and less swelling effects the deleterious purpose, and the intervals of freedom from impaired hearing, nocturnal ear-ache, and subjective noises in the ears become shorter and more rare. In the meantime changes are taking place in the structures of the middle ear which are more or less permanent; the preponderating pressure on the outer surface of the membrana tympani pressing that membrane inward, and allowing the relaxed tendon of the musculus tensor tympani to contract and hold the malleus, and with it the membrana tympani, in its abnormal position, tends, as does also the thickening of the mucous membrane, to permanently impair the mobility of the sound-transmitting mechanism of the middle ear, or, as is seen in some cases, the impairment of nutrition, lowering the vitality of the delicate tissues in the middle ear, an ulcerative and suppurative process is easily set up under the necessary additional provocation.

In some of the cases mutually observed by Dr. Hooper and myself there was suppurative inflammation of the middle ear, which first showed any gratifying response to local treatment only after the removal of the adenoid growths.

In reference to the aural symptoms, the cases under consideration may be divided into three classes. The first includes those in the earlier stages of the adenoid growths, which have had occasional ear-ache and the occasional impairment of hearing apparently readily referable only to what is called a head-cold. These children have very variable hearing, are frequently accused of inattention and disobedience, and are either too young to know, or have too slightly noticeable an impairment of hearing to appreciate that their derelictions are sins of the flesh and not of the spirit. The effects to the ear of the removal of the growth in the naso-pharynx are often appreciable only to the trained observer; the child is freed from a catarrhal affection, and the improvement in hearing, if any is noticed, is taken for what it is, a matter of course. An objective examination of the ears, however, shows that there is no longer a slightly congested condition of the tympanic mucous membrane, and in the course of time the thickening of the mucous coat of the membrana tympani is seen to be decreasing. In the second class are the more advanced cases, in which, the preliminary stages being passed, the impairment of hearing and the structural changes have become recognized as fixed facts, the impairment of hearing in some of these cases being so great and so persistent that the child is regarded either as a deaf-mute, or even as idiotic, the well-known effect of obstruction of the hearing upon the mental development favoring the latter supposition. In many of these cases it has been found that catheterization of the Eustachian tubes, the air douche proving ineffectual on account of the blocking of the Eustachian orifices and interference with the movement of the palate by the growth, has decidedly and immediately improved the hearing, and entirely changed the objective symptoms in the ear, the membrana tympani, previously dull both in color and in lustre, returning to the normal appearance in a greater or less degree in both respects.

The improvement in both appearance of the ear and in hearing power in these cases, consequent upon the use of the Eustachian catheter, is, however, but temporary, the true cause of the abnormal condition remaining.

In by far the largest majority of such cases the removal of the adenoid growths is followed by an immediate and gratifying improvement in hearing, which in some of them remains unabated. In others, however, the impairment is again noticeable at the end of a few days. In all of these latter cases there is accompanying, and as a result of the adenoid, a considerable swelling and congestion of the naso-pharyngeal and tubal mucous membrane, enough in itself to interfere materially with the physiological action of the Eustachian tubes. The free bleeding following the operation upon the adenoids sufficiently depletes the swollen mucous membrane to bring about a condition of freedom for the middle ear temporarily, which is permanently attained subsequently only by patiently continued treatment.

To the third class belong those cases, already alluded to, in which suppurative otitis media is a result of the disease in the naso-pharynx plus some local exciting cause, or is merely a coincident of a suppurative disease of the middle ear of other origin. That the maintenance of patency of the Eustachian tube is an important factor in the successful treatment of these cases is well recognized, and in at least two of the cases which are the subject of this joint memoir, the effect of the removal of the adenoids upon the response of the ear to the same treatment which had been previously pursued was most gratifying.

A classification of the cases mutually observed and operated on under ether by Dr. Hooper, which are the only ones here included, shows that out of the whole number, thirty-nine, or nearly eighty-three per cent., had evidence of more or less implication of the ear, and that of that number in thirty-five, or nearly ninety per cent., the result as evidenced by the improvement in hearing was eminently satisfactory.

Comment upon the importance of a recognition of these cases, and the application of an early remedy, is, in view of these and similar results of other observers, and of the known consequences to the hearing in later life, of the persistence of these abnormal conditions, quite unnecessary. It is well to bear in mind, however, that with the removal of the adenoid growths the work—as regards the ear—is not entirely done, and that the rhinologist and otologist must act as friends in council; the removal of the cause is the first step, it is true, but, though as Dr. Holmes says—and this seems especially true of children—"Nature is kinder than the doctors think," some assistance is needed in many of these cases to help on the removal of the consequence of the cause.

NOCTURNAL INCONTINENCE OF URINE.¹

BY E. M. BUCKINGHAM, M.D.,
Instructor in Diseases of Children, Boston Polyclinic.

THE subject of nocturnal incontinence of urine in children is of interest both from the obscurity that sometimes surrounds its etiology, and from the great annoyance to which it subjects the patient and his friends. It is a symptom, and, like many other symptoms, does not always depend on one and the same cause.

Aside from cases depending upon deformity, upon

¹ Read before the Boston Society for Medical Observation, February 6, 1888.

reflexes from outside the bladder, as phimosis or pinworms for example, or from calculus within the bladder, or an abnormal quantity or quality of the urine, causes which all together, probably exist in but a minority of the cases; writers on the subject seem to recognize quite commonly that the immediate exciting cause may be either an over-sensitive condition of the expelling muscles, or atony of the sphincter of the bladder. This explanation is of course only partial, it being still incumbent on us to explain the course of atony or over-sensitiveness. In looking over the record of the Medical Out-patient service of the Children's Hospital I find that of twenty-six cases applying for treatment there since early in 1883, five only have presented themselves in the six months April to October, while twenty-one have appeared from October to April, possibly because of greater perspiration in summer, and consequently fuller bladders in winter. The disparity is even more striking when one considers that the clinic is larger in summer, and, however explained, it certainly suggests weather as having an influence in the matter.

As my own service in this hospital has been until recently confined to the months in which these cases apply least frequently, I can say nothing learned from this source, nor have I had the time to study the records of the other out-patient rooms accessible to me. My recollection, however, is very strong that in the years when I was annually in charge of the children's room of the Boston Dispensary, for three of the winter months there were a number of debilitated anæmic children suffering from incontinence who were speedily relieved, for a time at least, by the use of iron. This is perhaps less likely to be the case in the better class of patients seen in private practice, and such an explanation accounts for their not being recognized by some good observers of considerable experience. I cannot recall any private patient of my own successfully treated by iron, although I have used it a few times.² These debilitated cases in so far as I can see, are as likely to have irritability of one muscle caused by their debility as atony of another; but it appears to me to be good practice to attempt the restoration of their health before beginning the use of sedatives, especially so as that may be all-sufficient, and as the prolonged use of sedatives, while often necessary, is not a thing to be lightly entered upon with a debilitated child.

The following case illustrates, to my mind, the existence of debility as a cause of nocturnal incontinence:

A not very strong boy of nine years had had for a long time attacks of incontinence at night, which had been relieved by belladonna or atropia, but which always returned after a time. When the course which I am about to describe began, the trouble had lasted for some little time, and the accidents were of nightly occurrence. He was given a solution of atropia in acidulated water, one grain to the ounce, making each drop contain gr. $\frac{1}{40}$ of atropia. Of this was given one drop for the first two doses, two drops for the next two, three for the next two, and at the seventh dose four drops, equal to gr. $\frac{1}{10}$, there being three doses in the day. At various times it became

necessary to stop the progressive increase of dose because of malaise or intestinal disturbance, or some symptoms more certainly attributable to atropia, but on the whole the medicine was pushed, except when some results, good or bad, indicated a stop.

When the dose equalled gr. $\frac{1}{10}$ incontinence occurred only once in every few days instead of every night, but there was some thirst, and the pupils were less active. The morning dose was then omitted, that at noon lessened, and the increase of evening dose went on, this increase stopping with temporary improvement, and beginning again with failure, until gr. $\frac{1}{8}$ was given at noon and at night, with the effect of giving a respite of nine successive nights. By this time, about two months from the beginning, the child was far from well. He was dull, with coated tongue, poor appetite, and dilated pupils. A bright red rash appeared for a few hours.

The night dose was then retained and the others omitted, a drop of tr. of nux vomica being substituted in the morning, that being a tonic that always agreed with the patient. Soon the night dose was reduced drop by drop, until, after ten days of a single daily dose, it being then gr. $\frac{1}{4}$, he wet the bed. The child looked very badly, with a very dry skin, and an absolute distaste for food. Fourteen nights had been the greatest success, and the use of atropia was stopped. Five nights passed without accident, and then incontinence gradually returned. The child was under treatment for another month for gastro-intestinal disturbance, with a general venous condition and a dry skin, none of which existed at the beginning of treatment.

During the following two and a half years the condition was much the same as before this course was begun; that is, he was a rather puny boy, with a whimsical appetite and possibly rather less incontinence than before, but never going over four nights without an accident. During this time he several times got nux vomica as a tonic.

Then an attempt was made with faradization from just above the sacrum to the perineum for four minutes at a time, every fourth day, he having in all six sittings. Perhaps this was not long enough for a fair experiment. At any rate he never went over three nights without accident, while without electricity he had sometimes gone four.

Shortly after this he went on a long summer vacation, learned to swim, I think, was out of doors all the time, and returned in the autumn nearly well, improvement having been gradual. More than two years later I learned from his mother that there had been no return of his trouble. At the same time the general improvement in physical condition and increased delight in out-of-door sports was something remarkable.

I am well aware that this case may be differently interpreted by different minds, but it is to be observed that the child was a weak one, that the case was severe and of long continuance, that there was no improvement during the use of electricity preceding the vacation; and that improvement, when it did come, came step by step with greatly improved physique, and was complete in a few months; and that, as the child was only eleven, one can hardly attribute recovery to the approach of puberty, as is sometimes done.

This case, in connection with those of relief closely following the use of iron, seems to suggest at least a

² Since the above was written, I have been able to relieve a private case of long standing, by the use of iron alone. The child being in good circumstances but rather anæmic. E. M. B.

possible lesson, and my apology for presenting them to the society is that there are, as before said, some good observers, of experience, who think that they have seen little or no result from treatment directed to the general condition alone.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL OBSERVATION.

CHARLES P. STRONG, M.D., SECRETARY.

MEETING February 6, 1888, Dr. C. F. FOLSOM in the chair.

Dr. F. H. HOOPER read a paper on

THE DIAGNOSIS AND TREATMENT OF ADENOID VEGETATIONS IN CHILDREN.¹

Dr. C. J. BLAKE supplemented the paper with

REMARKS UPON THE RELATIONS OF THESE GROWTHS TO DEAFNESS.²

Dr. E. D. SPEAR thought that he could add little in supplementing the instructive papers of Drs. Hooper and Blake, but wished to show photographs, taken by himself, of several cases in which adenoid disease of the naso-pharynx complicated various forms of disease of the middle ear, causing the peculiar appearance of the child's countenance referred to, and explained in Dr. Hooper's paper.

In the removal of the growths he had followed Sir Wm. Dalby in using the finger-nail, and in the majority of cases with success, though it was usually necessary to repeat the operation.

Marked improvement immediately followed the operation, both of the ear and throat symptoms.

Dr. Spear showed a "steel finger nail," which was suggested by Dalby's, but which was to be used upon the back of the finger, thus leaving its palmar surface free to feel the growth. He did not advocate its use, however, because cases requiring forcible scraping were best treated after Hooper's method, with anæsthesia.

Dr. KNIGHT said that the paper and experience of Dr. Hooper were very valuable contributions to the subject of adenoid hypertrophy in young children and its proper treatment, and that it might not be improper for one familiar with the subject to indicate in just what direction Dr. Hooper's communication was of much practical value.

In the first place, the large number of cases reported by Dr. Hooper, taken in connection with the large experience of Butlin, in England, and Hoffman, of Germany, to say nothing of the lesser experiences or others, should set at rest the fears of removing adenoid hypertrophy at the vault of the pharynx during general anæsthesia. There had been great dread when this was first proposed, and by none more than by surgeons familiar with anæsthetics, that blood would run into the larynx in such quantity as to produce danger of suffocation by spasm, or otherwise. Experience has shown, however, that the reflex excitability of the pharynx being retained, the blood is swallowed, and often vomited afterwards in large amount.

¹ See page 261 of this number of the Journal.

² See page 268 of this number of the Journal.

In the second place, Dr. Hooper's cases were evidence that the removal of the growth could be effectually performed under general anæsthesia, and without the aid of the rhinoscopic mirror. The contrary of both these statements had been quite recently made by eminent authorities. In regard to the latter point, a recent text book had declared that operations on the adenoid should never be attempted except the forceps were guided by the mirror.

In most cases of young children we have either got to make the diagnosis and carry out the treatment by the sense of touch alone, or let them go without either.

In the third place, Dr. Hooper's experience shows us that the number of cases of adenoid hypertrophy requiring relief is much larger than is generally supposed. It is only another instance of the fact that we don't see a thing until we look for it. A distinguished clinical teacher and writer in a paper on the relation of diseases of the throat to those of the ear, had said within a very few years that he had never seen a case of deafness due to adenoid hypertrophy! If he had examined all the deaf children who had come under his observation, using digital exploration when rhinoscopic was impossible, with reference to this one point, he would undoubtedly have found many.

Just what cases should be operated on, and just what cases can be left for the natural atrophy is not yet decided, but there can be no doubt about not only the propriety, but necessity, of operating, in case deafness is already present, or when the child is afflicted with serious nervous symptoms, deprivation of continuous sleep, etc. The immediate change in the whole well-being of such children after operation is wonderful.

Great care should be taken of children after the operation. Although it may be hard to follow the practice of Butlin and keep them in bed for a week, they can at least be kept in the house. Not only is the sudden communication of the middle ear with the out-door air liable to cause trouble, but the loss of so much blood is said to increase the liability to bronchitis and pneumonia.

Dr. KNAPP, who was present by invitation, said that he had been much interested in the result of Dr. Hooper's operations. He had seen adenoid vegetations a year ago in a patient who had cerebral infantile paralysis of an unusual type, — not the ordinary form of paralysis with rigidity and contraction, but a partial paralysis with intermittent spasm, ataxia, and associated movements. The combination of the paralysis with the peculiar expression caused by the adenoid growths — the half-open mouth, the dropped and protruding lower jaw, the half-articulate speech, the vacant expression, and the constant drooling — led to the thought of idiocy, but he was surprised to find that the child was bright and intelligent. The parents were anxious to have something done for the drooling, even if nothing could be done for the paralysis. Thinking that the drooling might be caused by some trouble in the nose or naso-pharynx, he sent the child to Dr. Hooper, who found a mass of adenoid vegetations, which were removed. On seeing the child a month or two later, he was struck with the change in her appearance, from an apparent idiot she became a bright and attractive child. Some time after he saw a second case of cerebral infantile paralysis, with the