Reprinted from the Transactions of the Medical and Chirurgical Faculty of Maryland, 1883.

LARYNGEAL STENOSIS.

Report of Cases, with Remarks on the History and Treatment,

— BY —

H. CLINTON McSHERRY, M. D.,

LECTURER IN THE SPRING COURSE, AND CHIEF OF CLINIC ON DISEASES OF THE THROAT AND CHEST IN THE UNIVERSITY OF MARYLAND.

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*Lecturer in the Spring Course, and Chief of Clinic on Diseases of the Throat and Chest in the University of Maryland.**

This being the first occasion upon which the Medical and Chirurgical Faculty has recognized laryngology even as a part of one of its Sections, and as I have been appointed a representative of this branch, it seems proper for me to make a report, as is the custom of gentlemen belonging to a Section, of something of interest that has occurred during the preceding year in the department I represent. I will therefore select for the subject of my remarks laryngeal stenosis, which will be illustrated by giving the history of two cases that have been under my care during the year, with a passing reference to a third case treated by me some time ago, and the exhibition of a patient showing the result of treatment. I will also give an account of the history and general management of the condition, which may prove not uninteresting.

The first patient was a female, who came to me on the 2d of April, 1882, from Dr. Alex. Tunstall, of Norfolk, who wrote in regard to her previous history as follows: "I have occasionally, over a period of four or five years back, prescribed for her, nearly all her ailments being attributable to the effects of syphilis directly acquired from a worthless husband. Chronic metritis, occasional recurrences of cystitis, pharyngitis, laryngitis, with frequent attacks of aphonia, &c. Last year she seemed much benefited by constitutional treatment, combined with tonics (ol. morrhuae), external use of iodine over the larynx, and spray of carbolic acid, &c., internally. These and a trip

* The plates for this paper were kindly drawn for me by Drs. N. A. S. Keyser and Henry Rolando.

to the mountains improved her so much that the treatment was omitted by her, and she had some five or six weeks back an alarming attack of acute laryngitis, with great dyspnoea, aphonia, and stridulous breathing, and pain in breathing, and tenderness in swallowing solids. She has again been placed under constitutional treatment of hydrarg. chlo. cor. with potass. iod., externally iodine tr. and steam inhalations, &c. She has much improved, but nearly all her symptoms are occasionally in lesser degree manifested, and I fear, without special local examination and treatment, bad results."

When this patient was brought to my office her breathing was extremely labored and noisy, although she had come in a carriage, and the only exertion she had made was to walk into the house. On laryngoscopic examination I found the whole larynx pale, and the arytenoids particularly were very much enlarged and oedematous looking, not showing any of the contrast of color that is characteristic of phthisis. The ventricular bands also were seen so much thickened and broadened that on attempted phonation they met together, so that the vocal cords were not seen at all. The voice produced was a muffled or choked whisper. On deep inspiration the ventricular bands and vocal cords separated slightly, but not sufficiently to give much breathing space. The left vocal cord was not visible, and only the edge of the right one was in view, as will be seen by referring to the diagram, showing the condition of her larynx.

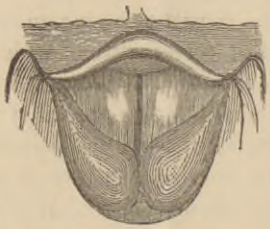


FIG. 1.

FIG. 2.

With the exception of this appearance of the throat the general condition of the patient seemed to be pretty good. She was quite sufficiently nourished and in fact rather fleshy. She remained under my treatment three months, until June the 7th, when I allowed her to return home, and sent the following letter to Dr. Tunstall. "After introducing the laryngeal tubes several times I came to the conclusion that there were no adhesions producing the stenosis of the larynx

in Mrs. ——— case, but that the trouble was due to thickening of the ventricular bands, and enlargement of the arytenoids due to syphilitic perichondritis, these conditions being shown on the diagram I have sent you. Therefore I determined to give up the use of the tubes and rely upon local applications and constitutional treatment. I have applied twice daily the iod. glycerine, for which I will send a formula, and have had her on potass. iod. combined with ammon. mur. The thickening of the ventricular bands has almost entirely disappeared and the arytenoids have been much reduced in size. She no longer has any of the labored breathing she had when I first saw her, and the dysphonia is due to an absence of the proper approximation of the vocal cords on attempted phonation, on account of the comparative immobility of the arytenoids, owing to the thickening remaining both about those cartilages and in the inter-arytenoid space."

This patient was not seen again until September 1882, when she told me that she had passed a very comfortable summer and had very little difficulty with her breathing, but that her voice was still husky. I did not state in my letter to Dr. Tunstall that before she left me in the spring she was able to sound her voice, as I thought that would speak for itself; nor did I mention that after the thickening of the tissues had reduced considerably, and the voice did not improve much, I made applications of galvanism to the larynx, as I thought the want of approximation of the cords might be partly due to paresis, as the result of prolonged pressure of the infiltrated tissues as well as to the swelling remaining, and after this the voice became stronger, but was not clear. In October a gentleman in Norfolk who was interested in her case wrote me that she was very much benefited by my treatment, but she was still being treated for her voice.

The second case to which your attention is asked is the patient whom I now present to you with a history of his condition. I was called in haste to see him about 7 o'clock P. M., March 18th, 1882. His wife, who came for me, told me that he seemed to be dying, because he could not get his breath. She said, further, that for three or four months before his breathing had not been good, and on that account he complained particularly of the difficulty he had in climbing a hill he was obliged to pass on his way home in the evening. This had of late been getting more troublesome, until that afternoon when, after he had proceeded but a short distance, he seemed not able to breathe at all, and was carried home. I took my laryngoscope and other instruments with me when I was called, for,

from what his wife told me, I suspected the trouble to be laryngeal stenosis, because he had been under my care from January to March 18th, 1881, about a year before, for sore throat of a specific nature. At that time the velum palati was slightly adherent to the posterior wall of the pharynx, but there was a sufficient opening for free respiration through the nose; the uvula was gone. There were ulcerations on the posterior wall of the pharynx, in the larynx and epiglottis. Under treatment of local application of solutions of cupri sulph., argent. nit. and hydrarg. acid. nit., with constitutional remedies, all these ulcerations healed, and although I advised him to continue treatment longer, or at least to call occasionally for me to make an examination of his throat, he neglected to do so, and I did not see him again until I was called on this occasion.

When I got to the house I found Dr. E. R. Walker with him, who had made use of inhalations of chloroform and had applied a sinapism and afterwards a belladonna plaster over the throat. The breathing was extremely stridulous and labored and had been so since five o'clock, it was then 7.20 P. M., the voice was stridulous and whispering, the pulse small and quick, and the face dark and anxious. On inspection of the pharynx I now found the uvula gone, the velum adherent to the posterior wall of the pharynx with the exception of a portion about ½ an inch in length on the left side, and scars of cicatrization on the velum and posterior wall of the pharynx. Laryngoscopic examination revealed complete destruction of the epiglottis and inflammation of the ventricular bands, with so much swelling as to hide the vocal cords from view. On strained inspiration the glottis was not opened further than would allow the passage of a small goose-quill. I ordered at once for him steam inhalations of tr. benzoin com., to relieve the temporary inflammation present, but without much effect, and as the breathing was becoming more labored, the face livid and the pulse fluttering, and as there was not sufficient opening for successful tubage of the larynx, I suggested to Dr. Ferd. Chatard, Jr., who had come to the house to see a sick child, Dr. Walker having left, that the only way in which death by suffocation could be prevented was to perform tracheotomy; he concurred in my opinion, and I called on Dr. J. E. Michael to perform the operation. Laryngotomy was decided on, as we thought that would make the opening below the seat of the disease, and if necessary it could be made laryngo-tracheotomy. Everything being ready at half-past eight, and having chloroform at hand in case of need, the operation

was done without an anæsthetic. After the superficial incision, Dr. Michael, to avoid cutting the anterior jugular vein, as it was large, made with a bistoury a vertical incision into the crico-thyroid space; but this opening not allowing sufficiently free breathing, he attempted to cut through the cricoid cartilage, but found that the knife would make but little impression on it, as it was ossified. We determined then that it would be better to do tracheotomy also; therefore having pushed the isthmus of the thyroid gland down, he made an incision in the space between the second and third cartilages, and cut up through the second and first rings, and sawed with the knife through the ossified cricoid cartilage, making the operation laryngo-tracheotomy. The double canula was then introduced, the inner one being removed to give as much air as possible, and the breathing through it became at once excellent; but the patient seeming to be very weak, whisky and water was given with a spoon, which he swallowed with but little difficulty, but in about fifteen minutes, as his pulse had become very small, I gave him four syringefuls of whisky hypodermically. After this he rallied, and at half-past ten o'clock, having made him comfortable, we left, giving orders for whisky to be administered from time to time during the night and the room to be kept well heated, a steam kettle constantly boiling on the stove, and the canula covered with gauze.

The next morning at 10 o'clock he was breathing quietly, but the pulse was small and quick. Whisky was ordered to be given during the day, and nourishment in the form of broths. In the evening at 5 o'clock the breathing was tolerably regular and the pulse weak; continued supporting treatment.

2d day after operation at 10 A. M. condition about the same as evening before, except that there was some bronchitis with mucous expectoration. At 3 P. M. was sent for; some fever had set in, and I ordered spt. ammon. aromat., liq. ammon. acetat. and aq. camph. At 6 P. M. fever had abated and he seemed easier.

3d day 10 A. M. I was told that he had passed a miserable night, he had not slept at all, as his breathing had been, and was still, very much oppressed. The family thought him near his end.

On examination I found that the cause of the difficuly in breathing was that the canula was plugged with hardened mucus. I removed and cleansed it thoroughly and replaced it, at the same time directing how the inner canula should be taken out and cleansed. The breathing now immediately improved and the expression of his face became much more tranquil. He complained of a sense of fulness of his

bowels, and as there had been no passage for three days he was given ol. ricini ʒ ss. His temperature was 99½, pulse 102 and small. Later in the evening he was very weak, but I attributed that to the exertion caused by movements from the bowels, of which he had had two during the day. There was, however, a little more fever. Respiration 22, pulse 102, temperature 102½.

4th day, at 10 A. M., he stated that he had slept well during the night, and was feeling stronger; respiration 22, pulse 94, temperature 102½. I found that the inner canula had not been introduced far enough by his wife, who had removed and cleansed it twice during the night, and the outer one was a little clogged, so I removed both of them, washed and replaced them. At six o'clock again saw him. He had passed a comfortable day, and expressed himself as feeling better. There was rather free expectoration. Respiration 26, pulse 100, temperature 103½.

5th day, doing well. In the morning, respiration 23, pulse 94, temperature 101½; in the afternoon, respiration 28, pulse 94, temperature 103¾.

6th day, 2½ P. M., respiration 28, pulse 92, temperature 102.

7th day, respiration 28, pulse 92, temperature 102. As the tracheitis and bronchitis had become very troublesome, I ordered potass. iod. ʒ ii, ammon. mur. ʒ i, tr. cinchonæ co. and water āā ʒ ii, dose ʒ ii t. d.

8th day. He said he had had a good night. At 2½ P. M., respiration 28, pulse 92, temperature 98.

9th day. Sitting up all day. At 6 P. M., respiration 24, pulse 74, temperature 98.

10th day. Sitting up. Respiration 22, pulse 70, temperature 98.

From this time on he continued to do well, and wore constantly, without any great discomfort, the tracheal tube. About six weeks after the operation the larynx presented the appearance seen in the diagram of Case 2. I determined then to commence to dilate the

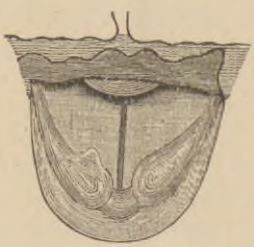


Fig. 1.

Fig. 2.

stricture of the glottis by means of Schrötter's hard rubber tubes, which I will speak of later; but finding that the smallest that I have, which is about seven and a half millimeters in diameter at the end intended to pass into the glottis, could not be introduced, I made applications of cupri sulph. gr. xv–℥i for two weeks, and having reduced the thickening around the orifice in this manner, I was able to pass the tube, which was done daily for a month, increasing the size gradually, until he had a tolerably good breathing space in the larynx. He was then directed to wear the inner tracheal tube only at night, and during the day to keep the outer canula corked up as much as possible. This was advised, as I thought he could breathe through the fenestra in the canula, and by means of laryngeal breathing assist in dilating the orifice in the glottis.

At first this corking up of the breathing space, to which he had become accustomed, was very troublesome; whenever he was walking about or making any exertion whatever he had to remove the cork, but he kept it in as long as possible without great inconvenience, and later, as the dilatation was continued, he was able to keep the tracheal canula constantly closed during the day.

After the laryngeal tubes had been introduced daily for two months, the breathing space having become very much increased, I went away for my summer vacation, but before leaving I lent my instruments to Dr. F. W. Pearson and asked him to continue the same treatment. This he did for about three weeks, when I returned and resumed charge of the case, pursuing the same measures for the relief of the condition as before, until January of this year, when, thinking that his breathing would probably be better if he had more space for respiration than the fenestra in the tracheotomy tube he was wearing allowed, I had a new instrument made of hard rubber, with the fenestra enlarged so as to extend to the lower end of the tube; that is, about one-half of the diameter of the tube was cut away. This was to be cleaned by passing a bent wire, with a small piece of absorbent cotton firmly attached, along the tube. It had, as you see, a hard rubber plug to prevent respiration through it. He wore this for about a week or ten days, when he requested me to remove it and replace the old one, which he said he found more comfortable. I consented to do so, and with some difficulty replaced the silver tube. He now breathed quite comfortably again, but as there was some slight adhesion of the anterior portion of the vocal cords, I would have liked at this time to have used Dr. Whistler's

cutting dilator, which I will describe a little further on, but not having one, and as I thought it improbable that it could be obtained in this country, I determined to watch the case a little longer, and if necessary to have one made or send to England for it. Fortunately, however, it has not been necessary; for after keeping up the use of astringent applications for about a month, the thickening of the cords, which had been great, was reduced, and their mobility became excellent.

In fact the glottis was then dilated to such an extent that I determined to remove the tracheal tube altogether, which I did on March the 19th, about six weeks ago, almost exactly one year from the time of first introduction.

The wound in the throat has entirely closed and he has had no difficulty in breathing through the glottis since. The voice remains a little husky, but as it is improving daily, and the appearance of the vocal cords is becoming more natural, I expect by the continued use of astringent applications that it will be perfectly restored.

These two cases, as well as one I reported to the Clinical Society in 1877, in which there was a stricture of the glottis due to contraction of the tissues from cicatrization of ulcerations in the larynx, which was relieved entirely, without tracheotomy, by the use of Schrötter's tubes, may be considered illustrative of the condition, and it is hardly necessary for me to add much to the history of such cases to what I have already given in an article published in the *Md. Med. Journal*, January, 1878, from which, with some slight alterations and additions, I will make a quotation. This is almost the unvarying history of laryngo-stenosis, for its occurrence in any other manner than as the result of chronic laryngitis of syphilis is very exceptional. It does not occur as a sequence of the ulcerations of chronic tuberculous or carcinomatous laryngitis, as observers have decided that those ulcerations, if extensive, do not cicatrize. The rima glottidis is sometimes narrowed, it is true, in chronic idiopathic laryngitis from cicatrization, or, as in tuberculous laryngitis also, by a thickening from fibrinous infiltration of the submucous tissue of the ventricular bands and vocal cords, or of the subglottic mucous membrane, but rarely to such an extent as to cause a marked constriction; but there is a condition which, though nearly always a concomitant of syphilis, may, I believe, occur in connection with other forms of laryngitis. I refer to those cases where the inflammatory exudation becomes organized into fibrinous bands, which stretch from one part of the larynx to another, very often from one

vocal cord to the other, and by gradual contraction draw the two together and hold them fixed. Of this variety of stenosis there are a number of cases reported by Morell Mackenzie, Schrötter, Elsberg and others, and I have myself seen two cases, in one of which nearly the anterior half of the glottis was closed in this manner, while in the other there was a single membranous band extending across the glottis from the middle of one cord to the other. Again a laryngeal stenosis is occasionally met with as the result of the inhalation of flame or from scalds of the larynx, or in some rare instances mentioned, from typhus or typhoid fever, variola or measles, by which perichondritis or chondritis is occasioned or an inflammation is produced which has gone on to ulceration and cicatrization.

As regards the diagnosis, the discovery of an obstruction in the larynx is readily enough detected by the appearance of the patient, the changed voice, the distressed stridulous breathing, the rales that are often heard at some distance, but are always very marked on auscultation over the larynx, and the abnormal percussion dulness that can be detected, not only of the chest, but also, by acute examiners, of the larynx itself; exactly the character of the obstruction can, however, only be appreciated by laryngoscopic examination.

In reference to the treatment, although, as I have said, nearly all cases of stricture of the glottis are due to syphilitic disease, yet constitutional treatment will never effect a cure of a well-marked case. To prevent death from gradual suffocation, local treatment must be primarily and immediately undertaken, always with the object of overcoming the constriction in such manner as to allow the lungs to receive again the normal amount of oxygenated air which has for a time been cut off from them. It has long been the custom in this emergency to obviate the trouble by the creation of a second one, tracheotomy, which is but little better than the first, and by which, although air is certainly allowed to pass to the lungs, the original trouble is in nowise benefited nor its progress stopped.

In some cases of imminent death this treatment is not only justifiable, but is most judicious. Before being undertaken, however, a most careful laryngoscopic examination should be made; for sometimes, when the permanent constriction is not very great, the breathing may be temporarily obstructed, either by a slight œdema glottidis or a collection of mucus in the larynx, in which case the trouble can be treated through the natural passage, either by scarification of the œdematous membrane with the laryngeal lancet or by tubage of the

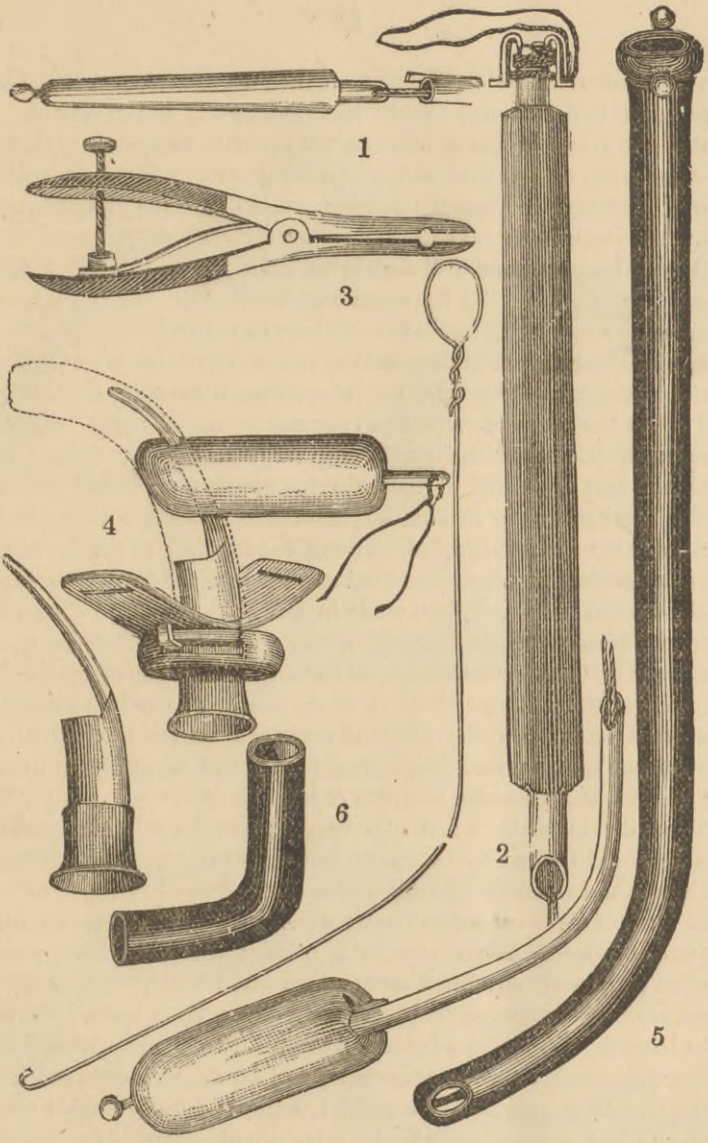
glottis, without any necessity for an external opening being made in the throat.

Catheterization or tubage of the larynx was advocated by Desault as far back as 1793, and afterwards by Bouchut, Trousseau, Weinlechner and Horace Green, for some cases of urgent dyspnœa; but in all these instances it was only intended to give temporary relief, and to Schrötter is due the credit of introducing the use of tubes for the systematic dilatation and permanent cure of laryngeal strictures. During the winter of 1874-75 that I spent in Vienna, Schrötter was experimenting very enthusiastically with hard rubber tubes intended to be passed into the larynx, for the gradual dilatation of those cases of laryngo-stenosis in which the constriction had not become so great as to necessitate laryngotomy.

These tubes are of gradually increasing diameters, and are about ten inches long, have perforations at the end, and are hollow throughout their calibre. They have a long curve of about one-third their length, for introduction into the larynx, and at the oral end of the instrument a curved cylinder about two inches long is inserted, to prevent its slipping, and to protect the face of the operator from mucus, &c. The introduction of the tubes is effected in this way: Having slightly warmed and well oiled one, it is passed behind the epiglottis and placed over the orifice of the glottis; then by keeping up constant and steady pressure it will, if it be of a proper size, presently glide through the opening into the trachea, and the breathing through it will be instantly apparent by the tubular sound, and may be felt by placing the hand over the end of the tube.

The benefit afforded the cases that I saw treated in this manner in the Vienna Hospital was so marked that I determined under similar circumstances to adopt the same measures, hoping for as happy results as I saw there; and as the condition of the patient treated by me in 1877 was so satisfactorily relieved by this means, I made use of it also in the two cases seen during the past year, although one of them had had laryngo-tracheotomy performed. The first of these patients, the female, did not require any continued use of the tubes, but the last required and had them passed almost daily for about six months.

The length of time the patient will allow the tube to remain in the larynx varies. At first it can only be retained a few seconds, but after each introduction it is better tolerated, and sometimes may be worn for one or two hours, or longer. Of the cases treated by



INSTRUMENTS USED FOR THE TREATMENT OF LARYNGEAL STENOSIS, AFTER THE METHOD ADOPTED BY DR. SCHROTTER.

FIG. 1. Tin bougie for the treatment of laryngo-stenosis, with the thread drawn through the tube.
FIG. 2. A tin bougie of greater diameter; the thread from this is drawn through the tube, by means of the wire that is seen alongside of it, and wound tightly around the handle.
FIG. 3. Small forceps to fasten the bougie, by the slender neck on the end of it, in the canula.
FIG. 4. The improved method of holding the bougie in position after its introduction into the larynx.
FIG. 5. Hard rubber tube.
FIG. 6. Curved cylinder to be inserted into the oral end of the tube to hold it in position.

me, the first retained the tube about fifteen minutes, and the second equally as long without much discomfort; but the third, the one that I show to-day, never allowed it to remain longer than three or four minutes, so I introduced it several times at each sitting, which proved sufficient to break the adhesions and dilate the glottis to quite a sufficient extent for easy respiration.

It would probably be well for me to mention here, what I stated in my former paper, that the sensation or irritability of the larynx is usually very much diminished in chronic laryngitis.

The method that Schrötter makes use of for those cases in which tracheotomy had been performed either through necessity or otherwise, and where the tracheal canula had become a "vade mecum," that they were doomed to bear silently to the grave, was like the tubage foreshadowed and suggested by the experiments that preceded it. The most remarkable cases in ante-laryngoscopic times are those of Mr. Liston. One was a laryngeal stenosis treated and cured by him in 1827, by passing bougies of increasing sizes into the larynx through a tracheal fistula that had been made in attempt at suicide. The other, a tracheal constriction, is still more noticeable. Here he passed bougies of different sizes through an opening in the trachea up through the larynx and out the mouth; when one was passed he grasped it there, and then pushed the other end down into the trachea, and finally allowed one the size of an œsophageal bougie to remain fifteen days in the trachea, and this case was also cured.

After the invention of the laryngoscope we have records of this trouble being treated by Czermak, Busch, Semelder, Trendelenburg, Gerhardt, and later by a number of others.

In most of these cases dilators were passed through a tracheal opening and upwards into the larynx; in none of them, however, was the method employed considered satisfactory, but I believe that an instrument, invented by Stoerk in 1878, for dilatation from below, altered so as to have three dilating blades instead of two, which would open antero-posteriorly as well as laterally, will be found most useful, and is one which, as modified by myself, I shall in future employ where tracheotomy has been performed. The dilators can have blades of different lengths to suit the necessities of the case, and after being introduced into the stricture the dilatation can be gradually increased day after day by turning the nut on the screw outside of the plate of the canula. My instrument shows the extent of dilatation by markings in millimeters on the screw, and it also has a flange or rim on the

FIG. 1

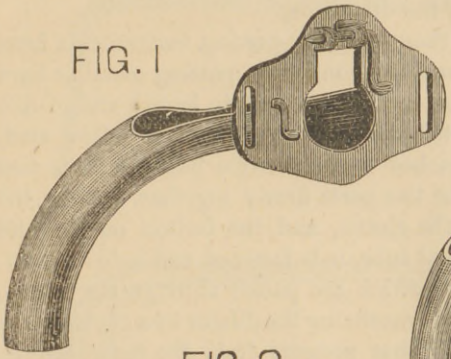


FIG. 2

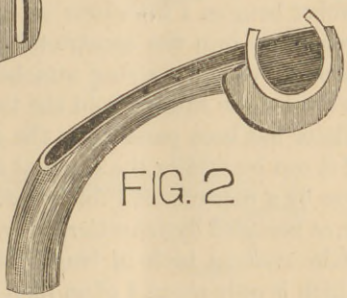


FIG. 3

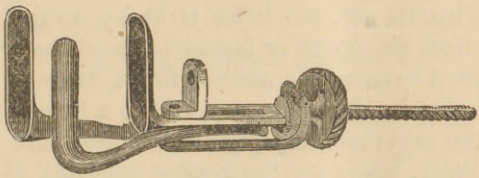


FIG. 4

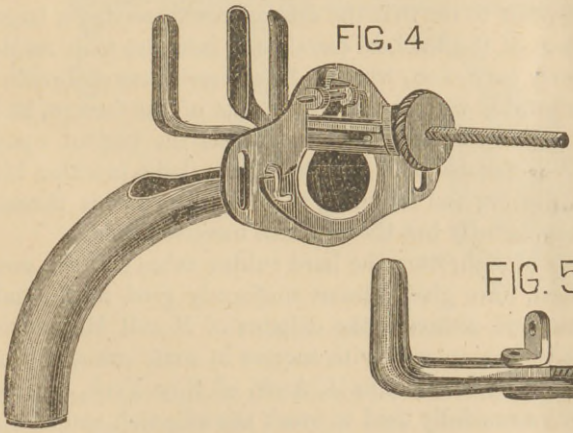
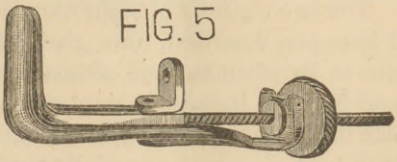


FIG. 5



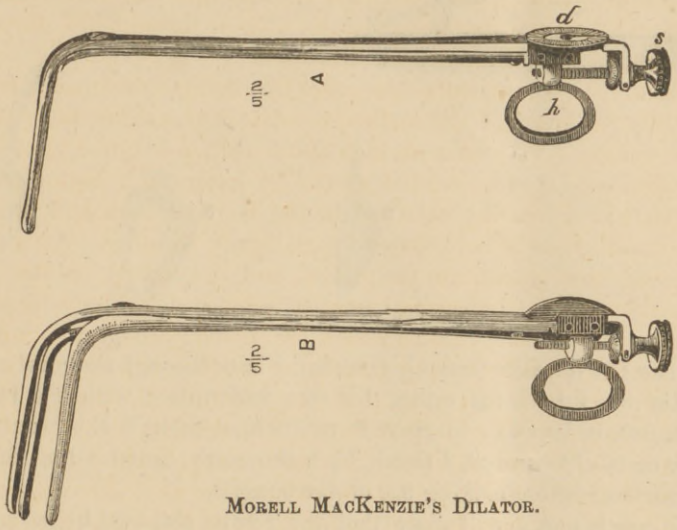
inner canula, so that when the dilator is in position the canula can be corked and the breathing be carried on entirely through the larynx, which assists very materially the dilatation.

Schrötter, however, treats these cases by passing instruments from above into the larynx. His method consists in passing metal or hard rubber bougies a little over an inch and a half in length and of different sizes into the constricted glottis by means of a hollow staff, through which a string attached to the bougie passes and is tied at the handle so as to hold the two parts firmly together. After the dilator has been passed into the glottis, and the button on the end of it can be seen in the tracheal tube, it is fastened and held in position by a pair of small forceps which are passed through the canula, or, as modified by Schrötter, by transfixing the dilator by a curved rod a little over an inch in length that projects from the inner canula, which is only about ½ of an inch long. The string is then unfastened from the handle and the latter is drawn away, leaving the string hanging from the mouth or fastened around the ear. The dilator is then allowed to remain in position for 12, 24 or 48 hours, when it can be removed to be cleansed or replaced by a larger one.

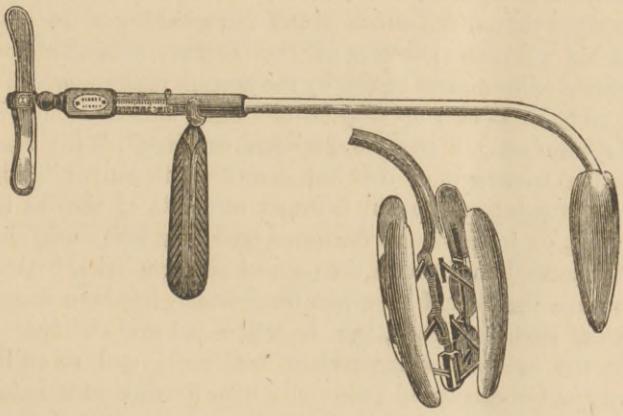
Schrötter says that the upward and downward movement of the bougie dilator, which was the greatest objection to the first mode of holding it in position, is obviated by the transfixion that he afterward adopted; but it appears to me that the dilator would occupy a large portion of the lumen of the tracheal canula and interfere with respiration being properly carried on, whereas I have seen persons breathing perfectly comfortably with it fixed by means of the forceps, and no doubt some of you saw in Baltimore last winter the patient upon whom Schrötter had operated, and who had from long practice become an expert in passing and fastening these bougies in his throat, wearing one with apparently but the slightest inconvenience.

The two methods of Schrötter, the hard rubber tubes and the one I have just described, have given almost uniformly good results and are to be recommended, although the dilators of Morell Mackenzie and Navratil have been employed with success in some cases, and in one instance reported by Dr. Morris J. Asch, of New York, flexible metal sounds were successfully used to break the adhesion and dilate the constrictions.

Whenever the adhesions are extensive, however, or if the stenosis is due to membranous webs or bands in the larynx, they should be cut either with the laryngeal lancet or, better still, with the ingenious

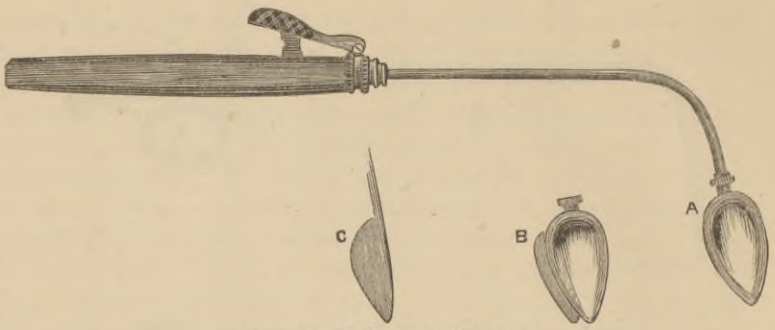


MORELL MACKENZIE'S DILATOR.



NAVRATIL'S DILATOR.

instrument devised by Dr. MacNeill Whistler, of London, which Dr. Morell Mackenzie told me he had used with satisfaction. This instrument of Dr. Whistler's consists of an almond-shaped dilator with a concealed blade which is reversible, and will make a section when it is pushed out by the lever on the handle, either anteriorly or posteriorly, as required.



WHISTLER'S CUTTING DILATOR.

After Dr. Whistler passes his cutting dilator through the constricted glottis he introduces either his own instrument with the lancet concealed, or bougies, to prevent readhesion, though this would be more certainly ensured, I think, by a thorough cauterization of the cut surfaces before making use of the bougies.

In conclusion I will state that the results obtained by me in the three cases will explain sufficiently my having called the attention of the society to them; for Lennox Browne, in speaking of this condition, says in his work on Diseases of the Throat, published in 1878: "Laryngeal œdema must be met by the prompt performance of tracheotomy, and the same step may be necessary, at least as preliminary to later measures, if stenosis becomes extreme. With respect to the further treatment of this last condition, it cannot be said that any great success has, so far, followed attempts to remove the cicatricial web, or to dilate the narrowed orifice by bougies or analogous measures carried on through the natural passage. It is better, therefore, to warn the patient on whom tracheotomy has been necessary on account of such condition, that he will in all probability be obliged to wear the canula for the rest of his life"; and so eminent an authority as Cohen says in 1880: "I have never been able to induce a patient to place himself under my care with such an uncertain prospect before him, and therefore lack personal experience in the procedure."

In all my cases the difficulty in breathing was relieved by the treatment, and I have shown to-day a patient who was for months absolutely dependent on a tracheal opening for respiration, who wore the tracheotomy tube for one year, and who is now breathing with perfect comfort entirely through the natural passage.