A CONTRIBUTION

TO THE STUDY OF

LARYNGEAL SYPHILIS,

BY

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The subject of this article has received little attention from syphilographers—so little, indeed, that M. Trelat remarks,* "of all the lesions following syphilis, those affecting the larynx have been least studied." Previous to the discovery of the laryngoscope, all the morbid appearances of laryngeal syphilis not attended with death, were the subjects of numerous hypotheses, and of profound incertitude. Our knowledge of this affection has not yet reached that point which renders new contributions superfluous.† In view of these facts, it is not surprising that there should exist a great difference of opinion among laryngoscopists concerning the pathology of laryngeal syphilis and its diagnosis from phthisis, cancer and lupus of the larynx. Gerhardt, Türck, Roth, Dance and Czermak claim that similar lesions are found in the larynx to those found on the skin; whilst Ferras, Duplay, Isambert

La France Médicale, 1869, page 285.

†Schnitzler und Sechtem, *Wien. Med. Presse*, Nos. 27–31, 1878

and Fournier admit only two varieties of lesions—the ulcerative and non-ulcerative.

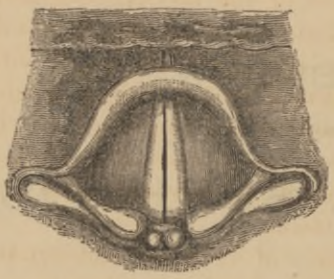

Fig. 1.—Normal larynx during phonation.

It is evident that attempts to classify the many lesions of laryngeal syphilis cannot be other than arbitrary; and it becomes us, therefore, to select that classification least open to objection, and offering the most accurate means of describing the affection.

I shall divide syphilitic laryngeal lesions, with reference to the period which elapses between the primary sore and subsequent phenomena and the tissues invaded by the latter, into secondary and tertiary accidents. The above division is essentially that adopted by syphilographers in treating of syphilis in all portions of the body, and the larynx should not constitute any exception.

The conclusions arrived at in this contribution, are based on more than one hundred cases, examined or treated by me, either at the clinics of Schnitzler, Stoerk and Schroetter, in Vienna, or of Fauvel in Paris. A record was made of quite a number of the more interesting of these cases, and the results are here given *in extenso*.

Statistical.—Syphilis frequently attacks the larynx—six per cent. of laryngeal disease, in general, being of a syphilitic nature. At the Hopital Lariboisière, among 237 throat affections, eighteen (or seven and one-half per cent.), were syphilitic; at the Bureau Central, among 440 cases, twenty-two or five per cent. were of this nature.*

Fig. 2.—Epithelial desquamation of vocal cords, from Fauvel

The following statistics, collected by Sommerbrodt,† show the frequency of laryngeal complications in patients who have contracted syphilis: Rühle, in one hundred post-mortems,

*Martel—*Thèse de Paris*, No. 57, 1877, page 7.
†*Wien. Med. Presse, 1869.*

detected fifteen ulcerations of the larynx; Altenhofer, in examining with the laryngoscope, 1200 patients with syphilis, found twenty-five ulcerations of the larynx; Gerhardt and Roth, in fifty-six patients, found eighteen ulcerations of the larynx; Lewin, in 1000 patients, found forty-four with laryngitis and hoarseness; Englested, in 521 patients, found twenty-five with laryngitis and hoarseness; Sommerbrodt, in eighty-four patients, found fifteen ulcerations. The disease is most frequent between the ages of eighteen and forty, and occurs in women as often as in men.

CAUSATION, ETC.—The appearance of secondary and tertiary manifestations in the larynx is the result of a primary sore or congenital syphilis. Single or multiple ulceration may occur in any portion of the larynx, especially on the epiglottis, vocal cords, ventricular bands, or the aryteno-epiglottidean folds, and results from syphilitic laryngitis (Schnitzler*), from mucous patches (Mandl†), or from gommata (Schech*). The exciting causes of the localization of lesions in the larynx in syphilitic subjects, are generally traceable to vocal exertion, abuse of alcohol, tobacco, or to a simple acute laryngitis. Syphilitic subjects, whose occupations expose them to sudden changes of temperature, violent use of the voice, etc., are more liable to laryngeal manifestations than those not so exposed.

"The clinical evidence of the communicability of secondary syphilis is abundant. Instances of the infection of healthy children by diseased wet nurses, and of healthy nurses by suckling diseased children are familiar to all. * * * * In these, the contagion, unless under very exceptional circumstances, must have been derived from a secondary source—mucous patches in the mouth of the child, or on the nipple of the nurse. * * * * * A drinking vessel, a spoon or a tobacco pipe passed from one person to another, have all been known to act as vehicles."‡

In France to-day, every glass blower uses a special mouthpiece, so frequent were the cases of infection from the indiscriminate use of the blow pipe. Eustachian catheters also have, in many cases, been the medium through which syphi-

**Wien. Med. Presse, 1878.*
†*Maladies du Larynx et du Pharynx.*
‡Lane, *Lectures on Syphilis*, London, 1878, page 45.

lis was transmitted. It is very probable that the introduction of unclean instruments, which have been used on syphilitic subjects, could produce syphilitic lesions in the larynx as in other localities; but no such case has been reported, to my knowledge. A patient came under my observation at a large European throat clinic, in whom mucous patches were developed on the soft palate, during treatment for an ordinary follicular pharyngitis. Upon most rigid and careful examination, it became almost evident that the mucous patches originated from the careless use of a throat mirror, by a medical student on this man, after examining six patients with secondary pharyngeal lesions. Patients who have received no treatment, or at most imcomplete medication at the time of syphilitic inoculation are in great danger of secondary phenomena. Among 157 patients with œdema of the glottis, examined by Sestier, fourteen were caused by laryngeal phthisis, and twenty-four by syphilis.*

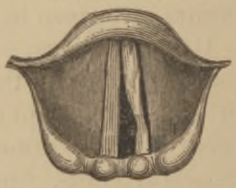

Fig. 3—Erosion and reddening of left vocal cord, from Fauvel

Period of Incubation, etc.—The time which elapses between inoculation and the appearance of laryngeal syphilis is subjected to great variation, and ranges from three months to fifteen years or even more. A few authors regard as secondary only those lesions which occur several months after the chancre, and as tertiary, manifestations at a later period. In the majority of cases, this division or classification is well founded; but I have seen two cases of syphilitic laryngeal erythema, and have the records of them, which appeared respectively fourteen and seventeen months after the primary lesion. My experience is that five months is the mean period for secondary manifestations in the larynx.

Fig. 4.—Ulceration of the epiglottis and left vocal cord, Burow.

Laryngeal syphilis may precede, be concomitant with, or

*Bucquoy—*Gazette des Hôpitaux*, April 27, 1875.

follow pharyngeal and cutaneous lesions; or it may be the sole secondary manifestation following the chancre—cutaneous and other lesions being absent.

As regards the time in which tertiary lesions appear, I think little can be said definitely. Most of the observations which I have made show that from three to eight years is the minimum, and twelve the maximum period of time which elapsed between the primary and tertiary accidents.

Symptoms.—*Hoarseness* is a constant symptom of laryngeal ulceration; the voice becomes harsh, and in grave cases aphonic. This hoarseness may originate from a paresis, or from a want of approximation of the vocal cords caused by thickening, infiltration, or erosion of the posterior laryngeal mucous membrane.

The *expectoration* in the earlier stages, or in the milder forms of this disease, consists of mucus alone; but later it becomes muco-purulent or fetid, and may contain blood, disorganized tissues or the debris of cartilages.

The *pain* may be spontaneous, but usually appears only during deglutition, speaking, or upon pressure being made in the vicinity of the lesion. When the ulcerative process is on the arytenoid cartilages, or on the posterior laryngeal wall, the pain is often very severe during deglutition. Liquids are swallowed with more difficulty than solids, being more readily forced back into the posterior nares.*

When the ulceration is on the arytenoids, vocal cords, ventricular bands or epiglottis, the patient sometimes complains of *pain in his ears;* and in case the right or left arytenoid or cord is ulcerated, the corresponding ear will, in some instances, be the seat of pain. This symptom, however, is not peculiar to syphilis, as I have met with cases of laryngeal phthisis in which it was marked. I have under my care at this writing a medical friend with phthisical œdema and ulceration on the arytenoid cartilages, who has frequently experienced pain in both ears, simultaneously or alternately. When attached to the clinic of M. Charles Fauvel in Paris, I have often heard great importance attributed to the above symptom as diagnostic of ulceration.

*Poyet, *Annales de Dermat. et Syph.*, 1874, p. 447.

In superficial syphilitic laryngitis, there is rarely *embarrassment in respiration;* but where the lesions are profound, as in deep syphilitic laryngitis, the respiratory troubles are sudden in appearance, and the patient may pass rapidly from apparent health to asphyxia and death. The above changes may be due to a narrowing of the glottic orifice dependent upon acute œdema; the development of new growths; cicatricial contraction; adhesion of tissues, or upon what is rarer, an "anchylosis"* of one of the arytenoid cartilages.

A small piece of necrosed cartilage becoming detached may cause sudden and fatal *asphyxia* by falling into the trachea. The odor of the breath in necrosis of the laryngeal cartilages is very peculiar, being more "rancid"† than that emanating from necrosed bone. Cough may be entirely wanting.

The manifestation of syphilis in the larynx is *subject to great variation*, ranging in severity from a simple erythematous catarrh to great or total destruction of the organ. The primary lesion, the chancre, has been observed on the lips, cheeks, pharynx, pillars, tonsils, soft palate and base of tongue, but never in the larynx, though M. Krishaber‡ claims to have seen a chancre on the anterior surface of the epiglottis.

The secondary lesions appear as erythema, erosions, mucous patches, ulcerations and vegetations.

The tertiary, as gommata, inflammations, necroses and caries of the cartilages.

Acute œdema, with its attendant danger to life, is generally preceded by a rigor or chill, and may accompany both the secondary and tertiary forms of laryngeal syphilis.

Mucous patches, which may occur in any portion of the larynx, present an opaline gray or smoky color, have a glossy or glazed surface, which is tucked or wrinkled, and a slightly depressed centre. Their outline is irregularly rounded or oval, they are elevated slightly above the surrounding membranes, and are encircled by elevated borders of a rose color.

*Browne, *Diseases of the Throat*, p. 213.

†Van Buren, *Am. Med. Times*, July 7, 1860.

‡Isambert, *Conférences Cliniques sur les Maladies du Larynx*, p. 121.

These patches are single or multiple, and can ulcerate, "break down and become very much like follicular hyperplasiæ."* In fourteen cases of laryngeal syphilis, Krishaber and Mauriac† found mucous patches in the larynx in ten.

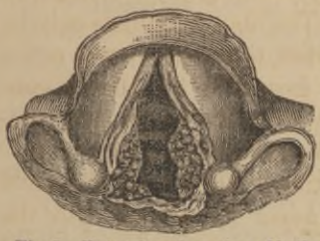

Fig 5.—Extensive ulceration of both vocal cords, from Schnitzler.

Gommata, or syphilomata, vary from the size of a hemp-seed to that of a large pea, are rounded, smooth, sometimes glossy, of a yellow color, and have a tendency to break down, and leave ulcers whose bases are gray. Gommata are single or multiple, and the resulting ulceration, when deep, may give rise to cartilagenous lesions which generally follow those of the mucous membrane.

Laryngoscopical Appearances.—In ordinary superficial laryngeal syphilis or erythema, there exists much the same laryngoscopic appearances as in catarrhal laryngitis. There is hyperæmia and a reddening of the vocal cords, confined usually to their posterior portion, which redness is more pronounced near the arytenoids, and becomes fainter or is lost towards the middle of the cords. Sometimes this redness may extend the whole length of the vocal cords, and in these cases small vessels may be seen running parallel to them, giving rise to epithelial desquamation and roughening. Increased redness is the chief feature of syphilitic congestion or catarrh. This color varies in intensity and in tone; it is bright red when acute, and more dusky when chronic. Erosions differ from ulcerations in depth alone. The extent of the ulceration in syphilis varies from the size of a pin's head, to a destruction of the greater part of the larynx, and is at times symmetrical.‡ The mucous membrane in the vicinity of an ulcer is seldom normal, but is usually injected, swollen or œdematous.

Whistler§ describes the growth and development of laryngeal syphilis in the following accurate manner:

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*Virchow, *Die Krankhaften Geschwülste*, II, 2, p. 413.

†*Annales d. Mal. de l'Oreille et du Larynx*, 1875, p. 59.

‡Schnitzler, *Wien. Med. Presse*, April 5, 1868.

§*Syphilis of the Larynx*, London, 1879, p. 53.

"The patient will have a laryngeal catarrh in the first few months of the disease (syphilis). Mucous patches of the cords appear and ulcerate. Under treatment, they cicatrize imperfectly. Several relapses occur. The cords become more deeply reddened; they lose their flat appearance, and become rounded and roughened on their surfaces as though worm eaten. The ulcers again break down; their edges swell, become thickened, and are bordered by vegetations. The ventricular bands and the inter-arytenoid folds participate in this inflammation. They are thickened, their surfaces are roughened, and warty growths often spring up and form spur-like projections over the vocal cords."

Diagnosis.—The diagnosis of the milder forms of laryngeal syphilis is occasionally a matter of great difficulty, though we may have the entire history of our patient. The anatomical and laryngoscopic appearances in syphilitic laryngeal erythema (superficial syphilitic laryngitis), are, in most respects, identical with those observed in catarrhal laryngitis. In both affections, the congestion of the vocal cords may be partial, complete, unilateral or bilateral. In the early stages of syphilitic laryngitis, there is no pain, cough, dyspnœa, dysphagia or fever. In the later stages, erosions, mucous patches, ulcerations, œdemata, hyperplasiæ, gommata, chondritis and perichondritis may occur, necessitating a differentiation between syphilis, phthisis and cancer.

At this point, I am forced to differ from those authors, who regard certain local symptoms as pathognomonic of syphilitic laryngeal disease, of laryngeal cancer or phthisis; and adhere to the more liberal views of Krishaber, Heinze, Ziemssen, Schnitzler, Sechtem, Cohen and Mandl.

"There is no clear local sign of distinction between syphilitic, cancerous or tuberculous growths; the diagnosis must be made from other facts connected with the case." (Krishaber.*)

"The attempts made to establish anatomical peculiarities cannot be said to have succeeded, * * * * * and the differential diagnosis between syphilitic and phthisical ulcers may present great difficulties." (Ziemssen.†)

"It is not possible to conclude from the laryngoscopic ap-

Annales d Mal. de l' Oreille et du Larynx, Sept.. 1878.

†*Cyclopædia*, Vol. VII, p. 848.

pearance of an ulcer alone, whether its nature is tubercular or not." (Heinze.*)

"Hence, in many cases it will be very difficult and even impossible to say which lesions are caused by syphilis and which not. * * * * * The diagnosis of many syphilitic affections belongs to the most difficult category of laryngoscopy." (Sechtem and Schnitzler.†)

"There is nothing absolutely characteristic in the appearance of syphilitic disease in the larynx, whether of the simple erythematous form or of the ulcerative variety.

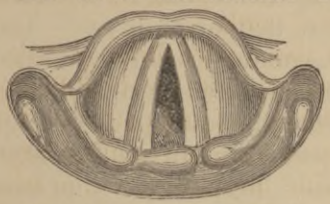

Fig. 6.—Sub-glottic gumma, Türck.

An obstinate chronic laryngitis in a constitution undoubtedly free from tuberculous disease of the lungs is almost presumptive evidence of its syphilitic nature. And the same may be said of the ulcerative form if it can be traced to no other actual cause." (Cohen.‡)

"The differential diagnosis cannot be accurately established without the anamnestics, or by the discovery of syphilitic symptoms in the buccal cavity or in the pharynx." (Mandl.§)

I could augment this list of authorities in support of my opinion, but I will only add that several eminent laryngoscopists have been frank enough to admit having diagnosed and treated laryngeal phthisis for syphilis, and *vice versa*. Fauvel‖ submits all his cancerous patients, without distinction, to syphilitic treatment, even though there is no evidence of syphilitic antecedents. I therefore consider the history of the patient, a thorough and careful examination of the pharynx, genitals, skin, lymphatics and lungs, as indispensable in the diagnosis of laryngeal phthisis or syphilis; and regard as unreliable, diagnoses founded upon the "typical ulcer or typical seat of such ulcer." Dr. Mackenzie remarks: "The previous history, present constitutional condition, tem-

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*Notice of monograph in *Am. Jour. Med. Science*, April, 1879.

†*Wien. Med. Presse*, Nos. 27-31, 1878.

‡*Diseases of the Throat and Nasal Passages*, p. 116.

§*Maladies du Larynx et du Pharynx*, p. 608.

‖*Maladies du Larynx*, p. 714.

perature, pulse and state of the lungs of our patient, all greatly assist us in forming an accurate opinion."*

The usual seat of *syphilitic ulceration* is on the free border of the epiglottis, from which it may extend to the aryteno-epiglottidean folds and vocal cords. There are often signs of former ulceration in the pharynx, mouth or nares, or upon the tongue or soft palate. Ulceration is generally extensive, and may take place without much thickening. Loss of tissue is a distinctive sign. Ulceration often extends from above downward, and is followed by thickening. The course of syphilitic ulcers is slower than that of phthisis.† The color of the laryngeal mucous membrane is a dull mottled red. The voice is hoarse, and, in advanced cases, aphonic; sometimes we observe a characteristic rasping and rough voice. Cough is very rare. Expectoration in the secondary stage is scant, thick and tenacious. Respiration is in most cases not embarrassed in the secondary stage, and depends, in the tertiary, upon the extent of the stenosis. Deglutition is not painful until the cartilages become ulcerated. There is pain usually on pressure. Generally the skin has been recently affected in secondary syphilitic laryngitis; and in the tertiary, when the laryngeal cicatrices or contracting star-like bands exist, they are almost characteristic, for such bands are not the result of cancerous disease or phthisis. Enlargement of the posterior cervical glands, and other constitutional signs of syphilis, when present, aid us in making our diagnosis.

Phthisis frequently first attacks the neighborhood of the arytenoid cartilages, where it produces a pyriform swelling, in many instances corresponding with the affected lung. When it attacks the epiglottis, it generally produces thickening, and subsequent ulceration is often of a worm-eaten character. In phthisis, a more or less uniform thickening is the principal characteristic; this thickening always precedes ulceration.‡ The ulcerations are paler than in syphilis, are budding fungous, and have irregular swollen

*_Med. Times and Gaz_,, Lond., May, 1869.

†Whistler, *Syphilis of the Larynx*, London, 1879,

‡Mackenzie, *Med. Times and Gazette*, May, 1869.

and hyperæmic margins which are covered by muco-pus. Phthisis usually commences below and extends upward. The color of the laryngeal and palatine mucous membranes is at first generally pale and anæmic, and afterward gray. The voice is sometimes hoarse in the earlier stages, but may be entirely lost or whispering in the severer forms. Cough is generally present, but depends upon the extent of lung implication. The expectoration is more spumous or frothy than in syphilis. Respiration is hurried in proportion to the lung complication, and in advanced stages is much embarrassed. Deglutition and phonation are nearly always painful when the cartilages are affected. It is rare that we see phthisical ulcerations in the larynx without pulmonary phthisis; and auscultation furnishes us a certain means of diagnosis. Hæmorrhage is pulmonary, not laryngeal. Phthisical ulcerations are met with at all ages, and in women as often as in men.

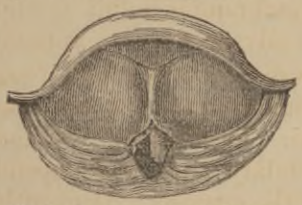

Fig. 7.—Laryngo-stenosis, Burow.

The seat of *cancer* of the larynx is nearly always on the left side and on the superior vocal cord. Among thirty-seven patients with laryngeal cancer, the lesions in twenty-six were on the left side; and sixteen of these twenty-six were on the superior vocal cord.* The epiglottis is rarely first attacked. During the ulcerative period of cancer, there are many buds or growths which appear rapidly, often bleed, and become very large. The color of the mucous membrane is livid. The voice is hoarse from the commencement of the disease, and may be lost entirely in the more advanced stages. Cough may be wanting. The sputa often contains expectorated fragments of tissue, which should be examined microscopically, or a small piece of the growth may be torn off and submitted to the microscope. Respiration is embarrassed, and shortness of breath is readily developed on the slightest exertion. Painful dysphagia exists nearly always, and is very much augmented when the œsophagus is involved. Pain is always present, is of a lancinating charac-

*Fauvel, *Maladies du Larynx*, p. 693.

ter, and is compared by the patient to that produced by the cut of a sharp instrument. When ulceration is well established, these pains are not confined to the larynx, but are referred to the ears, the forehead or the orbit. Salivation is always present in cancer of the larynx.* Laryngeal cancer is most frequent between the ages of fifty and sixty. Men are more frequently attacked than women, and of thirty-seven cases described by Fauvel,† thirty-four occurred in men.

Complications.—Syphilitic pharyngeal lesions frequently precede, co-exist with, or succeed laryngeal phenomena. Œdema is an important complication of laryngeal syphilis, and is often followed by ulceration and by such narrowing of the glottic orifice as to require tracheotomy in great haste in order to save our patient's life. This œdema in acute form may occur at any period of the disease. Laryngeal phthisis is also a complication, and the resulting ulceration is incurable. Laryngeal paralysis, resulting from syphilis, is very rare, but cases have been reported by MM. Poyet,‡ Jullien,§ Mackenzie‖ and Massie,¶ of Naples. The first named writer cites two cases; the last, four.

There are two methods by which syphilis may cause laryngeal paralysis. First, by pressure exercised by a gomma on the recurrent laryngeal nerve; and secondly, by producing muscular paralysis, which has been described by Fournier.** Syphilitic laryngo-stenosis, due to cicatrization alone or in combination with œdema, is frequently observed. Tracheal lesions may result from or complicate laryngeal syphilis; and according to Klemm, of Leipsic, abscess is also a complication.

Duration, etc.—The duration of syphilitic laryngeal erythema is usually from five to ten weeks; but the more advanced forms of the disease are chronic and of long duration. There is a great disposition to relapse in the disease

*Fauvel, *Maladies du Larynx*, p. 797.
†*Maladies du Larynx*, p. 693.
‡*Thèse de Paris*, No. 16, 1877.
§*Maladies Vénériennes*, 1879, p. 841.
‖*Hoarseness and Loss of Voice*, Lond., 1868.
¶*Statistica degl'infermi di malatie di gola*, Napoli, 1872.
**Lecons sur la Syphilis, 1873.

under consideration, and this fact is held by a few laryngoscopists to be a most valuable diagnostic sign. In a most admirable and classic series of lectures by Whistler,* this subject is fully treated under the title of "Relapsing Ulcerative Laryngitis."

TERMINATION, ETC.—Mild cases of laryngeal syphilis often, under proper treatment, terminate in complete restoration to health; but the severer forms may result in aphonia and enormous destruction of the laryngeal tissues and cartilages—particularly the epiglottis, arytenoids and cricoid. The great narrowing of the glottic orifice, following the cicatrization of deep syphilitic laryngeal ulcerations, has been compared to the contraction in the cicatrization of burns.† This narrowing has, in many cases, produced stenosis and sudden death, by suffocation before tracheotomy could be performed.

A case indelibly fixed in my mind, is that of a man, thirty-five years of age, who came to Paris to consult M. Fauvel in consequence of great dyspnœa, due to cicatricial laryngostenosis. On laryngoscopic examination, the skilled laryngoscopist advised his patient to submit at once to tracheotomy, but the patient desired a delay of at least twenty-four hours, and departed, promising to return to us the next morning for the operation. The same night he was attacked, and succumbed to acute œdema, and was found lying near a window, the glass of which he had smashed in his violent efforts to obtain air. This is only one instance in which the value of the laryngoscope as a guide when to perform tracheotomy in these troubles is demonstrated.

An instructive case is given by Dr. Pugia Thornton,‡ in which the patient, who contracted syphilis at the age of fifty-seven years, was tracheotomatized no less than four times to prevent the fatal termination of an ulcerative laryngitis. The last time the patient was tracheotomatized, it was necessary to saw through the ossified cartilages. Fatal hæmorrhage is mentioned by Türck§ as a rare termination of laryngeal syphilis.

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*_Syphilis of the Larynx_, p. 53.

†Virchow quoted in _Ziemssen's Cyclopædia_, Vol. VII, p. 866.

‡_Lond. Med. Examiner_, February, 1877.

§_Klinik der Krankheiten des Kehlkopfes_, p. 413.

Treatment.—The treatment of laryngeal syphilis is attended with encouraging results in the great majority of cases. A larynx which has undergone the most extensive destructive processes, and is apparently beyond repair, may so far improve under local and constitutional treatment as to hardly show any lesions. I have seen even cicatrices become almost imperceptible.

The treatment with which I have had most experience and success is essentially that practised in the Poliklinik in Vienna by Professor Schnitzler. The various preparations of mercury—calomel and opium, mercury bichloride or proto-iodide—afford us an efficient and almost certain means of controlling the disease; and our aim should be to mercurialize our patient as quickly as possible.

A good method of employing mercury and of avoiding gastric disorders, is one used by Schnitzler in the form of inunctions with mercurial ointment—half a drachm to a drachm twice daily. Hypodermic injections of mercury bichloride, in the treatment of laryngeal syphilis, were first employed by Lewin, of Berlin, and $\frac{1}{20}$th to $\frac{1}{30}$th of a grain may be used. Whistler reports several cases treated successfully by these injections. The gums should be slightly touched, and a teaspoonful of alum to a tumblerful of water employed to relieve the stomatitis.

In the treatment of the later stages, potassium iodide checks the progress of perforating ulcers, and promotes the absorption of gommata and vegetations. The above preparation should also be used often and in large doses, in conjunction with local applications in acute œdema and cicatricial laryngo-stenosis. In order to prevent a relapse, Krishaber* recommends that after a cure is once obtained, the patient should be left without treatment for an entire month. Then a teaspoonful of the liquor hydrargyri perchloridi is administered during the first eight days of every month, and fifteen grains of potassium iodide during the last eight days. This treatment is to continue one year. The general health and nutrition of the patient must be sustained by administering iron, arsenic and other tonics; and in advanced ulcera-

Annales de Mal. l'Oreille et du Larynx, Sept., 1878.

tion and suppuration, where the discharge runs down the œsophagus and produces gastric disorders, animal charcoal, sodium salicylate or quinine sulphate must be used.

The value and importance of a combination of local with the general treatment cannot be over-estimated, and without it in many cases, the best general medication will fail to arrest the progress of the disease. In superficial syphilitic laryngitis, accompanied by erosions, mucous patches and light ulceration, inhalations of bichloride of mercury are very useful. The following is the formula as used by Schnitzler:

℞. Mercury bichloride.....grs. iiss
Alcohol.....f℥ij
Water.....f℥viij. M.

From four to six drachms of this solution are to be inhaled from the steam atomizer once or twice daily.

The lighter pharyngeal and laryngeal lesions often disappear in a few days, under this local treatment, but it becomes necessary at times to fuse crystals of silver nitrate on aluminum or platinum tipped sounds, and cauterize freely all the diseased tissue. In more extensive ulcerations of the epiglottis and larynx, we apply iodo-glycerine after the following formula:

℞. Iodine.....grs. viij
Potassium iodide.....℥j
Glycerine.....f℥j. M.

The application should be made by means of a properly-curved brush introduced into the larynx by the aid of the laryngoscope. Astringent solutions are to be applied by means of the laryngeal brush every second or third day, in the manner above indicated; and among the most efficient is zinc chloride, one part to fifty of water; acid nitrate of mercury, one part to one hundred of water; silver nitrate, one part to twenty; chromic acid, one part to five of water; and copper sulphate, one part to twenty of water. Frictions of unguentum hydrargyri externally over the larynx, and potassium iodide internally, are used by Schnitzler in perichondritis of the arytenoids.

When the pain is severe, we may resort to a teaspoonful

of the following solution of Fauvel, inhaled from a steam atomizer, or used as a gargle with water:

℞. Morphia muriate.....grs. xv
Potassium bromide.....ʒijss
Orange flower water.....fʒij
Water.....fʒvj. M.

Local applications of morphia sulphate, one part to fifteen each of glycerine and water, or the insufflation of one-fourth of a grain of morphia sulphate with sugar of milk or gum arabic will often prove efficacious. Gargles of sodium salicylate,

Chloride of lime, Labarraque's solution diluted, or potassium permanganate may be used in fetid breath. Absolute rest of voice and abstinence from alcohol and tobacco should be insisted upon. The patient should not expose himself to sudden changes of the temperature.

The application of mercurial ointment to the larynx externally, the use of croton oil liniment on the chest, or two blisters placed on either side of the larynx in such a manner as to leave space to perform tracheotomy, if required, generally relieves acute œdema. "These means, and the internal administration of potassium iodide failing, a strong solution of chromic acid, one part to two or four of water, applied directly to the œdematous portion of the larynx, often immediately succeeds in reducing the swelling."* Scarification of the œdematous parts is effective in preventing suffocation, and should be made freely and often if necessary.

I have observed good results in chronic œdema from insufflation of iodoform in powder in combination with powdered gum arabic and sugar of milk, or the application of iodoform and glycerine—thirty grains of the former to an ounce of the latter.

Tracheotomy may be necessary at any period of laryngeal syphilis, particularly the tertiary, and should not be delayed too long, as the opinion of Beverly Robinson,† in regard to this operation in ulcerative phthisical laryngitis, is, in my estimation, doubly true of laryngeal syphilis. "Our object

*Isambert mentioned in *Paris Thesis* of M. Ferras, No, 156, 1872, p. 80.
†*Am. Jour. Med. Sciences*, April, 1879.

in performing tracheotomy should be to prevent rather than to relieve asphyxia."* The statistics of Trélat† and Krishaber,‡ show that 76 per cent. is the rate of success in patients tracheotomatized for laryngeal syphilis. The canule should be removed as early as possible after tracheotomy; for the longer it remains, the greater will be the difficulty in dispensing with its use; and cases which require the permanent use of the canule occasionally originate from neglect of this point.

The treatment of cicatricial laryngo-stenosis is chiefly operative, and includes division of the contracting bands or adhesion, etc., by means of various forms of laryngotomes, or forced dilatation by means of special dilators. The reader is referred to a recent production of Prof. Schroetter,§ of Vienna, on laryngo-stenoses and their treatment, and to the writings of Schnitzler, Von Burns, Stoerk and Oertel.

Potassium iodide, mercury in various forms, tonics, excito-motor stimulants, intra- and extra-laryngeal faradization have all been recommended in the treatment of paralysis resulting from laryngeal syphilis.

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*Hamilton, *Dublin Journal*, No. XXXIII, 1862.

†Masson, *Thèse de Paris*, No. 314, 1875, p. 26.

‡*Annales de Mal. de l'Oreille et du Larynx*, 1878, p. 329.

§*Beitrag zur Berhandlung der Larynx-Stenose*, 1876.