exhibited a perfectly closed sagittal suture, and which was not far removed from this variety of skull-form. Of these thirty-one skulls, six showed a parietal tuber nearer the squamal than the sagittal margin; and two had this remnant of the ossific centre palpably nearer to the lambdoidal than to the coronal edge.

From these observations, we may conclude that there is no typical or fixed point in Nature to which the development of the ossific centre is confined; and secondly, that the nearer to the mesial line the original centre may be, the more rapidly will the bones on each side approach to the sagittal suture; and, if the two centres had been originally placed within an unusually short distance of each other, the result would naturally be the early contact of the inner margins, which would predispose to synostosis on this line. Growth being checked along this line, an increased stimulus is given to ossification in all other directions, so the posterior extension of the parietal progresses to compensate for the checked growth transversely. Meeting with the ascending squama occipitis, however, causes another alteration of action; and the result of the bone-growth along the edges of these opposing elements is the prominent occipital angle projecting backwards. Forwards, the area of ossification proceeds undisturbed until it meets the frontal; and, as the inward and backward checks have caused an increased vital rapidity of bone growth in this mesial bone, the biparietal extends so rapidly that its confluent angles stretch into the anterior fontanelle. Admitting this theory, that the scaphocephalic form of skull arises from the presence of two ossific centres placed unusually near to the mesial line, so close that synostosis takes place at an early period, causing a coalescence similar to that in the twin centres of the squama occipitis, we have an easy explanation of all the points doubtful or discrepant in the various descriptions; we can understand how traces of tubera may exist even in true scaphocephali; and also how, in the example of Daniel B., published by Minchin, the radii seem to spring from a common centre; that centre is evidently broader transversely than antero-posteriorly, and is formed of two lateral points centrally coalescing. It also helps us to understand the existence of the carina inexplicable otherwise on the single centre theory.

ON AFFECTIONS OF VASO-MOTOR NERVES.

By JOHN W. OGLE, M.D.,
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AT page 264 of this JOURNAL for Aug. 22nd last, I notice an abstract of Dr. J. Russell Reynolds' paper, at the recent Oxford meeting of the British Medical Association, on Certain Affections of the Vaso-motor System of Nerves. Dr. Reynolds related an instance in which the right radial pulse could be arrested by pressure on the lower cervical vertebrae, at the same time pain in the back and an uneasy feeling in the right arm being occasioned; and with these phenomena he compared certain cases of paroxysmal sensations in the limbs, with which were associated irregularity, intermission, or weakness of the pulse of the affected side. "Dr. Reynolds was of opinion that such symptoms resembled epileptic seizures."

Not having had the advantage of being present when the paper was read, I had no opportunity of quoting the following case; which may well be adduced, I think, in illustration of the subject of the paper in question, and is in itself so remarkable and interesting that it ought to be kept in mind by all persons studying affections of the nervous system.

The case is related by Dr. Pereira, in his work upon the *Materia Medica*; and was under the care of Dr. Holst, Professor in the University of Christiania. It was that of an epileptic, in which it was observed that the pulse in one arm was always imperceptible during the epileptic paroxysm. "On a *post mortem* examination, it was discovered that an anomalous distribution of the arteries existed, so that this arm was supplied with blood by the vertebral arteries, which derived it (the blood), through the basilar artery, from the carotids. *The cessation of the pulse during the paroxysm proved that the circulation through these vessels was temporarily interrupted.*"

Your readers will be aware that observation and experiment led Dr. Brown-Séquard to conclude that certain of the phenomena of epilepsy depend upon reflex contraction in the blood-vessels, and especially the small arteries of the brain, owing to irritation of the origin of the sympathetic nerve animating them, arising from certain direct or indirect nutritional changes in the cerebro-spinal axis. My friend, Dr. E. Fox, has also (in vol. ii of the *St. George's Hospital Reports*) strongly advocated arterial spasm as the proximate cause of most of the phenomena of epilepsy.

Is not the exceptional case which I have above cited—observed, as it was, many years before Dr. Brown-Séquard's suggestion—in harmony

with this view, and, indeed, to a certain extent, corroborative of it, as also of the suggestion made by Dr. Reynolds?

In conclusion, I would draw attention to a case recorded by myself in the twelfth volume of the Pathological Society's *Transactions*, pp. 2-4. The case was one of apoplexy, in connection with slight softening of, and extravasation of blood within, the pons Varolii, and clots in the right corpus striatum and right cerebral hemisphere. Among other symptoms, peculiar tetanic spasms of all the limbs existed, intensified during venesection; and also *violent pulsations of the right carotid artery and right temporal arteries, the action of the left carotid artery being scarcely felt.* Moreover, the condition of the pupils was remarkable at one time, the right one being dilated and oval, and later on the left one being the most dilated and also oval. The eyeballs were remarkable, as being very prominent; the prominence increasing before death so as to separate the eyelids. I suggested the question at the time, how far the difference in the pulsation of the vessels in the neck was owing to modifications of vaso-motor influence; and the same night, I think, be asked of the alterations in the pupil and of the prominence of the eyeballs.

ON ERGOT OF RYE IN THE TREATMENT OF NEURALGIA.*

By EDWARD WOAKES, M.D. Lond., F.L.S., Luton.

IN the October number of the *Journal of Cutaneous Medicine* for 1867, I published a paper on the Correlation of Neuralgia to Skin-Rash, believing that the consideration of some of the typical forms of this association of symptoms, in which the phenomena are to a certain extent exposed to accurate observation, would tend to throw light on the more obscure, though perhaps more frequently occurring, forms of neuralgia. One inference arrived at was, that the rash, when present in neurotic disease, can be accounted for only by a reference to the structural anatomy of the parts involved in the lesion; while the uncertain fact of its occurrence was inferred to depend upon the nature and intensity of the exciting cause of the attack. In other words, the rash was looked upon as complementary of the pain, but having this important distinction, that, being a tangible symptom, whose causation could be traced, it suggested a clue whereby to unravel its more obscure and more formidable congener, the pain.

In order to make these remarks intelligible, I will, with your permission, briefly recapitulate so much of the theory as is necessary to show the connexion between it and the treatment now proposed, which results as a direct corollary from it.

A comparison of the neuralgic and eruptive phenomena which occur when a nerve is wounded, with the corresponding symptoms exhibited in purely idiopathic cases of nerve-lesion, showed so close an approximation as to permit of their being regarded, for all practical purposes, as identical. The theory developed from this parallelism of symptoms was this:—The results being similar in both the traumatic and idiopathic classes, the causation in each group of cases, though differing in respect of intensity, operates through the same anatomical channels, and induces the same physiological phenomena in both.

In the traumatic instances, the symptoms were shown to be manifestly due to the paralyzing influence of the injury or shock upon the fibres of the sympathetic system of nerves accompanying the arteries in their distribution to the skin and to the sentient nerves; and the resulting symptoms were found to be in accordance with the physiological sequence of such palsy.

In the other instance, that of idiopathic neuralgia associated with skin-rash, of which shingles may be taken as the type, the same theory of shock inducing palsy of the sympathetic fibres supplying the affected tissues was cited to explain the attendant phenomena. The sympathetic nerve-fibres accompanying, say, an intercostal artery, are lost in the direction of the skin, on the minute divisions of the artery supplying its ultimate structure. When these nerve-fibres are paralysed from any cause, their function of regulating the calibre of the vessels will be withdrawn. Passive congestion of these vessels, and consequent effusion of liquor sanguinis, are the physiological consequences of this nerve-palsy. Tracing such an effusion in a cuticular papilla, there will be found, in the first place, a corresponding elevation of the cuticle covering it, which gradually gains the character of a true vesicle as the effusion increases, until in this manner a spot of herpes is produced. Following out the track of this anatomical clue, we are led to an explanation of the pain—the neuralgia—so often associated with shingles. The same artery which supplies the affected spot of skin, sends also nutrient

* Read in the Medical Section at the Annual Meeting of the British Medical Association in Oxford, August 1868.

vessels to the neighbouring sentient nerves, which vasi nervorum are furnished with regulating sympathetic fibres continuous with those proceeding to the cutaneous arterial twigs. These vasi nervorum will, therefore, acknowledge the same impressions, and manifest the same behaviour under them, as do the minute vessels of the skin when under the influence of shock, as just now described. Consequently, there will ensue, synchronously with the corresponding skin-phenomena, a state of dilatation of these vessels, and exudation from them of watery elements between the fibrillæ of the nerve; and, being confined in this locality by the fibrous sheath of the nerve, a mechanical stretching and compression of its constituent sensory fibres ensue, resulting, as might be expected, in the acute pain so characteristic of neuralgia.

It will be impossible here to repeat the entire argument on which these conclusions are based, and I must content myself by referring any one interested in the matter to the paper from which I have quoted. That shock of the kind alluded to is the proximate cause of shingles, is borne out by many examples, but by none more strikingly than one which recently came to my knowledge. A single young woman, aged about 20, wore through one day, and at the cost of much suffering, a pair of stays considerably too small for her. In the course of three or four days, an attack of shingles supervened. Of course, it is not implied that the shock does in all cases assume the palpable form just mentioned; draughts of cold air, and other more subtle influences, being frequently the starting-point in the disease. The application of this theory is, *mutatis mutandis*, coextensive with the wide range of neuralgic affections; and its soundness may be tested by its capability, in the first place, of suggesting an explanation of successful though purely empirical modes of treatment, and, in the second place, of originating new and more precise methods of cure.

In treating the pain remaining after a simple case of shingles, therefore—and the remark applies to all uncomplicated forms of neuralgia—the chief indication is to restore the tone of the vessels, withdrawn through the paralyzing influence of the shock on the nerves controlling them. In other words, we have to induce in the sympathetic fibres concerned a return to their normal function of regulating the circulation through the small arteries and capillaries. This equilibrium being once restored, we may confidently expect the disappearance of the effused fluid from its disturbing situation amongst the fibrillæ of the sentient nerves.

The drugs hitherto found useful in the simple forms of neuralgia, the pathology of which I have so inadequately attempted to indicate, may, I believe, have their *modus operandi* traced to their influence upon the sympathetic nerves, through the medium of which they restore the suspended tone of the remote arterial circulation. To the list of these, foremost amongst which is belladonna, I would now suggest that there should be added the *ergot of rye*—basing the recommendation upon the experience of the following cases.

My attention was first drawn to this drug, as of probable use in nervo-therapeutics, from observing its power of controlling the hæmorrhage in a case of hæmoptysis—showing that the range of its operation on the vascular system is by no means limited to that part of it represented by the uterine vessels. It seemed equally clear that its effect in this respect was mediated by the ganglionic nerves; and, therefore, that it was exactly adapted for exerting a remedial effect over the pathological condition of neuralgia depicted in my theory. Examples might have been added where great benefit accrued from a combination of the ergot with other remedies adapted to the case; but those only are reported where the drug was administered *per se*.

CASE I. *Shingles*.—M. M., a single female, aged 22, of sallow complexion. The catamenia had been absent six months. She had had headache six weeks; and sharp pain in the right side of the chest one week, after which an herpetic rash appeared beneath the right breast, extending backwards on this side to the spine. At this time (February 10th, 1868), there was also a sharp neuralgic pain (besides that below the breast) in the second right intercostal space. The bowels were confined. I ordered her an ounce of *mistura alba* three times a day. On February 12th, she was no better. The rash was extending on the same side. The pain was very severe under the right breast. Her person exhaled a peculiar pungent odour. On February 15th, she was about the same condition, and was ordered to take fifteen minims of liquid extract of ergot in an ounce of water every four hours. On February 17th, she stated that the pain was very much better since taking the medicine. She passed a great deal of urine. On February 19th, the pain in the side was worse. The ergot was increased to forty minims. On February 21st, she had been almost free from pain since the last date. She said her sight was very dim. The pupils were dilated. She was ordered to discontinue the ergot, and take twenty minims of solution of sesquichloride of iron in water three times a day. On February 24th, the catamenia returned. The odour was gone. She felt quite

well, and had no pain. On February 29th, she experienced a slight relapse of pain, with great weakness. She was ordered to discontinue the steel, and to return to the ergot, a very few twenty-minim doses of which completely cured her.

REMARKS.—This instructive case points throughout to some lesion of the nervous system as the root of the malady. The pungent sweats are specially interesting, as they occur in some cases of wounded nerves, as pointed out in the report of cases of this kind from America. I believe the steel was prejudicial; and infer that, in many cases of simple suspended menstruation (chlorosis) in young females, ergot of rye is a preferable remedy.

CASE II. *Sciatica*.—E. L., aged 21, had pain in the left hip, shooting down the back of the leg in the course of the sciatic nerve, worse at night, with thick high-coloured urine, during four months. The catamenia were regular. This, being regarded as a case of rheumatic sciatica, was treated for a week with alkalies and iodide of potassium; but, as the pain became worse, she was given, on March 3rd, 1868, ten minims of extract of ergot in an ounce of water every four hours. On the 4th, she stated that she slept much better; and the pain was much relieved since the previous day. On the 7th, she had had no return of pain since the 4th. She said she had not been so well for four months. Her remaining debility was met by a combination of ten minims of liquor ferri sesquichloridi and six minims of liquid extract of ergot, in water.

REMARKS.—It will be observed that this patient was cured completely in four days of an illness which had caused her increasing annoyance during four months. The case illustrates also a point supported by subsequent experience; viz., that, when ergot is likely to be useful, its good effects commence immediately.

CASE III. *Tic Douloureux*.—Emma B., aged 21, was attacked on April 27th, 1868, with very severe tic of the left side of the face, affecting especially the inferior dental nerve, and extending downwards to the shoulder. She had some dyspepsia, but otherwise was healthy. She was ordered to take an ounce of the following every four hours.

℞ Potassæ bicarbon. ʒiiss; infusi ergotæ ʒvi; extract. ergot. liquid. ʒi. M.

On April 29th, the tic was almost gone. She complained now only of weakness. At her next visit, recovery was complete.

CASE IV. *Hemicrania*.—John Gray, aged about 35, has been repeatedly under treatment for that form of neuralgia known as brow-ague. His attacks have been cured alike by quinine and sesquioxide of iron. Sometimes they are very severe, and the treatment long continued. He was last seen in May 1868, when he had a very sharp attack of neuralgia of the right temple. He was ordered to take, every four hours, an ounce of a mixture of two drachms of liquid extract of ergot in six ounces of infusion of ergot. After taking this for two or three days, he was cured more satisfactorily and quickly than in his former attacks.

CASE V. *Tic Douloureux*.—Miss E., aged 22, was seen on June 2nd, 1868. She had had tick in the left temple for two weeks, very severe at times. The tongue was foul, the secretions normal, and the general health good. A stomachic with soda and rhubarb was prescribed. On June 4th, the tongue was clearer; but the neuralgia was unrelieved. She was ordered to take, every four hours, an ounce of a mixture containing two drachms and a half of liquid extract of ergot in eight ounces of infusion of ergot. The neuralgia was relieved immediately after commencing this treatment, and entirely left her after using it two or three days.

In one case of chronic, and one of acute sciatica, the ergot failed to relieve; but it is hoped that the very favourable result which the examples now reported indicate to have accrued from its use may gain for the drug a more extended trial in neurotic affections; and that, shortly, sufficient data may be collected to enable one to decide with some degree of precision the class of cases in which to expect from it the marked benefit it is evidently capable of effecting in many forms of the disease.

THE FALL OF LEAVES.—M. Trécul and others have been engaged in investigating the cause of the fall of leaves, and their researches would seem to point to the conclusion, that in many plants a phenomenon occurs just before the fall of the leaf, which is not unlike the process which accompanies the shedding of horns in animals. It consists in the obstruction of the proper vessels at the base of the petiole or leaf-stalk. This obstruction is caused by the multiplication of cells, which first occurs in the parietes of the vessels. The cells increase and multiply, till at last the vessels are completely choked up in the neighbourhood of the insertion of the leaf, and thus a differentiated plane is formed, across which the leaf-stalk breaks, and the leaf accordingly falls.—*Boston Journal of Chemistry*.