PART II...

CRITICAL ANALYSIS.

I.

A Dissertation on the Treatment of Morbid Local Affections of Nerves: to which the Jacksonian Prize was adjudged by the Royal College of Surgeons. By Joseph Swan, Member of the Royal College of Surgeons, and Surgeon to the Lincoln County Hospital. Svo, London, 1820. pp. 196.

There is, perhaps, no order of maladies about which more has been said and written, than those to which the name of Nervous has been given; but it is nevertheless remarkable, that the degree of precise information and elucidation has by no means corresponded with the number and consequence of the contributions which have been made with this view. These diseases appear, in short, to have formed a legitimate inheritance to the greater portion of the mysticism and obscurity which has at different periods prevailed in medical science; and an affection of the nervous system has been at all times a convenient and useful mode of explaining any symptom which perplexed the ignorant, or dazzled the indolent practitioner of the healing art. To many pathologists the nerves are the most indispensable organs in every condition, whether healthy or morbid, in which the body may be placed; and it is truly astonishing to see with what facility they are made to account for all the changes which are observed in the course of diseases. To such observers nothing is a secret, and nothing however obscure is left unexplained; the whole phenomena of the nervous sys-
tem, as it is emphatically named, are perceived as palpably and distinctly, as if the objects of examination were seen through diaphanous media, or exposed at the moment to sensible inspection. To some these strictures may appear unwarranted; but we deem it pretty certain, that all who have glanced, even with a moderate portion of attention, at the history of medical theory and pathological speculation, from the days of Dr Willis, who first unlocked this treasury to the profession, down to the present hour, when spasm, nervous irritation, excitement, and collapse, are still familiar to the lips and ears of many, will admit, that there is but too much reason for expressing ourselves as we do. The vague and unsatisfactory opinions which are daily avowed and acted upon in this department of pathological science seem to be unceasing and innumerable, and to all who have a taste for precise and accurate conceptions of the objects which they actually know, it must be equally painful and discouraging to contemplate this endless revolution, in which no progressive advancement is made, and the variety consists only in the difference of names.

It was, therefore, with considerable present satisfaction, and great anticipation of future accessions, that we turned to the work of Mr Swan, who has been devoting his attention, with some success, to the elucidation of one department of the subject; and though we by no means wish Mr S. to believe that his book is as well executed as we think his talents and opportunities enable him, yet, as a beginning to a great work, to the accomplishment and completion of which many different hands must unite their efforts, we think that it is very creditable to the author, and may exercise a beneficial influence on professional inquiries. The professed object of Mr Swan's work is the treatment of morbid local affections of the nerves; and it would be therefore unjust to blame him for omitting to speak of the healthy organization of these textures, as well as the morbid changes which it is the province of the pathologist to investigate and describe. As this, however, is in some degree necessary, in order to understand these changes and the mode in which they are effected, and, as it may be presumed, that all our readers have not leisure to collect, from the different works in which they are scattered, the details which the recent labours of pathological anatomists have added to our stock, we shall deem no other apology requisite for detaining them very shortly, while we state, in the most precise manner, what is known positively regarding the organization and pathology of that part of the nervous system, the diseases of which have been the subject of Mr S.'s investigation, while we, at the same time, give a more
detailed account, and express a more particular opinion of the labours and merits of the author.

The nervous system of the animal body includes, according to the present state of pathological opinion, two great general divisions. The first of these is collected in a single and indivisible mass, and contained in a peculiar cavity formed by part of the osseous system of the animal. In the less perfect tribes this is limited to the vertebral column, or something analogous to it; but in man, and the more perfect animals, we find a large cavity at the superior extremity of this column superadded. The second division of the nervous system, with which alone we are at present concerned, is found in the form of long chords or threads, mutually connected, and running in various directions through the body in the mode of ramification. To these, the name of nerves or nervous trunks has been long applied. Each nerve forms connections in three different ways: 1st, A nerve must be connected to some part of the central mass by one of its extremities; 2d, It must be connected to some other texture or organ, or part of an organ, by the other extremity; and, 3d, It may be connected to other nerves by a species of anastomosis. By means of the two former connections it is supposed to maintain a communication between the central mass and the remoter organs, and by the latter it is understood to be subservient to a more general and extensive intercourse, which is believed to be necessary in various functions and actions of the animal system. Every nerve consists essentially of two parts,—one exterior, protecting and containing; the other interior, contained and functional, that is, the indispensable part of the nervous structure. The first of these, which has been known since the time at least of Reil by the name of neurilema, (σωμάτη, nerii involucrum,) has the form and nature of a dense membrane, not quite transparent, which is found at the exterior of the nervous filament or trunk, and invests the proper nervous substance. It must not, however, be conceived, that the neurilema has the form of a cylindrical tube, in the interior of which the nervous matter is contained. This latter disposition, if it actually exist, applies only to the smaller nerves, and to some of those which go to the organs of sensation,—a difference which we may have occasion to notice subsequently. If, in truth, we take any large nervous trunk, for example, the spiral or median nerve of the arm, or the sciatic nerve of the thigh, we find that it is composed of several small nervous chords placed in juxtaposition, and each of which, consisting of its appropriate neurilema and nervous substance, is connected to the other by delicate cellular membrane. These,
however, do not, through their entire course, maintain the parallel disposition in respect to each other, but are found often to cross and penetrate each other, so as to form an intimate interlacement of nervous chords and filaments, each of which, however minute, is again accompanied with its investing neurilema. As this membrane must, therefore, be liable, from its various situation, to great modification, it is easy to see that all opinions on its nature derived from its thickness or transparency must be liable to considerable fallacy. Reil and Bichat, who have devoted more care and time to the examination of its nature and structure than any other inquirers, thought it resembled the pia mater, and was indeed derived from it. Scarpa, on the other hand, seems to view it as connected in anatomical origin and character with the dura mater. But we believe it is safer, in the present state of our information, to consider it as a particular texture, and undergoing modifications peculiar to itself. It is surely unnecessary to expect every one membrane to be derived from some other, the origin of which is left unexplained; and it is obvious that the supposition of deriving it either from the pia or the dura mater could not, though admitted, explain either its functions or its structure. That it is connected, as Bichat thinks he has demonstrated, with the pia mater, or rather with the ligamentum denticulatum, we are not unwilling to believe, although we could never certainly satisfy ourselves that this is so easily seen as he seems to make it.

Although the neurilema when examined in the nervous chords, taken in general through the system, exhibit the arrangement which we have now described, yet this is observed to vary somewhat in particular situations; and these varieties in the neurilematic disposition occur principally in the nerves which are distributed on the proper organs of sensation. The olfactory nerve, for example, is soft, pulpy, and destitute of neurilema, from its origin in the sylvian fossa to the grey bulbous enlargement which terminates its passage in the cranium; but as soon as it reaches the canaliculi of the ethmoid bone, and begins to be distributed through the nasal anfractuosities, it is distinctly neurilematic. The optic nerve is still more peculiar in this respect. The instant it quits the optic comissure it begins to be invested with a firm general neurilema, which sends into the interior substance of the nerve various membranous septa, forming separate canals, in which the nervous matter is contained. These septa, however, are so thin, that at first sight the optic nerve seems to consist merely of one exterior membranous cylinder enclosing the proper nervous substance. Lastly, we may remark, that the auditory nerve, or the
soft portion of the seventh pair of most anatomical writers, is the only nerve in which this covering cannot be traced.

The second component part of the nervous chord or filament is the proper nervous matter which occupies the cavity of the neurilematic canals. Exceedingly little is known concerning the nature or organization of this substance. It is whitish, somewhat soft and pulpy, but whether it consist of aggregated globules, or of linear tracts disposed in a situation parallel to each other, seems quite uncertain. It has been presumed, rather than demonstrated, that it resembles cerebral substance; but this analogy, though admitted, would throw little light on the subject; for at present it is almost impossible to find two anatomical observers who have the same views of the intimate nature of the cerebral substance itself.

The structure which we have now described of the nervous trunk may be easily demonstrated to the satisfaction of even a very sceptical observer. When a portion of nerve is placed in an alkaline solution, the whole, or nearly the whole, of the nervous matter is softened and dissolved, or may be washed out of the neurilematic canals which are not affected by this agent, and the disposition of which may be then examined and demonstrated. Aqueous maceration may likewise be employed with great advantage to elucidate this texture; for it separates and decomposes the cellular membrane, by which the neurilematic canals are united, and subsequently occasions the decomposition of the nervous substance, while it leaves, at least for some time, the neurilema not much affected. When, however, the maceration is too long continued, it is separated and detached like other macerated textures. Lastly, if a large nerve be placed in a diluted acid for the space of one or two weeks, the neurilema is gradually dissolved, and the nervous matter becomes so much indurated and consolidated that it may be separated from the contiguous chords with great facility. In undergoing this change the portion of nerve becomes much shorter, and considerably contracted,—is subjected, in truth, to the process of crispsation; so that, unless a large nerve like the sciatic be employed for the experiment, it may be impossible to obtain the result in its most satisfactory form. These experiments, with many others of the same nature, were first performed by Professor Reil, and afterwards repeated, multiplied, and considerably varied by Bichât. We have subsequently had occasion both to see them performed by a late eminent anatomist of this city, and to repeat them in person, and when the proper precautions were taken, we can assert, that they never failed to give the results as described by these distinguished authors.
The nervous texture, like all others, receives a proportion of what may be denominated the systems of distribution. We find in nerves, for example, cellular membrane and blood-vessels. In the substance of the former, the disposition of which we have already remarked, we find the more conspicuous branches of the latter distributed; in a more minute and divided state they penetrate the neurilema, and the substance of the nerve. Reil, who derived his conclusions from the result of delicate and successful injections, greatly exaggerated the quantity of blood which they convey; for it is quite certain, that in the healthy state, hardly any red blood enters the nervous texture, as may be easily shown by exposing the sciatic nerve of a dog or rabbit.

Such is the structure of the nervous chord taken in its course in general; but in particular situations this structure may be considerably modified. The modifications to which we allude occur under two forms,—ganglions and plexus. We can spare leisure to notice only the structure of the former. Every ganglion consists essentially of three parts; 1st, an exterior covering; 2d, a collection of minute nervous filaments; and 3d, a quantity of peculiar cellular texture, by which these filaments are connected, and which constitutes the great mass of the ganglion. The ganglions are of two kinds, the spinal or simple, and the non-spinal or compound. These two kinds of bodies differ from each other, 1st, in the situation which they respectively occupy; 2d, in the kind of envelope with which they are invested; 3d, in the mode in which the nervous filaments pass through them and from them. The spinal ganglions are said to possess two coverings, one of which resembles the dura mater, the other the pia mater; the non-spinal or compound ones have likewise two coverings which are merely different modifications of cellular membrane. Both these sets of ganglions being, by maceration, stripped of their tunics, and deprived of the soft pulpy cellular matter, are resolved into an innumerable series of nervous threads, most of which are minute and scarcely perceptible, all continuous with the nerves above and below the ganglion. It would appear that the nervous chord, when it enters the one apex of the ganglion, begins to be separated into its component threads, which diverge and allow the delicate cellular tissue to be interposed between them; that these filaments are subsequently collected at the opposite extremity of the ganglion, and thus connected with the other nerve or nerves. Scarpa, to whom we are indebted for most of the knowledge we have of this subject, compares the arrangement to a rope, the component cords of which are untwisted.
Mr Swan on the Treatment of July

and teased out at a certain part. Lastly, in the simply ganglia, the filaments of which they consist invariably follow the axis of the ganglion, but in the compound ones they are found to run towards the sides and emerge from them; and upon this variety in the direction and course of these filaments depends the variety of figure for which the two orders of ganglia are remarkable. We have endeavoured to state these points as briefly and perspicuously as our limits permit; but it is surely not difficult, after such an exposition, to discover the error of Bichat's notions on the structure and uses of these bodies. In the first place, This author's idea that the ganglia were so many nervous centres or minute brains, is not borne out by strict anatomical observation. Secondly, That they are connected with the order of involuntary actions, and influence these actions, is a gratuitous hypothesis, and may be true or false without being necessarily the case. Lastly, We would remark, as a circumstance of some importance, that the only difference between a ganglion and any other part of a nervous chord is, that in the former the minute nervous filaments appear to be uncovered with neurilema, and lodged in a mass of cellular membrane, which is then enclosed in the neurilematic capsule, while in the latter, each nervous filament has its appropriate neurilema, and the cellular texture, instead of being within, is on its exterior, and connects it to the others. Of the uses of the ganglia, we venture not to offer a conjecture, but must hasten to more assured and unequivocal matter.

Organized in the manner which we have now attempted to sketch, the nervous trunks are distributed in every direction through the animal body, but are observed to be finally lost in the substance only of certain organs, viz. those of sensation, of motion, voluntary and involuntary, and of glandular secretion. We are not unaware that these assertions will be considered a schism from the true anatomical faith which has been long taught by the lovers of nervous sympathies, influence, and excitation; but no fear of this kind will deter us from exposing the fictions of imagination, and adhering with unshaken fidelity to the truth of nature. Although it can never be doubted that anatomy is a science of pure observation, and must admit nothing which is not founded on this evidence, yet the nervous pathologists have, in defiance of this very obvious principle, long admitted the existence of nerves where they could not be seen or demonstrated by any contrivance whatever. The paradoxism by which they satisfied their conscience, though not judicious, was at least appropriate and amusing. First, It was said, with a singular disregard for logical accuracy, you cannot deny the exist-
ence of nerves in a tooth, a tendon, or a bone, merely because you do not see them; you must reason from analogy, and infer that, as they are found in all the textures, so these cannot be destitute of them. Secondly, It was urged, that the fact of textures, which in the healthy state are insensible, becoming exquisitely painful when diseased, proved most unequivocally, that these parts are supplied with nerves. It seems, however, to have entirely escaped these pathologists, that by the first argument they might admit all the textures of the animal body to be essentially the same, though palpably different; and that the second was one of the most perfect specimens of circular reasoning, with which the understanding of the medical world was ever abused; for it must be obvious, first, that it implies that the presence of pain denotes the existence of nervous filaments, and that no part is painful unless it be endowed with nerves,—a doctrine which has been long presumed but never demonstrated; and, secondly, that, as this cannot be established by any direct proof, recourse must be had to the same evidence of analogy, by means of which the pain which was supposed to depend on nervous filaments when they did exist, was transferred to parts where they certainly were not observed.

We must proceed, however, to notice in what textures nerves have been observed, or have been found wanting. According to Bichât, whose scrupulous accuracy and credibility in observation entitle him to be relied on, in a matter of this description, nerves have never been traced in the following textures; cartilages, both articular and of the cavities; fibrous textures, viz. periosteum, dura mater, capsular ligaments, aponeurotic sheaths, aponeuroses in general, tendons and ligaments; fibro-cartilaginous textures, viz. those of the external ear, nose, trachea, and palpebrae; the semilunar cartilages of the knee-joint, that of the temporo-maxillary articulation, those of the intervertebral spaces; the medulla of bones, the lymphatic glands. To this we may add the testimony of a professed anatomist of the nervous system, whose reputation for patient and industrious investigation, cannot fail to sanction every thing which he has advanced. "In every subject," says Walter of Berlin, "in which I was desirous to trace the nerves, I injected the arteries with red-coloured wax, the veins with green, and even the lymphatics with quicksilver, so that I was enabled to distinguish the nervous filaments from each of these orders of vessels. By this contrivance, although it occupied much time and labour, yet I was satisfactorily convinced that the pleura, the pericardium, the thoracic duct, and the peritoneum, receive no nerves; nay that, contrary to the opinion of the most recent eminent anato-
mists, no nerves terminate in the lymphatic or conglobate glands. Sometimes, indeed, these organs are perforated by one or two twigs, as I have often had occasion to observe, but they instantly proceed to the next place assigned to them, and in which they are finally lost."

To attempt to offer any opinion, or state any observations after the account thus given, by one of the most laborious and eminent anatomists of the last century, might be viewed by many as singular and unequalled presumption; but that we may not incur the charge, not unfrequently brought against reviewers, of making random and general assertions unsupported by proof, and of offering an opinion derived from inadequate or deficient, or careless observation, we may state, that, after an attentive examination of the dura mater, and the periosteum in many different subjects and in various ways, we have never been able to see any thing like a nervous filament proceeding from any nervous branch to these organs. We examined several years ago the synovial membrane with the same view, but always with the same disappointment; and we entirely coincide with Walter in adding to the above catalogue of aneurose textures, the peritoneum and pleura, in which we never could see that any thing like nerves could be found.

With these undeniable facts before us, it will not be difficult to appreciate the merit of those hypotheses which have employed the nerves so liberally in explaining the phenomena of life and morbid action. We must relinquish, in the mean time, all hopes of unfolding the mysteries of growth and nutrition, pain and inflammation, by the agency of the nervous power. A tendon, a fascia, and a serous membrane, grow and are nourished precisely as a muscle; they are liable to be inflamed and painful as much as any other texture, yet no nerve can be traced into their substance; and we cannot presume that these processes can be influenced by agents which do not exist where they are going on. It gives us great pleasure to perceive that Mr Swan has not attempted to explain these phenomena, although he has almost led us to believe that he has some faith in the doctrine of nervous sympathies where no nerves can be recognized.

"It perhaps will not be required that I say anything of those affections of nerves which are only sympathies with some distant part, of which many instances may be enumerated; as pain in the knee, when the disease is confined to the hip; pain of the shoulder, when the liver is affected; and, what I have occasionally known, pain in the neck, from disease of the lungs; pain in the penis, in cases of
stone in the bladder, and many other similar affections. All these affections are so common, that it would be useless to relate cases to prove them." pp. 39, 40.

Now, it is remarkable, that of all the examples to which Mr. S. has here alluded, only one can be justly and fairly referred to the agency of the nervous power. This is the pain of the shoulder in cases of hepatitis. The others must evidently be ascribed to some of those obscure, and perhaps impenetrable properties, the play of which we occasionally observe in the progress of different diseases, but which we do not explain or even state in other terms, when we attribute them to the influence of the nervous system. It is hard to say whether any better success has attended the various opinions which referred sympathetic morbid phenomena to the communications of parts by means of blood-vessels, by continuity of cellular texture, or of mucous membrane; for the difficulties with which their application is embarrassed, and the imperfect solution which, in many circumstances, they afford, have furnished their opponents with an easy refutation: It has been urged, for example, against the influence of the continuity of cellular texture, that the parts which are most copiously provided with it, such as the scrotum, the mediastinum, &c., are not those in which the sympathetic actions are most conspicuous. Further, when the itching sensation of the glans, which is found to attend calculus in the bladder, is attributed to the continuity of the genito-urinary mucous membrane, it may justly be asked, why is the sensation felt at that single spot, and at none of the intermediate points between it and the situation of the material cause of irritation? And in like manner, when the burning sensation of the soles of the feet, which attends the ulcerating process of the bladder, is attempted to be explained by such means as the consent between the inferior extremities and the urinary organs, it is obvious, that, instead of explaining, i.e. of referring the circumstance to any more general fact, we merely express it in other terms. To demonstrate the nullity of the influence of continuity of membranous surfaces, Bichat divided, by a transverse incision, the oesophagus of a dog, and showed that, when the uvula was irritated, the motion of retching was still obvious in the stomach of the animal. This ingenious physiologist, who perceived and demonstrated the inefficiency of each of these modes of explaining the obscurities of such actions, was not, however, entirely discouraged, but, with a bold and decided air, claimed for his own system of animal and organic sensibilities the exclusive privilege of unfolding a mystery, which had long perplexed the most acute and reflecting pathologists. He looked on all sympathetic pains
as mere aberrations of the internal sensitive principle, which refers to one part, a sensation, the cause of which exists in another,—an irregularity or disturbance in the perception,—a species of hallucination, in short, which existed in the brain, but depended on a remote morbid condition. In this manner he explained the feelings which persons often experience, and refer to a limb which has been long removed from the body, and all those painful sensations which are felt in sound parts, but which indicate a disease in a different and not unfrequently distant situation of the system. It is utterly impossible for the most ardent admirer of Bichat's talents and ingenuity to defend this very obvious and superficial supposition. It assumes the existence of some internal percipient power, which is supposed to be liable to various errors and mistakes concerning the actual and true situation of various morbid actions. It is certainly not impossible that such a power may exist, but we have at present no direct evidence of it. Of the other sympathetic actions, which he conceived to depend on the organic sensibility and the insensible contractility, Bichat had the good sense not to offer any explanation. Of this description are the cutaneous exhalations in phthisis and hectic in general, some serous infiltrations which take place almost instantaneously, wonderful augmentations in glandular secretion, &c. Of all these, he concludes, the causes are absolutely unknown, and a thick veil covers the agents of communication, which connect, in this instance, the organ which transmits, and that which receives the sympathetic influence.

The sketch, for we call it not a picture, which we have thus rapidly given, is by no means encouraging; it holds out no flattering prospect to those who may yet cling to the doctrines of nervous power and sympathies, as to a cherished and favoured object of regard; or who may, at any future period, attempt the explanation of simultaneous phenomena by means so inadequate to the end. But we may also add, that the result of such explanations should be useful to all future observers and inquirers, and instruct them to distinguish the proper objects of physiological and pathological investigation, and to proceed in the true way of pursuing them. Let them distinguish the parts which are obviously supplied with nervous filaments from those which are not. Let them remark the proportion in which these parts receive nervous chords; and, when this is accomplished, let them observe, study, and arrange, the various properties which respectively belong to these organs; let them separate those which depend on the peculiar texture from those which depend on the nervous ramifications, and remark the properties or phenomena which occur in parts destitute of nerves, as
well as those which are peculiar to parts evidently possessed of these organs. When this has been done there may be some ground for establishing, in a very cautious manner, some general principles regarding the influence of the nervous system; but without such preliminary labours, we contend, that the greater part of what has been hitherto promulgated, has been, and must be, necessarily premature, if not unfounded. It may be thought that we have been too sudden and too confident in removing, in this unqualified manner, so many textures and vital phenomena from the influence of this convenient agent; but we are satisfied that the present state of our information will warrant no more, and it is much better to unlearn the errors of nonage, and stop short with what is precisely ascertained, than to possess a confused and ill-digested mass of uncertainties and fictions constantly floating in the sphere of our intellectual vision.

The knowledge of the organization of the nervous texture cannot fail to facilitate the consideration of those morbid affections to which it is liable, and we trust, that this purpose will be, in some degree, accomplished by the preceding observations. We are, at least, certain that it contributes greatly to the formation of a proper arrangement of these diseases; and, when we examine the plan of our author, which we cannot help viewing as the most exceptionable part of his work, we are induced to think he would have simplified the subject very considerably by deriving his division from this source. As this circumstance renders all analysis extremely difficult, and, in some degree, impossible, we shall, in our further observations, employ an arrangement, which, though not better in itself, may yet be preferable for the purpose of communicating information.

The nervous texture must be liable to the influence of the same morbid agents which induce disease in other parts; it may be the seat of affections which attack all nerves in general and indiscretely, or it may be the seat of morbid phenomena, to which some nerves only are liable. Every nerve may become inflamed, and this state may be produced by a great variety of causes. Contusion, compression, a ligature, puncture, rupture, entire division, may give rise to this process, or it may take place spontaneously, i.e. without any obvious cause. The inflammatory action may affect the neurilema, or the nervous substance, or both at once. In the first case, it seems almost certain that it gives rise to that assemblage of painful sensations, to which the name of neuralgia has been given. We cannot, indeed, prove this with absolute certainty, but there is at least a high degree of probability in its favour. First, it may often be traced to such causes as we know excite the inflammatory pro-
cess,—cold, an injury, violence, or irritation of any kind; secondly, it is invariably attended with that sensation of heat which seems to denote the inflammatory condition; for the pain cannot be viewed as pathognomonic; and, lastly, though it generally occurs in paroxysms, yet this is common to several textures which, when inflamed, are painful only at a certain time of the twenty-four hours. We have never been partial to the fashion of reasoning on the nature of a disease from the effect of remedies on it, but we think that even here there is nothing inconsistent with the supposition which we have advanced. The local, and sometimes the general, detraction of blood proves beneficial; evacuants, counter-irritation, and the antiphlogistic treatment in general have relieved and sometimes cured. Even the irrational operation of dividing the nerve, which, we trust, is now exploded, seems to have effected the only good which it conferred in this manner. We have no wish, however, to say, that every case of tic douloureux is really an inflammation of the neurilema. Our author, with a very laudable regard to unbiased scepticism, considers them as different affections, and does not proceed to any further generalization, than simply to denominate the tic douloureux and neuralgia painful affections of the nerves of the parts diseased. He, however, admits an inflammatory action about the part, which he thinks is kept up by the primary disease of the nerve.

"It appears to me that the irritation of the nerve is the cause of the increased action of the blood-vessels; nevertheless, this increased action may tend to increase or keep up the irritation of the nerve."

"It has frequently happened, after an operation in which a nerve has been principally concerned, that, either during the healing of the wound, or after it has become completely cicatrized, if an increased action of the blood-vessels is produced, as is shewn by inflammation about the part, the painful sensations resembling tic douloureux are produced. By this I would not say that in this complaint there is an inflammation of the nerve, because I think other facts go to prove that there is not, but it shews that the increased heat and action have a decided effect in keeping up the complaint. The nerves may become enlarged from irritation, as in a case I shall relate, in the same way the muscles are from continued action; but when there has been inflammation of a nerve, though only of the chronic kind, and to which sort that of tic douloureux must bear the greatest resemblance, if it were inflammation, there would be the same change of structure that takes place in all continued inflammations of other parts of the body, viz. an enlargement from the deposit of coagulable lymph. This is shewn when there has been a chronic inflammation of the extremities of the nerves in the stump, or when the nerves have been confined to a part that has been long subject to inflammation; and if
this had been the case in tic douloureux, I think it would not have passed unnoticed.” pp. 43, 44.

Mr S. is much more explicit on the identity of sciatica, the *ischias nervosa of Cotunnius*, and inflammation of the neurilema; and we can assert, that it is a long time since we have had occasion to be confirmed in the correctness of this opinion by the history of several cases which we had occasion to observe and to treat.

“In many instances of the complaint called sciatica, I believe the sciatic nerve to be the seat of the disease; the pain is generally so exactly confined to the situation of that nerve, and the adjacent parts are so free from any appearance of disease, that I believe the nerve to be the only part that suffers; and the complaint, as I conceive, is arising from an inflammatory action in the neurilema, which frequently ends in an effusion of a serous fluid.” p. 67.

Yet it is curious to remark, that Cullen would have been ranked by Cotunnius in this class of observers. (First Lines, 455.)

The treatment of this disease is ably and clearly laid down by Mr S., and we are very little disposed to differ from any part of it except that of the division of the nerve. This operation we have always looked on as but a wanton and unnecessary measure, and in few cases justifying, by its result, even the moderate alarm and pain to which the patient is exposed; and, from what we have seen and known of it, we are not yet disposed to alter our opinion. We deem it greatly more scientific to combat the symptoms by antiphlogistic and evacuant remedies, which, when steadily persevered in, and continued sufficiently long, rarely fail to effect a cure. The tonic remedies, even, which have been employed, produce their effect nearly in the same way, viz. by equalizing the circulation and obviating local determinations. If, however, it shall be subsequently shown, that the division or excision of the affected portion of
nerve, is a certain and efficacious cure, our minds are still open
to conviction, and we shall not delay to acknowledge the supe-
riority of the remedy.

Inflammation may terminate in various ways; it may produce
effusion of lymph; ulceration; or it may induce a low chronic
action accompanied with the enlargement of the nerve, or the
growth of foreign bodies. The first of these effects is always
found to follow wounds of nerves, and is not unfrequently suc-
ceeded by local paralysis. It is uncertain whether the neurile-
ma or the nervous substance supplies the lymphatic exudation,
but it is always accompanied with considerable uniform thick-
ening of the part. Ulceration of nervous texture, though a rare
disease, has occurred to our author, in a well marked form, in
the fibular nerve of a man somewhat advanced in life, in whom
a malignant fungating and painful ulcer had succeeded to an
injury received from the kick of a horse. Both the fibular and
the anterior tibial nerve were very much enlarged, which was
evidently owing to the chronic inflammation, which was con-
tinually carried on by the irritation of the ulcer. pp. 73, 74.

A tumour, or new growth, may occur in a nervous trunk, or
it may arise from the contiguous textures, and ultimately incor-
porate itself with the nerve. In either case nearly the same
symptoms are remarked; acute and excruciating pain in the
course of the chord, accompanied with occasional spasmodic
twitches of the neighbouring muscles with which the nerve is
connected, and subsequently loss of power and entire paralysis
of these parts. The cases which Mr. S. mentions seem to have
been principally of the latter kind, which originated in the cellu-
lar texture so near the nerve, that it was quickly blended with
the nervous substance. It seems exceedingly doubtful, whether
the nervous matter has itself a tendency to the formation of
these growths, or the malignant degeneration, unless we admit
the fungus haematodes to be of this description; but although
we could establish the fact that the fungus haematodes does
occur in the nervous texture, yet we have no proof that it is the
peculiar and exclusive degeneration of it, since we find at least
varieties of this disease occurring in cellular membrane, serous
membrane, muscle, periosteum, &c. For all these growths the
remedy is uniform, excision where the part is accessible, and
where the affection is not so general as to seem the result of
constitutional tendency. We have had occasion to see some of
these malignant productions so extensively diffused through the
system, that it would have been requisite to dissect out at least
one-third of the nervous chords of the body, in order to extir-
pate the actual disease. In such deplorable and hopeless cases,
it is needless to say that the dexterity of the anatomist is unavailing employed.

The interesting and important subject of punctured nerves, an accident which occurs daily in a very common operation, and in other less necessary circumstances, has justly claimed a large portion of our author's attention. The symptoms are abundantly well known, but the treatment seems often very little under the control of the surgeon. In one violent and severe case, after the application of a tourniquet had been unsuccessful in suspending the convulsive motions, Mr S. was fortunate enough to find that a transverse division of the affected chord completely destroyed the morbid actions. It is well known that tetanic symptoms are by no means rare after injuries of this description, and form one of the most alarming sequelae with which the practitioner has to contend. Our limits, however, will not permit us to extend our remarks on this part of the subject, further than to notice, that the author goes on to consider the effects of ligature and compression of nerves. His cases, though neither very wonderful nor uncommon, are yet very apposite, and illustrate the nature of such injuries very satisfactorily.

The experimental inquiry concerning the reproduction of the nervous texture, with which the work is concluded, is very interesting; but the subject is much too important to be considered in this place; and as we cannot do it justice at present, we shall take an early opportunity of calling the attention of our readers to it, in its own character.

The diseases of particular nerves appear to us to follow naturally those of a general nature; but Mr Swan has commenced his work with an account of the morbid affections incident to the nerves of sensation, which we think, as they are naturally more complicated, and perhaps more obscure and difficult to comprehend, might have been examined toward the conclusion of the treatise. If his remarks on this subject have anything objectionable, it is that they are much too brief and cursory, as it might be expected, that the author could not fail, if he had been a little more minute and detailed, to add materially to the stock of practical information. The observations on nervous deafness have been already before the public in the form of a paper in the Transactions of the Medico-Chirurgical Society. We are not disposed to deprive Mr Swan of the merit of noticing an anatomical fact, which, though by no means new to us, may be so to many; but we cannot avoid thinking, that as all discovery bears a relation to the actual knowledge of the discoverer, it would be well for those who claim this distinction, to be intimately acquainted with the his-
tory of the science, and to be aware of the facts which have been established by the industry of their predecessors. The truth is, that the communication between the auditory and facial nerves, which Mr Swan has announced as a discovery, was known long ago to Wrisberg, and is particularly noticed by the indefatigable Scarpa in the following terms: "Inter auditorium nervum, et communicantem faciei, peculiaria et distincta quaedam filamina\textsuperscript{a} a Cl. WRISBERGIO detecta occurrunt, quorum filaments rum radices tenuissimae partim a Pontis substantia in ea fove\textae, quae media est inter auditorium nervum et communicatem faciei, partim ab ea sede, quae est prope originem nervi glossopharyngei, emergunt. Duo, aliquando tria, hujus census filamenta nervum acusticum intra canalem auditorium internum comitantur; max canalis hujus fundo proxima, ab acustico nervo abscedunt, ut communicantem faciei adeant, cujus fasciculis admixta una simul per Aquaeductum Falloppii ad faciem egrediuntur."—Anatom. Disquisit. Sect. II. Cap. III. § 2.

If this passage be correctly understood, it surely gives a very clear account of the arrangement which Mr Swan has described, and which may be easily seen by making a horizontal section of the petrous portion through the superior part of the internal meatus. We speak not in this manner for the purpose of undervaluing Mr Swan's communication, but because it would be unjust to wrong anatomists so meritorious as Wrisberg and Scarpa. The remarks which Mr Swan has made on this communication between the facial and auditory nerves, though neither very new nor very original, are, however, exceedingly good; but we can see no reason for agreeing with him in the use which he has assigned to it. We do not pretend to divine the cause or the object of this communication or junction: it may be accidental, or it may be essential and necessary; but we are satisfied, from numerous trials, that the facial nerves have nothing to do with the transmission of sonorous vibrations from the face to the internal ear, when the mechanism of the tympanum is destroyed. These vibrations are most assuredly, in such circumstances, transmitted by the solid parts of the head, to the petrous portion of the temporal bone, and this we conceive to be abundantly established by the usual experiments.

Here we ought to conclude. We have exhausted, not the subject, but the patience of our readers, and perhaps we cannot expect to be listened to if we prolong our remarks. But it is impossible for us to quit a work, which is both interesting and instructive, without stating our opinion of the manner in which it has been written. We have already bestowed considerable praise on the matter and the information, and we may add,
that the style is in general plain and perspicuous, but we are surprised to find marks of singular carelessness and inaccuracy of expression. It may be, indeed, said, that verbal criticism is but an humble task, and all errors of that description must be lost in the general excellence of the performance; but it is nevertheless our opinion that a work like the present would be more generally esteemed, when written with correctness, if not with elegance. There is at present such a diffusion of general literature and good taste, particularly as to expression and phraseology, that it is very unusual indeed to see any inelegant or even ungrammatical diction. We have noticed as we perused Mr. Swan's work a very few of these, and we trust they are not numerous. They were not sought for, since our purpose was not to be delighted or pleased with the discovery of such inadvertencies, but to be instructed and benefited by the important nature of the information. It is impossible for the author to be displeased with the liberty which we take of suggesting to him the propriety of correcting, in a future edition, inaccuracies which blemish the one before us. We take leave of Mr. Swan with recommending his work to the careful perusal of our readers.

II.

A Practical Treatise on Tropical Dysentery, more particularly as it occurs in the East Indies; illustrated by Cases and Appearances on Dissection; to which is added, A Practical Treatise on Scrofulous Dysentery, with some Facts and Observations relative to Scurvy. By R. W. Bampfield, Esq. Surgeon. Pp. 352. 8vo, London, 1819.

This is another of those practical works, of which we have recently had occasion to notice so many, from the pens of our naval and military brethren. Works of this nature, detailing the results of medical observation in remote and unhealthy quarters of the world, we have always shown a disposition to receive with peculiar respect, feeling that it would be highly unbecoming in us to animadverted with severity upon the labours of those gentlemen who, in spite of the enervating influence of a tropical climate,—amidst the bustle of a camp,—or the embarrassment of a sickly ship,—find leisure and inclination to detail observa-