# ELEVENTH INTERNATIONAL MEDICAL CONGRESS IN ROME.

## SECTION OF LARYNGOLOGY.

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*March 30th*, 1894.

### INAUGURAL ADDRESS.

By Dr. FERDINANDO MASSEI, *President of the Section;*

*Professor of Laryngology in the University of Naples.*

Gentlemen—In welcoming you as our guests in this city—once the mother of the world—I am irresistibly reminded of the date (6th August, 1890) on which the Eternal City was chosen as the place of reunion for the Eleventh Congress. The cry "To Rome, to Rome," which then rose to the lips of everyone, was not a cry of war but a signal of peace and civilization—an expression of sympathy towards a young nation. Having received our political baptism, you come here to the very heart of the kingdom as representatives of science and progress, to give us the baptism of modern medicine—the continuation of the glorious traditions that have always won respect for the Italian school.

While I feel the difficulty of our being able to return even a part of the many kindnesses received when we were your guests, I am sure that from your efforts in this meeting suffering humanity will derive incalculable benefits. Your work is particularly salutary in days like the present, when the labours of honest and independent scientific men should raise a barrier to the spirit of destruction, and should hold aloft the flag of peace and progress.

To-day the whole world turns its gaze towards Rome, where so many powerful personalities, so many strong intellects, are united. The committee of direction has confided to well-known and valued colleagues the solution of certain problems. If this, even in part, can be accomplished, the labours that you undertake will be compensated by the blessings of those who will find in your knowledge either relief or protection from the sufferings and dangers to which they are subject.

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In inaugurating the work of our section, and in welcoming the array of unwearied pioneers of laryngology I see before me, I feel bitterly the void left by those—young and old, authorities and novitiates—who have been mown down by the inexorable scythe of death, leaving to us the indelible memory of their writings, their work, and their character. I would lay a regret and a flower on the tomb of Jelenffy,[1] Michelson,[2] Sir Morell Mackenzie,[3] Beregszascy,[4] Behnke,[5] Krakauer,[6] Hooper,[7] Charazac,[8] Felici,[9] Schnitzler,[10] Kœller,[11] Joly,[12] so soon removed from life, leaving, all of them, respected and treasured memories.

Gentlemen, few specialties have reached in less than forty years the very remarkable development attained by laryngology and rhinology. This thought, which comes readily into one's mind, leads us to inquire into the causes. In my opinion, the most striking causes are these two: firstly, the splendid results of local treatment; and secondly, the connections worked out between diseases of the larynx and nose and those of other organs and tissues. In other words, it is due to a development of therapeutics, which has created great specialists, and of diagnosis, which has brought forward clinicians of value. Hence, without perceiving it, we have assisted at a transformation by which laryngologists and rhinologists now owe the reputation they enjoy more to their proved clinical work than to their operative ability.

These outgrowths, sprung from a great tree in which biology has transfused new life, would have failed and fallen if they had asserted their independence—not in abjuring their origin, but in refusing their contribution. Branches of a great and vigorous trunk, they represent indeed the fertile results of the application of experimental science, and help to demonstrate how medicine freed from the fetters of empiricism has become modern naturalism.

And thus I would say that laryngology and rhinology from an art have become a science, and that those who would choose them as objects of study should assume a double task—firstly, that of mastering the *technique* required for examination and operation; and secondly, that of never allowing any fact to escape them which might clear up any of the great problems of clinical medicine.

The modern specialist, then, does not represent a fraction of medicine only, but the whole of it and a fraction more. He is a special cultivator of one branch, and a complete clinician in the whole subject.

Division of labour has been an advantage to modern progress because, by concentration of force, it has revealed new facts, developed new

[1] Zoltau Jelenffy, of Budapest. Aged 43. Died 23rd August, 1890.
[2] Paul Oscar Michelson, of Königsberg. Aged 45. Died 21st December, 1891.
[3] Sir Morell Mackenzie. Aged 55. Died 4th February, 1892.
[4] Julius von Beregszascy (Schnitzler's Assistant). Aged 46. Died 10th August, 1892.
[5] Emil Behnke di Stettino. Aged 56. Died at Ostend, 17th September, 1892.
[6] Alfred Krakauer, of Berlin. Died 19th October, 1892.
[7] Franklin Henry Hooper, of Boston. Aged 42. Died 20th November, 1892.
[8] J. Charazac, of Paris. Aged 34. Died 1st January, 1893.
[9] Francesco Felici, of Rome. Aged 33. Died 29th April, 1893.
[10] Johann Schnitzler, of Vienna. Aged 59. Died 3rd May, 1893.
[11] Kœller, of Nancy. Aged 26.
[12] Antoin Joly, of Lyons. Aged 49. Died May, 1893.

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conceptions, created a new science. But when we consider the goal of medicine, its application, and its development, it is not possible to suppose that anyone who has to treat a lesion circumscribed to a given point, or limited to a given organ, can limit his view and understanding to that point only. Etiological diagnosis—the most interesting and necessary from the point of view of treatment—would be stultified in such a case, the reputation of the practitioner would be compromised, and he would fail as a guide in not being able to judge as to which cases should receive local treatment, and which should be locally left alone. The expert laryngologist who overcomes a thousand difficulties, and recognizes an ulceration without settling its nature, would excite the hilarity of an expert clinician, and would risk injuring his patient. On the other hand, the morbid processes which attack the larynx are so numerous, so frequent, and so often connected with maladies of the naso-pharynx, that not only must one trace cause and effect, but also add an examination of neighbouring and associated organs. This fact has immensely enlarged the confines of this special branch. It is a shame to science that some should continue to repeat—more through malice prepense than through want of knowledge—that we have to treat a very limited branch, of small extent in practice, when our crowded out-patient rooms and the valuable writings on the subject are there to prove the contrary. It was not without reason that I said "through malice prepense," since it is not possible to suppose that an impartial scientist cannot understand the numerous and important bonds linking laryngology to general medicine. If for a moment we think of the great frequency of croup, of diphtheria, of acute infectious diseases attacking the throat, of spasm of the glottis, of the numerous and various accidents produced by foreign bodies in youth, it is clear at first view that, without trespassing, laryngology now and then invades the territory of pediatrics. If we turn to the terrible frequency of laryngeal syphilis and tuberculosis, we see at once what a considerable contingent is made up by these two morbid processes, for which both syphilography and internal medicine contend. It will be enough to recall the structure of the organ, its connections, its central and peripheral innervation, to understand that lesions of the neck and thorax, in thousands of combinations and occasions, can excite laryngeal phenomena, sometimes the prevalent if not the unique symptom. It is sufficient to recall the nearness of the orbit to the nasal cavity to foresee how certain forms of exophthalmos are associated with diseases of the sinuses.

The conclusion of this is, therefore, that a specialist cannot limit his task and his aspirations. At every fresh step of knowledge he should look over, and winnow at his ease, a phenomenon which may be the key to an involved series of pathological facts.

So with regard to the medical student. Although medicine has immeasurably enlarged her field of investigation, it is not to be thought that the particularized study of morbid processes attacking a given organ and visible to the endoscope is a different science to that included in the student's curriculum. This study would add but a small burden to the heavy load which the difficulties of science already impose on him.

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The means at our disposal enable us to examine an organ, facilitate the study of anatomical diagnosis, establish fixed data, and represent the most secure ground for formulating with greater exactness an etiological diagnosis. Then hearing from his teacher's lips the signification, value, and connections of a lesion—ideas gathered by assiduous labour and drawn from observation of numerous facts—the student no longer wanders in the sphere of the indeterminate, but from probability passes to certainty, and from guesses to laws.

It is true that a long road has still to be travelled, but that part we have passed along with dizzy rapidity has affirmed the importance of laryngology and rhinology in practice, and has demonstrated the absolute need of it amongst the fundamental subjects of study. The large phalanx of specialists, the great number of teachers, the creation of professorships, the numerous clinics, the endless series of publications, and the many special journals, attest this truth better than any words of mine. Our hearts cannot but rejoice at these facts, and the large gathering I see before me of able colleagues from all parts of the globe places the seal of importance on these studies, and shows the necessity of their diffusion.

Imbued with these convictions your executive committee, in deciding on the subjects which could most interest you, has selected those whose solution can most relieve the sufferings of humanity. I allude to the treatment of laryngeal tuberculosis, the solution of which problem will be one of the greatest victories; the treatment of deviations of the nasal septum—causes of strange and multiple morbid manifestation; and intubation of the larynx, a great therapeutic resource destined to reduce the indications for tracheotomy. In asking you to review the studies on the innervation of the larynx, and its central and peripheral parts, your committee has thought that a useful contribution might be made to a grave problem which interests equally the specialist and the general clinician. I may say the same for pachydermia laryngis, which yields, both in its clinical expression and its demands for treatment, a subject of discussion full of actuality.

In confiding the debate on these grave subjects to men of authority, the executive committee trusts that it has interpreted the wishes of all. In the firm conviction that from this great meeting science will gain renown and humanity secure relief, we inaugurate joyfully the work of the section. I repeat in the name of Rome, who receives you, and humanity, who turns to you, a fraternal welcome.

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## CONTRIBUTION TO THE ETIOLOGY OF THE SO-CALLED FOLLICULAR ANGINA.

By Dr. JOHN SENDZIAK (Warsaw).

Gentlemen,—The question of the etiology of the disease known under the term "follicular angina," properly lacunar tonsillitis, because the process is localized only in the crypts of the tonsils, the follicles being

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unaffected—is not yet settled. The greatest number of authors, as B. Fraenkel,[1] Ritter,[2] Goldscheider,[3] etc., relying on bacteriological investigations, regard this disorder as an independent pathological process, standing in no relation to the real diphtheria. Others, however, as for instance Sokolowski and Dinschowski,[4] basing their views on anatomo-pathological researches, maintain that lacunar tonsillitis, to which they add the term "pseudo-membranous," is only a milder form of diphtheria.

In view of the great importance of the above question from the practical standpoint (prognosis, isolation of the patients, etc.), I resolved to occupy myself with this question, which, in my opinion, can only be settled by means of strict bacteriological researches (cultures, inoculations). This work, which of course forms only a further contribution to the etiology of the above disease, I executed in the bacteriological laboratory of the Child Jezus Hospital in Warsaw, under the personal direction of Dr. Jakowski, chief of the laboratory, as well as with the kind assistance of Dr. Swiezynski, assistant physician.

For these investigations I used twenty-two carefully observed cases, principally from my ambulatory and private practice, the particular description of which will be reported elsewhere.

Clinically, these cases presented themselves as more or less typical forms of lacunar tonsillitis. They were acute cases, almost always accompanied by more or less fever (to 40° C.), very often with more or less marked affection of the lymphatic glands of the neck, with white greyish or yellow points (membranes), localized in the crypts of the tonsils. These cases generally ended favourably in three to eight days, without secondary paralyses. I performed the bacteriological investigations in the following manner: after a careful disinfection of the oral cavity by means of repeated gargles of four per cent. boric acid, I removed, with sterilized forceps, from the crypts of the tonsils the more or less compact and large membrane as completely as possible (often even with small fragments of adenoid tissue), which could always easily be accomplished, sometimes only with small bleeding.

In the beginning I still cleansed this membrane with two per cent. boric acid; later on, however, I abandoned this method, as I did not see its advantage.

The piece of membrane was afterwards rubbed on the object glass slide for microscopic examination (for coloration I always used Loeffler's fluid, *i.e.*, methylene blue and rose). I generally employed an oil immersion lens and Abbé's apparatus.

From the interior surface of the membrane I transferred, by means of a platinum needle, part of the membrane on to the nutritive medium, principally on Loeffler's "blood serum," which I consider to be the best

[1] "Angina lacunaris und diphtheritica," 1886.—"Berl. Klin. Woch."

[2] See Discussion on Baginsky's Paper, "Zur Aetiologie der Diphtherie."—"Berl. Klin. Woch.," 1892, 4 to 10.

[3] "Bacterioscopische Untersuchungen bei Angina tonsillaris und Diphtherie."—"Zeit. f. Klin. Med.," 22, 24, 25.

[4] "Przyczynek des Patologie Spraic zapalnyeh migdalhoid."—"Przegl. Lek.," 1891, 31.



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in such researches, likewise on to glycerine agar, finally on to gelatine. The first two I put into the thermostat (37° C).

Sometimes I inoculated the whole membrane directly on agar, prepared in the usual manner on Petri's plates. A couple of times I also transferred the whole membrane to several eprouvets (Loeffler's method). Several times I transfered also the first cultures on to new media (plates, bouillon).

The cultures were examined as early as twenty-four hours after, first macroscopically and under the magnifying glass, afterwards in a hanging drop, and lastly coloured in the usual manner (Loeffler's method).

The inoculation of the largest possible piece of membrane was made under the skin of the back of guinea-pigs, as they are the most susceptible to the diphtheritic virus (eighteen in number in two cases, namely in the presence of pseudo-diphtheritic bacilli ; I used two guinea-pigs in each case).[5] I regard this method as much surer in view of the possibility of the diphtheritic bacilli being overgrown by other micro-organisms (strepto- and staphylococci), which often grow together with them in the cultures.

Besides in a few cases I inoculated pure culture in the usual way (under the skin of the back) or according to the method of Escherich[6] (from twenty-four hours cultures in bouillon by means of Koch's syringe, under the skin of the abdomen in quantity proportional to the weight of the guinea-pig).

The inoculation itself I performed in the following manner: after having well cut the hairs on the back of the guinea-pig, and having carefully anæsthetized and disinfected the skin, by means of ether, sublimate, and alcohol, I made with the knife, sterilized by heating in gaslight, a small incision on the skin of the back; afterwards I endeavoured to form as deep a "pocket" as possible under the skin, into which I put the whole membrane, or part of it. The edges of the wound were joined with collodion. After the inoculation the guinea-pigs were kept under strict observation for about three months. I examined the temperature, the state of the wound, the state of the lymphatic glands of the neck and axilla, and later I directed my greatest attention to the appearance of secondary paralyses, etc.

Relying upon the above twenty-two cases, observed clinically and bacteriologically with the greatest care, I arrived at the following conclusions :—

1. In none of the above twenty-two cases were found Klebs-Loeffler's bacilli, the specific organism for diphtheria, as is now generally accepted (Escherich, Karlinski[7], myself, etc.).

This is in conformity with the results obtained by other authors (B. Fraenkel, Ritter, Goldscheider, etc.).

2. In four of these cases I found Hoffmann Loeffler's pseudo-diphtheritic bacilli—not alone, but together with other micro-organisms (three times

[5] In six cases I made only cultures, without inoculations on guinea-pigs.

[6] "Zur Frage des Pseudo-diphtherie Bacillus und der diagnostischen Bedeutung des Loeffler's Bacillus."—"Berl. Klin. Woch.," 21-23, 1893.

[7] See my paper, "Rhinitis crouposa, ant-diphtheritica."—"Monatsschr. f. Ohrenheilk.," 1893, 2, 3.

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with staphylococci, once staphylo- and streptococci). Escherich reports also that he found them in cases of follicular angina ; likewise Goldscheider, in six out of twenty-nine cases. Morphologically they differed a little from Klebs-Loeffler's bacilli, *i.e.*, only by the tendency to parallel agglomeration and by a brownish coloration of the older cultures. These are the trait which Escherich lately reported as characteristic of the pseudo-diphtheritic bacilli. The most important criterion, however, which allowed of distinguishing them from Klebs-Loeffler's bacilli was the negative result of inoculation on guinea-pigs. What is the signification of pseudo-diphtheritic bacilli? The French school, with Roux and Yersin at the head, whom E. Fraenkel[8] has lately joined, maintains that they are diphtheritic bacilli, only deprived of their poisonous character ; the German school, however of which Escherich is the greatest exponent, regards Hoffmann Loeffler's bacilli as independent. Escherich,[9] in his last excellent paper about this subject, expresses himself in the following manner : "alle diese Gründe veranlassen mich, vorläufig den pseudo-diphtherie bacillus, als eine selbständige Art zu behachten."

3. In the remaining eighteen cases I found :

(*a*) Staphylococci alone in six cases.

(*b*) Streptococci alone in two cases, at last.

(*c*) Mixed forms, *i.e.*, staphylo- and streptococci in ten cases (in six of them staphylococci, and in four streptococci were in abundance).

This agrees almost entirely with the results obtained by B. Fraenkel (who found in his cases only diplococcus and staphylococcus aureus et albus), Ritter, and lately Goldscheider (from Leyden's clinic in Berlin), who found staphylococci in eleven, streptococci in six, and mixed forms in eight cases.

Comparatively seldom—namely, in two cases—I found the pure culture of streptococci. It would seem that this kind of bacteria is very seldom to be met with (Lingelsheim,[10] on the contrary, found only streptococci in this disorder). We must, however, not forget the fact, which is very well known in bacteriology, *i.e.*, that the streptococci, cultivated in the earlier days, may be overgrown afterwards by staphylococci. In a couple of cases I could convince myself of it. Goldscheider also reports this fact. Therefore, it is very important to note in which period of the disease we perform bacteriological investigations. In my cases this period lasted from one to five days mostly (namely, in eleven cases). I extracted the membranes for these researches on the second day.

4. As to the course of the disease, it was in four cases (*i.e.*, where the pseudo-diphtheritic bacilli were found) a little severer, as in Goldscheider's cases. In the remaining eighteen cases, however—these were mostly not quite typical cases, with more extended membranes—no distinct influence of this or that type of bacteria (staphylo- or streptococci) upon the clinical picture of the disease could be remarked. Goldscheider, on the contrary, observed in his cases a more severe course of disease in the presence of streptococci.

[8] "Berl. Klin. Woch.," 1893, 9.
[9] *Loc. cit.*
[10] "Beitrag zur Streptocokken Frage."—"Zeit. fur Hyg.," 12, 1892.

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5. These micro-organisms had no special character, and did not differ in any way from the common staphylo- and streptococcus pyogenes. Mostly they were stapylococci albi, and in three cases only I found staphylococcus aureus and albus together. As to the streptococci, they were principally in short chains. Sometimes they also happened to be very long and crooked, mostly composed of single smaller or greater cocci; once only of diplococci (diplostreptococcus, Barbier[11]).

*Relying upon the clinical picture of this disease, and the results obtained by bacteriological investigations in my thirty cases, I maintain that the so-called follicular angina, or, better, lacunar tonsillitis, is clinically and histologically an independent pathological process, having nothing in common with true diphtheria. It is no doubt infectious, but we, unfortunately, do not know its specific virus.*

[After finishing this paper, I had occasion to examine bacteriologically eight new cases (in all thirty):—(1) In three of these cases I found pseudo-diphtheritic bacilli (once together with staphylococcus aureus); (2) three times staphylococci (once staphylococcus aureus and albus; once staphylococci and streptococci together—especially staphylococci); (3) once I found pure streptococci.]

## THE CLASSIFICATION AND THERAPEUTICS OF PACHYDERMIA LARYNGIS.

By Prof. CHIARI (Vienna).

(*Abstract.*)

The verrucous form of pachydermia is identical with the papilloma of the laryngologist, and has no relation to the diffuse form. Diffuse pachydermia may be primary or it may be secondary to some other affection of the larynx, such as tubercle or syphilis. In Prof. Chiari's experience typical pachydermia is a very rare disease. He describes several forms.

I. The most frequent and mildest form is a thickening and loosening of the epithelium of the inter-arytenoid fold and vocal cords, such as occurs so frequently in chronic catarrh. The treatment is that of chronic catarrh, consisting of inhalations, insufflations, and especially applications by means of a brush, and cauterization. The best applications are those of lactic acid or iodine, but nitrate of silver is apt to cause increased thickening of the epithelium. If there is a well-marked localized thickening ("singer's nodule") it may be removed by means of fine cutting forceps. Small singers' nodules may disappear under the influence of rest, or simple applications of nitrate of silver in solution, or in the solid stick. If they are of considerable size the forceps is to be preferred.

II. The typical form of pachydermia laryngis, as it affects chiefly the vocal processes, calls for a plan of treatment varying according to the circumstances of the case, and authors differ greatly in their opinions.

[11] "Sur un streptocoque particulier trouvé dans les angines à fausses membranes."—"Ref. T. C.," 1893, 12.

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Some recommend purely expectant treatment, avoidance of tobacco, strong drinks, or abuse of the voice; others recommend the internal administration of iodide of potassium, which, though occasionally of some benefit, may also at times produce general impairment of health. Prof. Chiari recommends the use of electrolysis, as employed by Moll, of Arnheim, a current of from ten to twelve milliampères for from three to five minutes at a time. He considers it the best means for preventing recurrence, but good results have also followed operation by means of any of the ordinary cutting forceps, or cold or electro-caustic snares.

III. Large genuine pachydermic growths in the inter-arytenoid fold interfere very materially with the voice. Unfortunately, treatment by means of cutting forceps, hot or cold snares, etc., does not guarantee freedom from recurrence.

IV. The last group includes those circumscribed thickenings outgrowths or nodules which accompany tuberculosis, syphilis, chronic perichondritis, and perhaps also lupus, which have been referred to as "secondary" or "accessory" pachydermia. Their prognosis depends on their etiology, as also does their treatment, the latter varying according to the nature of the most distressing symptoms. Naturally the syphilitic form is much more favourable than the tuberculous, but it not unfrequently resists treatment by means of the ordinary specific remedies. Operative treatment of the same kind as for the typical primary form is called for in suitable cases—that is, if the general health is good, and the respiration or voice is seriously interfered with by the local disease. The method of treatment which, so far, is most to be recommended is the use of electrolysis by means of a bipolar instrument, with a current of from ten to fifteen milliampères. This causes no reaction, and seems to protect against recurrence better than any other treatment.

"There is no doubt that pachydermia laryngis, whether in the simplest "form in the inter-arytenoid space, or in the typical form on the processus "vocalis, is only a symptom of chronic catarrh, and not to be looked "upon as a disease in itself."

*March 31st*, 1894.

## LARYNGEAL INTUBATION IN ADULTS.

By Dr. SCHMIEGELOW (Copenhagen).

(*Author's Résumé.*)

Intubation cannot replace tracheotomy and be adopted as the principal method of treating acute stenoses in adult patients, but on the other hand it may claim many successes in the treatment of chronic stenoses. It is especially in cases of cicatricial stenoses that intubation has been frequently employed.

1. If we are dealing with slight degrees of stenosis where the passage is large enough to introduce tubes, we proceed in the following manner: an exact comprehension of the nature, etc., of the stricture is first obtained by laryngoscopic examination, and intubation is preceded by

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endo-laryngeal operations, extirpation of membranes, etc. I employ Lefferts' instruments for intubation. How often can we leave the tube *in situ?* It is necessary to gain experience from each case. I have treated patients who have been intubated for over a year, and in whom the tube has been changed only once a month.

2. If we find the presence of strictures so great that we cannot introduce tubes large enough to allow the patient to respire, the treatment becomes more complicated.

(*a*) We may commence by dilating the stenosis by endo-laryngeal operations, until large tubes can be introduced.

(*b*) We may also commence with the introduction of Schroetter's bougies, and continue until the stenosis is so far dilated that the tubes can be introduced.

(*c*) We may commence by the immediate performance of laryngo-fissure in order to remove the obstruction causing the stenosis, and then proceed to intubation.

3. Complete obliteration of the larynx ought to be treated by—

1. Laryngo-fissure with excision of the diaphragm ; then
2. Intubation, in order to prevent the reproduction of the diaphragm.

Dr. HERYNG (Warsaw) related the case of a child in which relief was only obtained by means of thyrotomy and the excision of the cicatricial tissue, which obliterated the upper part of the trachea. He introduced into the trachea a caoutchouc seven centimètres in length, seven millimètres in diameter, and with walls of the thickness of two millimètres. He made an opening in the wall of this tube, through which he introduced a fenestrated canula. The shorter part of the tube reached for half a centimètre beyond the vocal cords and the longer part lay in the trachea. The tube did not interfere with swallowing and was left *in situ* for ten days, when there was substituted for it a T-shaped tube. There was no growth of granulations round the tube, and the tracheal passage remained open. The advantage gained was the restoration of the voice, although the canula could not be removed. Dr. Heryng employed the same plan of treatment in two other cases of stenosis, one of the larynx, the other of the trachea. The details of the *technique* will be published.

Dr. SCHMIDTHUISEN (Aix-la-Chapelle) thought it unnecessary to make an external opening, as in two cases of complete closure of the trachea, or of trachea and larynx, he had adopted the following plan. He pushed a sharp-pointed sound from the trachea through the cicatricial tissue till its point appeared between the arytenoids. This was left for half an hour, and was then replaced by a thicker one. When the canal is sufficiently large, a laminated tent was introduced, and secured by means of a silk thread attached to its lower extremity. The thick part was introduced into the trachea, and the point was then pushed upwards by means of a small pair of forceps. After a few days solid dilating wedges (Bolzen) were introduced of gradually increasing thickness, and were retained day and night without causing any discomfort. Within three weeks there were substituted for them canulas of the same shape. The patients were able to insert them for themselves.

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Prof. F. MASSEI (Naples): I do not know why in certain quarters tracheotomy should be accepted with difficulty; it is certain that I have been able to perform in three or four years in adults as many intubations as I have done tracheotomies in the course of all my career. With your permission I may refer to the results of my practice, and while complimenting Dr. Schmiegelow on all he so well said, I would lay stress on the two following points as giving the precise indications for intubation:—1, the anatomical diagnosis; 2, the etiological diagnosis.

The first shows us if there is a passage which the tube can traverse and in which it can be placed; the second informs as to the curability or non-curability of the process. In this way we prefer tracheotomy for cancer, tuberculosis, etc.; we find intubation contra-indicated in cicatricial stenosis (without tracheotomy), in tumours, etc. But also in processes which may result in cure, like syphilis, one must use one's judgment. There are cases of syphilitic perichondritis (and I have had a case) in which intubation could be harmful. But do not let us forget that, even in cases of incurable disease in which we are too pressed for time to perform tracheotomy, intubation is useful (combined method), and I have had such important cases. Dr. Rabot, of Lyons, has charged me to say in his name to this meeting that he is at present a firm partizan of intubation, and I end by expressing the desire that intubation should receive the merit due to it, avoiding all exaggeration, and I here show you a fenestrated tube of O'Dwyer.

Dr. MICHAEL: In judging of the results of treatment of stenosis we must be careful, because in children, sometimes also in adults, the stenosis is removed naturally. From the literature of the subject I have collected a great number of cases, most of which were cured. I would here communicate the following pertinent case. In a child three years old, suffering from papilloma, I was forced (in spite of having been successful in removing part of the growth from above) to perform tracheotomy on account of threatened suffocation. Fourteen days later I followed this up by splitting the larynx and extirpating the growth, which was sand-glass shaped and situated half above, half below the vocal cord. The thyroid was united by stitches. The removal of the canula was hindered by an intercurrent attack of pleuro-pneumonia. When this was over, after six weeks, the removal of the canula was impossible.

What was the cause? Recurrence there was none, the voice was excellent, even a "singing voice" present. Intubation or Schroetter's dilators I did not wish to try, because I was convinced that then the larynx would yield at the locus minoris resistentiæ—*i.e.*, the stitches would give. It would still be doubtful whether the canula could be removed, certain that the voice would be destroyed. As further dilatation from below or the removal of a small portion of the trachea promised no better results, I left the whole affair to itself, and had the great joy of being able after two years to remove the canula and dismiss the child completely cured and with a loud singing voice. The child's larynx increases in a natural manner with its growth, and so procures of itself the necessary air-space. Sometimes even in stenosis in adults, if they are not purely cicatricial, natural healing occurs.

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Dr. TOTI asked Drs. Heryng, Schmiegelow and Schmidthuisen how often they had been able to remove the canula in cases of true cicatricia stenosis.

Dr. LUBLINER (Warsaw) had employed a method similar to that of Dr. Schmidthuisen, with slight modifications, and had published it in the "Therapeutischen Monatsschrift" in 1891, and Dr. Catti had also employed the same. He made use of a thin sound, with an opening at its lower extremity for the reception of Schroetter's wedge. This method of introducing dilators from the tracheal opening had given him good results. In a very severe case the voice, which had been quite lost, was completely restored. Patients can early learn to introduce the instruments. The method is valuable in cases of stenosis in children following tracheotomy, produced by granulations below the vocal cords.

Dr. SCHMIDTHUISEN said that Catti's forceps had nothing to do with his own wedges (Bolzen), which did not require any such means as that of Schroetter's to keep them fixed.

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## COMPARISON between ELECTROLYSIS and other METHODS of TREATMENT for the DESTRUCTION of DEVIATIONS and SPURS of the NASAL SEPTUM.

By Dr. E. J. MOURE (Bordeaux).

Being desired by the committee of organization of the Laryngological Section to bring before the Congress my method of electrolytic treatment of deviations and spurs of the nasal septum, and to discuss the value of this method compared with other intra-nasal surgical procedures, I shall endeavour to expose the subject in a few words.

I will merely recall the French origin of this method of treatment, which, originating first with Dr. Miot of Paris, then a little later with Dr. Garel of Lyons, as a monopolar method, was later still perfected in its operative *technique* by Prof. Bergonié of Bordeaux and myself. I described our method of performing it at the Congress of Berlin, and have had, since that time, the satisfaction of seeing our method applied generally with success in all parts of the scientific world. I cannot here review all the memoirs or cases published relating to this subject since 1890—their enumeration would be tedious. I shall confine myself to the remark that our method of electrolytic treatment has not been modified. It is the bipolar method to which we always give preference (recommending steel needles, which, while being more resistant and less dear than platinum, also penetrate more easily into the portions of cartilage which it is desired to destroy). I will only briefly mention the operative *technique*, which we have described at length in our memoir upon this subject.[1]

Each needle is covered with a hardened caoutchouc mandarin (end of a urethral sound), which not only isolates it, but permits of the exact

[1] "The Treatment of Deviations and Spurs of the Nasal Septum by Electrolysis." By Drs. J. Bergonié and E. J. Moure, Bordeaux. Paris, 1890.

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imitation of the depth of tissue to be destroyed, and is buried in the axis of the nasal fossa, parallel to the septum. The negative pole is placed, according to the case, over the centre of the spur, and the positive pole outside or above this latter. An important point is not to put any needle too near the base of the deviation, in order not to expose the septum to perforation. According to the volume and hardness of the growth to be destroyed, the intensity of the current should vary from eighteen to twenty-five milliampères, and last from twelve to fifteen minutes. When the needles are well placed, these intensities suffice for the destruction in a single sitting of a spur or septal outgrowth in most cases.

It scarcely needs mentioning that the needles are combined with an electric battery of at least thirty couples, connected with an ampèremètre, and an immersion rheostat.[2] The latter offers the great advantage of graduating slowly and without shock the electrolytic current, and diminishing it.

It should be added that during electrolysis the opposite fossa ought to be watched through a speculum, *i.e.*, the undeviated septum, in order to make certain that no gas escapes from this side, which would indicate that the electrolysis is carried beyond the point wished.

We do not hesitate to say that well managed this treatment serves for the majority of deviations, crests, and spurs of the nasal septum. It has the advantage, as we have formerly pointed out, of being rapid enough, of succeeding at one application, and if well applied, of being only slightly or not at all painful. Lastly, the bleeding is insignificant, an important consideration in operations of this kind.

Should we now consider electrolysis as the only means of obtaining the disappearance without pain and without hæmorrhage of the lesions under consideration? Can we employ this proceeding to the exclusion of every other? To affirm such a proposition would be incontestably to push too far the affection for any method.

There exist, indeed, other methods, which we shall rapidly review.

First, the sanguinary operation with the American drill, making channels in the portions of the cartilage to be destroyed; then the saw recommended in America, and almost universally employed in this country. These methods have the undoubted advantage of being rapid, but have the inconvenience of being sanguinary. The flow of blood is always abundant and occurs early, the mucous membrane and the field of operation is covered with blood, and the operator has to work somewhat blindly, often terminating his operation. I know well that very experienced practitioners succeed in rapidly destroying a septal projection, and that the operation, rapidly conducted, has been performed with all desirable perfection. But, besides the inevitable gropings about at the commencement, it is not always possible to act rapidly, and, consequently, to have the part to be operated upon well under view. This is, to my mind, a grave inconvenience of any sanguinary proceeding called rapid. The blood flow is generally pretty easily arrested, and a tampon, properly applied, generally suffices to obtain hæmostasis, but this has often to

[2] Rheostat of Prof. Bergonie.

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remain *in situ* several hours, and the patient is obliged, moreover, to keep his room, or at least remain quiet. I have, seen, indeed, in one case operated upon by the drill, a very abundant hæmorrhage, due to the fact that the patient, a blacksmith by trade, had resumed his work a few hours after the operation. Such an accident in an operation so simple in appearance seems to me out of relation with the operation practised.

Resection performed with gouges and various osteotomes is subject to the same inconveniences, but they exact less skill on the part of the operator, and illumination of the field of operation is not so necessary. Once the outgrowth is engaged in the light of the instrument which I have the honour to present to you, or attacked by the gouge, section is practised without being occupied with the operative surface, and, when the blood flows, the operation is ended; but here provisory tamponing is still necessary, and the patient ought to abstain from all exaggerated manual labour during the twenty-four hours following the intervention.

We must recognize these as valuable methods in cases in which the spurs or crests are but small, and situated near the entrance of the nose, as is most frequently the case.

There is one other process which approaches in its advantages to electrolysis, and in which electricity is called into use—this is galvanic ignipuncture. This has indeed the advantage of being painless, thanks to cocaine, and of leading to no outflow of blood. It can be employed with the knife applied flat to the outgrowth to be destroyed, or by making channels, with the galvanic point buried little by little in the thickness of the spur. We can thus separate at the base crests pretty prominent, and give to the deformed septum a plane surface. This is a method which we willingly recommend to practitioners not possessing an electrolytic battery, and desirous of always commanding the field upon which they operate. I have many times had to adopt this method, and always with success. It is well, once the eschar is detached, to level the surface either with the galvanic knife applied flat, or with the osteotome which I have the honour to present to you.

I only refer to forceps, punches, and apparatus for straightening, since on the one hand we wish to avoid perforation of the septum, and on the other hand the object of this paper is to consider methods of destruction and not of straightening.

I will resume thus:—In deviations with great thickening we ought to use electrolysis alone, or associated with galvanic destruction. In the case of small spurs, the latter proceeding employed alone under the form of ignipuncture will suffice in most cases to obtain the desired result These two methods have the advantage of being nearly painless, and of occasioning no blood flow, and consequently of allowing us to act with all safety.

Dr. SAJOUS, while expressing his admiration of the method devised by Dr. Moure—bipolar electrolysis—feared perforations of the septum an accident already reported; he preferred a perforation, but made after the elevation of the mucous membrane. The outgrowth is thus replaced by a concavity easily recovered by the flap of mucous membrane.

Dr. BOTEY: Dr. Moure has forgotten to speak of the cases in which

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there does not exist any thickening—that is to say, cases in which the septum is simply deviated, especially vertically. In these cases we should unpardonably produce a perforation by electrolysis. It is necessary to straighten the septum, and, as it is always too large, it is necessary to make a small resection of the quadrangular cartilage, because, whatever apparatus is employed, the septum always returns to a vicious position.

Dr. ROSENFELD: Deviation of the septum has to be treated variously, according to whether there is simply a deflection or a thickening of the cartilage or bone, a cartilaginous or bony spur or crest. In the first form a cure is most easily obtained by raising the mucous membrane and removing by a submucous and subperichondral resection a portion of the cartilage as large as may be necessary to allow free passage for air, it being better to remove too large rather than too small a piece. As regards solid thickenings of the septum, it is difficult to remove them with knives and scissors, but electrolysis is most strongly to be recommended. Cartilage melts away under its action like butter under a hot sun. Only one operation is needed, and this is applicable to bony outgrowths as well, if the bone is not too dense—that is to say, if it can be penetrated by a needle.

Dr. RUAULT thought that the indications for the treatment of deviations and crests of the nasal septum were never of an æsthetic character. The patient possesses a spur, the pressure of which upon the turbinateds leads to reflex phenomena, and in this case the best thing is to resect the projecting portion with the cutting punch; or there exists a marked deviation impeding respiration, and then it is necessary to restore permeability to the obstructed nasal fossa. In the latter case, whether or not there be an enlargement or simple deviation, if there is a pyramidal outgrowth in one nasal fossa, the method of choice is electrolysis, which assuredly leads to the desired result. The operation is almost painless if the operator possesses a good rheostat; it is not followed by any reaction; moreover, its effects are felt progressively, and we have no fear of obtaining only temporary results, which occurs often when we adopt sanguinary methods. As to the possibility of perforation, this is absolutely immaterial—indeed, it is often necessary to seek it in place of endeavouring to avoid it, and this is the only rational intervention in cases of total lateral deviation. As to plastic operations, advised by Petersen, Chatellier, and others, their value is purely theoretical.

Dr. CHIARI employed two methods. In simple deviations he resected the cartilaginous septum in the form of a triangular flap and kept this in an "over-corrected" position by means of iodoform gauze plugs for two or three weeks. He removed crests by means of the saw. Electrolysis was often employed for crests, but it took a long time.

Dr. MOURE replied to Dr. Sajous by endorsing Ruault's remarks that with electrolysis we have no accidents. It is difficult to understand how Botey resects under the mucous membrane a septum not thickened, but simply deviated. In these cases I prefer a quickly made perforation, permitting the access of air into both nasal fossæ. Lastly, I remark to Dr. Ruault that I do not consider electrolysis to be the only and exclusive treatment of deviations, or rather of crests and spurs of the septum. It

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is necessary to consider different cases and individual patients before adopting this method.

## On the STRUCTURE and HISTOLOGICAL ARRANGEMENT of the SO-CALLED FIBROMA of the VOCAL CORD.

### With Demonstrations of Microscopic Preparations, Drawings, and Photographs.

By Prof. O. CHIARI (Vienna).

Before commencing the description of my researches and their results, I would shortly mention that almost all laryngoscopists and anatomists adopt Eppinger's[1] views on the structure and histological arrangement of fibromata of the vocal cords. I will, therefore, describe shortly his accounts thereof.

Eppinger designates fibromata of the vocal cords "fibroma tuberosum," in contrast to the papillomata, which he calls "fibroma papillare." The fibroma tuberosum consists, according to him, in a circumscript, hyperplastic growth of the deeper mucous membrane, or of the submucous connective tissue in form of a nodule, which soon rises above the level of the surface of the mucous membrane of the larynx, and is covered by the most superficial layers of the mucous membrane. He distinguishes broad and firmly-based, and pedunculated (the latter when the mucous membrane is drawn forward by the fibroma-nodule in the form of a stalk), blue and red, hard and soft. They are of very various histological structure, the causes of which are mostly mechanical.

The smallest fibromata consist of a fibrous connective tissue, comparatively rich in vessels ; the larger they are, the brighter pictures do they present.

The connective tissue changes to regular sclerotic bands, or œdematous metamorphosis comes on, through which the fibres and fibre-bundles are pushed apart, so as to contain reticulated spaces, which are filled with granular masses, and are often lined with endothelial cells. Sometimes a system of canals almost regularly covered with endothelial cells extends through the matrix (fibroma canalisatum — Klebs). The causes for these appearances are to be found in great dilatations of the vessels, due to obstruction to the flow of blood and lymph, and which again on their part give rise to hæmorrhages, pigment infiltrations and thromboses, and, lastly, to the formation of these homogeneous, dull-shining hyaline masses, of a light yellow to red-brown colour, often penetrated by small irregular spaces, which are so frequently found in fibromata, especially in the somewhat larger ones. Eppinger regards these hyaline masses as originating in masses of fibrine.

As the rarest metamorphosis, he mentions amyloid degeneration of the connective tissue.

The superficial layer of the fibroma consists, according to him, of

[1] "Pathologische Anatomie der Larynx und der Trachea, aus Klebs' Handbuch der Patholog. Anatomie." Berlin, 1880. Hirschwald.

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mucous membrane, distinctly marked off from the underlying fibroma tissue. The epithelium is generally somewhat thickened, and occasionally sends shoots downwards, which, however, never enter into the fibroma.

Eppinger therefore considers, for example, the polypes muqueuses (described by Fauvel [2]) as a fibroma infiltrated with œdema, and having its fibres separated out thereby. He also doubts the existence of myxoma, as the presence of mucin has nowhere been established. In the same way he believes that the fibroma areolare (T. Müller) is due to the same œdematous infiltration and formation of spaces. Similar to Eppinger's, if not so complete, are the observations of other authors; I therefore give no further quotations, but will just mention that my histological observations agree essentially with those of Eppinger, but that they, as well as clinical observations, force me to a different conclusion.

My work is based upon the examination of thirty-eight polyps of the vocal cords (exclusive of papillomata, tuberculous tumours and carcinomata), which have already been partly made use of (in two works).[3]

All these growths sat on the true cord near, or actually on, the free border generally between the anterior and middle thirds. All were covered with the same (generally thickened) epithelium as the vocal cord itself, which only seldom sent down deep-reaching roots, but more frequently superficial ones. Immediately under the epithelium lay a thin-fibred connective tissue layer, or at once (and this was very often the case) came the matrix, generally very loose, and full of large spaces.

More seldom the matrix was firmer. But in all cases the matrix contained numerous spaces, partly circular, partly elongated, some with and some without a lining of endothelium; the vessels were often greatly dilated, and fresh hæmorrhages and clots were seldom absent. Lastly the hyaline masses, described by Eppinger and considered by him as derived from fibrine, were often present.

All these appearances must be attributed to congestions, the result of the mechanical irritation to which the polypi are so often exposed. In no single case, however, could I make out a sharp demarcation between the substance mass of the polypi and their coverings.

Remains of glands were found in one case (described already) in a polyp (as a cyst); and further, in a section including a polyp and the vocal cord, I have seen the duct of a gland extend almost into the peduncle.

In this and one other case it was clearly to be seen that both the mucous membrane and the submucous layer, which at the free border of the vocal cords are scarcely to be distinguished from one another, simply bulge out, so that the tissue of the polypi, with the exception of those parts altered by congestion, did not differ from the tissue of the vocal cords. All the constituents of the superficial layers of the vocal cords were present in the polypi, only glands were wanting in all but one case. That, however, is easily explained by the fact that all my polypi were situated

[2] "Traité Pratique des Maladie du Larynx." Paris. 1877.

[3] "Ueber Cystenbildung in Stimmbandpolypen." "Wiener Klin. Woch.," 1891, No. 52. "Ueber das Vorkommen von Drüsen in Polypen and knöcheln der Stimmbänden." "Prager Med. Woch.," 1892, No. 4, page 37.

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near the free border of the vocal cord, and further generally in the middle third, where there are no glands.

It follows, therefore, that in all my cases, beginning with the singer's node (Sänger Knötchen), which shows itself as a hypertrophy of the mucous membrane and superficial connective tissue, up to the pedunculated so-called fibroma, one had to do with only limited hypertrophies of the superficial layers of the vocal cords. For these, therefore, the name "fibroma" is not to be used, but rather the name "polyp," as Eppinger uses it, when he says: "By this is to be understood only that form of "growth in which one has to deal with a circumscript hyperplasia of the "mucous membrane, together with the submucous connective tissue, and "in which all the elements of both these tissues take part."

All these circumstances were particularly clearly to be made out in the two cases of polypi of which I made sections together with the cords. I will, therefore, give a more detailed account of them.

These two larynxes were kindly given me by my brother, Prof. H. Chiari, of Prague.

The *post-mortem* examination, held on 23rd May, 1890, in Prague, on a working woman aged sixty showed anæmia essentialis, degeneratio adiposa myocardis, icterus, tumor limis chronicus pneumonia lobularis sinistra, tuberculosis obsoleta apicum pulmonum, and also a pedunculated, spherical polypus, of the size of a hemp seed, on the middle of the right true vocal cord. In the windpipe was tough mucus, but the mucous membrane there, as also in the larynx, was pale. The remaining conditions I omit as of no interest for our present purpose.

This polyp was now imbedded in celloidin, and about eighty sections of it and its vocal cord together prepared: the sections being made in the frontal direction, *i.e.*, perpendicularly from right to left. And first it was observed that the polyp was situated rather above the free border—in other words, just on the upper surface of the vocal cord. Immediately beneath the peduncle there was, clearly to be seen, a firm triangular fibrous mass, the ligamentum cordæ vocalis proprium, into which stretched (but always getting thinner and scarcer) the striped muscle fibres of the musculus vocalis. The peduncle of the polyp (see drawing 6) lies 0·99 millimètres above the free border of the vocal cord and is 0·33 millimètre thick, of which, however, 0·165 millimètre belongs to epithelium, so that the thickness of the fibrous tissue of the peduncle is also only 0·165 millimètre. The greatest thickness of the polyp is 1·54 millimètres, and its length 2·42 millimètres. Its epithelium, a stratified pavement-epithelium with superficial hardening, has a thickness of 0·033 to 0·077 millimètres, and for a short distance near the peduncle lies on a free basement membrane, which is prolonged through the peduncle from the vocal cord. The fibrous portion of the peduncle proves to be a direct continuation of the tissue of the vocal cord, consisting of connective tissue and elastic fibres, and showing a very close structure. This close-set connective tissue remains so only during its course through the circa 0·30 millimètre long peduncle, then at once in the real body of the polyp changes into a delicate tissue containing very numerous, and at parts very large, spaces. The largest of these spaces, somewhat

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round, has a diameter of 1·3 millimètres and therefore constitutes the greater mass of the tumour, and it is almost filled with the shining almost homogeneous substance, containing partly spindle-shaped, partly star-shaped, partly quite irregular hollow spaces, which Eppinger has described so exactly. With picrin it stained a beautiful yellow, with carmine scarcely stained at all, and altogether presented the picture of a hyaline mass. Although it did not stain blue by Weigert's method, still I must consider it (as does Eppinger) a derivative of fibrine, but that point will be more fully discussed. At this point I will only call your attention to the fact that beside these masses (which, moreover, did not always show the same reaction to stains), dilated blood-vessels, fresh hæmorrhages or coagula have always been found. Here that was also the case, for, in the tissue of the polypus were found numerous vessels with endothelium, partly empty, partly full of blood, and numerous areolar spaces, also partly containing blood and partly a finely granular matter. Indeed, the largest hollow-space (with a diameter of 0·42 millimètre) lay completely inside the shining homogeneous substance and was filled partly with fresh blood, partly with a large clot, easily recognized by the fibrine network that stained well by Weigert's method. The outermost layer of the polyp consisted, in many parts, of a more evenly formed thin layer of connective tissue, with delicate fibres and containing few connective tissue corpuscles. This was, however, of very varying thickness, and also contained numerous meshes, so that one could not speak of a mucous membrane covering, in Eppinger's sense.

The vocal cord, too, in the immediate neighbourhood of the stalk did not show any sharp demarcation between the superficial and deeper layers, *i.e.*, between mucous membrane and submucous tissue. The whole layer from the epithelium into the musculus vocalis was of the same structure, more compact and firm and richer in elastic fibres in the neighbourhood of the ligamentum cordæ vocalis proprium, but towards the ventricle of Morgagni looser and softer and poorer in elastic fibres, and just on the border between the looser and the more compact parts arose the peduncle. There were no glands either in the polyp itself, in the peduncle or in the vocal cord near the peduncle—a space of three millimètres downwards and one millimètre towards the ventricle being free from glands. Thus all the elements of the polyp were present in the neighbouring part of the vocal cord. The fibrous portion was all over present only in the form of fibrous bands, generally very thin, and at no point was it sharply marked off from the outer layer, so that it certainly was no fibroma. On the other hand, all these conditions are explained if we consider this polypus as a hypertrophy due to great development of vessels and to disturbances of circulation in consequence of frequent mechanical irritations, congestions, hæmorrhages and serous transudations; for all the conditions described in the polyp are quite easily explained by the congestions, which certainly must frequently occur, in such an unfavourably placed piece of hypertrophied tissue as a polypus of the vocal cord.

Finally the condition of the vocal cord is noteworthy. Above the peduncle, *i.e.*, on the upper surface of the vocal cord, towards the ventricle,

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the mucous membrane showed several protuberances, in which the superficial layer was rich in round and spindle cells, but in the deep layers there was serous infiltration, so that the connective tissue fibres were often much separated. The vessels were increased both in number and size almost all over the upper layer, but only at single places in the deeper layers: while below the polyp only a very slight increase in the vessels could be made out. Thus in this case there was a chronic inflammation with new growth formation in the neighbourhood of the polyp (several of those that I measured were 0·3 millimètre in diameter), so that the chronic inflammation is at least the probable cause of the polyp-formation, if it cannot be absolutely proved to be so. The inflammation might possibly be explained by the irritation of the polypus, for just the part of the vocal cord lying above the polyp was more irritated than the part lying beneath. The serial sections, however, speak for the former view. In the first sections of the series there was to be seen only a small excrescence of the superficial parts of the vocal cords, with slight thickening of the epithelium and dilated vessels: about 0·7 millimètre high and 0·9 millimètre broad. (Drawing 1.) So they continued through the first ten sections, only slightly and gradually increasing in breadth and height; and their vessels becoming large hollow spaces, which, however, still had their own wall and epithelium: their width was up to 0·6 millimètre. Later (drawings 2 and 3) the excrescence increased in height, but as yet showed no indication of a peduncle, and contained many dilated vessels, in comparison with which the connective tissue became insignificant.

Such was the condition up to section 19. From here on the formation of the peduncle began (drawings 4 and 5), the epithelium from below appearing to snare the basis of the excrescence, so that its diameter shrunk, within a few sections, from one millimètre to 0·2 millimètre. On the other hand, the excrescence increased in height from 1·2 millimètres to 1·9 millimètres, so that it now formed a pear-shaped polypus on a short peduncle. This contained in its interior numerous large irregularly-shaped vessels, each with its own wall (containing elastic fibres), covered with a beautiful layer of epithelium and filled with blood; also similar smaller vessels filled with a delicately granular mass and isolated lymph corpuscles; also large and small areolar spaces in the connective tissue filled partly with blood, partly with clot, partly with a fine granular mass, and partly with the hyaline mass (Eppinger). The connective tissue which was indeed even at the very beginning of the polyp fine and delicate, but still had formed the main body of the protuberance, now retired quite into the background.

At last, from about the 36th section, the polypi appeared as pear-shaped, and later as a spherical tumour, as described at the beginning. And so it remained till about the 60th section, where it appeared separated from the peduncle; the peduncle itself appearing again as a hypertrophic outgrowth of vocal cord, with thickened epithelium, and which rapidly decreased in size.

An examination of these preparations, or drawings from them, leads to a conclusion as to the formation of the peduncle, viz., the impression

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made is that one part of the outgrowth, becoming heavy through dilatation of the vessels and through congestions, drags on the peduncle and so brings about a narrowing of it.

Thus then, from the foregoing ; in this case the polypi arose from a hypertrophic longitudinal fold of the vocal cord, which was converted at one part, by blocking of its vessels, into a pear-shaped appendage—the polypus.

Clinical observation also supports this view of the method of origin. For I have often seen, on the border of the vocal cords, very narrow but long (even over half a centimètre long) red folds ; and lately saw one with a small nodular thickening in the centre (drawing 7). This thickening was removed along with the greater part of the fold (with blunt forceps) and examined. It consisted of a somewhat close connective tissue with numerous widened-out vessels and hæmorrhages, and was covered by a stratified pavement epithelium—the same structure as most other small polypi.

Finally, I have often seen, after removal of pedunculated polypi, small red ridges before and behind the peduncle, so that the origin of these polypi out of hypertrophic folds was also clinically clearly proved. The relation between chronic inflammation of the vocal cords and polyp formation was still clearer in the next case.

3. In a drinker forty-six years old, who died of alcoholism, there was found at the *post-mortem*, besides the signs of his alcoholism, a polypus on the left vocal cord. It was situated far forward on the cord, was almost the size of a pea, with a somewhat broad base, dark red, and superficially was apparently slightly ulcerated. The peduncle was broad from before backwards, and narrow from above downwards. Numerous serial sections (about one hundred and thirty) were also made of this polypus in connection with its vocal cord, in the frontal direction ; and they presented the following picture.

The polypus was situated not directly on the free border of the vocal cord, but rather beneath it, *i.e.*, beneath the ligamentum cordæ vocalis proprium. But the whole vocal cord, both above and below the polypus, had numerous greatly dilated vessels, both in the superficial and deep layers, and showed besides a rich cell infiltration of the superficial layer of the parts lying above the ligamentum cordæ. The peduncle of the polypus was 0·88 millimètre thick, of which 0·22 millimètre went to the epithelium, leaving 0·66 millimètre for the fibrous portion.

This fibrous peduncle (Fig. n$^{6}$ g) appeared again as a direct prolongation of all the superficial layers of the vocal cord. In it was no demarcation between superficial and deep layers (as mucous membrane and submucous tissue). Its length was about 0·88 millimètre. Naturally these measures were only taken from the frontal sections—its length from before backwards, measured microscopically, extended to nearly one centimètre, so that on the whole it was ribbon-like.

On these frontal sections the polypus itself was pear-shaped, about five millimetres long, and in most sections completely covered by a stratified pavement epithelium of from 0·066 millimètre to 0·16 millimètre thickness. This was wanting only in a few sections on the top of the polypus. The peduncle of the polyp consisted of a connective tissue



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of delicate fibres, but compactly arranged, poor in corpuscles, and containing numerous vessels (up to 0·10 millimètre in diameter) full of blood. In the polypus itself, however, were still more numerous and larger spaces filled with blood (some measured 0·77 millimètre, and over, in diameter). These were much more prominent than the connective tissue. Further, in the peduncle, the vessels still had their own walls, whereas the blood-filled spaces in the polypus proper had not, but seemed directly imbedded in the fibrous tissue. Besides these there were also numerous areolar spaces, filled with blood. Endothelium was lacking all over; on the other hand, numerous clots were present in the blood-spaces, and also that glancing homogeneous mass (Eppinger) was present, partly in the blood, partly in the tissues. Still it was not in such great quantities as in the last polypus, and as a rule it stained strongly with carmine.

The connective tissue appeared in the form of tongues and bands, and also as a network—only on the surface were connective tissue corpuscles at all numerous—and pigment patches were present also in the tissue. In most places this cavernous tissue reaches right up to the epithelium, so that here again it is impossible to speak of a mucous membrane covering of the polyp. Almost all the sections presented the same picture, so that in this case also one must consider the polypus as a hypertrophy of the vocal cord very rich in vessels.

In the sections corresponding to the anterior portion of the polypus the mucous membrane, both above and below the place of insertion of the polypus, was found to be raised into several protuberances, with greatly dilated vessels, so that here again one could speak of growth-like hypertrophies of the mucous membrane producing little knobs of exactly the same structure as the small peg-shaped polyp there (two millimètres long, one millimètre broad, measured along with the peduncle). The hypertrophic growths of the mucous membrane were rounded—their basis one millimètre in diameter, and their height half a millimètre). Evidently one of these growths had been developed into the actual polypus, which must therefore be regarded as simply a hypertrophy in which all the superficial parts of the vocal cord had taken part. Indeed, in the first eighteen sections (taken quite near the anterior end of the vocal cord) gland tubules were found right up to the edge of the peduncle. That is not to be wondered at since glands are frequently found there (pars sesamoidea—D. Fraenkel). Still neither tubule nor duct did actually enter the polypus, and still less was there to be found in it any cystic dilatation of any part of a gland. Thus in this and the previous case all the superficial layers of the vocal cord took part in the formation of the smaller growths and of the polypi, and there was an accompanying chronic inflammation of the vocal cord. Besides, in almost all cases of polypus of the vocal cords that I have seen, the cords have been in a condition of chronic inflammation, so that after removal of the polypus I have always had to treat the catarrh. Further, it is now known that polypi mostly develop only in consequence of chronic irritation of the cord, although, naturally, not every catarrh causes them. Out of many works that support this view, I will only quote one that has lately appeared. Dr. H. Lavrand, of Lille ("Sur l'étiologie des polypes

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du Larynx"—"Bulletin et Mémoires de la Société Française d'Otologie, etc.," Vol. IX., 1893, pages 293 to 300), describes seven cases of polypi very exactly, and establishes the fact that either the patients had suffered from catarrh of the cords previously, or that polyp and catarrh existed simultaneously, or that after removal of the polypus the catarrh had still to be treated. These cases, with the special observations on this point, are of great value, especially as catarrh is considered by all authors as at least a favouring and predisposing element.

In all my other cases I could only get the extirpated polypus. These also I examined histologically very carefully. They all showed the same structure as above described, but never a circumscript fibrous nodule of fibrous tissue covered with mucous membrane. They resembled much more closely the two above described cases, where the sections were made of the polyp along with the vocal cord. I have previously described several of these cases, and of the sixteen new cases three have been dealt with in the foregoing.

4. G. S., male, forty-six years old, hoarse for a long time, showed on the edge of the right vocal cord, in its anterior third, a flat elongated red growth, with a broad base five millimètres in length and two millimètres in height. The whole right vocal cord was deeply reddened and slightly thickened. It (the growth) was removed with forceps in several pieces, stained *in toto* with paraffin, and serial sections made. A thick stratified pavement epithelium covers a delicate-fibred mass with numerous vessels and hollow spaces, hæmorrhages, clots, pigment patches, and granules, and a slight amount of hyaline substance.

5. Polypus of vocal cord in thirty-six sections (sent to me by my brother, Prof. Hans Chiari, of Prague) is of oval form seven millimètres long by four millimètres broad. It was taken from the anterior third of the left vocal cord of a man forty years old. All the sections showed a thick stratified pavement epithelium with a few small roots growing downwards. Thereupon follows sometimes a regular thin-fibred layer, but generally a network of connective tissue, the bands now thick, now thin, and full of spaces. These spaces are filled with blood, and except some lying near the periphery, are without epithelium or definite walls of their own. Hyaline substance (of Eppinger) is again found lying partly in the blood which fills the spaces, partly in the connective tissue, but in this case it stains nearly as bright a red with carmine as either the epithelium or the connective tissue corpuscles. Little clumps and masses of pigment are scattered in many places, especially in the compact connective tissue bands.

In many of the sections the tumour was quite like a carcinoma.

6. Dr. S., fifty years old, for a long time hoarse, showed chronic catarrh of the vocal cords, and on the left at the junction of the middle and anterior thirds a cone-shaped polypus three millimètres long and two millimètres broad, of a red colour and immovable. It was extirpated with crushing forceps, and stained *in toto* with hæmatoxylin. The sections showed a delicate-fibred connective tissue, with many hollow spaces, numerous hæmorrhages, moderately dilated vessels with distinct walls and hyaline substance, the whole surrounded by a stratified epithelium.

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7. Herr B., opera singer, consulted me in 1893 on account of hoarseness. I found on the right vocal cord a broad-based polyp, dark red in colour and about the size of a lentil. The tumour after extirpation was found to be completely covered with thick stratified pavement epithelium. Immediately beneath the epithelium begins a fine-fibred, net-like connective tissue layer, containing many vessels and many meshes or spaces, some larger, some smaller, some circular, some elongated, some with and some without a covering of endothelium, and mostly filled with blood. Some, however, contain a finely granular mass. Hyaline substance, well stained by hæmatoxylin, is to be found partly in lumps, partly in stripes, both in the margins of the blood extravasations and in the connective tissue. Pigment is also to be seen here and there.

8. G. M., forty-two years old, male, hoarse for a long time: a grey growth five millimètres long and two to three millimètres broad (therefore of a flat shape) is found just about the middle of the right vocal cord. The polyp is easily extirpated and consists of fine-fibred connective tissue, at parts pretty compact, but, as a rule, loose. It contains much pigment partly in the connective tissue corpuscles, partly in flakes. It is rather strongly vascularized, but shows only few irregular dilated spaces, covered with epithelium and filled partly with blood, partly with a fine granular mass. Hyaline substance, stained with carmine, is found in quantity only at one spot beside a blood extravasation, elsewhere only in small flakes. The epithelium is a stratified epithelium of from 0·06 to 0·15 millimètre thick. From that fact, and from the slight quantity of dilated blood-filled spaces—the grey colour of the polypus is easily explained.

9. Herr T.: a polyp of the vocal cord, red, of the size of a millet seed, seen from serial sections to consist of fine-fibred connective tissue, with many spaces partly filled with clot, in which lies some hyaline substance. In the more compact connective tissue much pigment. Vessels with their own walls are scarce: the epithelium is stratified, and from 0·08 millimètre to 0·1 millimètre thick.

10. Herr F., twenty-eight years old, showed on the left vocal cord, just about the middle of the free border, a broad sessile tumour red in colour, and of the shape and size of half a bean. This apparently was soft, as it could bend both upwards and downwards, in which latter position it was completely hidden by the vocal cord. At certain parts it appeared cherry-red, which indicated hæmorrhages. It was removed with blunt forceps, and appeared macroscopically as a soft fold (or flap), out of which a good deal of blood flowed. In the serial sections it appeared as a tumour, consisting of fine-fibred connective tissue, scattered through which lay long-shaped connective tissue corpuscles often full of pigment granules. At certain spots the connective tissue was compact and had there numerous connective tissue corpuscles and much pigment. Mostly, however, it was loose and moderately filled with blood and a finely granular mass. Vessels numerous only in the peripheral zone, very thin walled, but covered with endothelium.

11. Herr B., thirty-five years old, showed on the edge of the right vocal cord, just about the junction of the middle and anterior thirds, a

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reddish cylindrical tumour, with a broad but short stem and about the size of a pea. It was movable and was easily removed *in toto*. The serial sections displayed a fibrous network with many hollow spaces, in which lay blood and a finely granular mass. Hyaline substance abundantly present, stained blue with carmine. Pigment in granules or flakes, thin stratified pavement epithelium.

12. Herr L., forty years old. Hoarse for a long time. Both vocal cords red, the left thickened. On the border of the left, at about the junction of anterior and middle third, was a broad-based double-pointed polyp, about the size of a pea. It was blue-red, in parts dark-red, irregular on its surface, and easily movable, so that it occasionally disappeared under the vocal cord. As the patient was very irritable, the polyp could only be extirpated in pieces, and this was accompanied by comparatively severe hæmorrhage. In the serial sections one saw a stratified pavement epithelium 0·13 millimètre thick and under it connective tissue, apparently greatly swollen, with mostly small meshes which were richly filled with blood or finely granulated clot. Hyaline substance in the form of branching strips or larger masses abundant (it scarcely stained at all with carmine). Pigment scarce.

13. Herr Gio., forty-two years old. A blue-rose-red, almost cylindrical tumour, four millimètres high, three millimètres long, with scarcely any stalk, sits on the edge of the left vocal cord in its anterior third. Easily extirpated *in toto*. The whole left vocal cord was reddened and thickened. Serial sections showed a loose many-meshed connective tissue, thickened here and there towards the periphery and towards the peduncle, and in these places rich in flakes of pigment. Plentiful hæmorrhages, clots and finely granular masses in the connective tissue interspaces. Hyaline masses scarce, and hardly coloured with carmine. Vessels moderately numerous.

14. Herr Georges C. V., twenty-eight years old, hoarse for a year, had a dark-red, broad-based polyp, about the size of a lentil, on the anterior end of the left vocal cord. It was situated near the edge and was easily removed *in toto*; still the accompanying hæmorrhage was pretty strong. Celloidin sections, stained partly in lithium-carmine, partly in alum-carmine and hæmatoxylin, showed a fine-fibred connective tissue with a good many connective tissue corpuscles, numerous vessels, some pigment, and numerous interspaces (specially in the interior) which were filled partly with blood, partly with clot, and partly with hyaline substance. The last stained very strongly with hæmatoxylin, lithium-carmine, alum-carmine, and cochineal-alum. The epithelium is often 0·2 millimètre and more thick, with many layers above of quite flat cells.

15. S. R., thirty years old, male, showed a small, broad-based red tumour, far forward on the border of the right vocal cord, and which scarcely projected at all. This was easily removed, and on section showed itself as a fine-fibred rather compact connective tissue forming large meshes, which were filled partly with blood, partly with clot and partly with hyaline substance. The stratified pavement epithelium was moderately thick.

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The foregoing descriptions bring into prominence the great similarity of structure, and I would only mention further that the peripheral layers of the polyp generally differed but little from the deeper parts, and were never sharply demarcated from them, though in many places they were formed of more compact and more regularly arranged fibres. Glands or remains of glands I never found.

I will now describe one more case, a case that was macroscopically diagnosed as a cyst or, more correctly, as a cystic growth.

16. Josef Fedrizzi, forty-nine years old, consulted me on account of hoarseness on February 6th, 1893. I found a growth about the middle third of the right vocal cord; it was pedunculated, coarse and irregular, somewhat translucent, elongated, of the size of a pea, and of grey colour. It was removed in two parts, and appeared on macroscopic examination to consist of connective tissue with many hollow spaces. These emptied out a stringy, sticky, bright fluid. Histological examination of sections stained in hæmatoxylin (drawings 9 and 10) showed the ground-tissue as a fine-fibred connective tissue, with a moderate number of connective tissue corpuscles, which, mostly of a long shape, gave off two or more long processes. In this connective tissue lay numerous larger or smaller hollow spaces without any endothelial lining whatever, and which were kept separate partly by fine fibres, partly by thicker connective tissue bands, but still communicated freely with one another. The spaces were for the most part empty, only here and there filled with a finely dotted mass. Vessels were few; the epithelium was a pavement epithelium several layers thick, with beautiful grooved cells in the middle layers. The fluid contents of the spaces were not examined, as most was lost during the extirpation. There was no trace of glands. Thus the cyst formation here was due to dilatation of the connective tissue interspaces.

In some of the sections the cysts were so large as to constitute the main mass of the tumour. For example, in one section the cyst was five millimètres long by three millimètres broad, so that the whole section consisted only of the epithelium and a thin layer of connective tissue, which sent inwards a few rudimentary septa. We must assume a serous softening of the connective tissue as the cause of the cyst formation since the fluid contents were stringy and sticky. Unfortunately, it was not examined chemically.

The above description corresponds exactly with that of the cyst I described in 1891 (drawing 11)—Ueber Cystenbildüng in Stimmband polypen. "Wiener Klin. Woch.," 1891, 52 (see also photo No. 12).

Finally, a few words more on hyaline substance.

I have found the hyaline substance described by Eppinger (see drawing 13), as already mentioned, in most of the polypi and had previously described it, in the lecture given to the Society of Naturalists in Halle, August 1st, 1891, when I proved its presence in eleven cases out of one hundred and seventy-seven polypi. At present I will only describe somewhat more particularly some of its staining reactions.

From Weigert's fibrine-stain varying results were obtained; thus in the case of Vallex it stained partly strong red-brown, partly violet, partly blue: in the case of Bäuer mostly blue, in the case of the woman sixty

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years old only slightly brownish, and in the case of the man forty-six years old mostly brown.

In this last polyp, however, some parts stained blue, viz., those parts lying just on the borders of the blood-clot. So that one may well describe hese hyaline masses as in Eppinger's sense derivatives of fibrine.

The staining with carmine also varied; thus it stained one time a deep red, another time a pale red, and another time scarcely stained at all. In one case it stained an intense yellow with picric acid, while in the same case carmine had no effect.

From my investigations I believe I am justified in drawing the following conclusions.

The growths of the vocal cord, which I have examined, consist only of the same tissues as the vocal cord: the connective tissue is in no case in the form of a nodule marked off from the superficial layers of the tumour: therefore the tumour may not be considered a fibroma, but only a circumscribed hypertrophy of all the superficial layers of the vocal cord—*i.e.*, a polypus in Eppinger's sense.

Their origin in chronic inflammatory thickenings and growths of the vocal cord has been proved both by examination of the serial sections of the two polypi with their vocal cords, and also by clinical observation. The principal cause of growth in the polypus is congestion, which shows partly in dilatation of the vessels, partly in the formation of large connective tissue interspaces, partly in hæmorrhages, and partly in serous exudations. Cavernous blood-spaces, serous infiltrations and hæmorrhages are therefore amongst the most frequent conditions: while connective tissue, on the other, hand is comparatively insignificant. Then we often find Eppinger's hyaline substance, the origin of which out of fibrine is rendered probable by its reactions to stains.

Finally, may I be allowed to remark that probably most other similar growths of the vocal cords will show a similar structure and development, so that we may rightly designate most of them hypertrophies of the vocal cord and not fibromata. In favour of this are their appearance, their position and their whole clinical relations. Naturally, I do not think of denying that fibromata may occur in the larynx, but probably they will be rare.

SOKOLOWSKI had observed a case of cyst of the larynx pedunculated and situated on the posterior wall of the larynx, where the histological examination showed, beside the typical structure of the cyst, also much firm connective tissue. This condition agrees with Chiari's explanation that cysts can arise from fibromata.

Finally the author lays stress on the importance of Chiari's researches.

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## VIBRATORY MASSAGE in DISEASE of the UPPER AIR PASSAGES.

By Dr. MICHELE BRAUN (Trieste).

Three years ago I first had the honour of demonstrating, in the International Medical Congress of Berlin, the method of vibratory

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massage with probes as a therapeutic means for disease of the upper air passages.

Since that moment several physicians in Germany, France, and Austria have interested themselves in this method of cure, and have published the results obtained; amongst others two esteemed Italian colleagues, Prof. Massucci and Dr. Felici.

I employ two principal forms of movement in massage of the mucous membrane of the nose, naso-pharynx, pharynx, larynx, and upper part of the trachea; they are stroking ("sfioramento") and vibration, and the two are combined in such a way that each part of the mucous membrane is thoroughly stroked and massaged.

For this purpose one employs probes of copper, held between the thumb, index and middle finger like a pen, in such a way that the fingers and forearm form a chain which transmits shorter or longer undulatory movements to the mucous membrane under treatment; these movements are produced by the contraction of the muscles of the arm and forearm, and are transmitted through the curvature of the elbow.

I make use of sounds of three different sizes such as I have the honour here to show you:

The thinnest, No. 1, is used for the nose and Eustachian tube.

The largest size, No. 3, for the naso-pharynx and pharynx.

That of medium size, No. 2, for the larynx and trachea.

The probes are slightly roughened below the olivary termination, in order to fix on more easily some antiseptic cotton-wool, the size of which is adopted according to the cavities under treatment. In addition the cotton-wool should be wrapped round the probe in such a way that it reaches two or three centimètres beyond the olivary extremity without becoming loose, at the same time maintaining a sufficient consistence and elasticity in order to perform the required pressure.

The probe thus prepared is dipped in any solution or ointment which one desires to apply to the mucous membrane. In order to diminish from the beginning the sensitiveness of the mucous surface I employ a solution of ten or twenty per cent. of cocaine, and then an ointment of vaseline with ten per cent. of menthol or balsam of Peru, or a solution of sublimate (one per thousand), or of alcohol, lanoline, or iod-glycerine (ten per cent.).

The duration of the vibration with each single probe depends upon the individual resistance of the patients, and varies from a quarter of a second to a minute. On my study table there are between five and six hundred disinfected probes. For each new vibration, on the same individual, I always make use of a new probe, so that to massage the mucous membrane of the nose, naso-pharynx, pharynx, larynx, and the trachea I make use of about fourteen probes.

Chronic ozæna, *strictu rigore*, is treated by me in the following manner:- Having removed with every care crusts and mucus, I commence the vibrations of the mucous membrane with a probe, the cotton-wool of which has been dipped in a solution of cocaine of twenty per cent.; then with another probe, whose tampon has been saturated with one of the above-named solutions, I "vibrate" the floor of the nose; with a third,

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the inferior meatus ; with a fourth, the inferior turbinal ; with a fifth, the middle meatus ; with a sixth, the middle turbinal ; with a seventh, the septum ; with an eighth and ninth, the upper parts of each side of the nose ; and finally with the tenth, the entire cavity. At the same time, I continue the vibration on the naso-pharynx with two or three other sounds. In the afternoon I perform the same process, if, however, the reaction has not been too strong. In no case should one meet with pain or hæmorrhage. Such symptoms show clearly that the probe has not been applied by a skilled hand, or that too much violence has been used, and more harm than benefit is produced.

The utility of this method is as follows : One restricts and localizes the treatment entirely to the diseased part, and one can direct through one's fingers the pressure on the points absolutely necessary ; the facility and rapidity with which one can introduce and remove the flexible and elastic probe on every point of the mucous membrane of the upper air passages enables the patient to tolerate the operation with perfect tranquillity ; the constant and perfect application produce gradually a greater physiological activity of the mucous membranes in their entirety—that is, of the epithelium, of the connective tissue, vessels, nerves, and muscles—so as to renew the entire surface. The diminution of sensibility gives to the mucous surface greater resistance against agents which might act on it harmfully.

I have employed this curative method for the past seven years upon nearly three thousand patients ; in many cases I have obtained a complete cure, and in those in which other methods have not succeeded I have obtained such an improvement that it has almost amounted to a cure. The shortness of time allowed me will not permit of a detailed illustration of these cases ; however, I will summarily refer to a few of the most interesting.

I have cured completely sixty-two cases of ozæna. The period of treatment varied from four to two hundred and fifty sittings. Amongst these I would refer to Signora Fragiacomo, wife of the cook of the military hospital in Trieste, a case which I had the honour of mentioning at the Berlin Congress in 1890. This patient, who had suffered for twenty years from ozæna, with fœtor and formation of crusts, was cured by me after one hundred and thirty sittings in such a way that for five years and up to the present day she has not shown a single symptom of relapse.

Miss M., sent to me two years ago by Prof. Welponer, of Trieste, with ozæna accompanied with formation of crusts and a penetrating fœtor, was cured completely in two hundred sittings.

I pass over the hundreds of cases of chronic catarrh of the nose, pharynx, and larynx, with their various symptoms, which I have either cured or controlled in such a way that the persons affected could attend to their business, and I would only mention thirty-five cases of glossodynea, a case of hay-fever, forty-two cases of nasal asthma, and finally seventy-eight cases of neuralgia of the trigeminal nerve, all completely cured. In such cases I only employ massage, if I obtain a complete cessation of every morbid symptom during the attacks, or at least an appreciable amount of relief. I would also mention a case of a young lady who

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suffered from a most obstinate typical prosopalgia, rebellious to all usual remedies such as antipyrin, phenacetin, quinine, electricity, etc., and who was completely cured after only four sittings.

In one hundred and three cases of catarrhal affections of the Eustachian tube, I was able to note a remarkable diminution or partial cessation of tinnitus in the ear.

Finally, I would call attention to the following case :—On the 15th April of last year, I was hurriedly called to Mrs. G. C., by Dr. Escher, head surgeon of the civil hospital in Trieste. The patient, aged forty-six, lay in bed with cyanosis, dyspnœa, irregular pulse, incapable of talking or swallowing. From the bystanders I learned that she had frequently suffered from laryngeal catarrh and easily lost her voice after catching cold, and that this sudden attack was ascribed to the same cause. The symptoms went on increasing. Laryngoscopic examination showed œdema of the parts forming the entrance to the larynx of such a degree that respiration was only maintained through a very narrow space, about the circumference of a goose-quill. Intubation or tracheotomy were evidently threatening.

The surgeon present invited me to try massage, which I performed four or five times consecutively ; the result was so favourable that the patient commenced to breathe more easily, the pulse became more regular, and the cyanosis diminished. The same evening I repeated the vibratory massage on the patient (who remained constantly under observation), and at midnight success was decisive ; on the 16th and 17th I continued the same treatment twice a day ; on the 18th and 19th only once ; the patient recovered completely, and every pathological phenomenon disappeared.

I would add the following observations. The *technique* of vibratory massage is decidedly most difficult ; in addition to an extraordinary amount of patience, it demands exact observation, innate and acquired ability, with a disposition of great and natural perseverance ; one cannot obtain success easily ; one must have the faith and firmness necessary to endure the fatigues of the process. When once the first difficulties have been overcome, one will not fail in having the satisfaction of seeing how with this method one can obtain cure or encouraging improvement in a variety of diseases, many of them considered incurable, and rendering existence miserable or insupportable to the sufferers.

I therefore warmly recommend my method to this assembly, not without begging those gentlemen who would like to try it not to let themselves be frightened by the adverse critiscism of others, who, through want of patience and perseverance, have not obtained satisfactory results ; and I conclude with the saying, " Il successo corona l'opera."

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## The CHIEF POINTS in the SCIENCE of INTERNAL MASSAGE of MUCOUS MEMBRANES.

*Abstract from a Paper by University Docent* Dr. CARL LAKER *in Graz.*

The introduction of internal massage of mucous membranes constitutes an undoubted advance in therapeutics. We know a sufficient number of

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carefully-observed cases of chronic disease of the mucous membranes of the upper air passages in which cure, or at least very marked improvement, was produced by internal massage of the mucous membrane, while in the same patients all other previously known methods, carried out persistently and by skilled hands, had proved to be quite useless against the serious and long-persisting symptoms.

Dr. GARNAULT : The capital point of the discussion is to determine if vibratory massage has any action of its own, or if the results produced are due chiefly to the drugs employed. From this point of view my experiments are of capital importance. They resolve the question experimentally, and cannot now be considered doubtful. Freudenthal, indeed, has applied vibrations alone, successfully, for many years, and I myself have found the results to be very superior to those obtained by the local application of drugs, and this is the case both in different patients and in patients treated successively by various methods, and I cannot see why results analogous to the remarkable results obtained by Kellgren upon the skin cannot be obtained upon the mucous membranes. If there have been certain exaggerations on the part of enthusiasts of massage, if certain masseurs apply this difficult method badly, this is not a reason for denying its value ; on the contrary, in cases in which it is indicated, bad results should very probably be attributed either to failure of ability or of patience on the part of the physician.

## NEW METHOD for VIBRATORY MASSAGE of the NASAL MUCOUS MEMBRANE.

By Dr. IGNAZIO DIONISIO (Turin).

Vibratory massage of the nasal mucous membrane has been fully tried by Braun, Laker, Demme, and others in the treatment of various alterations of the naso-pharynx.

The therapeutic value of this method is still *sub judice*. There are indeed on one side the enthusiasts who employ it in nearly every morbid manifestation, even including syphilitic ulcers and hypertrophied tonsils !—as if it would not be more simple to cure a patient in one sitting with tonsillotomy, than to submit him to forty or fifty sittings of massage. On the other side there are not wanting authorities who do not find in internal vibratory massage any special therapeutic action. The great majority of the profession maintains a prudent reserve and has not yet made use of the new method.

As the ideas from the point of view of therapy have not been accepted *à priori*, we must examine them in order to see (1) if with this treatment we can obtain, more rapidly or less painfully, the cure of those diseases which one treats successfully by ordinary methods ; (2) if certain morbid forms, such for example as atrophic rhinitis and ozæna, against which we struggle with negative or rare success, can be improved or cured with this new treatment. This treatment was introduced only a short time ago (about three years), and was especially indicated for chronic affections. As these have periods of spontaneous improvement and

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relapse, and return after months or years of apparent cure, it will easily be understood that up to the present it has been impossible to form a definite opinion on this method of treatment. My limited experience on the subject forbids me absolutely to touch this point. I will therefore limit myself to describing the *technique* of vibratory therapeutics, mentioning the modifications that I have thought useful for making it simpler or more efficacious.

Internal massage is employed by introducing into the nasal cavities a metal probe with a bulbous extremity covered with a layer of cotton-wool, and then giving to the probe rapid vibrations by means of a series of tetanic contractions of the muscles of the arm.

The number of vibrations given by an expert hand varies from four hundred to eight hundred per minute. By carrying the probe upwards, downwards, to the right and left, one succeeds in exposing every part of the mucous membrane to a series of rapid oscillations. The curative action is the more intense the more rapid and regular are the vibrations. Hence the necessity of frequent exercise in order to succeed in obtaining the greatest possible number of vibrations.

In order to spare the operator the fatigue resulting from these manœuvres the idea occurred to Herzfeld, Lehmann, and Ewer, to construct probes whose extremities could be automatically put in motion by mechanical means or (Freudenthal, Stoerck, Seligmann) by means of electricity. Latterly, Garnault has proposed an electric vibrator by which undulatory movements can be given to the probe in both antero-posterior and lateral directions, *i.e.*, vibrations both transverse and axial. Their frequency is much greater than can be furnished by the hand, and reaches up to two thousand a minute. Both in the vibrations produced by hand and in those by the apparatus referred to, the tract of mucous membrane exposed to the vibrations corresponds to the dimension of the extremity of the probe covered with cotton wool ; that is, one can never operate but on a circumscribed point of mucous membrane, having a maximum size of one centimètre square. Given the superficies of the nasal mucous membrane, which can be approximately calculated at forty centimètres square, and given the duration of ordinary sittings of massage, which (depending on the toleration of the patient and the fatigue of the operator) cannot exceed five minutes for each nasal cavity, it is evident that in this brief period we have to submit to vibratory massage a superficies of forty centimètres square, acting at a time on a surface of only one centimètre square. The number of vibrations produced by the hand being about four hundred per minute, gives two thousand in five minutes ; one will then have fifty vibrations for each surface of mucous membrane, corresponding to one centimètre square. Employing the mechanical means, with which one obtains two thousand vibrations per minute, we will have two hundred and fifty vibrations on every centimètre square. As, however, in the vibrations the probe can act not only on one point, but on two situated opposite one another, one can increase the vibrations indicated, and calculate that in massage by the hand one arrives at one hundred vibrations for every centimètre square of superficies and in mechanical massage at five hundred.

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Bearing in mind the principle admitted by all who have up to the present occupied themselves with the question, viz., that the therapeutic action of massage is the more powerful the more frequent and regular are the vibrations, I turned my attention to finding a method of acting with the vibratory treatment, not only on isolated points of the mucous membrane, but over all or nearly all its extension. With the apparatus which I will describe later on one can have up to four hundred vibrations per minute, not on limited zones of mucous membrane, but upon nearly all its extension, so as in a period of five minutes to reach nearly twenty thousand oscillations. This figure is forty times more than that obtained with other apparatus, and two hundred times more than that obtained with manual vibrations. The apparatus is composed of one part destined to transmit the vibrations, and of another part which generates them. The first consists of an india-rubber bag, which is introduced into the nasal cavity and blown up with air so as to come in contact with nearly all the points of the mucous membrane except the meatus (if the turbinals are hypertrophied), and the parts ordinarily inaccessible to the probe. This bag is identical with that which I proposed and adopted some years ago for the purpose of dislodging the crusts in ozæna and maintaining antiseptic pomades for a length of time in contact with the mucous membrane. It communicates by a tube with a generator of the vibrations. This latter consists of a chamber of air, in which one obtains by means of a piston rapid increase and intermission of pressure. A suitable arrangement allows one to give to the pistons rapid movements of two hundred to four thousand oscillations per minute, and to diminish or increase the size of the vibrations at pleasure. The generator of the vibrations can communicate, if one wishes it, with various india-rubber bags. In this way one can submit to the vibratory action not only one but both nasal cavities, and even three or four patients at a time. The sensation experienced by patients is that of a tremor, which in the larger vibrations extends to the whole of the head, and is not unpleasant or painful, as in massage with probes.

The summary of the advantages of this method are :—

1st. The greater number and the quality of the vibrations acting on the mucous membrane, being homogeneous and not simply shocks.

2nd. The ease of the application, being better tolerated, and sparing the operator the disagreeableness of remaining in contact for hours with patients, inhaling their unpleasant breath.

3rd. The economy of time and fatigue in being able to submit two or three patients to the treatment at the same time.

Dr. M. SCHMIDT thought that the greater number of the communications were in favour of the efficacy of this method, but it was inconvenient to carry out with the arm. Redner had brought an electro-motive vibratory apparatus with him, which was being exhibited by Emil Braunschweig of Frankfort. By it the amplitude of the vibrations could be regulated.

Dr. MASSUCCI : I have experimented with vibratory massage with good results, though in some cases only with improvement ; as I have

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already published, in laryngeal paralysis I have had eight cases of perfect cure without relapse.

I have also had many other cases of the same sort, but not always with cure. In cases of pharyngitis, laryngitis, and rhinitis chronica I have always succeeded with few exceptions; and I believe that in the cases in which success is not obtained failure depends on the fact that either the operator is easily fatigued or is not sufficiently practised in it. I believe, if a perfectly electrical apparatus could be substituted for the hand, that massage would certainly give still better results. In ozæna and laryngeal tuberculosis I have employed it in a limited number of cases, but I cannot say I have had favourable results.

Dr. CHIARI said he had never seen any better results from this treatment than from ordinary painting of the throat.

Dr. BRAUN: My reply to Prof. Chiari's remarks is already in the Vienna medical papers. His objection that an acute inflammation of the throat heals without the use of vibratory massage is not sound, because by massage the duration of the disease is shortened. Further I do not intend to discuss the value of vibratory massage here. Its results depend entirely upon the dexterity and endurance of the operator, as is the case in all endo-laryngeal and intra-nasal operations. In order, however, that the medical gentlemen present may form an independent opinion on the subject, I will demonstrate the treatment on patients in Prof. Egidi's clinic.

Dr. CHIARI (personally): I must expressly remark that Prof. Wölfler stated, at the time, that this case could not prove the value of vibratory massage. From my own experience I hold that vibratory massage is of no more use than painting.

Dr. LAKER: Massage can never render operative procedure superfluous, still there always will remain plenty of simple cases in which we may be able to bring about healing by massage alone. With regard to the above mentioned case, shown to the Verein der Aerzte in Steiermark, the fact must be emphasized that the patient had experienced a healing of his severe reflex neuroses before ever any operation had been carried out—*i.e.*, therefore simply from massage of the mucous membrane.

## DEMONSTRATION OF THE PRAXINOSCOPE.

By Prof. F. MASSEI (*President of the Section*).

THE adaptation of this very pretty modification of the zoetrope, or wheel of life, to the purposes of laryngological instruction was made the subject of an interesting demonstration. The movements of the vocal cords in the normal condition, and when interfered with by various forms of paralysis, were most graphically displayed.

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## DEMONSTRATION of a number of CASTS of different DISEASES of the LARYNX.

By Dr. PAUL BERLINER (Berlin).

Dr. Berliner demonstrated a large collection of plastic wax preparations, representing various diseases of the larynx. They showed various stages of the pathological changes in larynx and trachea in the course of tuberculosis and syphilis. These models are very accurate and surprisingly true to nature, and form an exceedingly instructive aid to medical teaching.

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*March 30th*, 1894.

### PRESIDENT'S INAUGURAL ADDRESS.

By Prof. DE ROSSI.

The bonds which unite together the cultivators of medicine in general are especially firm in the case of those who confine themselves to the same field and have identical aspirations. You ought to consider yourselves as brothers, members of the same family, spread over the surface of the globe, who have come to-day to foster the progress of this young branch of science, otology, which has received the greatest consideration from both scientific and practical men, and which aims at higher and grander conquests, such as humanity expects of us with perfect confidence. In the land of Eustachius, of Valsalva, and of Corti, and in the name of our Italian colleagues, I offer you a fraternal greeting.

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