

then appeared that the uterus was invaded by the new growth to a greater extent than we believed before the operation. There was no enlargement of the obturator glands at the time of the operation, but I learn from Mr. Prowse that recurrence has unfortunately taken place in the vagina. He writes as follows:—"March 7th, 1886: I first noticed some four weeks ago that the walls of the vagina were becoming somewhat harder than usual, and a fortnight ago some suspicious granulations made their appearance in the line of the cicatrix; these have now developed into well-marked ulcerations, and the vaginal walls have increased in hardness and have become quite nodular to the touch. I have not the slightest doubt as to the recurrence of the disease."

(To be concluded.)

## NOTES ON DIPHTHERIA.

By N. E. DAVIES, L.R.C.P.L., M.R.C.S.

ANY researches, however humble, likely to throw light on the pathology and successful treatment of diphtheria must of necessity be acceptable at any time, for a disease the germ of which originates in filth, overcrowding, and bad sanitary arrangements is surely one subject to considerable amelioration and, under the improving conditions of civilised life, eventual extinction. What a holocaust of mothers' darlings this scourge of childish life claims as its tribute every year, and how pitiful it is to read in the obituaries of the daily papers constantly recurring cases where two, three, and four children are swept away by the terrible malady—a malady which, if the researches of Bretonneau, Loeffler, and other celebrated pathologists prove anything, is at first a local affection, and therefore one that ought, almost as a natural consequence, to be within the reach of medical treatment. It is a noteworthy fact that the part first attacked by this disease is that which is most accessible to the diphtherial bacteria—namely, the pharynx; and it is not surprising that the virgin soil of childhood, if I may use the expression, offers, as indeed it does to most zymotic diseases, the most favourable ground for the growth and development of the subtle poison of diphtheria—a poison that respects no condition of life and sweeps off with remorseless impartiality the offspring of the peer and the peasant.

During the twenty years it has been my province to treat this disease, I have found almost without exception that the outbreak at first has been due to the contamination of water or milk with sewage saturated with human excrement, or with the overflow of earth privies in low, damp localities, and an interesting illustration of this came under my notice two years ago, when it was my duty as medical officer of health to investigate the cause of an epidemic in a little village near Sherborne, where an entire family of five children were destroyed by it, and where numerous other cases occurred, some of which ended fatally. In this case a spring of pure water was conveyed down a hill in a leaden pipe; this opened into a stone trough, and from this trough it again passed underground through some earthenware pipes (which were not cemented properly together) into a second trough, and thence it ran as an open stream through a thickly populated village lying in a valley about a quarter of a mile long. Now, between the two troughs I have mentioned was an open privy, the liquid contents of which had percolated through the earth, and thence through the joints in the earthenware pipes into the second trough, afterwards, of course, contaminating the whole stream in its downward course through the village. Now mark this circumstance: a few houses near the first trough used their water from that, and these escaped the epidemic; whereas those who used their water from the second trough and from the stream suffered more or less, and the family in which, as I have mentioned, the five fatal cases occurred, went for their supply exclusively to the second trough, and therefore got the poison in its most concentrated form.

Now what does the history of this epidemic teach? That, at all events in its first incursion, the cause was strictly local, and that the bacterial poison had its origin between the two troughs, and in the most fatal period of the epidemic, infected its victims by the mouth and alimentary

canal through drinking the water. I opine that, such being the case, it is only natural to suppose that in the spongy substance of the tonsillar glands the micrococcus finds a congenial home,<sup>1</sup> and from thence by fibrinous infiltration and inflammation invades the blood and the whole system, and this in some cases so rapidly as to destroy life in a few hours. I call attention to this fact simply to show that an epidemic, at all events at first, spreads by direct contact with the poison—i.e., by imbibition. Afterwards, as a matter of course, it may spread by other means, and its virulence be intensified by conditions of climate and atmosphere.

There are many secrets in nature yet to be unravelled, and one of them is—Why should epidemic diseases in certain seasons be more virulent, more general, and more widespread than in others? Their fungoid origin has its prototype in the vegetable world; in some seasons and localities the mildew, the oidium albicans, or, better still, the common mushroom, thrives luxuriously, then perhaps for years (at least in this neighbourhood) it becomes almost forgotten, not because the season is not propitious, but because some peculiar or climacteric influence is wanting; so, I take it, with diphtheria, that though sporadic cases may start a localised epidemic, yet such a one as that which visited England in 1858 and 1859 requires an occult stimulus, the secret of which is at present buried in profound darkness. Hence for the present it is wise and right, I believe, to agree with Loeffler, Empis, Kellog, Avery, Bretonneau, and many other celebrated pathologists, that the disease is at first a local disease, and that the constitutional symptoms depend upon general infection from this local lesion, and their mildness or virulence upon locality, atmospheric conditions, age, heredity, and the surroundings, healthy or unhealthy, of the victim, and perhaps I may add, the amount of the poison that has been imbibed; and acting on this belief, how important it is, when an outbreak occurs, to endeavour in every way to localise it and prevent its spreading by means of contaminated water, milk, and clothing, or by intercommunication with infected areas, and by energetic treatment to stamp it out. Some years ago I resided with a practitioner in Suffolk, where sporadic cases of diphtheria seem to be common, and I must say his mode of treating the disease was eminently successful: it consisted in mopping the throat and pharynx thoroughly out daily with dilute nitro-muriatic acid, and administering iron; he also insisted that, however ill the patient might be, he or she should be taken frequently into the fresh air. This is really almost identical with the treatment laid down by Bretonneau, Ellis, and others; it was rather rough treatment, it is true; but desperate diseases require desperate remedies; and as its aim was to destroy the local lesion from which all subsequent mischief arises, it must have been good and in the main correct—at least results proved it so.

My plan of treating the disease is as follows; it answers the same end, and does not alarm the patient; and, even at the risk of being considered egotistical, I must say that it has been highly successful in the large number of cases that have come under my observation during the last eighteen or twenty years. I assume that the case is treated in its early stage—the only stage in which local treatment can really avail; for when once the blood becomes impregnated with the fungoid micrococcus or bacteria of diphtheria, the poison is then deposited in organs, such as the trachea or the bronchi, beyond the reach of local treatment; and it becomes a question whether the constitution of the patient can eliminate the poison, and nature, generous nourishment, iron, &c., once more re-establish convalescence. In the first place, in any affection of the throat I lose no time in examining it, and watch carefully for the unmistakable washleather-like creeping deposit of diphtheria, or the symptoms of its sister diseases, follicular tonsillitis, croup, and scarlatina; if it turns out to be diphtheria, I give a mixture containing six drachms of the tincture of the perchloride of iron to five ounces of sweetened water, and at this strength, *undiluted*, I insist that the child shall take every hour for twelve hours a dessertspoonful (if the patient is older or an adult, a much larger dose), and that this dose shall be repeated, whether vomiting occurs or not. At this strength I find in that time, or a few hours more, that the growth has a shrivelled look and its vitality is destroyed. I then reduce the dose and extend the intervals, and, as I believe, with many others, that iron has some specific

<sup>1</sup> In 98 per cent. of the cases the pharynx is first attacked.

power of arresting the septic action of the poison in the system, continue it for two or three days or longer, keeping up the strength with strong beef-tea, milk, and port wine; if these cannot be taken, I use an enemata every four hours of equal parts of beef-tea, port wine, and cream or milk. The advantages of this treatment over the local application of caustics is that it reaches every part of the pharyngeal tract likely to be affected, and is, as I mentioned before, strong enough, given in this way, to destroy the vitality of the fungus of diphtheria; and let me here impress the absolute necessity of keeping a thorough draught of fresh air constantly passing through the room, for how can it be expected that a blood poison can be eliminated if it is continually breathed again? As well might one attempt to resuscitate a person dying from inhaling a poisonous gas without first taking the sufferer into the open air. It is needless to say that this treatment in the generality of cases should be supplemented by giving barley-water, sweetened in the case of children, containing two drachms of chlorate of potash or other antiseptic drug, to the pint, but I prefer chlorate of potash, for it is not unpleasant to the taste, and children will drink it readily.

Now, roughly speaking, this is the mode of treating the disease that I have found most successful, and one by the aid of which I have seldom had occasion to resort to more severe measures. The waywardness of a spoilt child will sometimes upset the best calculations by absolutely refusing to swallow anything; then it becomes necessary to resort to mopping the throat, and Bretonneau's mode of applying caustic solution is worth inserting here. He says: "In order to apply the acid to the base of the pharynx and upon the tonsils, I make use of a fine sponge about the size of a pigeon's egg, firmly fixed at the end of a flexible rod of whalebone, and I give to this rod a suitable curve after warming and softening it at the fire. Before touching the membranous spots on the throat, I take care to dip the sponge in concentrated acid and to press it so that it shall remain simply moistened. I take this precaution so that in the convulsive movements of the isthmus of the throat the expressed liquid may not extend its action beyond the point I intend to cauterise." This method, it will be seen, has the advantage of preventing the caustic solution going beyond the area affected and setting up violent inflammation of the pharynx or larynx. All the novelty I claim for my system of treatment is that I give much larger, stronger, and more frequently repeated doses of the perchloride of iron than I have ever seen advocated by others, and that if the destruction of the cause of the local lesion is the proper thing to do, as I believe it is, it answers the purpose, with the advantage of placing in the blood a drug which arrests the rapid deterioration of its healthy constituents produced by this disease, with its after-train of disastrous lesions.

Sherborne.

#### NOTE ON A CASE OF NERVE-STRETCHING FOR FACIAL SPASM, OPERATED ON FIVE YEARS SINCE.

By F. A. SOUTHAM, M.B.Oxon., F.R.C.S.,

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IN THE LANCET of August 27th, 1881, I published particulars of a case of stretching of the facial nerve for clonic spasm ("convulsive tic") of the muscles of one side of the face of two years' duration, occurring in a woman aged fifty-nine, who had previously been under the care of Dr. Ross. The operation, which was performed in March, 1881, was followed by complete paralysis of all the muscles supplied by the facial nerve on the corresponding side. About five weeks subsequently, the affected muscles gradually began to regain their power, and at the end of five months the paralysis had entirely disappeared. As no return of the spasm has taken place, and a period of five years has now elapsed since the operation, the cure may be regarded as complete and permanent, and on this account the case may, perhaps, be thought worthy of further record.

In a recent article by Prof. Zesas,<sup>1</sup> particulars are given

of the results of nineteen cases of this operation collected from different sources. In only two other instances—viz., in one case operated upon by Zesas himself, and in another by Navratil—in addition to the one above referred to, has the cure been permanent. In four cases there was considerable improvement, while in ten the operation failed to give more than a temporary relief; in the remaining two cases the result was doubtful, as their subsequent history was not followed out. Inasmuch, however, as benefit has resulted in seven out of seventeen cases, Zesas is of opinion that the operation should still be performed whenever the spasm is not due to intra-cranial lesions.

#### FRACTURE OF THE BASE OF THE SKULL, WITH OPTIC NEURITIS; RECOVERY.

By W. T. JACKMAN, M.R.C.S., &c.

THE following case is of interest, showing, as did a case published by Mr. Sydney Jones in THE LANCET of Jan. 10th, that the complication of optic neuritis does not always indicate a bad prognosis in fractures of the skull.

M. H.—, aged thirty, a coachman, of medium height, spare build, and temperate habits, was thrown from his horse on the evening of Dec. 6th, 1885. He was picked up in an insensible condition and carried to the stables, a distance of about one hundred yards, by two men, who left him for about an hour, and on their return, finding he had gone, they concluded he had only been stunned, and therefore did not say anything about the accident to anyone. Next morning he walked from his house (the lodge at the entrance of the drive) to the stables. He then complained to some men of headache, but they do not seem to have noticed anything peculiar about him. A short time afterwards he was missing and could not be found until 2 P.M., when he was discovered on one of the grooms' beds over the stable in a drowsy state and complaining very much of headache. When I visited him about 3 P.M. I found him drowsy and troubled with severe pain in the head, which was worse on the left side under the occipital bone, and suffering from cerebral sickness, which on inquiry I found had been persistent every half-hour or so all the morning. Tongue clean; bowels not open; temperature normal; pulse slow and laboured. On examining the head, some dried blood was found in the meatus of the left ear and a slight wound over the left occipital protuberance, which had evidently bled a little, and was surrounded by a swelling of about the size of a hen's egg. The pupils were sluggish to light. There were no other signs of fractured skull. The patient did not remember anything which had happened since he fell from the horse, and could not account for being in his present place. I found he had walked home after the men had left him the previous evening in the stable, had supper with his wife, passed a restless night, but there had been no vomiting. He had eaten a small breakfast and only complained of headache to his wife, who thought he was suffering from a bilious attack. I ordered ice to the head, perfect quiet, and ten grains of bromide of potassium to be taken every four hours.

Dec. 8th.—Consultation with my partner, Mr. T. Simpson, and diagnosis confirmed. Patient had passed a restless night. Vomiting less frequent; pain in the head still continues bad. Temperature 99°; pulse slow and feeble. Tongue slightly furred. Bowels not open. On examining the optic discs, the left was found to be normal, the right disc was hazy, and the veins were larger than normal, the arteries if anything smaller.—10th: Patient passed a bad night. Vomiting ceased. Bowels open after fifteen grains of calomel. Temperature 99.5°. Right disc red and edges hazy. Vessels as yesterday.—11th: Bad night. Temperature 100°. Pulse very weak. Right disc less red and veins smaller.—12th: Better night. Temperature 99.5°. Pulse stronger. Right disc less red and less hazy. Patient expresses himself as feeling better. Ice discontinued.—13th to 22nd: Gradual and steady improvement. Both discs normal. The patient was removed to his own home, and was able to resume his work on Jan. 16th, 1886.

It is interesting to note that, although the patient received the injury on the left side of the head, the bleeding was from the left ear, and that the inflammatory mischief was evidently on the left side of the head, as indicated by the persistence of the left hemicrania, yet the right optic disc

<sup>1</sup> Wiener Medicinische Wochenschrift, Nos. 27, 28, 1885. An abstract of this paper, by Mr. C. Atkin, F.R.C.S., will be found in the Medical Chronicle, Jan. 1886.