removed an ivory exostosis, very "sessile," occupying an interval of one hour and forty minutes' duration, the pain being kept well within bearable limits by the repeated instillation of the cocaine solution. The great assistance to the operator was obvious. The foot dental drill was used, and the whole operation completed with two drill points, lent him by his friend, Mr. Henderson Nicol, surgeon dentist, of Leeds. The subsequent progress of the case had been eminently satisfactory.—Mr. GEORGE JACKSON asked the meeting if anyone had met with any case of exostosis arising from a violent blow, and related a case in which an exostosis was said to have arisen from violence in the case of a man, who when a boy was thrown down on the deck of a trawler and violently kicked on the ear. The exostosis when seen completely blocked the ear, and was accompanied by occasional discharge, with head symptoms; the man refused any interference.—Mr. WILLIAM HILL (London) said that his own operative experience was limited to twelve cases which he had helped Mr. Field to drill. The guard had only been necessary on one occasion. On clinical grounds non-pedunculated osseous growths were best classified as hard and soft. Soft growths were invariably, in his limited experience, in association with suppurative discharges and more frequently met with in women, amongst whom ivory hyperostoses were rare. He alluded to a case of Mr. Field's, of complete circumferential hyperostosis in which the lumen of the meatus was reduced to a mere chink, and in which the hearing had been much improved by the only possible operation—that of drilling. Both soft growths and pedunculated ones could be easily treated by either snares, chisels, or forceps, but for the mole-hill-shaped ivory growths no operation appeared to be so safe and sure as the drill. The guard was useful in removing the apices of small multiple exostoses when the lumen of the meatus had been increased by the removal of the larger growths.—In reply to a question, Sir WILLIAM DALBY said he had never seen less than 14 cases of osseous growth in one year, and never more than 40 in one year. The greatest number he had operated upon in one year was 9.—The PRESIDENT said he had operated on 21 cases in the past 18 months; 12 of them in both ears, all men, double ivory exostoses; 3 in one ear, ivory exostoses, in men. Six of the softer growths in one ear, all in women, and all had had discharge from the ear at same time. Out of the 15 men (27 ears operated on), only 2 had had any discharge of pus before operation, and that from pressure of the growth on the opposite wall. When pus had been coming away from the ear for some years previous to the formation of an osseous tumour, the growth would be soft invariably, and was very easily removed without drilling. 1. Colonel T., aged 45 very deaf, was told he must give up his regiment unless he got relief. Used the drill; operation lasted 25 minutes right ear, 15 left. Was obliged to go out in 10 days' time in command of his regiment to the Cape. Mr. Field heard from him afterwards to say he was hearing perfectly in both ears. Cause, sea-bathing. 2. Mr. R., aged 34, stockbroker, very deaf in both ears, very depressed about himself. Operated on both ears by dental drill worked by electricity; altogether lasted 50 minutes. Had seen him a week ago, was quite well, and regained his hearing in both ears. Attributes growths to bathing. 3. Mr. B., aged 39, operated double exostoses; one ear stone deaf, the other very deaf at times. Operation lasted 40 minutes. Quite well. 4. Mr. W. S. M., aged 6, sent to the speaker by Dr. Stephen Mackenzie; sent home from India for extreme deafness. Used electric drill both ears; operation lasted 40 minutes. Had very great pain in one ear afterwards, but subsequently returned to India with perfect hearing. 5. Mr. W. Y. C., aged 55, a magistrate, sent to me by Dr. Trouncer. This gentleman had to give up his work on account of loss of hearing. Drilled both ears in 35 minutes. Went back to his work in a month's time with perfect hearing. 6. Mr. G., aged 30, both ears drilled; 40 minutes' electric drill. Great pain afterwards; regained hearing in one ear; the other, from which he had had a chronic discharge for many years, improved. 7. Mr. W., aged 52, sent by Dr. Horne; drilled both ears 45 minutes; some pain afterwards in both ears, but took longer than most patients to get well. 8. Mr. T.; drilled both ears in 50 minutes; got quite well. 9. Rev. J. R., aged 40; drilled both ears; got well. 10. Dr. R. P., aged 43; drilled both ears in 35 minutes; got quite well. 11. Mr. J., aged 37; drilled both ears; improved. 12. Mr. A. B., drilled both ears in 50 minutes; ten days ago going on satisfactorily. In two of these cases he was sure it would have been impossible to use the chisel and mallet, as the growths were very deeply seated, and extended right across the meatus. Next three

cases were in men, hard growths, drilled in one ear. 13. Mr. M., aged 51, sent by Mr. Thomas Smith; operated on one ear 20 minutes; got quite well, and regained his hearing. He was very deaf in the other ear from childhood, with large perforation, but there was no growth of bone. 14. Mr. A. B. W.; operated one ear, lasted 15 minutes; quite well afterwards. 15. Mr. C. B., aged 22; had a very large growth blocking up one year; operated on a fortnight ago; going on well. 16, 17, 18, 19, 20, and 21. Softer growths in one ear, all in women, and easily removed. These cases, he thought, went to strengthen conclusions long since arrived at: That aural exostoses could be easily removed with the drill. That in cases of multiple exostoses it was well to remove the apices of two or more exostoses in one meatus, or the operation might have to be repeated. That they must not be considered as at all necessarily the outcome of gout, rheumatism, or syphilis. That some cases of multiple exostoses became wedged together, so that increase at the extremities was arrested, and a triangular central space was left large enough to afford a free passage for sound, rendering operative measures unjustifiable. On the other hand, their speedy removal was indicated wherever they hindered the elimination of discharge: caused much pain by pressure: or prevented audition. In closing the discussion, Mr. Field said he preferred, after experience with both instruments, to use the foot drill, because it was more under control and more easily stopped than the electric drill. In operations the apex of the growth must be removed, otherwise the growth would return. He did not agree with the opinion that osseous growths were caused by gout; they were more likely to be due to mechanical irritation of the ear. His operations now rarely lasted more than twenty minutes for each ear, and he seldom had recourse to the guard, although that instrument had been of much use to him when less experienced. Mr. Field felt bound to say something in reply to some remarks which had fallen from Sir William Dalby regarding his (Mr. Field's) claim of priority in operating for the removal of ivory growths of the auditory meatus by means of a drill driven by a dental engine. Sir William Dalby doubtless had used the dental drill at the date claimed for the removal of an osseous growth in the ear, but reference to Sir William Dalby's three cases brought out the fact that they were not instances of ivory hyperostoses, but merely those soft osseous growths which occasionally resulted from continued suppurative discharges from the tympanum, and which were as easily and usually removed by other methods. He was still of opinion that the removal of ivory growths had not, up to the time of his (Mr. Field's) first operation in 1877, been carried out in this country by Sir William Dalby or anyone else. The latter was present at Mr. Field's third drilling operation for ivory exostosis in 1878, and announced in the presence of others that he had never performed such an operation. It was not until Mr. Field had published two long series of cases some years later that Sir William Dalby laid any claim to priority. Mr. Field had letters and memoranda in his possession which left no doubt in his mind that it was not his memory which was at fault.—Sir WILLIAM DALBY explained that he was present at the operation mentioned by Mr. Field in order that he might witness the use of the steel guard used by the latter.—At the suggestion of Mr. URBAN PRITCHARD, the matter was allowed to drop.

ON APROSEXIA, BEING THE INABILITY TO FIX THE ATTENTION AND OTHER ALLIED TROUBLES IN THE CEREBRAL FUNCTIONS CAUSED BY NASAL DISORDERS.

*Read in the Section of Otology, at the Annual Meeting of the
British Medical Association, held in Leeds, August, 1889.*

By DR. GUYE,

Professor of Otology at the University of Amsterdam.

DURING the last ten or twenty years a great number of authors in various countries have drawn attention to disorders of the nose, and to the remote effects of such disorders in other organs. Voltolini was the first to observe the dependence of many cases of asthma on the nasal polypi. Hack, the lately deceased professor in Freiburg, described a series of pathological nasal reflexes, and, although the rather complicated theory by which he tried to

explain them is open to deserved criticism, he has the merit of having promoted observations and discussions which have much enlarged our knowledge of these pathological reflexes.

I believe it is generally admitted that we have the right to consider as pathological nasal reflexes only such symptoms as can be looked on as modifications of the normal nasal reflexes. So may the normal expiratory nasal reflex, sneezing, be changed in nasal cough and in asthma; so may the vasomotor reflex be exaggerated and produce local hyperæmia of various regions of the head and face, morbid sensitiveness to alcoholic stimulants; so may the secretory reflex give rise to unnatural flowing of tears and to conjunctivitis, as in hay fever. But besides abnormal reflexes, nasal disorders will produce disturbances in contiguous organs which are open to other more simple mechanical interpretation. All aurists are but too well acquainted with the influence of nasal disorders on the tympanic cavity, and on the organ of hearing.

That nasal disorders, acute coryza, as well as the most chronic forms of nasal obstruction, influence the cerebral functions in a more or less serious manner has been known to all who have given any attention to diseases of the nose; but it has not, I believe, received the attention it deserves, especially of the general practitioner. If it were known generally how many cases of chronic headache, of inability to learn or to perform any mental work, are due to chronic disease of the nose, many of these cases would be easily cured, and the number of children victims of the so-called over-pressure in education would, I firmly believe, be notably reduced.

I have for a long time past made a point of studying the impairment of the cerebral functions by disorders of the nose, and I have given the name of aprosexia (from *προσέχειν τὸν νοῦν*) to one of the symptoms which seem to me to be next to headache, the head-symptom, or in other words, the elementary and generally the initial symptom. What I call aprosexia is the inability to fix the attention on any definite more or less abstract subject. A young man—a student, for example—will try to read. After having read a sentence he will have to read it again, three, four times and more, and in some cases he will then know what he has read, and go on, always struggling with the same difficulty. In other cases he will not know it even after reading it repeatedly, and will throw away the book or newspaper and fear to take it up again. If it was a lesson which he had to learn, and he has at last been able to master it, after one or two days he will have forgotten all about it, and have to begin anew. The slightest mental exertion will give him headache, he will not be able to learn anything by heart, and will not get on with his studies. Some schoolboys will feel an inability to get on with some special branch of study—for example, mathematics—others with history, being unable to remember any dates or numbers. The headache will be sometimes permanent, but mostly intermittent; in some cases it will be there regularly in the morning after rising, in others it will come up at school-time, as the result of the slightest mental exertion.

The first case which struck my attention was that of a boy whose sister was under my treatment for ear disease in connection with nasal obstruction. The father asked leave to bring me his boy, who had no ear-disease but who could not breathe through the nose, and could not learn anything. I found an absolute nasal obstruction, and the boy, who had been to school for a year, had not been able to learn more than the three first letters of the alphabet. I removed a mass of adenoid tumours from the naso-pharyngeal cavity, and when his father brought him again, a week later, he told me that his son had learnt the whole alphabet in that week, and that he thought him all right now.

This case remained for a long time a unique one in my observations, and it is only since more general attention has been given to the remote effects of nasal disorders, that I found out how numerous are the cases resembling this one in more or less particulars.

It is with aprosexia as with giddiness in Ménière's disease. If the aurist asks all his patients complaining of ear disease if they suffer or have suffered from giddiness, he will receive an affirmative answer in a great number, perhaps in the majority of his cases. If the physician in all cases where giddiness is complained of makes a rule of examining the state of the ears, he will as well as the aurist discover a relation between giddiness and ear disease in a great number of cases. But the patient will rarely find it out for himself; on the contrary, very often he will be quite incredulous when he is told that his giddiness and his vomiting are caused by the state of his ears. So you may treat a great number

of cases of nasal obstruction, may be, on account of secondary aural or perhaps laryngeal lesions; and if you do not inquire after the existence of aprosexia or headache, very few patients will complain of these symptoms. If, on the contrary, you make a rule of inquiring after them in every case, you will be astonished at the frequency of these complaints. It is of more importance still that the medical men in general practice be impressed with the frequency of that relation, and that they make it a rule in every case of habitual headache and inability to work and loss of memory, to inquire after the state of the nose, and to ascertain if the normal nasal respiration be not impeded, and habitually or temporarily superseded by breathing through the mouth.

I will not tire your attention, gentlemen, by the particulars of numerous cases, some of which I have published in the *Deutsche medicinische Wochenschrift*, 1887, No. 43, and 1888, No. 40. I will only give a summary of them in a few words, and then make a few remarks on the interpretation of the symptoms and on their treatment.

Some of the cases are boys at school or at college, who complain of headache as soon as they have been for an hour or two at school. The master, seeing that they are unable to work, sends them to take a walk or sends them home to take a holiday of some weeks. They are treated by rest and iron, and when they come back the same symptoms recur. After a local treatment of their nose and naso-pharynx, and generally as soon as their nasal respiration is restored, they are quite well, and get on with their work as others.

Then I have seen students working for an examination who, having tried repeatedly to read with a special tutor, and observing that after a week they had forgotten everything, gave it up for half a year, and tried again with the same result. After a local treatment of the same kind as mentioned above, their working power was restored, and they took their degree after a few weeks' work.

Nearly all the cases I observed were boys or young men at school or at the university. The only female case was a young girl preparing for the study of pharmacy, an exception which confirms the rule. As a rule, in fact, cases of aprosexia nasalis are found in young people studying or preparing for study, or especially for examinations, and generally they would be looked on as cases of over-pressure in schools.

Now I am far from denying the existence of over-pressure in education, especially in the latter half of the nineteenth century, nor of our duty to try to keep it within rational limits. But when we see a number of cases, which to a superficial observer are victims of over-pressure in schools, give way to a local treatment of the nose, we must acknowledge that what is looked on as the result of over-pressure is very often caused by a morbid state of the individual, and is open to a very effective treatment.

As to the physiological interpretation of the symptoms of aprosexia, we must first keep in mind that in a psychological aspect the inability to direct the attention on a particular subject, and to fix cerebral impressions in the memory looks much like a symptom of fatigue or cerebral exhaustion. But we cannot logically call something a symptom of fatigue when it exists very markedly in cases where there can be no question of fatigue.

It may of course be, and in fact it is, very often caused by fatigue; and, in the same sense as Dr. Charlton Bastian, speaking of aphasia, in a meeting of this same Association two years ago, said very rightly that after a certain age we all of us suffer more or less from aphasia, so I might say that we all suffer from aprosexia when we are tired or overworked. But the question is, How is it that this cerebral symptom of exhaustion is produced by nasal disorders? I think in this way: Cerebral exhaustion must be the consequence of one of two causes. Either the nutrient matter which has to repair the loss produced by the function of the brain is not yet sufficiently procured or assimilated or the products of the "tissue-change," which have to be eliminated, are incompletely removed. This removal will, according to physiological principles, have to take place, partly, at least, by means of the lymph vessels; and, in this respect, we must point to the fact found by Axel, Key, and Retzius, that large lymph vessels leave the cerebral cavity together with the fibres of the olfactory nerve. It is highly probable that structural changes in the nasal mucous membrane, and especially such as will exert pressure on the lymphatics, will impair or prevent the current of the cerebral lymph through the nasal mucous membrane. The retention of the products of the chemical processes in the tissues of the brain will lead to results which we may expect to be the same as those of physiological exhaustion, that is, of fatigue.

Besides structural changes, it is evident that local hyperæmia, which is so frequently seen as a pathological nasal reflex, will be apt to produce the same pressure on the lymphatics. And in this respect some cases of paroxysmal vasomotor aprosexia are very interesting. In these cases the aprosexia was not constant, but was produced especially by causes which influence the vasomotor reflexes, as change of temperature, coming from the cold in a warmed room, and the paroxysms were accompanied by very marked redness of a spot on the forehead, corresponding to the frontal sinus. These paroxysms lasted from a quarter of an hour to an hour or more, and the patient was unable to understand and to recollect things which were told or explained to him during that time, which he could do quite well as soon as the paroxysm was over.

As to the way in which headache is produced in cases of disorders of the nose, especially by swelling of the mucous membrane, I have proposed the following explanation. The air contained in cavities communicating with the nose will be resorbed, and so its pressure diminished, as soon as the free communication with the nose is impaired by the swelling of the mucous membrane. So it is with the tympanic cavity, with the frontal and other sinuses. Such a cavity will then begin to act as a dry cap, and produce collateral hyperæmia *in vacuo*. We have, so to say, an *experimentum crucis* for this sort of headache in the experiment of Politzer. In this experiment air is not only drawn into the tympanic cavity, but at the same time into the sinus communicating with the nose; and, in fact, when such patients are treated by Politzer's insufflation at the time when headache is present, we see it almost constantly disappear for a shorter or longer period. We see the same happen very often in cases where an acute catarrh of the tympanum produces tenderness of the mastoid process, which tenderness, in its first stage at least, disappears after an insufflation by Politzer's bag.

A few words about the relation between aprosexia and neurasthenia. A friend of mine, who is a psychologist, had the kindness to give me, as his opinion on my first publication on the subject, that he quite agreed with me as to the description of aprosexia, and that he had found the symptoms in a number of patients, but that he was inclined to consider aprosexia as a symptom of neurasthenia. I would not like to go so far as that. It is true of aprosexia, as well as of other pathological nasal reflexes, that they mostly occur in neurasthenic patients. But when by a local treatment all the symptoms are cured and the patient restored to health, I think it is more natural to consider the local disorder as the cause of the symptoms than to look on that disorder as a symptom of general neurasthenia. A different question is this, If a neurasthenic disposition is a necessary soil for the production of nasal reflexes and of aprosexia? And this question, I think, we are not yet able to solve definitely for the present. I think we are not far from the truth if we admit, from an etiological view, three forms of aprosexia, that is, 1, physiological aprosexia as the result of cerebral over-exertion or fatigue; 2, neurasthenic aprosexia, where the cerebral exhaustion is produced by abnormal irritability and restlessness; and, 3, pure nasal aprosexia, where the exhaustion is produced by retention of the products of tissue change. Of course, the three forms will admit of various combinations and complications.

If you will allow me to add a few words on the treatment which I have found successful in most of my cases, it would be this. After a careful examination I generally treat at the first consultation the naso-pharyngeal cavity; after a week I treat one side of the nasal passages, and after another week the other side. If there are important anomalies in the septum narium, I remove them either with Dr. Bosworth's saw or with the chisel. The mucous membrane of the spongy bones, and especially that of the inferior one, I cauterise with solid nitrate of silver melted on the point of a silver probe, after having used cocaine previously. At the same time I make the patient syringe his nose two or three times daily with appropriate solutions of chloride of ammonium and salt ($\frac{1}{2}$ per cent. of the first and 1 per cent. of the second), and I let him wear at night a contra-respirator to control his nasal respiration during sleep. Lastly, I have found it very useful in a number of cases to let the patient make a gaseous menthol insufflation after the syringing, and with the same instrument which the patient uses for that purpose, he can be taught to apply a Politzer's douche, which often is a great relief to him. When the secretion in the nose is very scanty, I found the internal administration of iodide of potassium in solution (1 to 2 grammes *de die*) very useful. Sometimes I prescribe

the liq. chlor. ferri, 5 to 10 drops, three times a day internally, and 2 to 10 drops in a tumblerful of 1 per cent. salt solution for syringing the nose. Of course, the individual predilection and habit of each medical man will make him take different ways to come to the same end, the cure of the patient. And this will be attained in a great number of cases. According to my experience, the prognosis is very good on one condition, and that is, that we have to do with real acquired aprosexia, and not with cases of congenital idiocy even of a slight degree. I say this because parents having heard of aprosexia, are very prone to consider their weak-minded children as suffering from that disease, and to make themselves illusions as to the result of the treatment. It is very important not to indulge in these illusions in any case where the inability to do mental work is congenital, even when we see such children having nasal obstruction and breathing through the mouth. But when it is ascertained that the patient has a good intellect, and that the development of his aprosexia has coincided with nasal obstruction and breathing through the mouth, then there is hope; and in such cases I would like to make a variation on the words made popular by Catlin, "Shut your mouth and save your life," and to say: "Shut your mouth and save your brain."

ON SOME CAUSES OF BACKWARDNESS AND STUPIDITY IN CHILDREN:

AND THE RELIEF OF THESE SYMPTOMS IN SOME INSTANCES
BY NASO-PHARYNGEAL SCARIFICATIONS.

*Read in the Section of Otology at the Annual Meeting of the
British Medical Association, held in Leeds, August, 1889.*

By WILLIAM HILL, B.Sc., M.B.LOND.,

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It is not at all uncommon to find children who suffer from deafness, the result of enlargements of the lymphoid (tonsillar) tissues of the naso-pharynx and fauces, described by their parents and teachers as being backward and even stupid. This backwardness and stupidity is usually accounted for by the defect in hearing, and the characteristic foolish expression of such children has been explained on purely physical grounds, as due to the obstruction in the proper air-way resulting in the open mouth and pinched, fallen-in condition of the *alæ nasi*. The fact, however, that children, the victims of nasal and pharyngeal obstructions, often suffer from headaches, especially when engaged in study, and frequently evince marked inability to fix their attention on their lessons or work for any length of time, has in recent years led many to suspect that these symptoms were not altogether due to the deafness, and that the stupid adenoid physiognomy, though partly explicable on physical grounds, was in part a reflection of some evident hampering of the cerebral functions. It is true that mouth-breathing and faulty respiration, added to insanitary surroundings, are admittedly prejudicial to the general health of young persons; but there is good reason for believing that these factors, added to impairment of the sense of hearing, are insufficient to account for the mental deterioration so often met with. That inability to fix the attention, and other allied neuroses, popularly ascribed to "over-pressure," are frequently associated with obstructions in the nose and throat was first unequivocally insisted on by Professor Guye, of Amsterdam, two years ago. That *savant* coined the term "aprosexia" to designate this condition.

Recent observations of my own made during the last twelve months have tended to confirm Professor Guye's views. I have been much struck by the fact that operations on children, undertaken for the relief of deafness associated with adenoid growths, enlarged tonsils, and hypertrophic catarrhal conditions of the nose, have frequently resulted in such an immediate improvement in the mental acuteness of the patients as was altogether incommensurate with the often slight immediate improvement in the sense of hearing. It has appeared to me that naso-pharyngeal scarifications have resulted in such a speedy relief of the aprosexia and other cerebral symptoms as could not reasonably be accounted for on the ground of correction of faulty respiration and an improvement in the general health.

I have been led to conclude that operative procedures probably