and alkaline bitters were first prescribed. These medicines did little good, but, being followed by the carbonate of iron and some local applications, the patient quite recovered.

CASE.—*Tic Douloureux.* Mrs. G. R., æt. 44, the wife of a merchant's clerk, residing at Stoke Newington, applied to me Sept. 20th, 1850.

Her health was undermined by a long attendance on a sick and insane husband. Constant anxiety about him "shook her nerves dreadfully." About ten years ago, while residing in Pimlico, she was suddenly seized with pain in the left side of the face, which she fancied was toothache. Had a tooth extracted without benefit, and subsequently two others, without relief. Ever since then the pain has been present more or less, so that she is never six months free from it; although it generally becomes worse in the autumn, and continues severe throughout the winter. At first, it flew

about from one cheek to the other; but latterly it has been confined entirely to the right side.

The irritation is chiefly centred in the cheek, over the infra-orbital foramen. From thence, it shoots to the nose, the upper lip, the lower jaw, and back of the ear. Often it extends up to the forehead and crown of the head, or runs down the right arm to the finger-ends. Patient is then obliged to stand up, close the fingers, and remain fixed. The paroxysms, which are very irregular, and as frequent in the night as the day, come on and go off suddenly. During these times, the suffering is so severe, she feels often inclined to make away with herself. The features are frightfully distorted, and tears run down the face in abundance.

The teeth are much decayed on both sides, but more especially on the right. There is no toothache, however. The patient is excessively weak and nervous. The tongue is clean, but white; the stomach irritable.

The local sedative treatment was commenced in this case, but not persisted in, although some amelioration had taken place. The patient was unable to attend after the second application.

Case.—*Tic Douloureux.* Mrs. F. B., æt. 31, residing in King-street, Holborn, consulted me, Oct. 9th, 1850, for this form of neuralgia, with which she had been troubled for some months. She is of nervous, hysterical temperament, greatly aggravated by domestic affliction.

Patient first felt a "grumbling pain" in the left bicuspid tooth of the upper jaw, which was decayed. This soon became more severe, and extended itself until the whole

side of the face and head was affected. At the present time it comes on in paroxysms, chiefly in the night, just as she is falling off to sleep. A flushing comes over her—"the pulse seems to flow very fast, and throb all over her. Each pulsation seems to bring the pain nearer and stronger to the face." A beating or ticking then commences in the cheek, and soon afterwards sharp, thrilling spasms dart through the nerves. From the cheek and malar protuberance, the neuralgia shoots to the eye, causing the tears to flow over the face—or attacks the nose and upper lip, making them excessively irritable, while saliva streams from the mouth. Often the agony travels backwards, and causes a sensation as if the ear were being pulled out of the head.

Mrs. B. can assign no cause for the attack. The general health, in all other respects, is excellent. Tongue very clean. She has tried various remedies without effect.

By my advice, the carious tooth was first extracted. Carbonate of iron was then given in drachm doses, in conjunction with galbanum pills. The local irritation was finally allayed by the medicated vapour.

Diagnosis of Facial Neuralgia.—There are some other complaints of the face, attended with pain, which are liable to be mistaken for tic douloureux. They are chiefly inflammation of the nerves, disease of the antrum, brow-ague, and rheumatism. The first of these has been already described generally, and it is, therefore, merely necessary to add, that cases of the kind have been de-

scribed by the Baron Larrey and Dr. Copland. Indeed, the latter gentleman seems to consider,* that the complaint is always of this nature when the portio dura is affected with pain.

Disease of the antrum simulates tic douloureux of the second division of the fifth so closely, that it can scarcely be distinguished from it, more especially as one side of the face only may be affected. The disorder consists of inflammation or suppuration of the lining membrane of the maxillary sinus, arising from cold or influenza. It is characterized by severe pain, with occasional exacerbations, at the top of the canine fossa; and this even seems to radiate from a point below the orbit. There is often no swelling, heat, or redness of the skin.

The history of the case may aid the diagnosis. Pressure over the infra-orbital foramen and nerves there situated, produces no aggravation of the symptoms, but they are augmented in the deeper parts of the face upon blowing the nose. The pain is also constant, of a dull, throbbing kind, without those awful plungings which mark the paroxysms of neuralgia. Yet still it must be confessed, that genuine tic douloureux may result from disease of the antrum, or be complicated with it. This should always be remembered. The jaws should

* Dictionary, Art. "Neuralgic Affections."

be carefully examined; and if there is reason to suspect a collection of pus, a probe should be passed into the maxillary sinus.

Brow Ague.—There is only one form of tic douloureux that this complaint can be confounded with—I mean frontal neuralgia. For this it may readily be mistaken, as the two disorders possess many points of similarity. Both are characterized by pain in the frontal region—either may arise from malaria,—and the paroxysms of both are more or less periodic.

Brow-ague consists of a dull, heavy pain over the eye, coming on generally at certain fixed intervals, and often extending to the temple and forehead. The conjunctiva is usually injected—its veins especially tortuous and full—accompanied by a copious flow of tears. The paroxysms come on apparently without any exciting cause, gradually increase in severity for a few hours, and then cease spontaneously; and they often recur with quotidian, tertian, or quartan regularity.

It will be perceived, from this slight description, that there is a considerable resemblance between the two affections. They may be distinguished, however, by the character of the pain. This, in brow-ague, is dull and heavy—in the neuralgia, plunging, electric and spasmodic. In the former,

it is seated in various tissues—in the latter, only in the nerves, along whose course it traverses. The two diseases may still be consentaneous, or pass insensibly into each other.

Many of the French writers—Valleix among others—doubt whether there is such a thing as *rheumatism of the face*—I mean ordinary rheumatism of the muscular and aponeurotic structures. But it appears to me that such cases are by no means infrequent, and may be readily distinguished from neuralgic affections. The chief seats of rheumatism of the face are the temples, and the articulation of the lower maxilla. Rheumatism is also apt to attack the nerves of these parts; in illustration of the symptoms and management of which disorder, I adduce the following

Case.—*Rheumatic Facial Neuralgia.* E. P., a maid-servant, ætat. 25, was sent to me by her master, March 6, 1850. About a month before, she caught a violent cold, by sitting in a draught. Had flying rheumatic pains in various parts of the body, which subsequently settled in the right side of the face; and have continued with slight intermissions up to this time, although they passed suddenly from the right to the left side of the head.

The neuralgia is chiefly centred in the temple, but shoots from thence to the ear, or up to the vertex. There is also considerable uneasiness about the condyle of the lower jaw, which is somewhat swollen. The teeth cannot be brought

together on that side, and any attempt to bite with them causes increased suffering. Some heat of the surface may be observed, especially over the nerves affected, and pressure upon them is painful. The pain, which is of a dull, aching character, comes on in irregular paroxysms, but is never quite intermittent. It is always worse at night, when the patient is warm in bed, and hot applications to the part increase the suffering. Some rheumatism is felt in the shoulders and hips occasionally. The general health is rather disturbed by a slight feverishness of the system. The tongue is white and coated.

A smart aperient was first administered. Subsequently, a mixture with iodide of potassium, colchicum, and magnesia, was prescribed. When the general rheumatic diathesis had subsided, and pain still remained in the nerves, the medicated vapour was applied with signal advantage.

HEMICRANIA.

This is a complaint of frequent recurrence but of short duration, which affects the side and top of the head, and bears a great analogy to, if it be not, neuralgia of these parts. The French call it the *migraine*. It is both a troublesome and an obstinate disorder; but, I believe, is more common on the continent than in this country. It has not been sufficiently studied to allow of its seat and nature being accurately defined; but most physicians consider that it is seated in the superficial

nerves of the scalp, and is referrible to disorder of the chylo-poietic viscera.

Hemicrania generally commences at the outer edge of the eyebrow, the parietal protuberance, or the lower part of the temple, and extends thence over the whole of one side of the head, when the sensibility of the skin becomes much exalted, and is very tender to the touch. The course of the disease is rapid and well-marked. The pain, at first trifling, augments with celerity, preventing the patient attending to the slightest occupation. Sometimes the least ray of light or sound is insupportable. After twelve or twenty-four hours' duration, the complaint generally entirely disappears, and refreshing sleep ensues. The recurrence of the paroxysm may be expected at an uncertain interval. Sometimes it will pay its unwelcome visit within a week, or it will remain absent for months. The sufferer experiences the greatest relief during the accessions, by tying a small string or other ligature very tight round the head; and this simple contrivance is almost invariably resorted to.

It will be perceived from the above sketch, which exhibits the ordinary features of the malady, that the migraine differs in some respects from true spasmodic neuralgia, in addition to its ephemeral nature, which is but a doubtful characteristic. It

seems to me more to resemble a nervous congestion than an active excitement of the nerves—a pathological condition more like that in brow-ague than in tic douloureux.

The following can scarcely be called an instance of hemicrania, although the patient resorted to the same method of alleviating his sufferings.

Case.—*Cranial Neuralgia.* J. S., Esq., a fine, vigorous Scotch gentleman, seventy-three years of age, had, in January, 1848, been troubled for several years with neuralgia of the left side of the face. Latterly this had subsided, but he had every now and then attacks of sharp, shooting pains, flying up from the temple to the vertex. They were more troublesome than severe, and lasted from twelve to twenty-four hours. Sometimes they would commence behind the ear, and, mounting the posterior part of the head, traverse the whole of the cranial nerves of that side. No cause could be assigned. Medicine had been tried without avail; but temporary relief was afforded by tying the string of the nightcap very tight round the head; and holding a piece of cotton, moistened with strong ammonia, to the parts, when the paroxysm was more than ordinarily severe. The warm vapour was employed a few times, and the patient stated that he derived more benefit from it than from anything he had ever used.

The general health in this case was excellent; there was not the slightest indication of gastric disturbance. When Mr. S. died lately, ossific deposit was found in the valves of the heart, and in the smaller arteries of the brain.

The NECK may become affected with neuralgia in consequence of extension of the disease from the head and face. The descending branches of the portio dura are, apparently, frequently implicated in this way. It is also subject to neuralgic pains from a variety of local causes; such as in the case related by M. Bousquillon, where they followed the opening of the jugular vein in bloodletting; and in that mentioned by M. Jolly, where they ensued in consequence of the application of leeches.

Either the anterior or the posterior cervical plexus may be the seat of the malady. Four instances have fallen under my notice, wherein the nervous excitement has been almost entirely confined to the latter, and I therefore consider this form must be of frequent occurrence. It may be called—

CERVICO-OCCIPITAL NEURALGIA.

The posterior branches of the first four cervical nerves, after their emergence from the spinal canal, pierce the muscles at the back of the neck, and, interlacing freely together, form a plexus, which is distributed chiefly to the skin of the upper part of the neck and the occiput. It is in communication above with the nerves of the scalp, and below with

the anterior cervical plexus. Sometimes we may suppose that the disease originates in the sub-occipital nerve, but I have reason to believe that it more often springs from the posterior branch of the second cervical. This nerve, called by Arnold the *great occipital*, pierces the complexus muscle at the upper part of the neck, in order to become sub-cutaneous; then attaching itself to the occipital artery, it is directed upwards, and expands, by a considerable number of diverging branches, upon the occiput, where it may be traced as far as the parietal region.

Patients who suffer from this form of neuralgia complain of a heavy, dull, continuous pain at the upper and back part of the neck. When they are most free, this amounts to a mere uneasy sensation. Occasionally, these feelings are replaced by such shocks of severe, darting agony, as are experienced in tic douloureux of the face. These paroxysms do not appear to be regular or periodic in their accession, but are repeated at short intervals. The patient places his finger between the mastoid process and the spines of the upper vertebræ, as the focus of suffering; and there will frequently be some tenderness on pressure at this spot. The excitement extends from this *foyer* in all directions, in proportion to the severity of the

symptoms. Passing upwards to the occiput, it may occupy the whole of the posterior cervical plexus, or even extend to the face. Travelling downwards, it may reach to the shoulder, or as far as the chest. The arm, also, not unfrequently becomes temporarily affected.

The causes of the complaint are usually very obscure. Cold and derangement of the primæ viæ are probably the chief disturbing forces; and the former more especially, in consequence of that part of the neck, lying between the coat and the hat, being peculiarly exposed to the weather. In two cases that have fallen under my notice, the disorder could, in addition, fairly be attributed to intense and long-continued mental excitement.

The only complaint with which cervico-occipital neuralgia is liable to be confounded is rheumatism of the same parts. The small muscles and fibrous tissues at the back of the neck are very subject to that disorder, which is often extremely severe and obstinate. Rheumatism in this situation is characterized by a dull, heavy pain at the nape of the neck, with some tenderness on pressure. Great difficulty is experienced in rotating the head, and this movement is accompanied by considerable suffering. The temperature of the part is also somewhat increased. This muscular complaint may

therefore be distinguished from neuralgia by the nature of the pain, which is dull and heavy, instead of darting and spasmodic; by its quietude during rest, and great increase upon movement of the muscles; by its freedom from paroxysms, and its tenderness on pressure.

It must be confessed, however, that great difficulty sometimes attends the diagnosis, more particularly as the two disorders are often combined. Occasionally, indeed, cases of spasmodic neuralgia of the neck present themselves, like those described below, which are quite uncomplicated with rheumatism; but more often the disease exhibits the symptoms of that spurious variety, which I have previously alluded to under the title of rheumatic neuralgia.

CASE.—*Cervico-occipital Neuralgia.* The following note was taken in October, 1850:—

About twelve years ago, the Earl of ——, a nobleman of strong constitution, but of nervous temperament, felt a pain at the back of the neck. He could not account for it. It came suddenly, without obvious cause; and after persisting for some time, went away. After an interval it reappeared, and has troubled him more or less ever since. It has now been present for several months, and seems to be rather increasing in intensity.

The neuralgia is not very severe, but it is constant, at

least during the day-time. Lord —— describes it as a sharp, gnawing pain—occasionally thrilling or electric. It is apparently seated in the sub-occipital nerve, and is generally confined to one spot, which can be covered with the point of the finger, a little outside the hollow at the nape of the neck. The paroxysms, or rather accessions, of pain come on irregularly, but are almost always preceded by a strange sensation. There is a single slight movement, a *tick*, felt near the last cervical vertebra, but no pain there; and immediately afterwards the neuralgia comes on in its usual seat. The disease never tends upwards to the head, but sometimes downwards to the back.

There is no heat, redness, or swelling, at the neuralgic focus—no tenderness of the surface, or irritability. There never has been any. Pressure causes no pain—on the contrary, it rather relieves it. The patient is in the habit of pressing the part forcibly when the paroxysm is on. He uses a piece of wood for this purpose, and places this by his bedside, in case the neuralgia should return in the night. Oddly enough, continued compression by means of a tourniquet is of no service. He finds, moreover, that even temporary pressure is useful only when the body is horizontal. "It would be perfectly useless while I am standing or sitting up." His lordship becomes much excited, at times, on the race-course, but believes that *exerts no influence whatever* on the complaint; neither does change of weather, to which he is continually exposed. Exercise, such as sharp walking, always relieves the symptoms; but if he stops to speak to any one, the moment he opens his mouth

the pain returns. Sometimes, he believes, the opening or shutting of the *eyes* induces it.

As may be imagined, Lord —— has consulted the highest authorities. Some medicines and applications, he says, seemed to do him good at first, but when the pain returned again they were useless. In March last, Mr. Syme divided the nerve. He cut down to the bone, according to the description of the patient, laid the nerve bare, and cut away a portion. He also removed some thickened periosteum. The operation did not afford even temporary relief, but rather made him worse. The general health is excellent. There is no sign of gastric disturbance.

Mr. Skey, the surgeon to St. Bartholomew's, advised Lord —— to try the medicated vapour, and afterwards kindly acknowledged the benefit his lordship had derived from it.

CASE.—*Cervico-occipital Neuralgia.* H. J., Esq., a highly-respected member of the Turf Club, was, at the time this note was taken, in March 1850, about sixty years of age, of spare habit of body, and bilio-sanguineous temperament.

About six years ago, in the spring, Mr. J. was seized suddenly with neuralgia in the back of the neck. It came with violence, so as to cause him to shriek out. He could not trace it to any particular cause—such as hereditary tendency, or exposure to cold—nor to gout or rheumatism. After the first attack, which lasted about six weeks, the pain returned occasionally in a fitful manner, and has since become chronic. The acuteness of the suffering has diminished, but it is continuous.

At this present time, about two inches behind the left

ear, there is a dull pain, which has been there constantly for more than six months. At uncertain times this increases in intensity, and seems to spread, so as to occasion "a kind of rheumatic feeling," all over the head and shoulders. An increase of suffering also generally comes on about an hour after dinner, although he is extremely careful and moderate in his diet. It continues throughout the night, but not so severely as to prevent sleep. Patient believes, indeed, that sleep has a tendency to induce it; for if he has a doze during the day-time, he is certain to find it on awaking. He is convinced that the neuralgia is quite independent of stomachic derangement. Exposure to cold winds makes him no worse.

There is nothing apparently wrong in the part—no heat, redness, or swelling. The neuralgia appears to be seated in the posterior branch of the second cervical nerve; but there is not the slightest tenderness on pressure—neither does pressure relieve it. The general health is good, and tongue clean. The conjunctiva and skin are tinged, but there is no pain in the hypogastrium. Has been examined by several eminent physicians, who have detected no disease in the chest or abdomen. Has taken great quantities of medicine, and used all kinds of local applications—but found no relief hitherto.

Here the most striking and decided benefit was obtained from the warm medicated vapour. After the first application, Mr. J. was able to return to his club free from pain, to play nine rubbers of whist—a thing he had not done for years,—to sleep well, and awake without pain. The neuralgia returned afterwards, in consequence of various dis-

turbing causes—such as anxiety, excitement, and imprudence in diet,—but was again relieved. In June following, he wrote to say that he considered himself quite well, and ascribed it entirely to the treatment. He took no medicine.

CASE.—*Cervico-occipital Rheumatic Neuralgia.* Miss J., a lady about forty years of age, consulted me in April, 1850, for this complaint. She has suffered much from rheumatism—chiefly in the joints. Her relatives are all rheumatic. She has a lateral curvature of the spine in the lumbar region—but her general health is otherwise good.

In 1838, in consequence of an exertion, she felt a "crick" in the neck, just below the occiput. For several days afterwards, she could not hold her head up, but was obliged to have it supported by a servant. She has now recovered somewhat the command over the head, but cannot even yet put it back without support, or turn it round without pain. There is a stiffness in the part, especially after exertion. A pain came on immediately after the accident, and has remained ever since. It is not an acute pain usually, but is subject to increase in paroxysms; and commences in one spot close to the fossa, shooting upwards from thence to the occiput. It is not periodic, but is increased during the prevalence of easterly winds, and when there is rheumatism elsewhere. Rest always relieves it.

There is slight swelling of the outer edge of the complexus muscle. Gentle pressure increases the pain, but a heavy one affords relief; and therefore the patient frequently presses or pinches the part strongly for ease. There

is some tenderness over the spine in the cervical and lumbar regions. She says that no remedy has done much good. Sir B. Brodie ordered belladonna plaster to be applied to the spot, and put the arm in a sling, so as to take off all strain upon the muscles. This relieved the pain perfectly, so long as the bandage was there, but it returned as soon as this was taken off.

The warm vapour was very serviceable in this case. The patient left town, however, after two or three applications.

CASE.—*Cervico-occipital Neuralgia.* The lady of a military officer, residing at a fashionable watering-place, consulted me May 19th, 1851; having suffered from this form of tic douloureux for three or four years—at first occasionally, but latterly almost constantly. It is chiefly centred in the second cervical nerve of the right side. From the nape of the neck, sharp plunging spasms pass upwards to the occiput, or downwards to the shoulder, in irregular paroxysms. A slight draught of air falling upon the part will induce them, while some relief is obtained from pressure, and rubbing the neuralgic focus violently.

The pain originally appeared in the right forearm, along the course of the ulnar nerve, and is felt there occasionally even now; sometimes, also, in the same part of the left arm, accompanied by a great tingling and burning sensation throughout the extremity, but no swelling or discoloration. Formerly, the neuralgic pains in the *left forearm* were brought on instantly and invariably, by touching the meatus of the *right ear;* and this strange sympathy continued for *three years.* At the present time, there is a spasmodic action of the arms now and then. They are thrown

back violently—more especially when the cervical tic douloureux is at its height.

No distinct cause can be assigned for these attacks, as the health is otherwise excellent. All the teeth in the mouth are artificial—many having been filed and pivoted. The patient has not suffered from toothache for years; but the remaining stumps are very irritable, and extremely susceptible to the influence of heat and cold. Mrs. —— attributes her disorder in some measure to change of life, but more especially to the constant state of excitement she is kept in by her husband. This gentleman is suffering from Bright's disease, which subjects him to fits of irritation and delusion. He has a jealous mania upon him, and is always searching the house for Lotharios.

Various plans of treatment have been employed. Of all medicines, arsenic alone somewhat relieved the pain, although it greatly increased the spasms. The warm vapour was used with such promise of advantage, that the patient took an apparatus with her into the country a few days afterwards.

NEURALGIA OF THE TRUNK.

Painful affections of the surface of the trunk of the body are extremely frequent; and as they are liable to be mistaken for organic lesions of grave import, are deserving of close investigation. They are of various kinds and degrees of severity; sometimes consisting of mere rheumatic ache and un-

easiness, at others, assuming all the peculiar symptoms of intense rheumatic, hysterical, and spasmodic neuralgia.

The chest is more particularly subject to such maladies. They are met with every day at the public dispensaries, and not unfrequently puzzle, by their anomalous characters, the most acute and experienced practitioners. Not the least important and strongly-marked of these affections is that which is now recognised under the title of

INTERCOSTAL NEURALGIA.

It is the *Névralgie Dorso-intercostale* of the French, and was first described by M. Nicod, in the year 1818,* who had met with more than two hundred cases in the course of his practice at the Hôpital Beaujon. Since this time various writers, both in this country and on the continent, have further elucidated the subject, among whom may be mentioned the names of MM. Bassereau, Fouquier, Ollivier, Teale, Parrish, Siebold, Griffin, and Todd. From their published descriptions, corroborated by my own observations, I proceed to draw an outline of the features of the malady.

This form of neuralgia appears to follow the

* Nouveau Journ. de Med. et de Chir. Prat., t. iii. p. 247.

direction of some of the intercostal nerves, more especially selecting the sixth, seventh, and eighth pairs. Females are much more subject to it than males, and those between the ages of fifteen and forty. It rarely attacks both sides of the chest at the same time. It will shift its seat occasionally, and fly suddenly and unaccountably to the opposite region, but by far the most frequent position is the left side, just below the mamma.

Severe pains traversing the course of the nerves with lightning rapidity, and darting, throbbing, or shooting in paroxysms, are the distinguishing signs of the malady. Sometimes the fits are periodic in character, recurring at regular intervals; but the slightest movement of the body will bring them on, and the effort of coughing induces them violently. The patient holds her breath as much as possible in order to lessen the agony.

There is usually considerable tenderness on pressure; and the skin over the ribs and intercostal spaces of the part affected is excessively sensitive, as if it had been severely bruised. M. Valleix* recognises three *foyers* of pain:—the *posterior* or *vertebral*, situated nearly opposite the intervertebral foramen; the *middle* or *lateral*, about the centre of the intercostal space; and the *anterior*, *sternal*, or *epigastric*,

* Névralgie, p. 348.

between the cartilages of the ribs, just outside the sternum. At those points, he says, the sensibility is often so excessive, that the slightest touch, or movement of the skin, will cause the patient to shriek with anguish.

Upon examination of the chest, not the slightest indication is afforded of the cause of mischief beneath the skin. There is no heat or swelling of the surface. Neither the circulatory nor the respiratory apparatus appears to be essentially associated with the suffering, as percussion and auscultation generally afford no evidence of anything abnormal in the thorax. Neither does it seem to be directly dependent on derangement of the primæ viæ.

As far as my own observation extends, this form of neuralgia is by no means so severe or obstinate as that in other parts of the body. I should say, indeed, that it is in general an ephemeral disease, rarely passing into the chronic condition. It commences in a gradual manner, without obvious cause, although cold appears to have the greatest influence in inducing it, if we may judge from the attacks chiefly occurring in the winter. During its course, the exacerbations and remissions are excessively variable; but the paroxysms are, perhaps, rather more frequent during the day than the night. Some young females are subject to their

recurrence at certain seasons of the year, quite independent of the catamenial functions.

That which I have been describing is the true or spasmodic neuralgia, similar to that which, in the face, passes under the name of tic douloureux. Rheumatism is very apt to attack the intercostal muscles, and give rise to pains and aches in the same parts. Again, there may be an extension of this rheumatism to the intercostal nerves, originating that variety of neuralgia called the rheumatic. By the rules I have previously laid down, a distinction may be drawn between these several affections.

Other nerves of the chest besides the intercostal, are liable to attacks of both these kinds of neuralgia. Pains of a darting, aching, and intermitting character are felt in the back, between the shoulders, and over the sternum, which cannot always be referred to any particular nervous branch. Sometimes they attack points in the skin where there is a local exciting cause, as is exemplified by the neuralgic pains left after the shingles. Often they are extended from the neck, or even from the face, and traverse the whole length of the body and lower limbs. But a large proportion of the pains felt in the trunk, evidently not proceeding from organic disease, come under the denomination of —

Hysterical Neuralgia—a general description of which I have previously given. A favourite habitat for this Protean malady is the left side of the chest, just beneath the mamma. This may be said to be its stronghold and fortress, whenever it manifests itself in young females. Shifting occasionally its seat a little downwards below the ribs, or over to the other side, it will sometimes continue for weeks, or even months, with little intermission. It is characterized by severe pain, often quite circumscribed, but different from that in spasmodic and rheumatic neuralgia, and an exquisite sensibility of the surface. Being often attended by palpitation of the heart, and increased sensitiveness to the impulse of that organ, it has been mistaken for cardiac disease; and in consequence of its simulating the pains of pleurisy, that inflammatory affection is liable to be confounded with it. The stethoscope will, however, afford a ready means of diagnosis, especially if the concurrent hysterical symptoms are taken into consideration—such as the globus hystericus, uterine disturbance, and emotional irritability.

It is scarcely necessary to enter into speculations as to the *causes* of thoracic neuralgia. They must be similar in all respects to those giving origin to the disorder elsewhere, with the superaddition of

some local disturbing agents. We have no difficulty in accounting for the accession of the rheumatic and hysterical pains, in accordance with received opinions. In the one case, the derangement may generally be traced to cold; in the other, to some disturbance of the uterine functions, or to that peculiar susceptibility to nervous development, marking certain periods of existence in the female. Greater difficulties attend the investigation into the causes of true spasmodic neuralgia, when seated in the intercostal nerves. Often these are involved in impenetrable obscurity. Sometimes, however, we may suspect the pain to depend upon disease of the thoracic viscera. Organic change in the heart is well known to be accompanied with shooting pains in the side and down the arm. Similar sufferings are occasionally experienced during the progress of pulmonary consumption. When neither of these lesions can be discovered by the aid of auscultation, we must look to more distant irritants. The state of the teeth, *inter alia*, should not be neglected. More than once I have been able to trace the neuralgic pains in the chest to caries of these organs. Upon their removal, the symptoms have ceased.

One important question remains to be considered. How far is intercostal neuralgia dependent on *spinal irritation?* Many authors insist that this is

the principal—nay only—cause of the affection. I am inclined to think these gentlemen attach too much importance to their theory, or even mistake the effect for the cause. It is true that sometimes, by no means always, a degree of tenderness may be discovered over the spinal processes of the vertebræ, answering to the roots of the neuralgic nerves. But are we to infer from this that disease exists within the vertebral canal, originating the painful spasms? I believe not. It may be the effect of the continued irritation of the peripheral extremities of the nerves; as is shown by its sometimes arising after neuralgia, excited by a distinct local cause, has existed for some time. M. Valleix has suggested, from the fact of each dorsal nerve taking its origin from the medulla spinalis, at some distance within the inter-vertebral foramen, that it may be an extension of the disease along the nerve towards its root, or, at all events, merely a concomitant circumstance. Often there is no indication of spinal irritation whatever.

Case.—*Intercostal Neuralgia.* Ellen M., a nurse girl, æt. 16, applied at the Blenheim-street Dispensary, Dec. 20, 1848, for severe pains in the left side, which had troubled her for some days past. They were of the usual neuralgic character—darting, shooting, plunging—coming on in paroxysms at uncertain intervals, chiefly in the day-time.

They seemed chiefly to centre in the lower intercostal nerves, running round from the spine to the sternum, but often extended to the loins, or invaded the arm down to the fingers' ends. There was considerable tenderness of the integuments on the affected side—none over the medulla.

No distinct cause could be discovered, but the patient was much out of health, having just recovered from an attack of cynanche tonsillaris. By attending to the secretions, and giving moderate doses of the carbonate of iron, the painful symptoms subsided in a few days.

E. M. was attacked in the same way the two succeeding years about the same time, and was relieved in a similar manner.

Case. — *Thoracic Neuralgia.* Miss B., a dressmaker, æt. 23, complains, May 13, 1850, of sharp, plunging pain in the left side, which has troubled her for some months. It is chiefly seated in the seventh intercostal space, running round from the back to the sternum; but often extends all over the same side of the body. It shoots up the neck to the temple and vertex, or passes downwards to the hips, and even along the outer part of the thigh and leg to the toes. At times, the arm is affected to the fingers' end, and rendered almost useless in consequence. The disorder is paroxysmal, but with no periodicity. The patient has fainted several times, through the severity of the suffering. There is not so much tenderness on pressure over the ribs as on other parts of the side. The temple is very sore when touched; and the arm, when the neuralgic paroxysms are on, is so sensitive, that intense pain is occasioned by merely stroking it with the finger.

No cause for these symptoms was apparent. The patient was a tall, thin young woman, of anæmic system, but without uterine or hysterical disturbance. Her mother had been afflicted for many years with disease of the heart, yet no indication was here afforded of such a complaint, with the exception of occasional palpitation. The stomach was not disordered. The left side of the face was somewhat swollen, from the irritation of several carious teeth, but the patient had not suffered for some time from odontalgia.

Medicine seemed to exert very little influence in this case. Quinine, arsenic, iron, &c., although not positively prejudicial, were powerless. Under the impression that the teeth might possibly be the exciting causes, Mr. Robinson kindly extracted many diseased stumps; but the neuralgia remained much the same afterwards. Local sedative applications afforded the most relief.

CASE.—*Thoracic Neuralgia, with Spinal Irritation.* E. H., a young unmarried woman, applied, Nov. 1, 1848, for a severe pain at the right side of the lower extremity of the sternum, shooting from thence around the ribs to the spine. It was not always confined to this spot, but occasionally shifted suddenly over to the other side, just below the mamma. It was decidedly neuralgic: coming on in irregular paroxysms, with perfect intermission. The focus of suffering was very sensitive, and there was great tenderness over the spinal processes of the dorsal vertebræ, corresponding with the nerves in pain.

The countenance was anæmic. Although there was no uterine disturbance, the patient was subject to occasional fits of hysteria. The stomach was also somewhat deranged.

The treatment consisted of aloetic purgatives, the application of leeches and tartar-emetic ointment to the spine, and mild chalybeate medicines. By the 26th of the month, the neuralgic and spinal symptoms had entirely ceased.

CASE.—*Intercostal Neuralgia.* Nov. 11, 1848. H. S., a needlewoman, æt. 20, has had neuralgic pains about the chest and back for the last three years. The present attack came on a short time since, when she suddenly experienced a severe pain in the neck, at the top of the shoulder-blade of the right side. This became worse every day, appearing in paroxysms at irregular times. About a week since, it suddenly shifted to the left side, fixing itself just below the mamma, and darting round from the breast to the back with electric rapidity. It is described as piercing—stabbing—"as if knives were being plunged in," and is now so severe that the patient holds her breath in fearful suspense, and clutches everything near her. Her screams during the fits are most distressing.

No distinct cause for these symptoms can be discovered. There is no gastric or uterine disturbance—no pleuritic or cardiac disease. There is some tenderness of the surface in the neuralgic focus, but none over the spine. General debility and anæmia are apparent.

The carbonate of iron was employed in this case, and, assisted by the warm vapour to the part, completely allayed the painful symptoms before the month had expired.

CASE. — *Lateral Neuralgia.* A. S., a poor married woman, æt. 25, living in Petticoat-lane, applied in August, 1850, for severe paroxysmal pains of a decided neuralgic character, seated in the left side of the body; they were

chiefly centred in the lower intercostal nerves, but often extended up the neck to the face and eye, or down to the hip and leg: they also shot along the arm to the fingers' ends.

No distinct cause could be discovered, except severa carious teeth and stumps in the upper jaw of the same side. These were extracted, and all pain ceased immediately.

The anterior walls of the abdomen are not often subjected to neuralgic pains, and therefore no mention is made by writers of any distinct form of the affection in these parts. True spasmodic neuralgia is also very rare, I believe, in the posterior parietes. The cases usually experienced in the lumbar region are either symptomatic of irritation in the kidneys, uterus, or bladder, or belong to that kind of muscular rheumatism known under the name of *lumbago*. There is great reason to believe, however, that the nerves occasionally become implicated during the course of the latter complaint; and thus we have either true neuralgia or rheumatic neuralgia of the loins.

There is one form of spasmodic neuralgia in these parts, that has been distinctly recognised and described. By MM. Chaussier, Richerand, and Delpech, it was styled *neuralgia ilio-scrotalis*, and was believed to be seated in the anterior branch of the first lumbar nerve. Subsequent writers have

followed this nomenclature, with the exception of M. Valleix,* who, tracing the disorder up to the loins, and believing it to occupy more than one pair of nerves, details his cases under the title of

LUMBO-ABDOMINAL NEURALGIA.

He imagines that this affection, like the intercostal, exists more frequently on the left than the right side of the body; and that it is seated chiefly in the upper pairs of lumbar nerves, but more especially in the first. Sometimes the posterior branches alone are implicated—sometimes the anterior; and the portion disordered varies considerably in extent. Several *foyers*, or centres of pain, are distinguishable. 1st. The *lumbar point*, situated a little without the first lumbar vertebra, and in that portion of skin to which the filaments of the posterior branches are distributed. 2nd. The *iliac point*, a little above the centre of the crest of the ilium. 3rd. The *hypogastric point*, above the inguinal ring, and outside the linea alba. 4th. The *inguinal point*, about the centre of the ligament of Fallopius. 5th. The *scrotal point*, at the bottom of the testicle, or in the substance of the labium.

* Op. cit. p. 460.

Between these foci of suffering, he says, there are distinct spaces where there is little or no tenderness on pressure. The pain is similar to that in other neuralgiæ of the trunk: there is a constant dull, heavy sensation, with occasional sharp, convulsive plunges.

The mode of distinguishing this form of neuralgia from lumbago, is thus admirably described by the same gentleman:—"In the cases of lumbago that I have examined, the pain existed on *both sides* of the spine; it occupied the mass of the sacro-lumbar and long dorsal muscles, and did not extend beyond them. Generally there was some tenderness on pressure over the muscular masses; but this sensitive tract was much wider than in lumbar neuralgia. The pain was principally excited, or augmented, by the motion of the trunk backwards and forwards. During rest the pain ceased altogether, or was greatly mitigated. The shocks, much less severe than those in neuralgia, were confined entirely to the lumbar region."

The limitation of the pain to one side of the body in neuralgia, and its extension beyond the muscular attachments, is well worthy of consideration generally, and may often assist the diagnosis between that disease and rheumatism.

Neuralgia may exist in both the upper and the

lower limbs; but it is much more rarely observed in the former than in the latter. Three forms of

NEURALGIA OF THE UPPER EXTREMITY

have been noticed by authors, and named in accordance with the particular nerve they were supposed to occupy.

Cubito-digital neuralgia, is a painful affection of the *ulnar nerve*. The entire course of this cord is sometimes invaded by the suffering—when pain commences in the axilla, or even above it, runs down the inside of the arm, and follows the distribution of the nerve to its termination in the middle, ring, and little fingers. More often some portion of its length is exclusively affected, such as that in the axilla, or between the elbow and the hand. Occasionally a digital branch alone is involved. I have seen intense neuralgic agony proceed from a mere point in the end of one of the fingers; nature appearing to compensate for the deficiency of extent by intensity of action.

M. Martinet, in the *Revue Médicale* for 1824, describes the symptoms of the other forms of neuralgia of the arm. The one seated in the *musculo-cutaneous nerve*, commences at the shoulder, passes to the external and superior part of the

humerus, and afterwards displaying itself on the anterior surface of the arm and forearm, disappears towards the lower extremity of the ulna.* The other, styled *supra-scapular*, begins at the lower angle of the scapula, and extends along its posterior surface; it then ascends towards the dorsum scapulæ, and after winding round the external part of the arm, it reaches the anterior surface; and shooting down the outer side of the forearm, terminates in the thumb and forefinger.

The same observations apply to these forms as to the cubito-digital, with respect to their extent and progress. Again, there are many neuralgic pains of the arm to which it is impossible to assign "a local habitation and a name:" so great is the tendency of these nervous affections to wander, and extend themselves to the adjoining branches.

M. Valleix classifies these three forms of neuralgia, all those, in fact, of the upper extremity, under the general title of *cervico-brachial;* believing that the cervical, as well as the brachial plexus, is involved in the derangement. He has never heard of an example of this form of tic douloureux occupying both arms at the same time. Yet in the case of Mrs. T., which I have related (page 285), the brachial neuralgia was decidedly double. When

* Rowland, p. 111.

single, it is, in my opinion, much more frequent in the left than the right arm: and this accords with the experience of the French, who say the proportion is about seven to four.

Neuralgia of the upper extremity is generally of the spasmodic kind; that is, neither rheumatic nor hysterical. The intermissions are usually perfect, and sometimes the accessions are periodic in their character. The same obscurity veils the causes of these maladies as has been hitherto observable—although I should imagine that cold and damp have less to do with their production than ordinary. In two or three instances the disorder could be traced to caries of the teeth. But by far the larger number will be found to depend on some disease or disorder of the thoracic or abdominal viscera. One of the best-marked examples that ever fell under my observation was clearly in connexion with, if it did not originate in, derangement of the stomach and bowels. Pain down the arm in relation with cardiac disease has already been noticed, as well as the extension of severe intercostal neuralgia to the upper extremity. The sympathetic suffering in the shoulder and humerus, indicative of hepatic derangement, is familiar to every one. Sometimes the disorder, although intense in character, is seated exclusively in the integuments, on the diseased condition of

which the nervous irritation doubtless depends. To illustrate these positions, a few examples will now be adduced.

CASE.—*Cubito-digital Neuralgia.* A well-known professor of surgery in this metropolis has been afflicted with this form of tic douloureux for the last quarter of a century; and from the fact of his father having had a similar disorder in his foot, there is reason to believe that the complaint is hereditary. The following interesting particulars were kindly furnished by himself, in the autumn of the year 1848.

The patient is about fifty-three years of age, of nervo-sanguineous temperament and dyspeptic habit of body: subject to congestion of the hæmorrhoidal veins, with prolapsus, for which he has been operated on several times. About five-and-twenty years ago, he first felt a tenderness and pain on the outer side of the tip of the little finger of the left hand. This occurred during a severe and protracted attack of dyspepsia, accompanied by an abundant secretion of free acid in the stomach. Always after this first seizure, the strange sensation in the finger came on whenever the digestive organs were more than usually deranged, particularly after partaking of port or sherry wine. Sometimes the attacks would continue at short intervals for two or three days together, and then at night he was obliged to have the arm and hand propped into a perpendicular position, for in no other way could he get rest. When the cause of excitement was more powerful than usual, the pain extended from the little to the ring

finger, and from thence along the course of the ulnar nerve as far as the axilla. At these times the whole arm became so excessively tender, that he could bear no clothing upon it, and the slightest touch inflicted torture. The character of the pain was darting—like electric shocks, which shot up the arm and produced a sensation of faintness. In the intervals between the paroxysms, a dull, painful feeling remained, and such excitement, that the pulsation of the finger was painfully perceptible.

Ever since the first attack, which is now so many years ago, the outer segment of the little finger, for about a quarter of an inch from the extremity, has been peculiarly sensitive; so that when accidentally touched by any hard substance, excessive pain, accompanied by faintness, is induced. Yet upon examination during the intervals, not the slightest trace of injury or disease is perceptible in the part. It is not even tender on pressure. But whenever the stomach is deranged, the whole inner side of the extremity, from the finger to the axilla, becomes irritable and tender to a degree.

A variety of remedies, both general and local, have been tried without avail. Some little advantage seemed to be derived from the internal use of turpentine, and a temporary relief was afforded by the topical application of carbonic acid gas. By great attention to diet, the attacks are in a great measure avoided; but if by any chance they occur, a large dose of calomel exerts considerable influence in their subjugation.

Case.—*Neuralgia of the Median Nerve.* The following note was taken in November, 1848, when the patient applied at the Metropolitan Free Hospital.

A. M., a poor woman, æt. 40, of nervo-sanguineous temperament and delicate constitution, was delivered of her last child eight years ago. It was a cross birth. In the agony and pains of labour she put her hands up over her head, crossed her fingers, and pulled violently. The arms remained in that position full ten minutes, and when she wished to remove them, she found it was out of her power to do so. The left one especially was so stiff, that the attendants had some difficulty in forcing it down to her side. Immediately this was accomplished, a severe shooting pain was felt all up the front of the arm, and soon afterwards a swelling appeared in the armpit of the same side. This subsided after a while without assistance, and without breaking. Another swelling then showed itself at the bend of the elbow, and also disappeared in the same way. Three days afterwards, a third lump appeared in the palm of the hand, and has remained there ever since.

This is a hard tumour, of irregular shape, about the size of a walnut, situated at the base of the index finger of the left palm. It is apparently cartilaginous in texture, is moveable, and is seated between the tendons and the skin. Pressure upon it causes pain in the part, and to shoot up along the course of the nerve.

The patient is now troubled with a constant, or almost constant, dull, aching pain in the limb, extending from the tumour up the front of the forearm to the elbow. Sometimes, during the paroxysms, which come on at uncertain intervals, it reaches to the axilla; or passing beyond this, affects with pain all that side of the body even to the feet. The agony is then intensely thrilling and electric,

and completely destroys the sensibility of the arm for some time after. She loses the use of it—it becomes quite dead —so that she is obliged to rub it to restore animation. It is, in fact, temporarily palsied.

As A. M. applied for relief from another complaint, little was said about the neuralgia. There can be little doubt but that the disease arose from a strain, or partial rupture of the median nerve. How far it is now dependent on the tumour it is difficult to say. Possibly by its removal the irritation might cease.

Case.—*Cutal Neuralgia of the Arm.* In January, 1850, a widow lady, about sixty years of age, of stout habit of body and sanguineous temperament, consulted me for this rare and interesting form of tic douloureux.

About eighteen months previously Mrs. —— had a very severe attack of the shingles on the right side. It occupied the entire shoulder and scapula, and extended across the chest as far as the sternum. The complaint was also particularly severe in the axilla and along the inside of the upper arm, being accompanied by much inflammation and febrile disturbance. When the eruption disappeared, the swelling of the parts did not subside; but the most distressing neuralgic pains commenced, and have gradually increased in severity up to the present time.

The whole arm, especially above the elbow, is now much swollen, and the integuments of the right side of the shoulder, chest, and back are considerably hypertrophied. Deep pits, like those following small-pox, are freely sprinkled over the surface, and mark the position of the herpetic vesicles. The colour and temperature of the skin

are natural, but the surface is extremely tender to the touch. The arm especially is so irritable, that it will ache for hours, if it is even wetted with distilled water. The touch of a finger brings on a paroxysm of agony. The patient states that an acute pain always exists in the limb, as if knives were being driven in; but sometimes spasms come on "like inveterate cramp" in all the muscles of the chest and arm. They do not cause the limb to be convulsed, but they produce a tremor or shaking of the whole extremity down to the fingers' ends. These fits usually commence about eight o'clock every evening, and last about an hour, leaving a painful sensation of weight and heaviness. There is present at these times a strange irritation in the throat, and a hoarseness which continues throughout the night.

With the exception of this distressing local affection, the health of Mrs. —— is pretty good; there is evidence, however, of a rheumatic if not a gouty diathesis; the urine is scanty and high coloured, the bowels costive, and the tongue loaded. Six years ago she had what Sir B. Brodie called "rheumatic secretion" in both knees.

All remedies had failed in relieving the symptoms.

Passing from the superior to the inferior extremity, we find that three forms of neuralgia attacking the lower limbs have been described by authors. Upon investigation, however, it will be found that these resolve themselves into two—one seated in the principal nerve of the posterior, the other in that of the anterior surface. The former

affection is so frequent and important, that I propose to devote some little time to its elucidation and history. It is that complaint so generally known under the title of

SCIATICA.

By the earlier writers this was called *Ischias*—the *dolor ischiaticus*, *ischiagria*, or *malum ischiadicum;* by Chaussier, Valleix, and other modern Frenchmen, the *Névralgie fémoro-poplitée*. From the following passages it would appear that the complaint was known to Hippocrates:—"Coxendicum morbus quum sit, dolor corripit coxæ juncturam, et summas nates, ac coxendicum. Tandem vero etiam per totum crus dolor vagatur." "Hic enim morbus per crus vagatur per sanguifluam venam: et ubicumque constiterit, ibi etiam dolor manifestus fit maxime, molestus quidem, sed non lethalis."*

An immense number of works have been written upon this disease, which it is quite unnecessary to analyze, as they mostly consist of repetitions. It will be sufficient merely to observe, that to Cotugno† is due the merit, if not of discovering sciatic neuralgia, at all events of directing the attention of

* Hipp. De Affect. 30.

† Dom. Cotunni, de Isch. Nerv. Comment. Neapoli, 1764.

the profession to it by his careful and judicious description. After him, the most important particulars have been furnished by MM. Rousset, Tournillac, Béringier, Joseph Frank, Macculloch, Martinet, and Piorry. Numerous observations, too, we find scattered through the various medical periodicals of this and other countries.

With the exception of the intercostal, this form of neuralgia is by far the most frequent of any to which the system is liable. Cotugno mentions the instance of a child, only eleven years of age, being afflicted with it. But this early development of the complaint is extremely rare, as it generally manifests itself much later in life. Valleix finds, as the result of his researches, that the number of cases is pretty equally spread between the ages of twenty and sixty. From my own observation I should say, that in males it is almost exclusively confined to persons above thirty; in females, it may range between the twentieth and forty-fifth year; and this depends, as I shall afterwards show, upon the different organization of the sexes.

It appears that Dr. Copland* considers that women are more subject to the disorder than men. The French think quite otherwise; and I am in-

* Dictionary of Medicine. Art., Neuralgic Affections.

clined to agree with them in opinion. Perhaps it may be different with respect to slight rheumatic and hysterical neuralgic pains of the crural nerve; but true sciatica is, I believe, rarely observed in the female.

No one constitution is exclusively obnoxious to this complaint. The nervous temperament, however, as well as the gouty and rheumatic diatheses, have considerable influence in predisposing to it. Occupation in life also has much to do with its production. It is common among fishermen, sailors, soldiers, and all those, in fact, who are in the habit of wearing wet clothes, or are much exposed to cold weather. Gardeners are frequently afflicted with it. The attacks usually come on in cold and wet seasons, during stormy or changeable weather, and in low, humid, clayey and marshy localities. Owing to the state of the weather, season, locality, and occupation, it has been observed to assume an almost epidemic frequency. Dr. Macculloch even points out several places where, from similar causes, sciatica is endemic—always prevailing among the inhabitants. In women, it is generally observed during pregnancy, and is always aggravated during the menstrual periods.

It was asserted by J. Frank that sciatica is never experienced in both limbs at the same time. Such

cases are doubtless very rare; yet M. Valleix has collected evidence of fourteen instances. One that I have myself met with will be presently described. During the severest paroxysms of this affection, I have more than once noticed the neuralgic irritation extend from one extremity to the other through the spinal column; but this has occurred only when the exciting cause was local, and seated in the distal extremity of the limb. When single, it does not appear to attack one limb much more than another. The preponderance is still rather in favour of the left side; and this I take to be in consequence of the extension of the disease from the chest downwards, which I have often observed.

As its name implies, sciatica is seated principally in the great sciatic nerve, and takes the course of this cord with more or less precision. It by no means always implicates the whole of it, but frequently is felt only in certain portions, or along the line of its direction. It usually commences by an attack of severe, acute pain in the hip, shooting down the outside of the thigh. The patient places his finger precisely over the nerve, and more especially over that part which passes between the great trochanter and the ischium. This is ordinarily the focus of suffering. From this point the painful sensa-

tion sometimes extends upwards to the sacrum, but more often passes downwards along the posterior surface of the limb to the popliteal space. From thence, it may proceed with the fibular nerve to the front and outer part of the leg and instep, or follow the course of the posterior tibial and plantar nerves, behind the inner malleolus, into the sole of the foot. The complaint usually extends itself along the nerve in the ordinary manner, but not always in one direction. Thus the pain is sometimes confined to the nerves of the sacrum and nates, and only afterwards involves the sciatic—or it commences in the foot or knee, and shoots upwards to the hip.

The character of the pain is somewhat, but not altogether, similar to that in other neuralgiæ. It is rarely, for instance, so sharp or severe as in tic douloureux of the face, but is more constant, dull, and burning. Sometimes, however, it puts on the true spasmodic character. Not only are the pains electric and plunging, but the muscles along the course of the nerve are thrown into convulsive action. Occasionally the whole limb is thus spasmodically affected, and then the sufferings of the patient are awful.

The neuralgia varies in its character and degree at different periods. In some few instances there is a perfect intermittence, but more often a remit-

tance only of the symptoms. A constant, dull, aching pain is experienced, and this is alternated by paroxysms of extreme violence. In a case recorded a few years since in the *Edinburgh Medical Essays*, a distinct periodicity was observed in the fits. They may be excited, however, by the slightest cause when the predisposition is extreme. The least motion of the limb, or contact with the surface, will induce them. Cotugno observed that the veins of the limb become prominent, and their valves hard and exquisitely sensitive, at these times; but these symptoms are not always evident.

The attack of sciatica, sudden as it appears, is almost always preceded by symptoms which are little regarded; such as pricking or tingling in the limb, chilliness, numbness, and other indications of partial paralysis. It has little tendency to abate by itself, unless the cause is removed. When it ceases, the limb is left weak, flabby, and wasted. During the attack even, the gait of the patient is somewhat affected. He drags the limb after him with pain, and rarely entirely recovers the free use of the member. The association of neuralgia with palsy is in these cases well exemplified. A perfect paralysis is by no means an infrequent sequela to the nervous excitement.

There is very little to be observed on the surface

of the limb to account for the suffering. There is no swelling, and rarely discoloration of the skin, although it is sometimes very sensitive. Tenderness on pressure will generally be observed, but not along the whole course of the nerve. It is more particularly apparent in certain situations, such as that already alluded to between the great trochanter and the tuber ischii. The French, considering the whole extent of the nerve included in the malady, distinguish particular points as the *foyers* of neuralgic irritation. These are very numerous, but as they are by no means always discoverable, are not in my opinion of very great importance.

It will be evident, from the above description, that the phenomena of sciatica vary considerably; so much so, as to render it doubtful whether they do not refer to more than one disease. The discrepancy may be accounted for by reflecting, that the three kinds of neuralgia may be represented in this particular form. Thus there may be what I call the spasmodic, the rheumatic, and the hysterical varieties, seated in various instances in the sciatic nerve. The hysterical sciatica is not usually so well marked as the others, but is occasionally met with in young women, accompanied by an excessive sensibility of the surface, and other hysterical symptoms. Spasmodic and rheumatic sciatica are

of constant occurrence, and possess distinctive features by which they may often be discriminated.

Spasmodic sciatica is distinguished by severe lancinating, electric plunges in the direction of the sciatic nerve, occasionally accompanied by muscular convulsion; in paroxysms of periodic or uncertain recurrence, and with perfect intermissions. The rheumatic is known by pain of a dull, aching character, always resident in the same nervous track, with occasional exacerbations of increased suffering; swelling and hardness of the veins; some febrile excitement; lumbago, or some other form of rheumatism, preceding and perhaps accompanying it; the origin of the complaint in exposure to cold and wet; and the chief accessions occurring during the night, when the patient is warm in bed.

The only disease with which sciatica is liable to be confounded is morbus coxarius. For this it may readily be mistaken when it has subsisted some time; for the limb then becomes wasted, and, in consequence of the relaxation of the muscles, apparently lengthened. The mode of distinction is thus described by M. Valleix.* "Coxalgia will not be mistaken for sciatica, if we bear in mind that in the former the pain is confined to the hip and knee joints; that there is no pain on pressure over the latter;

* Op. cit. p. 501.

and that severe pain is felt in the hip-joint whenever the member is moved. When the malady is of long standing, the differences are still better marked; for coxalgia is accompanied by fever, with all its attendant evils, the limb becomes altered in length, oftentimes abscesses form, &c., which never occurs in sciatica."

Sir B. Brodie's rules for distinguishing these disorders are still more perfect. "The patient, with coxalgia, is unable to support the weight of the body on the affected limb; and if he be placed on an even surface, in a horizontal position, and the hand of the surgeon be applied to the heel, so as to press the head of the femur against the concavity of the acetabulum, violent pain is the consequence; although this be done in so careful a manner, that not the smallest degree of motion is given to the hip-joint."

From the distinctions I have drawn, we must look for the origin of sciatica to very different sources; and I think that each variety is worthy of a separate consideration.

The irritation of spasmodic sciatica, I am inclined to think, is mainly due to variable *pressure* upon the nerves in some part of their course. In taking this view of the matter, I am influenced greatly by the anatomical relation of the parts, and by the effects of pressure when applied temporarily. When by

resting the limb on a hard substance placed in the ham, the leg is, as it is vulgarly called, *sent to sleep*, sensations are experienced very similar to those that usher in sciatica. There is the same tingling and pricking, and a very similar excitability to paroxysmal accessions. The partial paralysis we observe, indicates very clearly pressure on the nerves; and this is probably excited somewhere in the pelvis, for it is evident that the disposition of the nervous trunks, with respect to the viscera, exposes them to this influence. The distention of the bladder, colon, or rectum, or the enlargement of the prostate in old people, must often cause the lumbar and sacral plexuses to be thus irritated. Hence I account for the comparatively greater frequency of the disease in males than in females, from the pelvis being less capacious, and its contained viscera, when distended, deranging the nervous trunks in their vicinity, and pressing them against the bone. In a similar manner, we get a clue to the ascertained fact, that neuralgic affections of the lower limbs in females are always aggravated, if they do not arise, during the menstrual and puerperal states. There is then, as is well known, a considerable congestion, or hypertrophy, so to speak, of the chief contents of the pelvis, and hence pressure upon and irritation of the nerves. It is

very common to observe a degree of sciatica present throughout the whole of pregnancy.

Disease or disorder of the viscera of the abdomen may act in more ways than one, in the production of this form of neuralgia. The blood may be retarded in its return to the heart, and thus give rise to obstruction and pressure; or the diseased organs themselves may press upon and irritate the nerves. Some of the worst cases of sciatica are well known to be occasioned by enlargement of the liver through hard drinking. A distinguished chemist of the present day is sadly crippled by sciatica. He tells me that he can trace it distinctly to flatus in the sigmoid flexure of the colon, pressing upon and irritating the lumbar nerves. Organic disease of the abdominal or pelvic viscera, the kidneys more especially, may also give rise to sciatica by simple irritation.

Intense cold and wet, although undoubtedly productive of the spasmodic variety occasionally, yet more often induce rheumatic sciatica; such as when a person breaks through the ice, and gets immersed up to the waist in the water, or sits in a boat for hours during the winter, after having waded in the sea. The complaint also frequently occurs as a sequel to lumbago, or other rheumatic affection about the hips or trunk. A cold is caught, pains

in the back follow, and these are succeeded very often by obstinate neuralgia of the sciatic nerve.

If the preceding observations be worthy of consideration, it will be apparent that considerable modification of the treatment will be required in different cases of sciatica. The remedies that are found so useful in other forms of neuralgia, almost as specifics, are here very often highly prejudicial; by increasing the congestion on which the irritation depends. Quinine, iron, arsenic, are therefore rarely serviceable. As a general rule, I believe that more good will result from the use of medicines, like mercurial purgatives, that tend to unload the abdominal viscera; or which, like the oil of turpentine, act upon the urinary and generative organs. In all those cases arising from cold and moisture, or which betray symptoms of rheumatic implication, counter-irritation and heat, in one form or another, will be found essentially serviceable. The French plan of employing repeated blisters over the neuralgic *foyers* is often advantageous.

Case.—*Rheumatic Sciatica.* Oct. 29, 1850. R. F., a carpenter, æt. 49, took a violent cold about a month ago. After flying about the head and limbs for some time, it settled in the back in the shape of severe lumbago, with erratic pains about the left hip. After these symptoms had continued about a week, severe neuralgia began to be

experienced down the outside of the thigh, and has continued up to this time with more or less severity. It is described as an aching, gnawing pain, "as if the bone were being scraped," and gives him a sudden "kitch" when walking. It takes the course of the sciatic nerve as far as the knee, and is pretty well during the day, while he is moving about, but disturbs his rest sadly at night, by the increased accession of suffering.

The general health is a good deal disturbed by febrile excitement. In addition, the temperature of the outer part of the hip and thigh is somewhat increased, and there is considerable tenderness on pressure between the tuber ischii and great trochanter; the urine is high in colour and turbid.

A mixture containing iodide of potassium, magnesia, and colchicum, was ordered, with a view to allay the rheumatic diathesis. When this was effected, blisters were applied to the hip with perfect success.

CASE.—*Rheumatic Sciatica.* T. P., Esq., a country gentleman of robust frame and florid complexion, consulted me in the early part of the year 1849. Patient is excessively devoted to field sports, and caught a severe cold the previous autumn, by wading through the bed of a trout stream while angling. For some time afterwards he suffered from severe rheumatic pains in the back and loins, which finally settled in the right hip and leg as regular sciatica. From this he has experienced excruciating agony all the winter, in spite of various internal medicines and several blisters to the part.

The limb is somewhat wasted, and drags considerably in walking. Three points along the course of the sciatic nerve

are very tender on pressure; but the pain often extends both above and below them, and is subject to irregular exacerbations, more especially during the night. The health is otherwise excellent.

In this case, the medicated vapour was employed perseveringly, at a high temperature, along the outside of the hip and thigh, and completely relieved the neuralgic symptoms without other assistance.

CASE.—*Spasmodic Sciatica.* The subject of the following note, taken in November, 1846, was a member of the legal profession; a gentleman, fifty-four years of age, of nervo-sanguineous temperament, whose constitution was much injured by a long course of habitual indulgence in the pleasures of the table.

Many years ago, after an attack of the liver complaint, Mr. N. began to experience strange sensations in the right leg—a numbness about the knee and ankle, with occasional shooting pains down the outside of the thigh, accompanied by cramps and spasms of the muscles. These symptoms were not much noticed at the time, as they occasioned little suffering; but gradually they increased in severity and frequency, until at length they assumed their present formidable character.

The whole limb is considerably atrophied, and is so weak and palsied, that the patient has little control over its motions, but drags it after him in walking. Intense pain of a darting, spasmodic character is felt along the course of the sciatic nerve. Sometimes it is confined to the hip and thigh, or appears in the lower leg and foot, often being limited to a small spot that may be covered with the finger. Occasion-

ally however, when, through excessive indulgence, the system has been particularly deranged, the entire nervous track, from the loin to the toe, is racked with anguish, and the excitement even passes to the other leg temporarily. The most frightful spasms are then experienced in both members. The paroxysms, which are quite intermittent, observe no periodicity in their accession; they occur at all times and seasons, but are especially severe and frequent during the winter. When they are about to commence, the surface of the extremity, which is usually rather duller and more insensible than ordinary, becomes nervous and irritable to an extreme degree. The slightest touch cannot be borne, and the least motion induces a paroxysm. In the intermissions, there is no tenderness on pressure; not even in the usual *foyers* of suffering.

The pimpled, bloated countenance, and the jaundiced eye, evince too plainly the origin of these attacks. Dyspeptic symptoms, with pains between the shoulders, indicate hepatic derangement, as well as the tumefaction and tenderness in the right hypochondriac region. The kidneys also seem to be diseased.

Much benefit was derived in this case, from the use of mercurial purgatives and alkaline stomachics. The warm vapour was also applied locally with advantage. When Mr. N. died, about a twelvemonth since, cirrhosis of the liver and other organic abdominal lesions were discovered.

Case.—*Double Sciatica.* Wm. G., an excavator, aged 53, living in the model lodging-house in George-street, applied to me, August 22, 1851, and furnished the following

particulars:—About five years ago, when at work in the Museum, he met with an accident, by receiving a severe blow with the handle of a barrow on the inside of the left knee. For the stiffness which ensued, he was treated for some length of time in the University and other hospitals, but obtained no great relief. Among other things the moxa was applied more than once. Last November he began to feel neuralgic pains in the limbs. These have continued, with occasional exacerbations, ever since, and seem to be increasing in intensity. He is quite lamed in consequence.

The present symptoms are :—A peculiar dragging sensation, down the backs of both legs almost constantly. The patient fancies that "the nerves are contracted." This tight feeling commences in the loins, passes down the centre of the thigh, involves the whole knee, and then proceeds down the calves of the legs to the feet or even the toes. It is not very severe when he is sitting or lying, but the moment he gets upon his feet, acute darting, plunging pain comes on in the back, and shoots right away to the ankles. The foot often "feels asleep" at those times. Severe paroxysms occur also occasionally during the night, when the body is at rest, and are then accompanied by spasm of the extensor muscles. There is no periodicity in the attacks. Weather affects them, but not wet so much as wind, especially when the latter is in the east.

There is no sign of disturbance in the part, or tenderness on pressure along the course of the nerves ; neither is there the least indication of spinal disorder. The general health is excellent and bowels regular.

As the abdominal viscera were particularly free from

congestion, and the pains were affected by the weather, I considered this was a case for the trial of arsenic. Five minims of Fowler's solution were ordered to be taken three times a day after meals. This medicine, with some local applications, was persisted in for above a fortnight, when the patient derived so much benefit that he was able to return to his work. Soon afterwards the mineral disagreed, and was therefore discontinued.

CRURAL, OR FEMORO-PRÆTIBIAL, NEURALGIA

is very rarely met with as an independent malady. It is seated, as its name implies, in the anterior crural nerve, and may occupy all or any of its branches and offshoots. It is the *ischias nervosa antica* of Cotugno, who thus briefly describes it:—"Altera vero species fixum dolorem in inguine ostendit, qui per interiorem femoris, ac suræ, partem propagatur."* The pain commences in the groin, or rather at the crural arch, and extends along the anterior and internal aspect of the thigh to the knee. From thence, during severe paroxysms, the nervous excitement passes from the front of the tibia to the inner ankle; or shoots along the dorsum, or sole of the foot, by uniting with other cutaneous nerves. Its characters are very similar

* Nervosæ Ischiadis, cap. iii.

to those of other neuralgiæ; and it may assume either the spasmodic, the rheumatic, or the hysterical type. The best case of the spasmodic kind that I have met with, where the entire track of the nerve was involved, was dependent on some obscure disorder, probably neuralgia, of the ovary, and was always worse at particular periods. It will be related hereafter. The following instance was of the rheumatic type:—

Case.—*Crural Neuralgia.* A single lady, twenty-six years of age, residing near town, was placed under my care on the 5th of November, 1848, when the ensuing note was taken.

The patient is of the nervo-sanguineous temperament, and lively, cheerful disposition; but latterly has been subject to debility, for which no evident cause can be assigned, as there is no symptom of organic or functional disorder.

When only ten years of age, Miss H. had pains in the right knee. These were called "growing pains," and therefore little regarded. She cannot recollect having fallen upon or struck the part. When about eighteen, she had a severe attack of pain in the same place, but it shot from thence to the ankles. She was just recovering from this when she went to reside at Genoa. Did not take care of herself in travelling; consequently, when she arrived in Italy, she had severe neuralgia, which did not subside until after the application of a succession of blisters. For six years after this it was quiescent. She returned to England, and very soon had another accession. This attack has con-

tinued, with more or less severity, for the last two years, in spite of every treatment.

Upon examination, I find that the neuralgia is seated on the anterior part of the leg, just below the right knee. It shoots from thence down to the ankles and great toe. It is on both sides of the tibia at present, but frequently is on one only. Sometimes it occupies the ankles alone. The character of the pain is dull and aching generally, but paroxysms of sharp, piercing agony, come on at frequent intervals. These are so severe as to cause intense suffering. They are always worse at night, and, in fact, the rest is completely destroyed by them. There is some little thickening of the periosteum of the upper and front part of the tibia, and a degree of tenderness on pressure. Fluid can be readily detected in the knee-joint.

This young lady had been under the care of several eminent practitioners, both in town and country, for this disease. The usual remedies for rheumatism had been repeatedly tried without effect. Blisters, in rapid succession, were applied to the part without avail. Quinine, iron, arsenic, had been given in small and large doses. Indeed, I was given to understand, that the most gentle tonics of any kind produced fever and increase of suffering. The strength of the patient meantime visibly declined. Hectic fever had set in, and Miss H. was considered by her friends to be rapidly sinking from pain and want of rest.

My treatment consisted, at first, entirely of topical remedies. The aneuralgicon, charged with belladonna and henbane, was applied to the leg, and a stream of warm

vapour directed upon the ankles and dorsum of the foot. This was on the 5th of November.

Nov. 8th.—The patient has been more free from pain, and sleeps better at night. The application was repeated.

18th.—The neuralgia is but faintly perceived near the knee. It has left the ankles entirely. The fluid in the joint is subsiding. Repeated application.

22nd.—Much better in every respect. The general health and strength are much improved; while scarcely a trace of pain remains. Patient is now able to bear small doses of the sulphate of iron and quinine. From this time the recovery was rapid and complete. Miss H. became a different person altogether—quite healthy and robust. She has not had the slightest return of the neuralgia up to the present hour.

NEURALGIA PLANTARIS is a name given by Chaussier to a painful affection of the plantar branch of the femoro-popliteal nerve—the termination of the posterior tibial. It shoots from the heel along the sole of the foot, and perhaps invades one or more of the toes. This form is very rarely met with so clearly marked as in the case noted by Chaussier; but in the following instance, which came very lately under my observation, the characters were remarkably well-defined.

CASE.—*Plantar Neuralgia.*—Mrs. T., ætat. 40, the wife

of a merchant's clerk, residing in Castle-street East, consulted me, Aug. 24th, 1851.

About two years ago, patient had flying neuralgic plunges in the *right* hip, which are felt even now occasionally. Some months after these showed themselves, pains began to be experienced in the sole of the *left* foot, and have gradually increased in intensity up to the present time. The sensation at first was as if there was a knot or small lump under the skin, although nothing of the kind could be felt; but if it was accidentally trodden on, the greatest agony was induced.

At the present time there is a constant pain—"a gnawing, cramping feeling"—in the sole of the foot; which increases in paroxysms at uncertain intervals, and shoots to the toes, or passes behind the ankle to the knee. It is easier in bed. Patient feels she has got it, although it is bearable, and does not prevent sleep. But the moment she gets up, and the foot touches the ground, the most intense shooting, plunging suffering is induced. At one spot the agony seems to be especially accumulated, and in this neuralgic focus the patient feels "a beating, like the ticking of a watch;" and if she accidentally steps upon any hard substance with it, the shock to the entire system is awful.

Upon instituting a careful examination of the limb, I find that the complaint is restricted to the internal plantar nerve. There is no heat or redness, but pressure made over any part of the course of this fibril increases the pain, and makes it shoot to the great toe or inner ankle. One point at about the centre of the nerve is exquisitely sensitive, so

that the least touch causes pain to fly up to the knee, or even beyond it. Yet no hardness or minute tumour can be detected beneath the integument.

It is difficult to suggest a probable cause for this malady, as the general health is excellent, and there is no disturbance of the stomach and bowels. The patient some years ago had nephritis, but there is no symptom of renal disease remaining. The catamenia are regular, although profuse; and the neuralgia is always worse during the menstrual periods.

As I understood that internal remedies—especially tonics—had proved rather prejudicial than otherwise, my treatment consisted of local applications of a sedative and counter-irritant nature; and, as far as I can judge in so short a time, they are likely to prove permanently serviceable.

There is little to be added with respect to these painful affections of the lower extremities, with the exception that they often run together, so as to make it difficult to determine to which form they belong. Not unfrequently flying pains are felt in both limbs of a decidedly neuralgic character, but so uncertain and erratic, that they seem clearly symptomatic of some graver affection in the nervous centres. To these, generally more or less paralysis is superadded. Symptoms of this kind, also, are often closely connected with gastric or other abdominal disturbance; but I believe that in such cases the extremities have been previously much exposed to cold and moisture. Two instances of this

sympathetic neuralgia have lately come under my notice; one of them so well-marked and instructive that I cannot forbear describing it.

CASE. — *General Neuralgia of the Lower Limbs.* — Aug. 23, 1851. The Hon. Mr. —— consulted me for flying pains, which he has experienced in the lower extremities for the last twenty years, and which are closely connected with gastric derangement. He is a great sportsman—a famous Leicestershire huntsman, and a dead shot—accustomed to walk an immense distance after game. When out in the field, he has been in the habit of staying a long time without food, and afterwards suffering from gastralgia. He pinched himself much in this way formerly, and also in training himself for foot and horse races. Has exposed himself, at the same time, to every vicissitude of weather; and often, while salmon-fishing, has waded for hours in the water, and then slept in his wet clothes.

At uncertain times, generally once or twice a week, but sometimes not for months together, as often in the night as in the day, Mr. —— has attacks of pain in the pit of the stomach, with a sensation of tightness or constriction, as if much flatus were there. Soon afterwards, erratic neuralgia comes on in both the lower limbs—flying pains, never fixed to one spot, but appearing in the hips, thighs, knees, calves of the legs, or ankles. These, at first, are slight,—merely sensations of fluttering or motion beneath the skin,—but afterwards they degenerate into severe, darting agony, compared by the patient to the stings of wasps, or penknives plunged into the flesh. More or less numbness accompa-

nies these sufferings, which are apt to continue for a long time. If he can break the wind off the stomach, however, he gets immediate relief from all the symptoms. This is effected, also, by a dose of morphia, or of Jeremie's solution of opium.

The general health is otherwise good, and there is no reason to suspect organic disease. Patient finds he is always better when reduced in flesh, and is sure to be worse whenever he gets stout and strong. Weather does not appear to affect the complaint. He has tried everything that has been suggested, but thinks he derived no benefit, except from the iodide of potash, and from that but little. Iron, bark, arsenic, &c., make him worse, by deranging the stomach.

As Mr. —— was on his way to the moors of Scotland, I prescribed pills of rhubarb and croton oil, with a mixture of prussic acid, solution of magnesia and calumbo; and advised him to pay great attention to diet, more especially with respect to the regularity of meals.

NEURALGIA OF SPECIAL EXTERNAL ORGANS.

Under this denomination, I would place all those neuralgic affections seated in organs, not contained in either of the great cavities of the body. And, first, I would allude cursorily to—

Odontalgia, or Toothache, which is often a veritable neuralgia of the dental twigs. We know that this annoying complaint sometimes depends upon inflammation, confinement of pus, fungus of the pulp, or disease of the periosteum; but frequently it will present all the characters of genuine tic douloureux.

Two kinds of toothache appear to be especially neuralgic, — the *sympathetic* and the *periodical*. The former is most frequently evinced during pregnancy, and is supposed to arise from an altered action of the general system; the latter is well marked in aguish districts, where it has been known

to alternate with intermittents, or neuralgia of other parts.* It is not uncommon for the disease to be situated in one or more of the leading branches, which supply, by their minuter ramifications, a number of teeth. In this case, the pain may extend along an entire row, or shift its position continually. The caries, which may be present, is to be regarded as an accidental rather than an essential circumstance.

It is evident, that the methods resorted to for the relief of ordinary toothache would be totally inapplicable to these affections. They must be treated on the general principles I have previously advocated, and bark, quinine, and arsenic, will often be imperatively demanded. Blisters, essential oils, &c., will generally rather aggravate the symptoms. Still less should the practice of extraction be resorted to as a panacea, as is too often the case. The more enlightened dentist justly deprecates this custom, as is shown by the following extract from a recent practical work: — "Moreover, we have known hundreds of cases in which tooth after tooth was removed without affording relief; and it was only when the teeth of the patient and the reputation of the practitioner were sacrificed, that the real cause of the disease was rightly suspected

* Macculloch, vol. ii. p. 183.

to be, not in the mouth, but in the general state of the system."*

It may be a question how far the *nerves* of *special sense* can be affected with neuralgia, although the organs of the senses are often implicated. M. Piorry, Dr. Rowland tells us, has lately described a disorder which he calls *névralgie irienne ou ophthalmique*, where the pains commence, as he supposes, in the nerves of the iris. It attacks persons who dwell in dark apartments; those who read or work much; artisans whose business requires them to fix their eyes continually upon minute objects, &c. I have previously shown, that the globe of the eye is often invaded during the paroxysms of facial neuralgia. To demonstrate that sometimes it is almost exclusively affected, the following instance is adduced:—

Case.—*Optic Neuralgia.* Mr. S., a retired jeweller, ætat. 70, consulted me Sept. 30th, 1850. He is a person of the sanguineous temperament, and gouty diathesis.

More than thirty years ago, he had an attack of facial paralysis of the left side, some little remnant of which remains. About five years afterwards, he was suddenly seized with a violent pain of the right eye, which was treated as gout, dependent on gastric derangement. This has continued more or less ever since, in spite of all remedies.

Present symptoms; intense darting, plunging pain in the

* Robinson on the Teeth, p. 101.

globe of the eye, attended by violent spasmodic twitching of the eyelid. It comes on in paroxysms at uncertain times, during which tears flow abundantly down the cheeks; and vivid flashes of light appear before the eye, or "strike the forehead as if with forked lightning." The slightest movement of the head or limbs will induce the fits. Even the sudden closing of the eye, when the wind catches it, will bring them on fearfully. The irritability of the surface about the orbit is extreme, and the conjunctiva is highly injected. The sight is good in the intervals, but is lost during the paroxysms.

These symptoms do not seem so much dependent on dyspepsia as on general plethora of the system, and a tendency to determination of blood to the head. The pulse is full and strong, the face much flushed, and the features occasionally agitated. The father of the patient, moreover, died of apoplexy.

Pills of colocynth with croton oil were prescribed, and the local application of the vapour of chloroform. This system was not persisted with, although it produced considerable mitigation of the pain.

OTALGIA is a painful affection of the nerves of the internal ear; distinguished from inflammation of the same organ, by the suddenness of the accession, by its intermittence, by the character of the pain, and the freedom from fever, heat, redness, or swelling. It is generally regarded as a trivial disorder; but the pain is sometimes so severe, and is accompanied by such alarming symptoms, as to

call forth all the energy and skill of the medical practitioner.

The disease has been well described by M. Itard, in his Traité des Maladies de l'Oreille, who believes it to be often an extension from tic douloureux of the face. Pain of a sharp, piercing character, is felt shooting through the internal ear, accompanied by temporary deafness or tinnitus. Sometimes it extends inwards to the brain, giving rise to the most agonizing suffering and delirium, or darts along the chorda tympani to the tongue, and so involves the facial nerves. The attack is sudden, and without evident cause; although it may often be traced to irritation in the teeth, especially with young children, or to a draught of cold air upon the head. No periodicity is observable, but a perfect intermission between the paroxysms. Finally, I have noticed a greater tendency to mental derangement from this form of neuralgia than from any other.

The warm, medicated vapour is admirably suited to this complaint, and generally relieves the pain immediately.

NEURALGIA OF THE FEMALE BREAST.

During the development of the mamma in young women, and subsequently at various periods of

their uterine life, tenderness and pain are often experienced in this gland. This is so common, that every practitioner must be familiar with it. Great difference, however, exists with respect to the nature and intensity of the symptoms. Sometimes there will be a mere slight irritability or sensitiveness of the organ, scarcely amounting to pain, and this only during the menstrual periods; at other times the agony will be extreme, take the course of the nerves, and extend itself not only to the side, but even down the arm to the finger ends. This variableness of symptoms, and the uterine disturbance with which they sometimes are, and sometimes are not associated, lead me to believe that the breast may be affected with either the spasmodic or the hysterical variety of neuralgia. This should always be borne in mind in the management of such cases.

This form of neuralgia was so ably treated by the late Sir Astley Cooper, under the title of the *irritable breast*, that I proceed at once to his description of the symptoms. After noticing that the greater number of examples occur in young persons between the ages of sixteen and thirty, he says,*— "When the complaint affects the glandular structure of the breast, there is scarcely any perceptible

* Diseases of the Breast, pp. 76—85.

swelling, but one or more of its lobes become exquisitely tender to the touch: and, if it is handled, the pain sometimes continues for several hours. The uneasy sensation is not confined to the breast alone, but it extends to the shoulder and axilla, to the inner side of the elbow, and to the fingers: it also affects that side of the body to the hip. The patients cannot sleep on that side, and the pain is sometimes so severe as to prevent even their resting on the diseased side: and the weight of the trunk in bed in some instances occasions intolerable pain. Patients also state that heat and cold frequently succeed each other in the breast; and it would seem the pain resembles that in tic douloureux, darting like electricity through the part, and through the neighbouring nerves. When the pain is most severe, the stomach sympathises, and vomiting is produced. The suffering is very much increased prior to menstruation, is somewhat relieved during the period, and decreased after its cessation. There is no external mark of inflammation, as the skin remains undiscoloured. In some cases only a small portion of one breast is affected; in others the whole, and not unfrequently both the breasts. This painful state remains for months or even for years, with little intermission—but it has no malignant tendency."

The final observation of Sir Astley marks his opinion of the frequent hysterical nature of these pains:—"It is a curious occurrence, strikingly showing the strong sympathy which subsists between the uterus and the breast; for it is evidently the effect of the great determination of blood to the bosom just prior to the period of menstruation; and it indicates excessive irritability of the constitution, as well as great delicacy and debility of the blood-vessels, which are unable to support this sudden determination which such sympathy produces."

NEURALGIA OF THE TESTIS.

This is another subject chiefly investigated by Sir A. Cooper. Although ashamed of quoting too largely from a work which must be familiar to every member of the profession, I cannot forbear abstracting some remarks, premising, that in the chapter he devotes to the *irritable testis*, are to be found that great surgeon's opinions on the nature of neuralgia in general.*

"In the irritable or neuralgic testis, the patient has an unnatural sensibility in a part of the testicle or epididymis; it is extremely tender to the touch, painful on exercise, and unusually sensitive at all

* Cooper on the Testis, chap. iv. p. 49.

times. Its sensibility becomes occasionally so much increased, that the slightest touch produces exquisite suffering, and the pain is felt in the back and groin. The motion of the testis, and the slight pressure it receives in walking, produce so great a degree of pain as almost to forbid exercise; and the patient is obliged to seek relief, by continually reposing on a sofa, or remaining in bed. The testicle is but little swollen; it is not equally tender in every part, but there is a point in which the morbid sensibility particularly resides. The epididymis and spermatic cord also suffer from similar sensibility; and if the part be not supported, the pain is scarcely tolerable; and when the patient is in the recumbent position, he is obliged to place himself on the opposite side to the disease, or he does not rest. He has pain in the groin and thigh upon the same side, and the testicle appears fuller and more loaded on that side than the other. Motion, in most cases, produces not only pain at the time, but much increased inconvenience for some hours after; the pressure of the hand, in examining it, occasions great uneasiness, and leaves the testis additionally sensitive. The stomach is rendered extremely irritable, even to the degree of occasioning vomiting. The disease frequently continues for many weeks, sometimes for months;

in others it endures for years; and if at any time the patient believes that the sensibility is somewhat diminished, and that he may venture upon slight indulgence, the want of precaution in position or exercise renews all his former sufferings.

It is not of an inflammatory nature, for there is rather a diminution than an increase of arterial action in it. "I believe that the disease is seated in the nerve, and that it is of the nature of tic douloureux; in which complaint the nerves are in a state of altered action, rather below than above par. I dissected the different testicles which I have removed for this complaint; but there was no apparent changes of structure in any of them."

Sir Astley Cooper appears to have found this complaint so extremely intractable, that nothing short of the entire removal of the organ afforded relief; and this operation was therefore performed in every case. Such severe measures are much to be deplored; and it is to be hoped that there will rarely be a necessity to resort to them in future. Medicine and local sedative applications might, I believe, supersede them. Dr. Macculloch had a case under his care, which yielded entirely to arsenic. In an instance which came under my own observation in the summer of last year, considerable amelioration followed a course of calomel and

opium, and the application of warm vapour to the parts.

NEURALGIA OF THE JOINTS.

Sir B. Brodie has drawn particular attention to this form of neuralgia, and pointed out its frequent hysterical character, although the disorder itself has been long familiar to surgeons. He says that it is often mistaken for more serious disease, but by a little attention it is not difficult to distinguish it. An admirable description of the complaint is conveyed in the following passage:*—"There is a class of cases, of no unfrequent occurrence, in which the patient suffers considerable distress, in consequence of pain referred to some of the larger articulations, and which often occasions no small degree of anxiety and alarm among the patient's friends, although there never arise any ultimate bad consequences. The cases to which I allude occur chiefly among hysterical females. The disease appears to depend on a morbid condition of the nerves, and may be regarded as a local hysterical affection. At first there is pain referred to the hip or knee, or some other joint, without any evident tumefaction; the pain soon becomes very

* Diseases of the Joints, 3rd Edit. p. 302.

severe, and by degrees a puffy swelling takes place, in consequence of some degree of serous effusion into the cells of the cellular tissue. The swelling is diffused, and in most instances trifling; but it varies in degree; and I have known, when the pain has been referred to the hip, the whole of the limb to be visibly enlarged from the crista of the ilium to the knee.

"There is always exceeding tenderness, connected with which, however, we may observe this remarkable circumstance, that gently touching or pinching the integuments, in such a way as that the pressure cannot affect the deep-seated parts, will often be productive of much more pain than the handling of the limb in a more rude and careless manner. In one instance, where there was this nervous affection of the knee, immediately below the joint there was an actual loss of the natural sensibility, the numbness occupying the space of about two or three inches in the middle of the leg. Persons who labour under this disease are generally liable to other hysterical complaints; and in all cases the symptoms appear to be kept up and aggravated by being made the subject of constant attention and anxiety."

NEURALGIA OF INTERNAL ORGANS.

Although a treatise on neuralgia could scarcely be considered complete without some allusion being made to the disease when seated in the great cavities of the body: yet, on the present occasion, I should judge it would be unnecessary to give more than a rapid sketch of the symptoms, on account of the great obscurity of the subject, and the length to which this essay has been already carried.

Neuralgia of the viscera is now universally admitted by physicians, and enables them to account for phenomena which are otherwise inexplicable, and to supply a rational and frequently successful method of treatment. Many facts, such as the following, may be adduced in proof of its existence. Pain, without perceptible organic change, is felt in an internal organ—the liver, for example. This suddenly ceases, and immediately makes its appearance, with all the characteristic symptoms of

neuralgia, in the face or foot: once more it vanishes from thence, and is instantly perceived in the side, as before. This change takes place repeatedly, and indicates a real transference or metastasis of the neuralgic affection. The pain, again, although often most acute, is sudden—instantaneous—in its accession, and subsides as capriciously. Or it continues for years, and yet leaves behind not the slightest trace of disease. The viscus, which has so long been the seat of the most intolerable suffering, is found after death apparently in perfect health.

The general characters of ganglionic neuralgia are similar in every respect to those observed when the external parts are attacked. The pain is sharp, plunging, lancinating; and occurs in paroxysms, with more or less periodicity and perfect intermission. The general health is usually but little impaired; and the complaint has therefore no apparent influence on the duration of life, except through excess of suffering and want of rest.

Its causes are very obscure; most probably they are similar to those previously enumerated, but modified by the functions of the viscus implicated. The complaint occurs chiefly in persons of weak and delicate constitution, more especially in females; and is often induced and aggravated by those men-

tal emotions which so powerfully impress the nervous system. When once established in an organ, it is very apt to recur, and may then, in fact, be brought on by the most trivial exciting causes.

It would be interesting to determine to which class of neuralgic affections these internal pains belong. The greater part, I should judge, are of the hysterical kind. They are produced by the same causes as hysteria, and are accompanied by other hysterical symptoms. There is no ground for believing that they are often rheumatic. If they have been preceded by rheumatism of the limbs or back, however, and there is some febrile excitement of the system, I should be inclined to suspect that such is the case. Sometimes, undoubtedly, they are of the true spasmodic kind, when accompanied by spasm of the muscles, and when they alternate with tic douloureux of the surface. A clear diagnosis on these points will much facilitate remedial measures.

Cephalalgia.—Certain forms of *headache*, of a periodic character, and free from inflammation, appear to be of a neuralgic nature. They are generally limited to one spot; are remittent or intermittent; are attended with shooting, plunging pains; and are relieved by remedies that are serviceable in neuralgia generally. That which is

called *nervous headache* is often a species of tic douloureux. Although the neuralgic character of pains in the head may usually be readily determined, more difficulty is experienced in deciding whether they are within or without the cranium. This, however, should not influence the treatment.

Angina Pectoris.—By most medical men this dreadful complaint is now regarded as principally neuralgic. It is sometimes associated with, occasionally depends upon, organic disease of the heart, although very frequently the disorder is entirely functional. From my own observations, I should judge that it consists of painful irritation of the cardiac nerves, leading to spasm of the muscular fibres of the heart and great vessels—a complication which is commonly observed in the severer paroxysms of spasmodic tic douloureux. During the accessions, there is great pain over the sternum and left side of the chest; severe shooting pains, which often extend down the arm to the ends of the fingers. These are succeeded by a sensation of violent constriction in the thorax—leading the patient to imagine he is on the point of dissolution. The heart then beats against the ribs with fearful impetus. The symptoms, however, vary much. A gentleman whom I treated lately for this complaint, a solicitor, complained of no uneasy sensation

during the day; but every night when he lay down to rest, and was just falling off to sleep, a tremendous commotion occurred in his chest, accompanied by severe pain, causing him to spring upright, or jump out of bed in a moment. "The heart felt," he said, "as if it were being wound up like a clock, and then suffered to run down in a moment." The agony and terror were intense.

The accessions of this disease are most uncertain, and its cure difficult. Its causes are sometimes very trivial, if we are to credit the testimony of M. Piorry, who mentions a case where the pains in the heart depended on a carious tooth, and ceased on its extraction. The disturbing agent with my patient was evidently in the stomach. By careful attention to diet and the use of carminative medicines, he quite recovered; but it was some time before the neuralgic habit was entirely eradicated.

Hepatalgia, Gastralgia, Enteralgia, are severally characterised by pains of a sharp, plunging kind, occurring paroxysmally in the liver, stomach, or bowels. For the most part they are associated with hysterical symptoms, and may hence be generally distinguished from acute disease; although some difficulty is experienced in determining which particular viscus is affected, or whether the pain may not be merely seated in the abdominal parietes.

It is in these forms of neuralgia, that the hydrocyanic acid has been found particularly serviceable. An instance of hepatalgia has been previously related in connexion with tic douloureux. Neuralgic pains of the stomach often accompany dyspepsia, and are very apt to attack hysterical young females. The colicky pains engendered by lead are instances of the same affection in the bowels. That the large intestines may be troubled with this disorder is shown by Dr. Macculloch's case; where periodic neuralgia was seated in the rectum, and was cured by his favorite remedy.

NEPHRALGIA.—There can be but little doubt that the larger proportion of the painful sensations, experienced in the loins by young women, consist of hysterical neuralgia of the kidneys. The greatly-increased secretion of urine, during the paroxysms of hysteria, indicates considerable nervous irritation in these glands at such times. Neuralgic pains of the spasmodic variety are often caused by the passage of a renal calculus, or other local stimulant. It will be observed that the pain in these cases is not constant, but is paroxysmal in character, and takes the course of the ureters, or spermatic cord. It is distinguished from nephritis by the absence of fever, by its intermittent nature, and there being no retraction of the testicle.

Hysteralgia.—Women are subject to a very obstinate and distressing affection of the uterus, the true neuralgic nature of which is now generally allowed by accoucheurs. Dr. Gooch, in his work on the Diseases of Women, has given an admirable description of it under the title of the *Irritable Uterus*. It is by no means uncommon, as I have myself met with more than one example; and greatly relieved them by the medicated vapour, which, I think, is very applicable to such cases.

The pain is referred to the lower part of the abdomen, more especially along the groins, and to the back. There is always more or less uneasiness, with paroxysms of intense suffering, accompanied by bearing-down efforts. If the womb be examined, no displacement, ulceration, or inflammation can be discovered; but the passage of the finger into the os uteri, or pressure against the cervix, occasions great agony, which continues for some length of time afterwards.

Neuralgia of the Ovary.—The uterus is not always, however, the seat of painful affections apparently placed in it. Very often the real focus of the malady is in the *ovary*, which, like the testis, is liable to become *irritable*. One of these organs is usually alone affected, and the neuralgic focus is hence seated in the inguinal region, from whence the

pain shoots round the crista ilii, or down the groin, often involving the entire crural nerves. Although it usually troubles married women, yet I have met with more than one instance in single females, between the ages of fourteen and twenty, ordinarily accompanied by severe hysterical symptoms. Whatever their original cause, the paroxysms are most violent during the menstrual periods, and are distinctly aggravated by the slightest sexual excitement. A well-marked instance of this affection was very lately under treatment, which I adduce in illustration.

CASE.—*Ovarian Neuralgia.* A married lady, about eight-and-twenty years of age, of slight frame and delicate constitution, complained (Aug. 1851) of the following symptoms.

An uneasy sensation in the lower part of the abdomen on the right side, with occasional fits of intense suffering. During the paroxysms, which come on at irregular times, the surface is excessively tender, while severe darting, shooting pains strike along the groin and crista of the ilium. Frequently, they extend along the front of the thigh to the knee, and seem to stop there; but more often they are confined to the lower leg, "making the nerves of the shin and instep jump and thrill with agony." The veins at the same time are much swollen. The paroxysms occur principally during the catamenial periods, which are

regular, but always attended by much pain; and are also brought on by exposure to cold and fatiguing exercise.

The health is otherwise excellent. In the intermissions of suffering, there is nothing abnormal in the parts or the limb. There is no perceptible enlargement of the ovary, or the slightest tenderness on pressure. During the paroxysms, however, the most exquisite sensibility is evinced, so that the slightest touch is unbearable. The uterus itself is uninfluenced.

It appears that the patient has suffered from these symptoms, more or less since she was a girl. After marriage they greatly increased in intensity; and from some causes of local irritation, to which she has latterly been subjected, the nervous excitement has been extreme.

Great benefit was here derived from quinine, and the local application of warm sedative vapour. Nothing else appeared to influence the complaint.

TRAUMATIC NEURALGIA.

This is a name I venture to apply to those neuralgic affections resulting from *local injury;* whether this be the effect of accident or the issue of surgical operations. It is a subject replete with interest, involving the whole question of *irritation;* and, as far as I can learn, never yet treated in a separate manner. I have reserved it until this moment, in order that the nature of the lesions and their treatment may be discussed together. The limits of this essay will not permit me, however, to investigate it so fully as its importance demands.

The injuries that give rise to neuralgic irritation are :—1st. The presence of a foreign body in the substance of the nerve. 2nd. The entire or partial division of a nerve. 3rd. Pressure upon a nerve. To one or other of these causes all cases may, I think, be referred.

1. Spicula of bone have been frequently found

embedded in a nervous trunk, and evidently giving rise to neuralgic suffering. Minute portions of iron and glass have sometimes been discovered there; and as violent symptoms are well known to follow the deposit of a foreign body in the *muscular* tissue, their presence in the *nervous* textures would, *à fortiori*, be even more irritating. Nature, we may suppose, makes still more strenuous efforts for their ejection, and hence the vis nervosa is directed more particularly to their vicinity.

But we must infer the presence of a foreign body in a fibril, even when it is so minute as to evade our senses. This is well illustrated by the very remarkable case recorded by Mr. Wardrop, in the *Medico-Chirurgical Transactions* for 1817,* where a woman pricked the fore-finger of her right hand, near the point, with a gooseberry thorn; and suffered for many months afterwards the most excruciating neuralgic seizures, which could only be relieved by the amputation of the finger. Upon its dissection, no change could be discovered in the structure of the nerves, but a *light red spot* was perceptible in the skin of the point of the phalanx, where, in fact, it had been wounded long before.

Traumatic neuralgia from this kind of injury is so well shown by this case, as well as the secondary

* Vol. viii. p. 246.

implication of the abdominal viscera, that I am tempted to extract further particulars.

"The pain in the point of the finger became excessively severe, and the skin of it so acutely sensitive, that the patient could not endure it to be touched; even the dread of anything coming in contact with it would make, not only the finger, but the whole hand flow with perspiration; and, to use her own expression, it was so painful to the touch, that she could not hold a pin between the fingers and thumb, to save her life. And yet the finger appeared of its natural form, and no change could be perceived in it, except a minute red spot at the point.

"The nervous paroxysms usually attacked her two or three times a day, and one of them always came on at the time of her rising out of bed. During these attacks, the pain extended along the finger to the back of the hand, and between the two bones of the forearm; darted through the elbow-joint; and stretched up the back of the arm to the neck and head, producing a sensation at the root of the hairs as if they had become erect. To these feelings succeeded a dimness of sight, and the pain afterwards went suddenly into the stomach, followed by nausea and vomiting. The patient had constantly the feeling of a lump in her

stomach, and always vomited after taking food or drink."

2. The *partial division* of a nerve is often effected both by punctured and incised wounds. Neuralgia following such accidents and operations, is by no means infrequent. Instances have been related by M. Sabatier, in his *Médecine Opératoire*, where it resulted from the slight operation of bleeding in the foot, and also from a stab in the lower part of the thigh. Mr. George Bell* and others mention its occurrence after venesection in the arm. But the most remarkable case is that of Mr. Swan, to which allusion was formerly made, where the most violent and obstinate neuralgic spasms were induced through a trivial cut on the thumb.

Neuralgia may also follow the *complete division* of a nerve; and this doubtless arises through an abortive attempt at reparation. As suggested by Messrs. Todd and Bowman:† "Perfect restoration of the action of the nerve does not always take place, owing, most probably, to the fact that the central and peripheral portions of the same fibres do not always meet again. The central portion of a motor fibre might unite with the peripheral segment of a sensitive one, and thus the action of

* Edin. Journal of Med. Sciences, p. 326.

† Physiol. Anat. of Man, vol. i. p. 229.

each would be neutralized or disordered." The experiments of Messrs. Haighton, Cruikshank, Mayo, and Swan, in this country, and of Schwann, Steinnich, and Nasse abroad, fully prove that, when a nerve is entirely divided, complete restoration ordinarily takes place in a brief period. The divided nerve* unites like a divided tendon. The adjacent cellular tissue becomes infiltrated with lymph, which forms a sort of callus, that encloses and unites the divided ends. After some days, this callus appears like a pearly nodule upon the jointed nerve. In course of time, the true nerve fibres are developed, and the functions return—that of sensation preceding that of voluntary motion. The same process takes place when a nerve has been divided by a ligature.

Occasionally, this union does not take place: in which instance, the central portion of the divided nerve usually becomes bulbous, and the distal portion wasted and diminished in size, and semi-transparent.

In a large proportion of the unfavorable cases, an imperfect union takes place, attended by a train of symptoms, of various degrees of severity, but partaking of one character. These symptoms are — pain, extending along the injured nerve,

* Mayo's Physiology, p. 132.

which is described as aching, gnawing, thrilling; clonic and tonic spasms of the muscles, &c.*

The effects of partially divided nerves have been investigated by Mr. Swan.† "When," says he, "a nerve has been wholly divided, each portion immediately retracts, so as to leave a considerable space between them. When only a partial division has taken place, the divided portions retract in the same manner, but not to so great a degree, and leave a space, while the undivided portion remains of the same length as before the division. Now a nerve is composed of different fibrils, and these, in most instances, communicate together. Should a complete fibril be divided, that had not any communication with the others of which the nerve is composed, it would retract, and leave its fellows in the same state as before the division; and it is most probable that there would be more irritation, than when the nerve was completely divided. But if a fibril be partially divided, or if it be wholly divided, and at the point of division it be connected with the adjoining fibril by filaments, the retraction of the divided parts will stretch these filaments, and thereby cause considerable pain.

But again, should the whole of a nerve, except

* Mayo, p. 134.

† Diseases and Injuries of Nerves. Chap. vii.

one fibril, be divided, the great retraction of the divided parts will keep this very much on the stretch. Any one may be satisfied on this point, by taking an animal soon after it is killed, and almost entirely dividing a nerve; the divided portions will be seen to retract in some degree; but immediately on cutting through the remaining part, each end will retract in the quickest possible manner to a much greater distance than it did before; thus clearly proving that this small portion alone prevented the retraction, and must therefore have been kept very much on the stretch."

From these experiments and observations, we gain a clue to the origin of the local diseased action. The nerve being partially divided, it heals with the rest of the tissues, and is equally free from pain; but on the occurrence of inflammation, rheumatism, or more particularly of that nervous excitability, constituting the neuralgic diathesis, the damaged fibril is especially irritated, on account of its stretched and unyielding position.

3. A nerve is rendered neuralgic by *pressure* in various ways. It is worthy of remark, however, that the *degree* of this compression must be *moderate* and of *short duration*, in order to give rise to pain. Continued or severe pressure produces temporary or permanent interruption of its function—in fact,

paralysis. Mr. Mayo says,* "A case was communicated to me, in which a gentleman lost entirely the use of his arm, through falling asleep with it over the back of the chair. The effect was described to me as perfect palsy and anæsthesia, produced by the mechanical pressure on the axillary nerves. I have witnessed several cases, in which weakness, and numbness, and thrilling pain of the arm, have been brought on by the use of crutches. The symptoms have come on gradually, and have been slow to give way."

Aneurisms and other large tumours pressing upon nerves, or distending them by being inserted between the fibrils, (as illustrated by several preparations in the Hunterian Museum,) give rise oftentimes to neuralgia. The inclosure of sensitive cords in ligatures, or in the cicatrices of incised wounds, has also originated it. That it has resulted from the compression following the contraction of a burn, is proved by the pain ceasing immediately on an incision being carried through the eschar. The *extent* of the compressed surface seems to be of little importance, as is shown by a remarkable case related by Mr. Swan, of a gentleman who had violent periodic neuralgic pains, produced by the pressure of a portion of toe-nail no larger than a pin's point.

* Op. cit., p. 142.

The case of the north-countryman I have previously detailed (page 247) shows the effect of pressure on the facial nerves. Two or three preparations in the Museum of the King's College are also illustrative —one especially, numbered 798-4, consisting of a tumour like that of cephaloma, taken from the right side of the upper part of the thorax, and involving the entire brachial plexus of nerves. The pain, sometimes most excruciating, which the tumour produced, was intermitting and often periodical, and did not yield to the most powerful doses of medicine. After suffering dreadfully for three months the arm swelled, became paralytic, and the gentleman died exhausted.

Neuralgia in the *stumps* of limbs after amputation is now happily of infrequent occurrence, in consequence of the improved modes of operating; but as it will occasionally ensue, in spite of the greatest care and skill, it is worthy of the attentive consideration of the surgeon.

It may be asked, which of the causes above enumerated is productive of this troublesome and annoying malady? When neuralgia occurs in a stump, have we a partially-divided nerve, a compressed nerve, or some irritating body, a spiculum of bone for instance, in a nerve? The uncertainty existing upon these points cannot be better illustrated than

by the following quotation from the Lectures of one of our leading hospital surgeons:—"When nerves have been divided, as in the operation of amputation, the extremity which is left swells into a kind of bulb; a sort of oval tumour forms, or rather the end of the nerve swells into a bulb of oval shape, of perhaps about the size (in the case of a large nerve) of a nut or filbert. This is found to possess very considerable firmness, sometimes approaching almost to a cartilaginous structure, so that it is cut with difficulty, and makes a noise under the knife as it is divided. There are instances in which the extremities of nerves, thus enlarged, seem to produce very painful symptoms after amputation. Whether it is from the extremities of the nerves being involved in the cicatrix which follows the operation, or, in certain cases, that the ends of the nerves are, by the contraction of the cicatrix, pressed against the sawn end of the bone, I do not know; but in many instances very painful sensations are experienced after a certain time, at the end of the stump, confined in some cases to a particular spot, and appearing to indicate, that the affection depends upon the condition of the divided nerves at a certain part of the cicatrix."*

In order to estimate the sources of nervous irritation in the stump, we should carefully consider

* Lawrence's Lectures. Lancet, vol. ii. p. 564.

the changes that take place in it after amputation. According to Mr. Langstaff, who read an admirable paper on this subject, before the Medico-Chirurgical Society, in May, 1830,* and illustrated it by his preparations, many of which are now in the Hunterian Museum, the process is as follows:—

The first attempt of nature to effect the reparation of parts divided in amputation, after the consequent inflammatory action of the minute arteries, which supply the cellular connecting media belonging to the muscles, vessels, and nerves, has been subdued, is, the effusion of lymph, which becomes organized; the absorbents then remove such superfluous parts of the muscles, as are likely to retard the progress of cicatrization of the integuments. After this period, the nutrient arteries of the periosteal covering of the divided bone and the medullary parts deposit lymph; a medium of cellular tissue is produced, which unites to the organized integumental surface, and these together form a cushion or defence, as a protection to the end of the stump.

These salutary changes effected, the absorbents begin to execute their functions, by the removal of the asperities occasioned by the division of the bone at the time of the operation; a deposition of

* Transactions, vol. xvi.

osseous matter takes place, round the edges of the divided bone, which forms a union with the osseous matter deposited by the vessels belonging to the cancelli of the medullary or internal part; and the absorbents, if not interrupted by nervous irritation, consequent on disease of the stump, produce a regular rounded appearance of the extremity of the bone, only leaving apertures for the communication of the nutrient arteries, veins, and nerves of the shaft of the bone with its coverings.

Should the surfaces of the amputated part not regularly unite by the first intention, or by the second, and there be inflammation affecting the divided nerves, then a morbid action is established, which occasions the face of the stump to ulcerate or mortify; frequently causing a portion of the extremity of the bone to project, which, becoming carious, requires to be taken off.

Sometimes osseous deposition takes place round the edges of the sawn bones, and exostosis is produced; sometimes a spiculum of bone projects horizontally, generally taking the direction of the artery, vein, and nerves of the limb, which thus become implicated with the bony deposit; and sometimes a large spiculum of bone takes an oblique direction.

In all these diseased stumps, the nerves are inva-

riably bulbous at their extremities, giving them a ganglionic appearance; and generally firmly adherent to the surface of the stump, or in union with spicula of bone in the manner described. Mr. Langstaff observed, that these enlargements of the extremities of the nerves do not consist of hypertrophy of the natural structure; but the thickening is occasioned wholly by the deposition of lymph, the effect of inflammation in the cellular tissue covering the neurilemma.

The irritation in a neuralgic stump may, therefore, I believe, arise from a *fixed, half-cut nervous fibril*, which is excited by the motion of the limb or the action of the muscles; from a nervous trunk or fibril *compressed* by the contracting cicatrix, or against the shaft of the bone where the stump becomes conical; or by the hardening of the lymph in the bulbous extremity; and lastly, through *spicula* of *bone* running into, or osseous deposit taking place in a nervous branch.

It must not, however, be concluded that the seat of irritation is always at the *extremity* of the severed limb. There are many cases tending to prove that the whole length of the nerve, a certain point in its course, or its origin only, may be affected. It should be borne in mind, also, that possibly neuralgia would not arise in a stump, where many sources of irrita-

tion were present, unless circumstances developed the peculiar diathesis on which it depends. On this account, I believe that the resulting pain is not always *of one kind*, but may possess all the characters of either spasmodic, rheumatic, or hysterical neuralgia.

Another circumstance is also deserving of notice, because of its practical bearing: namely, that the nervous irritation has the same tendency to spread —to extend itself—in these as in other cases. It may have a local origin in the extremity of one nerve, and not only involve all the neighbouring fibrils, but travel upwards along its course, until distant parts are implicated in the disorder. This is well illustrated by a case detailed by Mr. Mayo,* (and which is somewhat in corroboration of the views of Dr. Marshall Hall,) of a woman who had pain and tenderness in a stump after amputation; and this pain extended up the thigh to the sacrum, and spread secondarily down the other leg, so as to produce cramp and contraction of the toes.

In the *treatment* of traumatic neuralgia, the patience of the surgeon is often heavily taxed. No fixed rules can be laid down for his guidance, but everything must depend upon his judgment and

* Op. cit., p. 141.

experience. Internal medicines afford him little, rarely any, assistance, although Dr. Macculloch relates one or two instances of the efficacy of arsenic. Local remedies are of doubtful avail. He is therefore often called upon to perform an operation for the relief of his patient.

In cases where a nerve has been partially divided by a puncture, as in the operation of bleeding, and irritation has arisen in consequence, the chief practice has hitherto been, to sever it completely by another incision made above the wound. The happiest effects have sometimes immediately followed this practice, as in the instances furnished by Mr. Swan, and Dr. Wilson of Grantham. In others, it has totally failed; and then recourse has been had to amputation. With Mr. Wardrop this was perfectly successful, with Mr. Swan useless. The grand *rule* appears to be, to perform the operation, whichever it is, *as early as possible*, otherwise the impression made on the nervous system is too great to be retrieved.

"When nervous symptoms supervene after cicatrization of a wound, division of the branch of the nerve above becomes a less certain and less advisable remedy. It is true, indeed, that the source of irritation may even then be confined to the cicatrix,

in which case an operation will remove it. Dr. Mott told me that in those cases of nervous irritation coming on after bleeding, he had (not divided the nerve, but, which is evidently finer practice) dissected out the cicatrix; and that, in two of those cases, the operation was followed by the patient's direct recovery."*

Where the nerve has been injured by a contusion, or is involved in the cicatrix of a wound or burn, immediate relief has often resulted from a crucial incision being made over the part. (Pouteau, Larrey, Bright.)

Two practices have hitherto been resorted to for the cure of *neuralgia* in *stumps*. The one is to cut down upon and remove a portion of nerve, supposed to be injured by spicula or osseous deposit; the other is re-amputation of the limb. The former of these operations is always to be preferred; but should only be adopted, in my opinion, in those rare cases, where the irritation is plainly confined to one particular spot on the line of a nervous trunk. Where the neuralgia has spread over the face or extremity of the stump, involving several fibrils, and is accompanied by much organic lesion, no resource is left but amputation.

The probability of either of these operations being

* Mayo, p. 136.

successful, will depend almost entirely upon the *local nature* of the *exciting cause*, and the *localization* of the neuralgic *pain*. If a considerable extent of the nervous system is involved, or the origin of irritation is centric, they will be worse than useless. The best plan to adopt in such cases, and from which I have myself witnessed the most beneficial results, is to rectify the general neuralgic diathesis by medicine, and allay the local irritation by soothing applications. A case will be subjoined in which this was effectually accomplished by the warm, medicated vapour.

CASE.—*Neuralgia in the Seat of Fracture.* My friend, Mr. Gay, kindly furnished the following particulars a short time back:—

"T. M., æt. 43, had his leg crushed by the falling of some earth in a railway cutting. There was a large, obliquely transverse wound of the skin, about three inches above the ankle-joint, through which the upper fragment of the tibia protruded. The fracture was reduced, and after considerable suppuration, the bone united firmly and the wound healed. This happened *nine* years before I saw him. From that period this patient has been suffering intense pain deep in the seat of the fracture, and so increased upon every attempt to put the foot to the ground for the purpose of walking, that, excepting from bare necessity, he has never ventured to do so. The pain he describes to be of a sharp, lancinating character, and often worse at night.

His suffering has been so intense that he has been quite unable to do any work whatever; and from this, and the want, to which from his inability to work he has been subjected, he has become feeble and much emaciated. On examining the bone, there appeared to be a slight unevenness about the seat of fracture, but in other respects, no indication of disease whatever could be detected. Moreover, the pain was not induced by pressing on the part.

"He had been treated again and again at hospitals and elsewhere, but had not derived any advantage—scarcely an amelioration of his pain; and consequently he came to the Royal Free Hospital, earnestly requesting that I would not attempt any other remedy but that of amputation. I did, however, try the usual remedies, and cut down freely on the periosteum, with the hope of finding some purulent deposit that might explain, and at the same time, by its removal, cure the disease. I was disappointed, and at length yielded to the man's solicitation, and removed the lower half of the leg.

"On examining the parts, there was nothing found to explain the affection. The fracture had exceedingly well united, with the *slightest possible* twist of the under portion of the leg inwards. No filament of nerve could be traced to the part, nor was there any increased vascular action in the periosteum or bone, to throw the least light on the subject. I should add, that the man speedily recovered, and has shown abundant tokens of gratitude for his being thus enabled to get work and to regain his health.

"The affection was, undoubtedly, a neuralgia of the leg; and possibly arose from the implication of some nervous

filament belonging to the bony tissue itself, in the reparation of osseous matter belonging to the fracture.

"I believe this to be a rare case. Severe blows on the limb have been known to be followed by neuralgic affections of the bone, but these have generally yielded to suitable treatment; but in this case no treatment appeared of any use whatever. The changes in the bone, consequent on the fracture, might explain the obstinacy of the pain in contrast with the temporary nature of those forms to which I have just alluded. The difficulty of tracing the cause to any impacted nervous filament would necessarily be almost insuperable, if such a cause existed: and even this is rendered doubtful, by the evidence which we have from those who have examined with the utmost care the painful subcutaneous tumour, and who report, that in no case has a nervous filament been found so disposed in relation to the tumour, as to justify its being considered as the seat of pain."

CASE.—*Neuralgia in a Stump.*—Aug. 28, 1850. Major-General P., a gentleman, 64 years of age, of nervo-sanguinous temperament and irritable constitution, has suffered for very many years from this form of neuralgia, which arose in the following manner:—

He lost his leg by a cannon-ball at the battle of Waterloo. Amputation above the knee was performed immediately afterwards upon the field. The stump did very well, and seemed to heal. He returned to England in the month of August, and soon afterwards met with an accident, in going up-stairs on crutches. Forgetting the loss of his leg, he put out the stump as if to make a step, and came down with

violence upon it. This forced the end of the bone through the wound, and caused considerable hæmorrhage. Several pieces of bone subsequently exfoliated. From that time to this, violent painful spasms have occurred, at intervals, in the stump. For the last three or four years, the nature of the attack has somewhat changed. The muscular spasms are not so violent, but every evening, about eight o'clock, an uneasy sensation comes on, and continues all the night. The pain is not always severe, but occasionally very sharp and piercing, accompanied by more or less spasmodic twitching of the muscles. It seems to be placed in the sciatic nerve, and takes its course along the outside of the thigh. Last September (1849), Mr. S. cut down upon that nerve—the stump end—and found an exostosis of the femur involving it. Upon removing these parts, it was supposed that the cause of irritation was entirely eradicated. Some little relief was afforded, but three weeks afterwards the pain came on as bad as ever, and has remained ever since.

The foregoing particulars were furnished by the General himself, when, on the 30th of August, I went down to Woolwich to see him. It was about eight o'clock in the evening when I arrived, and the pain, as usual, had just commenced. I found him suffering great agony. Paroxysms came on every three or four minutes, with great regularity, and then passed off completely. During their accession, the stump was convulsed by the incessant working of the muscles. The patient at these times seized the limb with both hands, in order to pinch and twist the flesh with violence, and thereby somewhat mitigate the suffering. But the neuralgic irritation continued in this way throughout

the night, totally forbidding sleep or mental occupation. By the morning it usually subsided, and he was then enabled to take horse exercise; but it uniformly returned in the evening at the same hour.

Upon examination, I found the limb very much wasted and the stump conical. There was no tenderness in any part, not even on the face of the stump, or over the nerve; no irritability of the skin, nor had there ever been any. The general health was excellent: the tongue clean and bowels regular. No source of irritation could be detected elsewhere.

General P—— died lately from inflammation of the lungs. The irritation in the stump—all pain and spasm—ceased completely when the disease in the chest was established.

Case.—*Neuralgia in a Stump.* A lady, residing near Burton-crescent, had the left leg amputated by the late Mr. Aston Key, for strumous inflammation of the knee-joint, and ulceration of the cartilages. Three days after the operation, which was performed on the 6th of August, 1849, secondary hæmorrhage came on, and was restrained by cold dressings. After this the stump healed pretty well, although somewhat retracted. In about a month, exfoliation of the femur began to take place. The bone came away at intervals, in fragments, and was assisted by phosphoric acid, under the direction of Mr. Bransby Cooper. Neuralgic pain in the stump began to come on in the latter part of August, and gradually increased in severity, so that at times the agony was intense.

Mrs. L. was of decidedly neuralgic diathesis, and scrofulous constitution. She was in her forty-second year, but

had not been free from headache since she was eighteen, and had abscess in each elbow when a girl. Neuralgia had shown itself at various times in different parts of the body, but chiefly in the form of tic douloureux of the face. In 1847, she had neuralgia of the back, which terminated in sciatica of the right leg. This continued about two years, when it suddenly passed to the left knee—the one which was amputated.

When I saw Mrs. L., on the 5th January, 1850, in conjunction with Mr. Arrowsmith of Burton-crescent, she was excessively weak and nervous, complaining much of headache, although the tongue was clean, and the bodily functions were regular. The stump was extremely irritable—the face of it drawn up and puckered every moment,—the femoral bone twisting on its axis, and the limb being thrown up every now and then with a spasmodic jerk. The surface was tender, especially at one prominent soft point by the side of the bone. There was a constant sensation of "screwing, twisting, and straining of the lost foot," which oftentimes amounted to agony. The disease was paroxysmal in character, but observed no particular type, coming on and passing off at irregular intervals, as much during the night as the day. She lay continually upon the sofa in torture, endeavouring to quiet the pain by large doses of opium, but totally incapable of moving across the room, or sleeping soundly.

As internal remedies had been previously thoroughly tried without effect, my treatment consisted in the application of the warm sedative vapour to the part, varying the herbs according to circumstances. The aneuralgicon was at

first used every, but subsequently every other, day. After three or four applications, there was evident relief of the pain, and scarcely any muscular action perceptible. The nervous excitement had in a great degree subsided, so that the patient was able to take quinine and iron with advantage.

In about six weeks, the fumigation was intermitted, as nothing but a disagreeable feeling, referred to the *lost foot*, remained. The general health and strength of Mrs. L. had wonderfully improved. She had gained flesh considerably, her appetite was good, and sleep undisturbed. Moreover, she was able to wear an artificial leg, and take moderate exercise, without inducing a return of the nervous irritation.

THE END.

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