the laryngeal mirror. If the etiology points to portal congestion, chloral hydrate would be indicated; if a syphilitic taint, mercury; if tuberculosis, iron and cod-liver oil; if glandular enlargement, one of the iodides. The necessity of constantly breathing pure air cannot be too strongly dwelt upon. Let the diet be light, digestible and nutritious. The plethora of glut-tony should be guarded against. For the treatment of chronic laryngitis, I know of no one remedy so efficient as alcohol. Unlike many others, it is applicable in all cases, irrespective of cause. It is a local and constitutional tonic, acting not only beneficially on the lining membrane of the air passages, but also as a systemic stimulant.

Nasal stenosis is reduced, and as a rule permanently cured, by alcoholic inhalation. Pharyngitis is relieved, and the uvula—usually elongated in laryngitis—is rendered normal. Several cases of tuberculosis, well advanced, have been checked, in my practice, by alcoholic inspiration. Wearing a full beard among men, has been strongly recommended by some medical writers as a remedy, both curative and preventive, for chronic laryngitis.

A thermometrical sameness, secured either by latitude, altitude or artificial methods, must not be overlooked, as one of the most potential of the remedial agents—but by all means, let your treatment be measured by months rather than days.

THE GALVANO-CAUTERY IN LARYNGOLOGY, WITH CASES.

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The object of this paper is to produce evidence tending to show that the galvano-cautery, and especially the snare, is a decided addition to the armamentarium of the laryngologist, and the method entitled to legitimate recognition. As a rule it is condemned most loudly by those who have used it the least, basing objections on theoretical grounds, and in most instances the objections urged are, it seems to me, not well sustained by the facts, nor by personal experience.

The variety of cases in which I have used the cautery in laryngology with advantage, are hypertrophy of the tonsils, cancer of the œsophagus with growth protruding into the larynx, papilloma of the larynx and abscess of the larynx.

In regard to the cautery in removal of the tonsils, I have used this method for three years, and *no other method* for two years. In using the galvano-cautery it is of prime importance that we have a handle so made as to allow the operator to make or break the current at will, and to at the same time operate the windlass with the

thumb. The Flemming handle, or some of its modifications, is the instrument preferred by the writer. It is equally important to have a current that will heat the wire quickly and at the same time be controlled by a rheostat. Platinum wire is the only material that can possibly give satisfaction; and some form of storage battery will be found most serviceable.

In removal of the tonsils it seems to possess the following advantages:

1. Consent of the patient, as there is neither cutting nor hæmorrhage.

2. Absolutely no primary hæmorrhage, although the probability of secondary hæmorrhage is probably not lessened.

3. Greater facility of application, especially in small hypertrophies, and in many children with small throats, where an instrument of larger size could not be easily applied.

4. Better results because of lessened tendency to return, and less absorption after the operation.

5. In large hard hypertrophies where hæmorrhage is feared and where the cold snare is recommended by some writers.

Some form of tonsil forceps is always needed to aid in raising the tonsil from its bed. The forceps of Fanenger and of Ingals I have found the most convenient and valuable.

In using this method in public and in private practice in about one hundred and fifty cases I have had no unpleasant results, and only one case of slight secondary hæmorrhage.

In the removal of growths from the larynx the cautery has the following advantages:

1. Perfect safety, as the current is *never* turned on until the growth has been firmly grasped by the loop.

2. A small instrument which when in the larynx allows one to obtain a more perfect view of the parts, thus facilitating greater accuracy.

3. Absolutely no hæmorrhage, thus allowing growths to be removed piecemeal at one sitting, which could not be done by any other method where hæmorrhage obscures vision.

4. In papilloma of the larynx where the base is thus cauterized there is, I believe, less liability to recurrence.

I would not be understood as advocating this method to the exclusion of others, nor as even intimating that it is applicable to all cases, but where any growth can be grasped by the loop I believe it to be the best method.

Case 1.—Miss O., 26 years of age, saleslady by occupation, general health good, consulted me three years ago for laryngitis. At that time there was an acute inflammation and the membrane in the inter-arytenoid space was thickened and showing some rugæ when patient phonated.

Consulted me again May 25, 1891. At this time the patient could only whisper and she in-

formed me that she had not been able to speak aloud for several weeks, and that for over a year she had been always hoarse and much of the time completely aphonic, and that she is growing constantly worse notwithstanding almost constant treatment by various physicians. She says there is no pain in or about the throat, but complains of a tired feeling after attempted speaking. There was no swelling of the glands on the outside of the neck.

Family history reveals the fact that one sister died of pulmonary tuberculosis. Patient is large, strong, well nourished and has normal temperature.

Laryngoscope examination shows a general subacute laryngitis, and also reveals a rough, irregular growth of a slightly opalescent color apparently very nodular and occupying the interarytenoid space, and being separated into two lobes by a perpendicular fissure. It was almost a half inch in length from above downward and smaller in a transverse direction, and by its size and location mechanically prevented the approximation of the vocal cords by contraction of the arytenoid muscle, thus rendering phonation impossible. I informed the patient that I had never seen such a growth in that location, but supposed it was papilloma, but that a positive diagnosis could be made only by a microscopical examination, or noting whether the growth recurred, and advised removal. This was consented to and the galvano-cautery was the method chosen.

After a thorough application of cocaine (10 per cent. solution) I passed the loop into the larynx and after a few moments of patient maneuvering I succeeded in getting the loop firmly around it, and it was quickly removed without pain or hæmorrhage. On inspection I was not quite satisfied with the appearance of the base, so I then introduced another form of electrode and cauterized more completely the surface from which the growth had been removed. After the operation was completed the patient could speak aloud but was somewhat hoarse.

Unfortunately, just as I was removing the loop from the mouth the growth became detached and fell into a jar containing some blood, several quarts of water and masses of adenoid vegetation just removed, and I was therefore unable to secure and examine the specimen.

The treatment after the operation consisted in rest of the voice for one week. Morphæ gr. one-eighth the first night. Locally, iodoform in glycerine 10 per cent. applied once each day with cotton on applicator.

There was a little increase in inflammation on the day of the operation, but on the second day the inflammation had decreased and from that time on the improvement was rapid and the patient began work as saleslady at the end of the

week, although I objected to her doing so. The second week I applied each day a spray of silver nitrate, 15 gr. to the ounce; the third week the same solution every second day.

The inflammation has now quite disappeared, the voice is as good as ever in her life and she is able to sing fairly well and that for the first time in nearly four years. Of course it is too early in the case to make a diagnosis, for it may have been tuberculous papilloma; but no one will deny, although all do not appreciate fully the value of radical treatment in these cases, and this is especially true if they are tubercular.

Case 2.—Mr. X., laborer, about 28 years of age, strong, robust young man, was sent to me last winter by Dr. Frank Cary. History of severe cold and sore throat.

Laryngoscope examination showed large abscess of the larynx. After applying cocaine, I evacuated with guarded lancet; considerable choking and coughing. Next day the abscess had refilled. I then introduced a cautery electrode in the place of former puncture and thus formed a round opening with some destruction of tissue, hoping thereby to facilitate drainage. I then washed out thoroughly with peroxide of hydrogen. There was no further refilling and the patient made a rapid recovery.

Case 3.—Mr. W., 50 years of age, small stature, emaciated, consulted me in October, 1890, on account of difficult deglutition. He informed me that he had experienced an increasing difficulty in swallowing, and at that time it required constant effort for over an hour to swallow a cup of coffee, and that no solid food had been taken for several weeks. He said he must get relief very soon or else die of starvation, and his appearance justified the statement.

Inspection of the outside of the throat revealed the fact that in the act of deglutition the larynx did not ascend to the normal extent, and that it seemed bound down and was less freely movable than normal. There was no infiltration of glandular structures in the neighborhood. The patient was free from pain and the family history was good.

On making a laryngoscopic examination, a large lobulated growth of a whitish opalescent appearance was seen apparently springing from the œsophageal opening, and acting as a valve, while one of the larger lobes projected forward, between the arytenoids, and appearing to prevent the epiglottis from closing the larynx completely in deglutition, and seemed to explain why the fluids, as he expresses it, "went the wrong way" and "choked him."

I applied a 10 per cent. solution of cocaine to the entire larynx and, after about six minutes, made a more thorough examination with the probe, and found the growth to spring from the posterior wall of the œsophagus, immediately be-

hind the larynx. Thinking that possibly the growth, by its size and location, mechanically prevented the entrance of food, I determined to remove it. This I had no difficulty in accomplishing, using the galvano-cautery snare, removing it in four pieces, there being neither pain nor hæmorrhage during the operation. There was no reaction of any consequence subsequently. On attempting to pass a bougie into the œsophagus, I found a stricture at the upper part, although deglutition had been somewhat facilitated by the removal of the growth.

Microscopic examination revealed the fact that the growth was a ring-shaped carcinoma. After this time I dilated the stricture about every five days and twice each day I passed the stomach tube, giving the patient each time nearly a quart of milk, together with two eggs. Sometimes peptones were added instead of eggs, and for the last two months an ounce of brandy was given with each feeding, at the patient's request. For a short time the patient gained somewhat in weight, and quite materially in strength, going about the city freely and seemingly happy, and he said free from pain. At home he took some coffee and occasionally a little soup or broth. This treatment was continued for several months, when the patient died.

One interesting and troublesome feature of the case might be mentioned. From first to last it was impossible to introduce the stomach tube without the aid of the laryngoscope, thus necessitating personal care of the patient.

There was no return of the growth in the laryngeal cavity but the extension was downward.

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FRACTURE OF THE THYROID CARTILAGE.

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Since Arbuthnot Lane¹ (1885) drew the attention of the profession to the frequency of fractures of the hyoid bone and larynx, several cases have been reported which tend to confirm his statement, that these fractures sometimes produce such light symptoms that they can be overlooked. Formerly, the prognosis was considered much graver. Gurlt² had (in 1864) collected 68 cases, of which 47 ended fatally, and only 21 recovered. Even excluding those in which the injury was caused by an attempt on the patient's life, or where some additional accident complicated matters, 21 died, and but 13 recovered. Fischer³ pronounces every

fracture of the larynx serious. Later observers, however, contributed statistics which are more encouraging. The most recent publication, by Sakolowski,⁴ describes a severe case with recovery. In it will be found a summary of the literature on the subject, statistics, etc. Although the case I had occasion to observe is an uncomplicated one, or rather because it shows how exceedingly light the symptoms resulting from a fracture of the thyroid cartilage can be, I think it worthy of publication.

The patient, a fairly intelligent, robust artisan of about 40, came to Professor Schnitzler's department in the Wiener Allgemeine Poliklinik on account of hoarseness. On being questioned how long this had troubled him, he said that some three months ago, while bending over a balustrade, he was struck on the back of the head by a descending, heavily loaded elevator. His neck was pressed between the lift and the bar. He was immediately attacked by a coughing spell, expectorated a little pure blood, and became aphonic. There was no pain, but the swelling about the neck induced him to go home and make applications. The next day he could go to work again, hoarseness being the only reminder of yesterday's accident. It was the hoarseness on account of which he came to the Polyclinic, not having found it necessary to consult any physician meanwhile.

While inspection revealed nothing abnormal in the anterior part of the neck, upon applying the finger to the angle of the thyroid cartilage, the left ala receded. By rubbing the two fragments together, distinct crepitus could be heard and felt. Further palpation showed that the left wing of the thyroid cartilage was fractured longitudinally, the line being slightly irregular, and about $\frac{1}{8}$ of an inch from the angle of the cartilage. All other parts, especially the hyoid bone and cricoid cartilage, were examined carefully, but appeared unharmed. The condition of the interior of the larynx was as follows: The epiglottis was omega-shaped, slightly overhanging. Both ventricular bands were much swollen, but did not look angry. The vocal cords could not be seen. Even in phonation, only a little portion of the posterior ends could be perceived. During the act of phonation the ventricular bands approximated, apparently producing the hoarse voice. An accurate opinion of the lesions in the larynx cannot be formed. The mucous membrane must have been lacerated, since the accident was immediately followed by hæmoptysis. The rent in the membrane, however, could not have been long or deep, or emphysema would have set in. According to statistics, there is emphysema in most of the cases, sometimes extending to the extremities. Possibly, also, the anterior attachment of the vocal

¹ Arbuthnot Lane, *British Med. Journal*, March, 1885.

² Gurlt, *Handbuch der Lehre von den Knochenbrüchen*, ii Teil, 1864.

³ Fischer, *Deutsche Chirurgie*, Lief. 34.

⁴ Sakolowski, *Berl. Klin. Woch.*, No. 40, 1890.