The first thirty cases treated at Booth Hall were in the early part of 1927 and were all complete failures. The preparation used was probably stale and inactive, the demand for the drug being negligible at that time. Evidently it does not remain active indefinitely, and we suggest that thallium acetate in contact with the air may slowly become changed into the carbonate.

With a fresh supply of thallium acetate about fifty children have been treated, and with the exception of three all have been successfully depilated. There were three failures where, at the end of twenty-one days, there was only patchy depilation, the remaining hairs being absolutely firm. We cannot explain this, but it is interesting to note that the statement of another observer, that fair children depilate more readily than dark-haired children, is borne out, for the failures were dark children in the proportion of two to one. On the other hand, we have had perfectly satisfactory depilation of a considerable number of dark-haired children.

Signs of thallium toxæmia were manifested in five children. Two of these, aged 3 and 6 years respectively, had very transitory albuminuria; the former showed albumin on the thirteenth day only, and the latter on the first and second days after the dose. In the other three children (girls—two aged 11 and one 10) pains in the knee-joints and down the tibiae to the ankles arose between the tenth and twelfth days, and were evidently severe. In one there was definite effusion into the right knee-joint, but the two others showed nothing on examination except tenderness and some pain on full flexion. No rise in temperature occurred, but in one girl the pulse rate increased with the onset of pain. All three cleared up in less than a week on salicylates, with the methyl salicylate liniment applied locally on lint; they depilated well, and up to the time of their departure to the convalescent home showed no other untoward symptoms. These three girls were the oldest and heaviest children who were given the drug, and consequently received the largest doses; this may give some clue as to the limit at which the method is applicable, since we understand it has been shown that serious toxic signs develop in adults given doses far short of that which would be required to produce depilation. The heaviest child among our cases which depilated without showing any toxic signs weighed 23 kilos; the lightest among the bone and joint cases weighed 23.9 kilos, and the heaviest 32 kilos. The two cases of albuminuria occurred in younger and lighter children.

Conclusions.

We have in thallium acetate a drug which may have a great future in the treatment of ringworm of the scalp, both in institutions and in private practice; but we consider that more observation is needed before its use becomes general. We do not know the ultimate effects of thallium acetate on the kidneys. The questions which demand answers are: Why does it produce albuminuria in some cases and not in others? Are any changes produced in the kidneys in those who do not show this symptom? Is there possibly irritation which may pave the way for future kidney trouble? How soon is all the thallium acetate excreted by the kidneys? We presume it is all excreted in this way, and we need a suitable chemical test for its presence in the urine. We also do not know what the exact changes are which produce the bone and joint symptoms, and, so far, we can only assume from their short duration that no lasting damage is done.

We can say definitely that treatment by thallium acetate, thoroughly carried out, shows a 90 per cent. standard of efficiency. Local treatments with tincture of iodine, ointments, etc., are unsatisfactory compared with thallium and x-ray depilation, and thallium has the advantages over the x rays of producing a speedier and equally efficient depilation; of a speedier occurrence of new growth after treatment; and, so far as we have seen, no permanent alopecia. X-ray depilation is unsuitable for children under 3 years of age, and in these cases thallium is successful. We have dosed a child as young as 10 months. At the other end of the scale we are driven to conclude that there is a limit of body weight beyond which toxic symptoms tend to arise readily. We do not yet know if with this type

of case a lesser amount of the drug per kilo of body weight would be efficient in procuring depilation without the occurrence of such signs, but in the next cases which weigh 23 kilos or over we intend to try seven milligrams per kilo instead of eight.

When applying this method of treatment it is necessary to bear well in mind the following salient points:

1. Remember the routine examination of the urine and the nature of possible toxic signs.
2. Weigh the child naked.
3. The drug must be of recent manufacture, and, if the solution method is used, the solution should not be kept more than a day.
4. Depilate between the fourteenth and nineteenth days, and above all strap the patches thoroughly as suggested. The old patches should be examined with a lens after this to see that no stumps are left. A few dirty stumps will reinfect the new growth, which comes very quickly.

Our acknowledgments are due to Dr. J. D'Ewart, medical superintendent, for permission to publish our observations, and to Dr. Gibson, visiting dermatologist, for his interest and help in the supervision of the treatment.

NASAL HEADACHES.*

BY

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To bring forward again the well-worn subject of headache may appear to be in the nature of flogging a tired horse; but, in the many papers recently published on this symptom, I have found few references to nasal disease as a possible causative factor. This is my excuse. In what follows I shall omit consideration of those cases in which the headache is obviously part and parcel of some acute nasal infection, and confine discussion to those of cryptic headache where there is no definite signpost to the cause.

Every medical man frequently has to deal with the type of case to which I refer. Some of the patients suffer almost constantly, and look ill, run down, and toxæmic; others have violent attacks of headache with periods of freedom; some suffer in silence, as far as any reference to a medical man is concerned; others seek remedies everywhere. If they have sought medical advice they will probably have been investigated for bowel trouble, menstrual disorders, errors of refraction, and possible sources of toxæmia such as septic teeth; but comparatively rarely will the nose have been examined. I am far from suggesting that these other conditions are not important and frequent causes of headaches, or that some nasal lesion is more common than any of them; but I wish to suggest that, other possibilities having proved negative, the nose should be thoroughly examined for any possible source of the trouble before labelling the patient as, for example, a case of toxæmic headache, or of atypical migraine.

There are essentially two conditions in the nose which may give rise to headaches of nasal type—sinus disease and some form of nasal obstruction. The more usual and more important of these is the former, and unsuspected pus held up in one or more of the sinuses is productive of many obscure complaints. There is a widespread belief that accessory sinus suppuration is always associated with nasal discharge, either anterior or posterior, or both, and that in the absence of this symptom sinus disease can be excluded. This is erroneous. Many cases do not show this symptom, and manifest only a concealed focus of sepsis by their general toxæmic appearance—sallow complexion, listlessness, undue mental and physical fatigue, and the headaches, which may be general or may be of special type according to the sinus involved.

It will make for simplicity to take the various sinuses in turn and describe the kind of headache to be expected in each case.

Disease of the maxillary antrum produces no typical variety: the headache is toxæmic, sometimes frontal,

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sometimes general, sometimes described as neuralgic, and increasing usually towards the end of the day. It is often thought to be due to eye-strain, but on close question the patient may confess to frequent colds, which are apt to be worse on one side than the other, and that at such times there is some pain in the corresponding cheek.

A lady, aged 43, was sent to me for investigation because of arthritis in the shoulder; on transillumination it was found that the antrum on one side was dark. She then said that ever since she was a girl of about 12 she had suffered from headaches and from pain beneath the corresponding eye, especially if she had a cold; all had been called neuralgia. She looked thoroughly toxic and said she never felt really well, but was so busy that she had no time to feel ill. Puncture of the antrum yielded foul inspissated pus. The antrum was drained intranasally and gradually cleared up. This was last autumn. She has gone through this winter without a cold, has been free from headache for the first time for years, and looks and feels quite a different woman.

In this case there was only discharge from the antrum during a cold, when it was not noticed. Sometimes no history of discharge or offensive smell can be obtained.

A man, aged 62, was sent, on account of two or three recent attacks of laryngitis, with the warning that he was always seedy, very nervous, and suffered at times from incapacitating headaches. He had pus in one antrum, very foul, probably originating from a carious upper molar tooth which had been extracted some twenty years previously. Question him as one might, he would not admit to any nasal symptoms. After some trouble he and his doctor were persuaded to agree to intranasal drainage of the antrum; since then (six months) he has only had one attack of headache, and that not severe, when he caught cold and his antrum "flared." His laryngitis has not returned.

Frontal sinus disease is usually associated with headache of a very definite type. The pain is situated in the frontal region immediately above the eye, and may spread over the whole of the affected side of the head—a true hemicrania. Hence it is often mistaken for migraine. In severe cases it may extend to the other side of the forehead, and thence all over the head, though only one frontal sinus is involved. It occurs typically in the morning, starting soon after the patient gets out of bed, and gradually subsiding, to disappear about lunch time. It may be so severe at the onset as to cause vomiting and some interference with vision on the affected side, thus making the mimicry of migraine more complete. But the typical battlemented spectra of migraine are absent. Frontal sinus headaches often occur in bouts in chronic cases, the headache coming on every morning for a fortnight or three weeks, but gradually diminishing in intensity and then disappearing for weeks or months. These bouts are initiated by some catarrhal infection, which causes the sinus to flare up, and the headache diminishes coincidentally with the superimposed catarrh. The diagnosis can often be made on the history, but should always be confirmed by a skiagram. There is usually little or nothing to be seen inside the nose. A deviation of the septum to the affected side is common, and during an attack there may be oedema of the middle turbinate with, possibly, some pus exuding beneath it. Often both these signs are absent. An interesting case of this type occurred a few weeks ago in a boy of 16—unusually young for such cases.

This boy had suffered from typical frontal attacks for two or three years, and his father had before him. The tonsils had been removed on account of the headaches, but without benefit, and he was then labelled migraine—no doubt the family history led to this. Then he started a cold at school, and had another of these attacks. His school doctor, an alert clinician, diagnosed an infection of the frontal sinus. But examination of his nose showed no oedema of the turbinate, nor could any suspicion of pus be obtained from beneath it, even after the most thorough shrinking with cocaine. A skiagram, however, showed the frontal sinus on the affected side blurred and hazy; the fronto-nasal duct was acutely kinked and narrowed by a large fronto-ethmoidal cell, which was preventing drainage and ventilation. When this and the other anterior ethmoidal cells were curetted away there was a free passage into the frontal sinus, which contained mucus and flaky pus—obviously an acute catarrh superimposed upon an infection of long standing. He is now doing well, and has had no more headache.

The anterior ethmoidal cells are frequently involved at the same time as the frontal sinuses, and then the headache is apt to be more persistent and not so typically matutinal,

while eye symptoms are, in addition, not uncommon, such as some blurring of vision or a sensation of pressure or of throbbing in the orbit. This often leads to the diagnosis of a refractive error, if one is present, as the cause of the headache, and when correction of such error by glasses fails to relieve, the case is again usually labelled migraine. It is, therefore, of importance that all cases of hemicrania in which the symptoms are not those of classical migraine, and are not relieved by suitable glasses, should have a thorough examination of their nasal sinuses before being left to their fate. They should be seen by a rhinologist in the second place as automatically as by an ophthalmologist in the first. In these cases, as in those affecting the frontal sinus only, examination of the nose often reveals very little, and recourse has to be had to a skiagram for diagnosis.

A middle-aged lady developed all the symptoms of an acute infection of the antrum following extraction of an upper molar tooth, but in addition to this she told a story of years of headache with, more recently, failing, or rather blurring, of vision to such a degree that she had had to give up needlework almost entirely. This suggested that there was something more than an affection of the antrum, and a skiagram showed infection of all the anterior group of sinuses. An intranasal operation upon the ethmoids to drain them and give access to the frontal, and at the same time upon the antrum, produced an extraordinary change: she lost her headaches and tiredness, her sight rapidly improved so that she could with ease do fine embroidery, she gained in weight, improved in colour, and said, when last seen some three months ago, that her friends scarcely recognized her.

These two cases of frontal sinus disease, which had been unrecognized for long periods, indicate what can be done in favourable cases in the way of relieving headache. Unfortunately, all cases do not respond so well. Many patients, even after free drainage, continue to have headaches, perhaps not so severe, but quite enough to render their lives a burden to them, and not infrequently one fails to relieve them even by external operative procedures. Many relapse into complete invalidism and some even develop suicidal tendencies. In others, again, one fails entirely to stay the progress of the infection, so that ultimately it may spread to the intracranial contents. My impression, unsupported by statistical evidence, is that those cases of frontal sinus headache with a patent ostium, and with obvious discharge from the sinus, are the least satisfactory in their results, while those in which headache is the only indication of the disease, in fact those closed cases with which this paper deals, are the most satisfactory.

Vacuum Frontal Headache.—Another cause of frontal headaches is the condition named by Sluder vacuum frontal headache. It results from closure of the fronto-nasal duct so that the air in the sinus is absorbed, producing a partial vacuum and congestion of the lining mucosa. This causes the thin bony floor of the sinus to become very sensitive to pressure, the point of maximum tenderness being at the thinnest part—that which lies internal to and behind the point of attachment of the pulley of the internal oblique muscle (Ewing's sign). Consequently, therefore, movements of the eyes aggravate the pain, and this is a very characteristic feature. These cases are not very uncommon; they are partly anatomical and partly pathological. A deviation of the septum may so narrow the nasal passage as to press the middle turbinate against the outer wall of the nose—in itself a cause of pain. If to this is added a catarrhal swelling of the mucous membrane the orifice of the duct may be completely blocked and headache result or the bone and covering mucosa of the middle turbinate may be the seat of an inflammatory process causing oedema or polypus formation, which will block the duct. A patient who had an acute affection of the antrum stated that he had had typical frontal headaches for several days. Great oedema of the middle turbinate was causing the block. The headaches went as soon as the antrum was drained and the oedema began to subside. In cases due simply to a temporary catarrhal swelling the judicious application of cocaine is of value.

I saw not long ago a patient who, a few hours before an important business engagement, was lying in bed in a darkened room with a devastating headache. He had a tiny polypus high up near the anterior end of the middle turbinate, which was rather

swollen, and his nasal passages were very narrow. Cocaine was applied preparatory to removing the polypus, which I suspected of being the cause of the trouble by blocking the duct, and while waiting for it to act he suddenly sat up and said: "My headache has gone! I felt it go this moment." The cocaine had caused the mucosa to shrink sufficiently to allow air to enter beside the polypus. The polypus was removed, and he attended to his business. He has had no more trouble.

Such dramatic cures are regrettably rare. More usually relief is obtained gradually by means of the usual remedies for catarrh, or by an operation to correct a septal deformity or remove the anterior end of the middle turbinate.

The posterior group of sinuses are less often the cause of chronic headache, and the pain caused by chronic infection in them is not characteristic. It has been said that suppuration of the sphenoidal sinus causes a "bursting" temporal headache or pain in the occipital region, but this does not always happen. However, a complaint of headache of this or any other type, especially if associated with post-nasal catarrh or crusting, would raise a suspicion of involvement of the posterior group and lead to an x-ray examination. I have never come across a case of otherwise symptomless headache of which the sphenoidal sinus was the cause, but they are said to exist, and adequate drainage should produce rapid relief of symptoms, for the sphenoidal sinus is one of the most satisfactory to deal with.

Atrophic rhinitis is associated at times with severe headaches. There are cases of this condition in which there is no fetor, and in which the crusting in the nose seems to be a minor annoyance. The main complaint is of severe generalized headache, and in the absence of fetor, or of any mention by the patient of nose trouble, the rhinitis may be overlooked. The cause of the headaches, of course, is that not only the mucosa of the nasal passages is atrophic and crusted, but all the sinuses also are full of crusts. If the crusting has extended to the pharynx and larynx, as it may, the cause of the headache will be apparent.

Nasal obstruction may seem at first sight beyond the limits of this paper, yet it is surprising what a degree of obstruction patients will tolerate seemingly without distress, and will complain of their headache and not of their nose.

A man came one day with a polypus protruding from the anterior nares, having been unable to breathe properly through his nose for years, or at all for months. He said that he could not stand prolonged or extensive operative treatment, as he was a very sick man, having been under treatment for years for chronic headaches, neuralgia, and gastro-intestinal troubles. He was thin, pale, and sunken-eyed. He had never mentioned his nasal trouble to anyone, and his slightly nasal voice had apparently not attracted attention. He was persuaded to consent to having the nose cleared of polypi, which was done bit by bit under local anaesthesia, and took months, but since he has acquired nasal respiration and ceased to swallow mucus his troubles have vanished.

Patients with severe septal deviations will do the same thing.

An educated man of 23 said that he did not know he had nasal obstruction and was only persuaded with difficulty to see a rhinologist by his doctor, who had by chance seen him sleeping with his mouth wide open and had found out his trouble. Yet he has such a gross deformity that he cannot breathe at all through one nostril and only very badly through the other. He suffers from frequent headaches, as do most cases of severe septal deformity. Complete submucous resection produced an excellent result.

A word of warning may not be out of place. There are many sufferers from headache, and there are even more people with minor septal deformities. The two are not necessarily related. It is scarcely an exaggeration to say that a perfect septum does not exist. Given the right case, however, and a complete operation, which is often far from easy, and the results are excellent. The operation has fallen rather into disrepute because it is sometimes performed ill-advisedly and incompletely, and an inadequate septum operation is worse than none at all.

Summary.

The thesis has been that many cases of chronic recurrent headache are of nasal origin though there are no obvious signs of nasal disease; that many are missed because their

incidence is not sufficiently appreciated; and that therefore the nose should take a place with the eyes in a mental list of possible etiological factors in such cases. Some clinical material has been brought forward to back the contention that more cases of headache are due to nasal disease than is generally realized, and that the rhinologist can often help heads as well as noses.

THE ETIOLOGY OF FIBROUS STRICTURE OF THE URETHRA.

BY

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STRICTURE of the oesophagus and stricture of the rectum are rarely diagnosed without some effort being made to eliminate the possibility of syphilis acting as a determining factor in their etiology, but, strangely enough, I have never heard it whispered that stricture of the urethra is associated with syphilis. Recurring or successive attacks of gonorrhoea have been held to account for most cases, while some few have been associated with physical or chemical trauma.

Fifty consecutive cases of stricture of the urethra have been examined thoroughly at the Seamen's Dispensary, Liverpool. Every case of chronic urethritis in the male was examined by the urethroscope, and if stricture tissue was found the blood was examined. It is well known that a considerable number of apparent infections with gonorrhoea are in reality infections with syphilis also, although no external signs of syphilis are present then or later—that is to say, that the syphilis is latent from the beginning, and there is neither primary ulcer nor secondary syphilides. The Wassermann reaction is the only method of diagnosis, and a second confirmatory test is absolutely essential.

Of the fifty cases of stricture under review, twenty-one conformed to this type. Twelve others gave a history of penile ulcer during or before the attack of gonorrhoea, and the blood Wassermann test was positive. Six others gave a history of treated syphilis and gonorrhoea, and their blood Wassermann reactions were returned as "negative." One man was sent by a general practitioner to have his blood tested, as his wife had a history of several miscarriages, followed by five full-time children who were born dead or who survived birth for a few hours only. This patient attended twice; stricture tissue was found at 5 cm. and 11 cm. from the meatus, and his blood reaction was reported negative. Had he returned again a provocative injection of neosalvarsan might have given a positive reaction, as the gonorrhoeal infection was eighteen years old. Ten cases of stricture gave no history of syphilis, and the Wassermann reaction in the serum was returned as negative.

Analysis of 50 Cases of Stricture of the Urethra.

Wassermann reaction positive	...	...	33=66%
History of syphilis, Wassermann reaction	...	...	
negative	...	...	6=12%
No history of syphilis, Wassermann reaction	...	...	
negative	...	...	11=22%

Stricture of the urethra, therefore, is more common in cases which have coincident syphilis and gonorrhoea, and it is good practice to ascertain the Wassermann reaction of the blood in all cases of stricture. In cases of long duration a negative Wassermann reaction may become positive after a provocative dose of neosalvarsan.

The pathology of the condition is probably that the inflammation of the mucous membrane by the gonococcus provokes a greater response in the submucosa of syphilites, that an abnormal number of small round cells is developed, and that these subsequently form the urethral stricture.

In view of this connexion between syphilis and stricture it is not surprising to find that cases of resistant stricture having a positive Wassermann reaction become amenable to dilatation after a course of antisyphilitic treatment with bismuth alone, or neosalvarsan and bismuth. One patient, who on four different occasions had been diagnosed as a case of impermeable stricture, was dilated up to 45 Charrière within three months of the inception of antisyphilitic treatment.