Alcohol is a most important factor in feeding in enteric fever cases. Sixteen of my patients had no alcohol, but the majority of them had from one to four ounces daily. In Case 6 the patient, a female, aged 15 years, had as much as 12 ounces and in Case 59 the patient, aged 13 years, was given six ounces. Both of these patients had the querulous, high-pitched voice so characteristic of enteric fever and were weak in intellect for a short time after convalescence. In both of these cases the alcohol was pushed because the cardiac first sound was weak—and in such cases the alcohol *must* be pushed to any extent. I have given 24 ounces daily before beginning this treatment. From two to four ounces for adults seem beneficial and never do any harm, acting as a food and lessening tissue change, and I would always advise that a small quantity be given. I use whisky or brandy, as the patient prefers.

A symptom one meets with perhaps once in 20 cases is grass-green motions. I have found from five to 10 grains of salol three times a day rapidly cure this, and since beginning the use of salol I have never had to use any other drug for it.

Fever.—In no case have I had to resort to the cold bath, though I now think that the patient in Case 31 would have been the better for it. In the first place, I never allow the patient more than one sheet over him as bed-clothes, even if he complains of feeling cold. If his temperature goes higher than 103° or 104° F. I have him sponged and placed under a cradle with one or two icebags suspended inside and a sheet over the top. This forms a cold-air bath and is quite efficient.

Hæmorrhage occurred in five or six cases, including Case 31, a fatal one. The other cases gave no trouble, though the patient in the last case in my list had an enormous hæmorrhage measuring over two pints. In this case a pulse of 84 was kept after the hæmorrhage and the patient made a good recovery. We may assume that no treatment will prevent the possibility of an occasional hæmorrhage so long as ulceration occurs, for it is the natural sequence of ulceration, but one hopes that in the future a means of preventing the ulceration will be discovered. It is quite possible that large doses of salad oil would saturate the sloughing Peyer's patches, and by stopping the supply of nitrogen to the bacilli so prevent further ulceration.

One may generalise and say that drugs are required only for complications. In the space at my disposal it is quite impossible for me to give an account of all the cases, for each one in itself is a clinical lecture, but some of the more interesting charts are reproduced and I have tabulated all the cases, giving the age, the sex, the highest temperature, the duration of temperature after admission, the highest pulse, the highest daily action of the bowels, the amount of alcohol given, the quantity of whey administered daily, and the length of time that the patient was kept on whey, as well as remarks on anything that made the case especially interesting, and as to complications. The general severity of each case will be gathered from these data, and I think that we may regard them as a very fairly average lot of cases, such as might come under treatment in any hospital, and thus fairly to be taken to compare the results obtained with those obtained elsewhere. Unfortunately in 21 cases the temperature charts were destroyed, so that the table is incomplete, but there are still sufficient to be of interest.

Every case of enteric fever is of intense interest, for the variety is so enormous. In the paper which I read at Canterbury, already alluded to, I enumerated 22 complications which I had met with, and I am sure that those who discussed the paper afterwards added quite as many more.

In spite of my strong advocacy for this line of treatment I do not desire to be dogmatic, for every case must be treated on its merits according to the judgment of the practitioner who is attending it, but I do, and shall always, insist that milk diet is the wrong diet and I have done my small best to prove that it is so. Theoretically I believe that enteric fever patients would do as well on an artificial whey and salad oil as on anything else, but I trust that this will be investigated in the future. So long as my patients continue to do as well as they do at present I shall be satisfied with my present treatment, but should occasion arise to make me dissatisfied I shall seek to improve the diet and shall then publish the result.

As a last word I would urge practitioners to give the treatment a fair trial and to let their results be known. I cannot but believe that the present high death-rate is unnecessary, and if this is the case it calls for radical alteration, and we should not rest satisfied till for the whole of England our death-rate from enteric fever is a cypher.

Teynham, Kent.

ADVANCES IN THE TREATMENT OF DISEASES OF THE NOSE.

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IN the treatment of diseases of the nose very great advances have been made within recent years. For example, the subject which, perhaps, more than any other occupies the attention of the modern rhinologist is not even mentioned in Morell Mackenzie's work on Diseases of the Nose—that of the diseases of the accessory sinuses and air-cells. True, acute suppuration in the antrum of Highmore is described by John Hunter, an affection usually of dental origin and associated with swelling, redness, and œdema of the cheek. But this affection is extremely rare, whereas suppuration with no external signs is comparatively common and yet has attracted attention only during the last 15 years. Ziem, who first described it, was himself a sufferer and for years sought the advice of his colleagues in vain for a fœtid discharge from the nose. At length he himself divined the cause and had his antrum opened and was cured. Being now on the look-out he soon discovered that the disease was not infrequent, and more recently it has been found that suppuration in the frontal and other sinuses is almost as common as suppuration in the antrum. Thus a surgeon became famous and opened up a new field for surgical enterprise through the fortunate accident of having his own body to study on. Truly "it is an ill wind that blows nobody good." [The anatomy of the nose and its accessory cavities was briefly described and illustrated with lantern slides and specimens.]

SUPPURATION IN THE NASAL SINUSES.

Antral suppuration is often due to caries of the teeth, but that this is not the only cause, as has often been said, is shown by the fact that the teeth cannot possibly cause suppuration in the frontal or other sinuses. The most common causes are severe nasal catarrhs, especially when associated with infectious fevers, influenza, &c. The recent epidemic of influenza, in addition to its other sins, is probably responsible for the large number of cases of this kind seen at present, as well as for the large and increasing prevalence of nasal polypi.

An acute catarrh of a sinus is commonly associated with a nasal catarrh and if then the outlet of the sinus becomes blocked acute suppuration will result. The openings of the sinuses are small and ill-situated for drainage and a moderate amount of catarrhal swelling alone is sufficient to occlude them. The majority of these acute suppurations get well spontaneously, but in some cases chronic suppuration results. This may be due to several causes. The intensity of the original inflammation may irretrievably damage the mucous membrane lining the sinus; there may be an obstruction to the outlet of the sinus from thickening of the mucous membrane or bone or from polypi preventing a free escape of the discharge; and ultimately the persistence of the suppuration may induce changes in the lining membrane or bony walls of the sinus. Again, a chronic disease in the nose may maintain a chronic catarrh in a sinus, or the cavity may contain a foreign body—thus a tooth may be found in the antrum. The usual history of an acute case is that the patient experiences a sudden increase of the nasal symptoms with a feeling of heat, fulness, and distension in the nose and over the region of the affected cavity. There are pain and tenderness and in many cases severe neuralgia shooting along the trigeminal nerve. In a few of the more severe cases there may be much constitutional disturbance, and the soft tissues overlying the cavity may become swollen, red, and œdematous. The feeling of tension is much increased on straining, coughing, or lowering the head. After a few hours or days of increasing suffering there is a sudden discharge from the nostril on the affected side, consisting of muco-pus or pus, mixed with more or less blood, and the symptoms are at once relieved. This may be the end of the attack, or after a brief interval

the symptoms may return and increase in severity until a second discharge takes place. This cycle of events may even be repeated, but in the end complete recovery usually ensues. It is important that these cases should be recognised and appropriately treated, because if the suppuration should continue secondary changes will occur in the lining membrane and walls of the sinus which will lead to chronic suppuration and make the cure a matter of great difficulty. On the other hand, in early cases cure is usually an easy matter.

The chief object of treatment is to reduce the swelling around the opening of the cavity and to allow free escape into the nose for the pent-up discharge. The nose should be washed out by means of an alkaline lotion such as Dobell's. The formula for this is three grains each of bicarbonate of soda and borax and one and a half grains of carbolic acid with a little glycerine or sugar to an ounce of water. It is the most useful of all nasal lotions and is capable of much variation. Thus the carbolic acid may be omitted when it seems irritating, salt or chloride of ammonium may be added when a stimulant is required, and hazeline may be introduced when an astringent is required, and so on. This lotion should be used until all catarrh has ceased. Of the special measures to reduce the swelling around the opening of the cavity the best is the application of a solution of suprarenal extract and cocaine. Suprarenal extract is a recent introduction of great value in all nasal work. It increases the anæsthetic action of cocaine and prevents its absorption. It is a strong astringent to the nasal mucous membrane, rendering it white and bloodless, so that operations may be performed on the nose without the loss of a drop of blood. To obtain the full effect the solution should be freshly prepared. Ten grains of extract of the dried gland should be dissolved in 100 minims of distilled water, filtered, and 10 grains of cocaine added. Pledgets of wool soaked in this solution should be packed into the nose high up under the middle turbinate, and retained there for from 20 to 30 minutes to obtain the full action. If the frontal sinus be affected discharge soon commences to trickle down into the nose; should the antrum be at fault, the evacuation of the cavity may be facilitated by lowering the patient's head and bending it over towards the opposite side. Subsequently any hypertrophy or swelling should be removed, the depletion caused by the local blood-letting tending to prevent recurrence of the swelling. In fact, should this treatment not be effectual, incisions simply to produce local blood-letting should be tried. Subsequently, to keep the passages clear the best application is a spray of menthol, from 5 to 10 per cent., dissolved in almond oil or paroleine, and hot fomentations should be applied, as they relieve the pain and are very grateful to the patient. If these measures fail active means must be adopted to secure the evacuation of the cavity. If the maxillary antrum be affected it should be punctured and the pus should be washed out by irrigation. The particular method to be adopted depends on various circumstances. If the adjacent teeth are carious they should be extracted and the antrum should be perforated from a socket with a small drill. This little operation is easily done under gas. The first molar is the site of election, as its roots are separated by a very thin plate of bone from the floor of the antrum; but should the first molar be healthy it is quite easy to reach the sinus through the socket of the second molar or either of the bicuspid teeth. Having made an opening the nozzle of an antrum syringe is inserted and the cavity is washed out with a solution of boracic acid, boiled salt solution, or other unirritating fluid. This irrigation must be repeated daily until the discharge ceases, but, as a rule, in these acute cases no pus will be seen after the first washing and after two or three days the treatment may be discontinued and the opening allowed to close. On the other hand, when no carious teeth are present and when there is no vacant space in the alveolar border the antrum should be punctured from the inferior meatus of the nose. A pledget of wool soaked in cocaine is packed in beneath the inferior turbinate and then a small trocar and cannula are passed into the nose and directed strongly outwards about half an inch behind the anterior extremity of the inferior turbinate so as to bring it into contact with the antro-meatal septum at its thinnest part. It is then pushed onward into the cavity, the trocar is withdrawn, and the cavity is washed out through the cannula. This operation has the advantage that it does not entail the sacrifice of a healthy tooth when no carious tooth or vacant space is present, that it only requires cocaine anæsthesia, and that it does not establish a communication between the nose and the mouth. On the other hand, this opening cannot be maintained and therefore the operation has to be repeated daily or as often as necessary until a cure is established.

I have gone somewhat fully into the diagnosis and treatment of these cases as they are commonly met with in general practice and their treatment is easily conducted and very satisfactory.

Chronic suppuration is a much more difficult matter to treat. In the first place the single symptom is a purulent discharge from the nose and the diagnosis is difficult and in many cases impossible. One important rule may be laid down, that in every case in which there is a purulent discharge from the nose there is most probably suppuration in one of the sinuses, and further that although suppuration in the antrum, or indeed in any sinus, may be met with alone, in the majority of cases two or more sinuses are simultaneously involved. When no external sign of disease is met with the first point in determining the origin of the pus is to ascertain the position at which it appears in the nose. Thus pus coming from the middle meatus implies suppuration in the anrum, frontal sinus, or anterior ethmoidal cells. Pus appearing in the posterior part of the nose and coming from above the middle turbinate means suppuration in the posterior ethmoidal cells or sphenoidal sinus. Another method of diagnosis, reliable only in disease of the antrum, is trans-illumination. The patient is examined in a dark room; a small but powerful electric light is placed in the mouth and if the antra are normally clear the cheek will be lighted up, a bright band will appear along the infra-orbital margin, the pupils will be lighted up, and the patient will experience a subjective sensation of light. When the antrum contains pus the bright band along the infra-orbital margin is absent, the pupil is dark, and the patient sees no light. These signs are obviously much more definite when one antrum only is affected. But the one really reliable means of diagnosis is exploration by means of puncture and irrigation. In the majority of cases it is possible to differentiate disease of the anterior set of sinuses, namely, the antrum, the anterior ethmoidal cells, and the frontal sinus, from disease of the posterior set, the sphenoidal sinus and the posterior ethmoidal cells. If there is no definite evidence as to which of the anterior set of sinuses is involved, the antrum should be first attacked, then the ethmoidal cells, and lastly the frontal sinus. If the posterior set of cavities be affected the posterior end of the middle turbinate should be removed, and then either the posterior ethmoidal cells opened, or, the ostium of the sphenoidal sinus having been brought into view, this cavity should be washed out through its natural opening. An important rule to bear in mind is that in every case it is necessary to explore the cavities one by one until all sources of suppuration have been discovered, for commonly more than one cavity is affected.

The treatment of chronic suppuration consists, in the first place, in adopting simple measures. Any abnormality or disease of the nose should be removed and the approach to the outlet of the affected cavity thoroughly cleared. The antrum should be washed out through a simple puncture as already described. The sphenoidal sinus can be irrigated through its natural opening and attempts may also be made to pass a cannula up through the infundibulum into the frontal sinus. Should these means fail after prolonged trial the question of further operation must be discussed. In some cases the patient is better left alone; in others a radical operation must be undertaken. The affected cavity must be freely opened, all pathological conditions set up by the suppuration and tending to maintain it, such as polypi, caries, or necrosis of the walls, must be removed and means must be taken to prevent re-accumulation of the pus either by providing permanent free drainage or entirely obliterating the cavity. In the antrum a free opening is made through the canine fossa, any pathological products are removed, and then, by cutting away the wall separating the antrum from the inferior meatus of the nose, free permanent drainage is established. The canine fossa opening is allowed to close. The frontal sinus is opened through the supra-orbital margin, its anterior and inferior walls are chipped away, the lining membrane is entirely removed and the infundibulum is enlarged to admit of the passage of a large drainage-tube, and thus the sinus is entirely obliterated. The ethmoidal cells are best attacked from the nose with a sharp ring knife. The middle turbinate is first removed and then the ethmoidal cells

are thoroughly broken down and scraped away. The sphenoidal sinus is treated by enlarging its natural opening with punch forceps, such as Grünwald's, and the greater part of the anterior wall of the sinus may be chipped away. These measures are attended with a very fair degree of success, especially when it is possible to obtain complete obliteration of the sinus. They are not invariably successful, but our knowledge and means of dealing with these cases is constantly increasing, and before long better results may be expected.

Another great recent advance has been made in the treatment of *nasal polypi*. The methods of dealing with severe cases of this affection have hitherto been most unsatisfactory. Recently polypi have been ascribed to suppuration in the accessory sinuses; they are, indeed, very commonly associated with it, but they may occur independently. The real cause of the frequent recurrence of polypi is disease in the underlying bone. This theory can perhaps hardly be described as new, for Morell Mackenzie relates two cases in which recurrence of nasal polypus was prevented by removing some of the underlying bone, and the view had been urged as long as 100 years previously. Dr. Woakes 15 years ago strongly advanced similar opinions. These observations, however, had been neglected, but during the last year my own investigations have again aroused the controversy and have been confirmed by others. They show that in all cases of constantly recurring polypi a peculiar form of a rarefying osteitis is present, and it is upon this that the obstinate nature of the affection depends.

The treatment therefore resolves itself into removing, not only the polypi, but also the underlying diseased bone. In simple cases the wire loop of the snare may be made to include a piece of bone as well as the polypus. In more severe cases, after the polypi have been removed, the parts may be cleansed and anæsthetised with cocaine and the bone may be cut away with punch forceps. In the worst cases more radical means should be adopted. The patient should be placed under a general anæsthetic, the polypi should be removed with polypus forceps, and then the whole ethmoidal region should be thoroughly curetted with a sharp ring knife. It is impossible to see what is being done, but if care be taken and the sharp edge of the knife be directed outwards rather than upwards there is little danger of wounding the cribriform plate, and should the inner wall of the orbit be injured no harm will result. The healthy ethmoid is firm and resistant and the knife gets little hold, but the carious softened bone is easily scraped away and the curetting should be continued until every soft piece of bone or degenerated mucous membrane has been removed. The hæmorrhage from this proceeding is free and necessitates considerable caution with the anæsthetic. It usually, however, soon ceases, but in some cases it is necessary to pack the nose The subsequent treatment consists in irrigating the nose until healing occurs. By these means a complete cure may be obtained in the worst cases of nasal polypi in which frequent recurrence has occurred for many years under the ordinary treatment. It is not, however, an operation to be lightly undertaken. Both the operation and the anæsthetic require the greatest care and it should never be carried out in patients who are not in good health or who are more than 40 or 45 years of age.

Trigeminal neuralgia.—The more our knowledge of local diseases of the nose and mouth increases and the more carefully these parts are examined the more frequently this severe disease will be found to arise from a purely local cause. In fact, it is doubtful if all cases are not of purely local origin. A large number depend upon diseases of the teeth, such as Rigg's disease, or an unerupted tooth. Many others depend upon disease of the nose. Sinus suppuration is a frequent cause and many a case of severe intractable neuralgia has been cured by simply opening the antrum. Another frequent cause is enlargement of the middle turbinate. This is liable to swell, and then it produces considerable pressure between the mucous membrane of the turbinate and the septum which may start a severe attack of neuralgia. Before prescribing medicinal remedies, therefore, local causes, especially in the nose and teeth, should always be sought for.

Hay fever and paroxysmal rhinorrhœa.—The symptoms of hay fever are well known, and an affection analogous to, but not identical with, hay fever is even more commonly met with. In these latter cases the symptoms—sneezing, nasal obstruction and profuse running at the eyes and nose—come on regularly every morning, varying much in intensity, sometimes lasting an hour, sometimes five or six hours. The patient may have two bad attacks a day or may pass three or four days without an attack. Sometimes an exciting cause may be noted; in other cases none can be discovered. Inhaling dust, various smells such as those of roses and violets, the emanations from certain fabrics such as oriental carpets, draughts, the change from a warm room into a cold one, going out-of-doors, may in various cases set up an attack.

The treatment of these cases is identical with that of hay fever and, although it is impossible to be quite certain that a cure will be obtained in any given case, still, local treatment should always be adopted. In the first place any abnormality of the nose should be rectified, a polypus, a hypertrophied turbinate, a septal spur should be removed. Should this fail the best treatment is cauterisation of the nasal mucous membrane. By examining the interior of the nose with a probe very sensitive spots may often be discovered in some part of the nasal mucous membrane. These spots are often found in the region of the anterior end of the middle turbinate and on the opposite part of the septum. They should always be sought for, and if found should be destroyed by the electric cautery. Should this fail the inferior turbinate should be cauterised: this treatment is empirical, but by it the majority of cases may be cured and practically all of them at least temporarily relieved. These measures should be combined with the regular use of nasal alkaline lotions and in addition an oily spray, such as almond oil containing 5 per cent. of menthol, will be found extremely useful. A caution must be here added. Relief, or temporary relief, of the affection during the actual attack may always be obtained by the use of cocaine. The symptoms are relieved in two or three minutes, but the treatment has to be repeated every hour or so. Thus the remedy is a very dangerous one and especially so because in time the drug loses its effect, stronger solutions are required, and severe constitutional depression, insomnia, loss of appetite, and mental disturbances may result. In spite of this, the patient may resort to the drug because of the great relief it gives and thus may originate the cocaine habit. Further, the continued use of this drug apparently aggravates the local condition and renders it far more obstinate to curative measures.

Asthma.—There has been, and is, great dispute as to the pathology of asthma, and many nasal specialists consider asthma to be a purely reflex condition resulting from some pathological change in the nasal mucous membrane. I cannot assent to this proposition and would rather not express any opinion on the etiology of asthma in general. It is an undoubted fact, however, that by treating the nose alone a large number of cases of asthma may be improved and a few may be cured. The probability of a case of asthma being dependent upon nasal trouble is increased if any definite sensitive area or "cough spots" can be discovered in the nose or if, as is not very uncommon, the asthmatic attack is preceded or accompanied by the sudden onset of such symptoms as sneezing, nasal obstruction, and rhinorrhœa.

In the treatment of asthma, therefore, such conditions as nasal polypi, hypertrophied turbinates, and septal deflections should be rectified. In children adenoids should be removed. Sensitive spots in the nasal mucous membrane should be sought for and destroyed with the cautery. If no objective abnormality be found, but yet the onset of asthma be preceded by nasal symptoms, the inferior turbinates should be cauterised as in rhinorrhœa. On the other hand, if the nasal mucous membrane be healthy and there is no clear history of nasal disturbance preceding the asthmatic attack, nasal treatment should not be adopted. As I have said, the results are uncertain and there is no means of determining beforehand which cases will benefit by intranasal treatment. The most successful may be those in which there is no marked disease in the nose.

To turn to a more homely subject the large number of infallible remedies for *a common cold* are still being added to. The latest is cinnamon tabloids. It is directed that at the commencement of a cold two of these should be given every half-hour for three doses and then one every hour for the next 12 hours or until all symptoms have passed off. Apparently they do good in some cases, but I have tried them on myself without any benefit. Orthoform applied locally has also recently been recommended. This drug is a most valuable analgesic in cases of painful ulceration, especially

in the upper air-passages; it is non-poisonous and therefore may be used freely. Taken as a snuff it is said to relieve the excessive irritation of the nasal mucous membrane and thereby to stop the sneezing and excessive discharge. I have not yet had an opportunity of trying it. But in spite of all these drugs I expect that the only reliable remedy is opium or morphia in some form given in sufficient quantities to produce sleep in conjunction with the usual household remedies, which usually take the form of hot whisky-and-water or hot lemon-and-sugar as the case may be.

And now I would conclude with a caution against excessive operating on the nose. Great advantage has followed operations for nasal obstruction, and especially in children, but, as is natural, the zeal of many has outrun discretion and the number of diseases which are claimed to have been cured by the removal of adenoids is so great that the operation is in danger of becoming a panacea. This is partly due to the fact that patients nowadays rarely need encouragement to undergo operation; in fact, they are not happy till they get it, and if it is refused or postponed they go off elsewhere to have it done.

The advantage of normal nasal respiration in children is well recognised. Apart from the local relief to ear and throat troubles the effect on the general well-being is even more marked: stunted children commence to grow, the tendency to bronchitis and constantly catching cold disappears, and delicate children become strong and their intelligence even seems to increase. Should any such cause for the operation be found the removal of adenoids should certainly be undertaken. It is not likely to be followed by any ill result, although the occasional fatality which accompanies this operation should be sufficient to prevent indiscriminate operating. But in adults, in whom nasal obstruction often does very little harm, considerable care should be exercised before extensive operations are performed, and especially before the turbinates or other structures involving the loss of a large piece of healthy mucous membrane are removed. Certainly Nature is resourceful and is often equal to repairing the effects of surgical enterprise, but in many cases the dry nose and throat left after these operations puts the patient in a far worse plight than he was in before treatment.

Harley-street, W.

THE REMOVAL OF SUPERFLUOUS HAIR BY A COMBINATION OF X-RAY EXPOSURE AND ELECTROLYSIS.

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THERE are few cosmetic operations more desirable from the feminine point of view than the removal of superfluous hairs from the face and other parts of the body. Short of operation various methods are in vogue, such as pulling out the hairs, shaving, and the use of depilatories. None of these plans, however, get at the root of the mischief, while they act more or less as local irritants that by stimulating the supply of blood to the part actually increase the growth of the hair. Depilatories destroy the shaft of the hair but they do not touch the hair bulb. They have been used from time immemorial, but their application would hardly be sanctioned by the modern dermatologist. Some women rub the skin smooth with pumice stone. Others prefer shaving with a safety razor—a plan that is perhaps to be approved when there is a thick downy growth of hairs too numerous to be removed by electrolysis.

The latest method of depilation before the profession is that effected by the x rays. Within nine months of the announcement of Professor Roentgen's discovery there were reported several cases of dermatitis to which I ventured to give the name of "focus-tube dermatitis" in July, 1897.[1]

The earliest note of shedding of hair which I have found recorded was by Mr. E. E. King of Toronto.[2] Since then many instances have been recorded, notably one by Professor Waymouth Reid, who lost the hair of the chest and face after four consecutive daily exposures of the trunk for 20, 40, 50, and 90 minutes respectively.[3] Before long the Roentgen rays—or, rather, exposure to the focus tube—were applied for the depilation of hair. In at least one instance that came under my notice severe and extensive sloughing was caused by the exposure of a chin to the live tube. After a little time it was found that a short exposure of 10 or 15 minutes with the tube a few inches only from the surface of the skin affected the nutrition of the hair to such an extent that the hair became loose and fell out within a week or 10 days of the exposure. The hair bulbs, however, were clearly not destroyed, as the hairs were quickly reproduced. In one case reported by M. Barthelemy and M. Darien the hairs grew again in a guinea-pig that had been depilated 18 months previously by a prolonged exposure to the focus tube. Freund finds that the hair grows again on the face two months after depilation by that method.[4] By applying the rays, however, three or four times every six weeks it is possible, he says, to keep the face permanently hairless. Schiff has also worked on much the same lines. It is evident that any method depending on such repeated applications must be extremely tedious, and no results have hitherto been published which justify absolute success for any plan of the kind. At the same time, the application of the focus tube has to be made by skilled and cautious hands, otherwise the results may be disastrous. For one thing it is certain that the idiosyncrasies of individual patients differ greatly so far as the resulting dermatitis is concerned. Indeed, from my own observations it seemed to me long ago that the susceptibility of the individual worker might vary from day to day. The ideal exposure in depilation is that which suffices to cause the shedding of the hair with little or no apparent erythema or dermatitis. The part of the face around the area to be cleared should be protected with a mask of lead-foil. The drawbacks of depilation by the focus tube, then, are the risk of dermatitis (a small one under modern methods and in skilled hands) and, above all, the re-growth of the hair.

Electrolysis, on the other hand, is an effectual but tedious agent. It can hardly be applied in cases where there is a thick, close growth of hair, as each one has to be destroyed by the electrolysis needle. In the hands of the most skilful operator it is not always possible to direct the needle in the direction of the hair-follicle. Fortunately, from experiments conducted by Giovannini[5] it appears that destruction of the papilla may follow even though the needle has pierced the wall of the hair sac and cauterised the surrounding tissues. There is no need here to describe the details of this small operation. The needle is connected with the negative pole of a battery yielding from 1 to 1·5 milliampères, and the circuit is completed by pressing a sponge electrode saturated with warm salt water against the patient's skin. The circuit should not be completed until after the needle is inserted into the hair-follicle and the current should be broken before the needle is removed. The operator must insert the needle as nearly as possible in the direction of the hair-follicle. It should be kept in place for 20 or 30 seconds until little bubbles of gas appear at the point of insertion. After the removal of the needle, if the operation has been successful, the hair can be removed with gentle traction by a pair of forceps. The painfulness of the method forms one of the chief objections to electrolysis, and it varies much with the individual. To those who have the requisite patience and resolution, however, it offers the best chance of permanent removal of superfluous hairs.

Some time since it occurred to me that a combination of the two methods of focus-tube exposure and electrolysis might be of advantage. I have found the following method useful where the growth is not too thick. The exposure to the focus tube is made in the ordinary way and a week or ten days later, when the hair becomes loose, each hair is extracted and the electrolysis needle is passed into the follicle. This method means that a large number of electrolytic punctures must be made in a small area. However, with a little management the removal may be made to extend over a couple of days, and in that way it is possible to remove, so to speak, alternate hairs. Sometimes a second exposure to the focus-tube is needed before the hairs become loosened.

This combined method I have found useful in some cases, as it increases the chances of effectual cauterisation of the emptied hair-follicle. At the same time it shortens the

[1] Transactions of the Dermatological Society of Great Britain and Ireland, vol. iii., p. 13.
[2] British Journal of Dermatology, January, 1897.
[3] D. Walsh: The Roentgen Rays in Medical Work. London, second edition, p. 205.
[4] Wiener Klinische Wochenschrift, Sept. 28th, 1899, p. 966.
[5] Archiv für Dermatologie und Syphilis, August, 1895.