performed by the help of the tubes. The author showed a foreign body removed from the bronchus by the help of his tracheal speculum.

TOEPLITZ (New York). *A Rare Case of Laryngeal Tumour.*—The author removed a large white tumour from the right vocal cord. The microscopical examination showed it to be a chondro-sarcoma. The patient has been four years without recurrence.

MASSEI showed a horizontal mirrorstroboscope. By very well painted drawings introduced into the apparatus it is possible to demonstrate the movements of the glottis, paralysis, and the movements of floating neoplasms in a very distinct manner. *Michael.*

ASSOCIATION MEETINGS.

American Laryngological Association.

Baltimore, Thursday, Friday, and Saturday, May 29, 30, *and* 31, 1890.

President—Dr. JOHN N. MACKENZIE.

(*Continued from page* 491.)

DISCUSSION ON DR. KNIGHT'S PAPER.

Dr. BOSWORTH differed from Dr. Knight in saying that sarcoma of the naso-pharynx demanded the more radical operation. The only case of sarcoma of this region he knew followed by recovery, was one in which the patient was treated by the mildest measures only. If we treat sarcoma as a local disease, we are on safe ground. At present we can get at all parts of the nose without resorting to the operations mentioned, and the old operations are no longer necessary. The best results have followed the plan of attacking the growth through the nose, and by careful manipulation, taking it away piecemeal. The cold wire snare is best in his experience. In carcinoma no form of treatment is of service.

Dr. MULHALL recorded a case resembling Dr. Knight's. It was of small-celled sarcoma invading both nostrils, and appeared to have developed twelve months after a fall, which injured the nose, in a man of fifty. When seen by the speaker, the patient presented a mass of bleeding fungous material projecting from both nostrils. Hæmorrhage was caused by touching it. The speaker advised removal piecemeal with the galvano-cautery, and discountenanced any radical operation. After clearing one nostril the patient ceased to attend. He died in about four months with repeated hæmorrhages and inanition, the disease lasting about a year altogether.

Dr. BOSWORTH remarked that the case was reported as one of "fibro-sarcoma," and asked if there was any change in the character of the tumour, or its appearance, corresponding with the occurrence of malignancy.

Dr. KNIGHT stated that while under observation the neoplasm was

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fibro-sarcomatous. In speaking of the "radical operation" he referred not to Chassaignac's or Ollier's, but rather to one like Maisonneuve's, which exposes the region to its utmost limit. It may be true that carcinoma is better let alone, but is it not equally true that a policy of non-interference is more judicious than a prolonged series of nibblings at the surface of a growth which is steadily progressing beyond our reach?

Dr. H. L. SWAIN read a paper upon *Adenoid Tissue in the Naso-Pharynx and Pharynx.* Early in the uterine life of man, the deposit of small cells underneath what is then the epithelium of the naso-pharynx and pharynx begins, accompanied or at times preceded by a slight furrowing of the membrane; very soon follows the wandering outwards of the same cells through the epithelium. At a later period thickening takes place and the development of follicles. When life is extra-uterine, all parts grow on apparently alike till puberty or adult life. Then activity subsides and gradual retraction takes place. Thus in late youth commencing atrophy of the pharyngeal tonsil takes place; later on, of the faucial tonsil, and well into adult life the lingual tonsil still remains unatrophied. This agrees with clinical observation.

In all these structures, the formation of follicles occurs after the deposit of small cells, and in the lingual tonsil pathological conditions favour the earlier development of the follicles, and the more hypertrophied it becomes the more follicles it contains. In the atrophy of the lingual tonsil follicles first break down and disappear; then occurs a general diminution in the number of cells in the infiltrating mass under the epithelium. The author refers at length to the observations of Killian as to the development of the pharyngeal tonsil, and he agrees with this embryologist in the statement that the real bursa pharyngea, as described by Tornwaldt and Luschka, has only a somewhat inconstant embryonal existence, and does not persist as such in the adult or even long into childhood. It is not the dilated end of the hypophysis cerebri or rather the canal from it to the pharynx. The true bursa exists before the tonsil proper begins, and is not the recessus pharyngeus medius of the adult.

The faucial tonsil seems to begin about the same time or a little later than the bursa pharyngea of Killian. The follicles are already developed at birth, according to Kölliker. In the lingual tonsil, infiltration probably antedates the development of follicles by a considerable interval. In animals the development of these tonsils begins almost invariably at a much later period than the others. The author referred to Killian's extraordinary theory of the function of the tonsils being to manufacture leucocytes for the purpose of destroying bacilli, and seemed to favour the idea that the leucocytes of the tonsil exert some protective influence against invasion of the system by micro-organisms.

DISCUSSION.

Dr. BOSWORTH: Dr. Swain's paper is very interesting and timely. Just now considerable attention is directed to the lymphatic tissue in the vault of the pharynx, the base of the tongue, and in the fauces. What are its functions? what its pathological relations? but, prominently, what constitutes a pathological condition of this structure? I confess that I do not look with much favour

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upon the speculations which have been advanced as to the function of this tissue. For instance, when Scanes Spicer says that it is placed there to drink up superfluous fluid, it does not, in my opinion, rise to the dignity of a physiological theory; nor, when Killian says it is there in order to destroy micro-organisms, do I regard it as much more rational. It is very evident that it can act upon only a very small part of the inspired air, and can exercise only a very slight effect in this way. In diseased conditions it might, on the contrary, act as traps for pathogenic micro-organisms, and afford a suitable culture ground, as in diphtheria. As a matter of fact, many of the diseases of young children are contracted in this way, such as scarlet fever, measles, diphtheria, follicular amygdalitis, etc. All of these are evidently due in many cases to the fact that these disease germs are introduced and developed there. Again, in confirmation of Killian's theory, may it not be that this function of destroying organisms is itself destroyed by the diseased condition of the glands which arrests their function? Another important question to be solved is, What constitutes a diseased condition of the adenoid tissue in the vault of the pharynx? Are adenoid growths abnormal? Are the small pearly bodies so often seen there evidence of disease?

Again, the manifestations of a catarrhal process in this region are different at different ages; up to fifteen or twenty years of age this region is the most frequent source of a catarrhal discharge; from twenty to forty, intra-nasal disease is the rule; while from forty to sixty it is back again in the naso-pharynx. In children the disorder is due to hypertrophy of the lymphatic structures in the vault of the pharynx; in adult life the adenoid tissue is shrunken up, and atrophic changes occur. Another problem is, Where does all the mucous secretion come from in cases of naso-pharyngeal catarrh? Adenoid tissue does not secrete mucus. What is the possible source of the discharge? It is possible that the pain may be due to the shrinkage of the adenoid tissue which imprisons the terminal fibres of nerves; but where does all the secretion come from? I do not believe Schwalbach's theory; it is not reasonable, and I cannot accept it.

Dr. LANGMAID: What is meant by the statement that when there is a demand by the blood for more leucocytes there is a diminution of adenoid tissue?

Dr. BOSWORTH: I should like to ask, also, if the author based the remark that adenoid tissue function was to make blood upon any personal observation or experiment?

Dr. SWAIN: In answer to Dr. Langmaid, the only observations I know of are those made by Stöhr and two made by myself. Stöhr found that in a case of pyo-pneumo-thorax, upon examination of the throat, there were hardly any follicles in the adenoid tissue; and, secondly, that the number of leucocytes lying in the epithelium was very much less. In a case of leucocythæmia he made similar observations, although the appearances were not so well marked. My own observations were in a case of bone tuberculosis and in one of pure pulmonary tuberculosis. I found in the lingual tonsil there was great diminution and atrophy of gland tissue at the base of the tongue. The conglobate glands were very much atrophied.

With regard to the point raised by Dr. Bosworth concerning the source of the great quantity of secretion, in the observations made by Killian and in my own, there was no connection found between the amount of increase in the adenoid tissue and that in the racemose glands, increase in the latter not always following the same in the former. As to the explanation referred to by Dr. Bosworth, why it was necessary for the lymphoid tissue to go through this process of diminution and atrophy, I cannot say anything except that it *is* necessary. We see it so much in our cases that we must believe it to be the inevitable course of adenoid tissue in this situation to undergo this degeneration and atrophy. I may not have made it very clear in my paper, but I think the point made by Killian a very important one.

Dr. E. FLETCHER INGALS read a paper entitled *Supplemental Report on Cartilaginous Tumours of the Larynx, and Warty Growths in the Nose.* At the 1888 meeting he had reported the case of a young man, suffering from a sub-cordal cartilaginous tumour growing from the thyroid cartilage, and which he had been treating with local applications of

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chromic acid. It was eventually completely destroyed, and the patient cured. Twelve or thirteen applications of the acid were made in all, at intervals of three weeks to several months. He urged long-continued trials of the acid in cases of laryngeal growths, which cannot be removed with the forceps. A case of warty growths in the nose was also reported at the last meeting in 1889. They were being cauterized by chromic acid, nitric acid, nitrate of silver or the galvano-cautery. They continued to recur. Thuja occidentalis tincture was then given in teaspoonful doses three times daily, and it was applied twice daily locally on a pledget of cotton. During the next ten weeks, the medicine being discontinued locally, six or eight applications of chromic acid were made to small recurring warts. The warts then disappeared. Subsequently the mucous membrane of that side having a tendency to become dry, he was given a spray of two grains of carbolic acid, and two grains of camphor to the ounce of liquid albolene. The warts have not returned. The author thinks he ought to give some credit to the thuja occidentalis in the cure, notwithstanding the cauterizations with chromic acid. The growths did not reappear so quickly, and enlarged much more slowly after the thuja occidentalis had been in use a short time.

DISCUSSION.

Dr. BOSWORTH remarked that these growths in the nose are quite frequent, and he had seen half a dozen cases within the last year. They are probably usually mistaken for small polypi. In a case of broad papilloma of the tongue and palatal arches of a child three months old, thuja occidentalis was without any effect; the growths disappeared under glacial acetic acid. His own experience was against thuja occidentalis.

Dr. JARVIS was the first to point out that laryngeal growths would disappear under chromic acid. Its action does not spread beyond the papillomatous tissue, and it does no harm to healthy tissues in the vicinity of the growth. He had only seen two cases of nasal papilloma, and thought that many cases were really epithelioma.

Dr. MULHALL thought there was some confusion between papilloma and warty growths. He had only seen one case of papilloma, and wondered at Hopmann's statement that he had seen one hundred and twenty cases of warty growths in the nose.

Dr. JOHN MACKENZIE had seen the prolapse of the mucous membrane from the anterior portion of the middle turbinated, which could be withdrawn from the nose, and which had been mistaken for polypus.

Dr. MACCOY recalled three cases of warty growths of the vestibule, which he removed with the galvano-cautery. There was some tendency to recurrence.

Dr. DELAVAN thought the condition was rare, and wondered at Hopmann's statements.

Dr. JOHN MACKENZIE agreed with Dr. Bosworth that these papillomatous tumours are likely to grow just within the vestibule, and are more common than is generally supposed. Growing further within the nose they are rare; he could only recall two cases. Where a papillary growth with broad base and tendency to bleed exists, we should suspect carcinoma. Hopmann probably mistook for papilloma the changes that occur in the ordinary transition from the secondary to the tertiary forms of chronic rhinitis. Cross sections of these bodies resemble papilloma, but they are really turbinated erectile tissue. Patients who have complained for long of fulness of the nostril and of symptoms of hypertrophic catarrh often expel little fleshy pieces with relief to the obstruction, which are the results of hypertrophic degeneration, and resemble, microscopically, papillomatous structures.

Dr. INGALS had often seen a mulberry-like appearance of the turbinateds, which condition had probably been mistaken by Hopmann for warts. It is not

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true papilloma, and he had only seen one case of true warty growths, which grew from the septum, and afterwards from the turbinated body, and had all the appearance of warts as seen on the hands.

He did not wish to claim any special value for thuja occidentalis, but his patient did better after using it than before. Possibly it may make some difference whether the tincture is used fresh or not. In his case it was prepared at the time from fresh leaves of the arbor vitæ.

Dr. S. W. LANGMAID read a paper on *Hoarseness and Loss of Voice, caused by wrong Vocal Method.* A class of case frequently presents itself, persons learning singing, in which the patient complains of fatigue, followed by loss of the high notes and hoarseness of the speaking and singing voice, with the objective signs of naso-pharyngitis, catarrhal laryngitis, and paresis of the vocal cords upon attempted phonation, with defective tension. Entire rest of the speaking and singing voice would be enjoined and the catarrh would be treated with, if necessary, strychnine and faradization. If the cure should be short-lived and the condition recurred after recommencing lessons, the inference would be that singing had something to do with it. Singing properly performed "never injured a healthy throat," and singing and declamatory exercises are restorative to throats which have congestive tendencies, preventing catarrhal inflammations; therefore singing must not be abandoned, but inquiry must be made as to the manner of using the voice. How is it to be shown that the voice has been improperly trained or used? The peculiar morbid conditions occurring in the throat, as mentioned in the case quoted, are most frequently caused by bad instruction given by some teachers and not infrequently inculcated by treatises on singing, that the tongue should lie flat in the mouth during vocalization. The deduction that by flattening the tongue the oro-pharyngeal cavity is thereby rendered larger, with increase of the tone, is erroneous, and, even if true, would be the method least suited to obtain this end. The attempt to depress the tongue causes tension of the posterior, and especially of the anterior pillars of the fauces, and the isthmus is thereby narrowed. Forced flattening also prevents the necessary free movement of that organ, as well as of the jaw and the velum palati. The epiglottis is bent backwards and the larynx driven down and held in a constrained position. To insist that the base of the tongue should remain flat in singing the vowels *e* and *i* (Italian) is to demand that opposing hindering muscular efforts shall be made, and the natural emission of these vowels is impossible. To *hold* the tongue flat for such vowels as are *naturally* produced with a lower position of the tongue and larynx, *a* and *u* (Italian), is to prevent the free action of the muscular adjustments necessary for every note of the scale successively. The constrained unnatural position of the pharyngeal muscles will account for the catarrh, and will produce great injury within the larynx. No force must be permitted which, by opposing muscular action, restrains the movements necessary to produce the registers. The fatigue of the intrinsic laryngeal muscles arises from unnaturally forced endeavours of these and other muscles to form the glottis into proper shape for different tones of the scale. The tired muscles are incapable of the required contracting force, and tension and adductive power are

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lost. In two cases, Dr. Langmaid has seen extravasation of blood under the mucous membrane of the vocal cord. One case was that of a young lady who was being taught to force the tongue flat while singing; the other was that of an actor, who, in order to produce a peculiar low voice, quickly alternating with a voice of high *timbre*, had produced the effect by forcing down the larynx, to which succeeded great vocal fatigue and hæmorrhage into the vocal cord. The author quotes Patton and Morell Mackenzie in support of his contention.

DISCUSSION.

Dr. DELAVAN: It will be generally conceded that no higher authority than Dr. Langmaid could discuss the questions presented in this paper. To it we can only add the testimony of our own experience. From the statements of noted singers who have been trained under the system which the reader of the paper describes, as well as from my own personal experience in practical vocalization, I am able to confirm the views which he has expressed. Not infrequently cases have come to me complaining of some laryngeal difficulty in which a diagnosis from simple inspection of the larynx was impossible, and a correct solution of the matter only arrived at by a careful study of the vocal methods of the patient and the discovery of its defects. In many instances faulty voice-production will be found to be the true explanation of an otherwise inexplicable difficulty. Of course it is of great importance for us to understand our cases in order that we may properly treat them, and, understanding them, to see that the treatment employed be not confined to local applications, but that the faulty methods of vocalization be corrected under the training of a competent teacher. Again, the services of the vocal instructor are of great value in the treatment of certain chronic conditions of laryngeal disease. I am in the habit of referring patients to a skilful teacher for the purpose of obtaining systematic exercise of the laryngeal muscles, just as in appropriate cases the surgeon resorts to passive motion. It is to be hoped that Dr. Langmaid will continue to offer us such studies as this through his work. Aided by that of Dr. French, we should be in a position to recognize and successfully treat many cases which now are wholly misunderstood.

Dr. HINKEL: I am reminded by the paper of a class of cases in which I have taken much interest—cases in which there is vocal disability due to some structural defect in the nasal passages or naso-pharynx. Such patients suffer injury to the throat and voice from the demands made upon the vocal organ beyond what is customary in speech, even though there be nothing faulty in the vocal method. It is of importance to recognize this defective condition, for many teachers and pupils are puzzled to account for the failure of promising voices, in which the defect is due to a lack of co-ordination, as it were, between the primary tone-organ and the resonating apparatus. The removal of a septal ridge or of adenoids not infrequently restores the power and quality to the voice. I recall a tenor who gained a minor third in his compass after the removal of a septal ridge from which he had suffered no inflammation or obstruction of which he was aware.

Dr. MULHALL: The matter which the last speaker refers to is hardly germain to the subject of the paper. If we were to go into the discussion of the effects of abnormalities of the air-passages upon the formation of tone, we should hardly get through with it before our final adjournment. There is one point, however, that I would like to have discussed. It is the so-called "abdominal" method of singing or managing the voice. I wish that every singing-master could have this paper of Dr. Langmaid's put into his hand. I agree with the essayist that any singer who is *conscious of effort above the clavicle* while singing is using a wrong method. I wish to speak of the abdominal method. We notice with what ease the tenor of the Italian opera produces the high notes without even flushing his face, and he can sing the whole evening without apparent fatigue, because he has had the benefit of proper training in the formation of tones and uses his abdominal muscles in singing. I recall the case of a theological student who found in preaching that he got tired in half an hour and lost his voice. I found that he was using his sterno-cleido mastoid and other neck muscles in producing his pathetic effects. I instructed him to concentrate his mind upon the action of his

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abdominal muscles in public speaking and to forget his throat. He practised this and taught himself this method that I have described, and found that he could preach for two hours at a time without any hoarseness whatever. The method of using the voice by which the very walls of the theatre are made to vibrate with the volume of sound is familiar to those who attend Italian opera; the effects are produced by the action of the abdominal muscles and the diaphragm. Many singing-teachers in this country apparently do not know this. The teachers in the theological seminaries do not know how to instruct students in the proper use of these muscles. I might mention a case which may not be exactly germain to the subject. A prominent teacher in St. Louis sent one of her pupils to me because she could not get beyond a certain note in the scale. Upon examination, I found a very peculiar condition. As the voice rises in the scale the epiglottis usually becomes more and more erect, becoming vertical with the high notes. This young lady had enlarged papillæ at the base of the tongue, which were so large as to interfere with the epiglottis and prevent it from erecting itself to form the notes. I removed these growths with a wire snare, and it added two notes to her upper register and gave a really brilliant result.

Dr. MACKENZIE: Faulty training must be recognized as a cause of vocal defects, and in overcoming them much time and patience are needed. I agree with Dr. Mulhall in regard to bridling the tongue. The isolation of the naso-pharynx is due to the rising of the dorsum of the tongue to meet the descending walls of the pharynx and uvula. The motions of the tongue have a great deal to do with the formation of tones, and anything encroaching upon the naso-pharynx or the tongue is an important factor in the destruction of the mechanism of voice. The instruction given by singing-teachers to keep the tongue upon the floor of the mouth is not physiological. It checks and cripples the movements of the throat muscles, the tensor palati, and the middle constrictor of the pharynx; even the buccinators are under restraint. It is the opinion of Meyer, of Zurich, that the middle constrictor of the pharynx is not concerned in swallowing, but is concerned in speech and in singing, therefore a very important agent in vocalization. In the production of certain notes there is a pushing forward of the middle fibres of this muscle toward the palate. It has been shown conclusively that this bulging of the middle constrictor muscle, upon which the soft palate rests, is of special use, as together they produce a complete isolation of the mouth and nose in the production of certain notes. With regard to Dr. Hinkel's observation, the fact is already well known. With regard to Dr. Mulhall's remarks, it was Mandl who pointed out in his writings with more clearness than the others the importance of the abdominal method. In the Italian school great attention is paid to this method of developing the abdominal muscles. The suggestion of Dr. Mulhall is a very proper one, and should be put in operation in our daily work; by it we may succeed in curing cases that otherwise we could not benefit.

Dr. LANGMAID: I feel gratified by the discussion which has been given to the subject, which I have had under consideration for a long time. I have said in my paper that there are wrong vocal methods, and I have been asked to formulate the right vocal method. I know many wrong ones from the effects that are produced by them; what is the right one I hope to be able to state at some future time. With regard to the class of singers referred to, who are conscious of effort and difficulty in the use of their voice, we must be careful in our advice and prognosis. I have been impressed for years that the method of holding the tongue down in the production of vocal sounds is a wrong one. I made many observations during several years, and became finally convinced that this was the source of all the difficulty in certain cases. I found patients relieved by correcting this method, so that I am satisfied that this was a correct view. Dr. Hinkel referred to the fact that nasal stenosis produces changes in the voice, and Dr. Mackenzie seems to agree with him that such disorders are frequent causes of voice difficulties. I am satisfied that Dr. Hinkel is correct in his observations upon his case, but I am not satisfied that it is by any means a great cause of voice defects. A partial filling up of the naso-pharynx is not constant in its effects upon the voice; it may or may not impair it. Of course, if the pharynx were completely filled it would affect the voice, but there is no evidence that a partial filling up would have any such consequences. I entirely endorse the remarks by Dr. Mulhall with regard to the taking of the attention away from the throat; it is very important to a correct vocal method. I also approve his remarks upon the

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abdominal method. This is very interesting, and I intend to make some observations upon breathing if I live long enough. There is much to be learned with regard to correct methods of breathing.

With reference to the case of the clergyman, the observation was a just one. I have elsewhere said that the laryngeal muscles were in position to place the vocal organs in proper place to form a given tone without the wind-blast. The wind-blast does not produce the pitch; the larynx is properly adjusted for the tone before the wind-blast reaches it. If we had to depend upon the delicate adjustment of the wind-blast, how many would be able to sing in tune? The muscles instinctively put the cords in position to produce the note, which is virtually produced before the wind-blast comes, which puts them in vibration and gives out the tone. When the wind-blast is strong it seems as if the cords would not be able to resist it, and yet they do not yield. The station, as I call it, is immovable when the wind-blast comes; the muscle does not give at all; if it did, the tone would change and be either sharp or flat. Therefore the distinction is that the note is not made by the wind-blast, but it is carried on by the wind-blast, and intensified by increase of the wind-blast. Now the question comes up, "What portion of the abdominal muscles should be brought into play to produce the result most effectively?" This I will reserve for future consideration. With regard to the case of Dr. Mulhall, I described one exactly similar to his. I made one attempt to remove the growth and told the patient to come back, but he never did. The growth in this case had already decidedly impaired the mobility of the epiglottis. In reply to Dr. Mulhall, I might state that in a paper by Morell Mackenzie upon the voice he says that some singers protrude the abdomen and some retract it. With regard to the tongue, we must remember that tongues are of different shapes naturally; some are flat and broad, others narrow or wedge-like. Because some singers sing with a flat tongue, it does not follow that others must do it. I am satisfied that the position and shape of the tongue depend upon the motions of the muscles of the larynx. The fact is that some singers sing with the back of the tongue raised, and it is also a fact that others, equally good, sing with the tongue flat.

The PRESIDENT: What do you think of the method in which the tone is thrown to the bridge of the nose?

Dr. LANGMAID: This question might be construed the wrong way. That the resonance is universal and involves the hard parts and also the soft parts is true; that the voice which is not reflected is a dull voice, as the singer says, is true; but that these are the only parts which reflect the voice is certainly not true; ill results to the laryngeal muscles and the voice will come from an attempt to follow this method. I have endeavoured to confine my paper to one form of wrong method of voice training, so that I could not be contradicted without having an answer prepared. By keeping on one subject I hoped to avoid vagueness in the discussion which would follow.

The PRESIDENT: Do you not think that the nasal and accessory chambers are too much neglected in the usual teaching of singing?

Dr. LANGMAID; Not by the best teachers. The methods pursued are those intended to develop the best acoustic qualities. For the same reason the Italians have always made use of the resonance of the head. If you choose to call it "nasal resonance" you may do so.

Dr. E. FLETCHER INGALS read a paper upon *Unilateral Paralysis of the Lateral Crico-Arytenoid Muscle.* Bilateral paralysis is common, but unilateral paralysis is not often met with except as the result of compression or injury of the recurrent nerve (aneurism of aorta or malignant disease of œsophagus) in rare cases of lead and arsenic poisoning, and sometimes after exposure to cold, rheumatism, or phthisis, or as the result of accident or wounds. When accompanied with paralysis of the same side of the tongue or palate it is of centric origin. Two cases which the author reports seem to be of hysterical origin, though one might show that injury to the terminal branches of one

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branch of the eighth pair of nerves may reflexly produce paralysis of distant muscles supplied by an entirely different branch of the same nerve, and the other might prove that paralysis in distant muscles, supplied by the pneumo-gastric branch of the eighth pair might be produced by injury to the terminal loops of one branch of the fifth pair. Dysphonia was present in both cases, and coughing and sneezing sounds were more or less altered. There was no sign of constitutional disease or evidence of hysteria, no swelling or congestion of the larynx, or injury to the recurrent nerve.

One case was a female, aged twenty-two, who lost her voice suddenly after the extraction of some teeth. She spoke in a whisper, had pain in the shoulder and back, and some dysphagia; otherwise was in perfect health. There was no evidence of hysteria. Paresis of the depressors of the epiglottis was present, but was only indicated by difficulty of swallowing, and was not discernible upon laryngoscopic examination. Laryngoscopically, the right vocal cord remained motionless at the side of the larynx on phonation, the opposite cord crossing three millimètres beyond the mid-line. Stimulating sprays and strychnine internally were given without result. Faradaism was tried, and slight improvement resulted. Later on, increased doses of strychnine, with quinine, valerianate of zinc, and nitrate of sanguinarine were given, and faradaism externally, and in five weeks after she reported herself cured.

The second case occurred in a female, aged nineteen, and Luschka's tonsil had been removed at two operations, at the second one cocaine being freely used. The day after operation the patient had used her voice more than usual, and the next day could speak only in a whisper. For eight weeks she made slight improvement and could then speak in a husky tone, but was unable to sing. Several applications of faradaism had been made. General health was excellent. The nares and naso-pharynx were normal, but there was some inflammation about the Eustachian tubes. The right vocal cord was completely abducted and immovable on phonation. The opposite crossed the mid-line to meet its fellow. There was no congestion or swelling. The static current was applied externally over the larynx, and a spray of oily solution of carbolic acid, gr. ii., and menthol, gr. v., in liquid albolene ʒj, was used to the Eustachian tubes and middle ear. Strychnine was also given internally. She was entirely cured without recurrence.

DISCUSSION.

Dr. BOSWORTH remarked that in several cases of paralysis of one side of the larynx with complete loss of voice, and in two instances of falsetto voice, the voice afterwards became almost absolutely normal, although the paralysis persisted. This was accomplished by the healthy cord swinging over to the paralysed side to compensate.

Dr. BOSWORTH read a paper on *A Case of Unilateral Paralysis of the Abductors of the Larynx, the result of an attack of Bulbar Disease, with unusual symptoms, and which was apparently caused by Suppurative Disease of the Antrum.* In August, 1889, the patient, a man, had purulent discharge from the left antrum, originating in an ulcerated

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second molar tooth. On November 20th, when he rose from bed, he fell over to the right side, and nausea. He could not swallow water. When he walked it was with effort, and he unconsciously turned to the right; dizziness and nausea also continued. He was partially paralysed over the whole right side from the crown of his head to his soles. On the left side there was paralysis of sensation—the tactile sense not being destroyed, while the sense of heat and cold was absolutely gone. There was slight dyspnœa, and the vocal tones were peculiar. This was, of course, due to paralysis of the palate. There was no facial paralysis. There was impairment of sight, the eyes not focussing well. He could neither sneeze nor cough, although he could clear the throat with some difficulty. The tongue was protruded slightly to the right side. Articulation was not impaired. Sense of taste was notably impaired on the left side of the tongue and the whole fauces. Power of deglutition was lost for two days, but returned on the third, and improved for some weeks. On the twelfth day after the attack, motor impairment had disappeared. Impairment of motion lasted only two months, but some was still evident. The sensory paresis of the left side improved quite slowly, and at the end of four months there was still failure to appreciate sensations of heat and cold. He came to the author to consult him for antrum disease. He appeared to be in perfect health. An examination of the larynx showed the right cord lying motionless in the median position, *i.e.*, complete paralysis of abduction of the right vocal cord. Dr. Starr was disposed to agree with the author that the condition was due to thrombosis of one of the small arteries of the medulla, leading to some meningeal disturbance extending to the cerebellum. The author thinks that, without doubt, the patient had an attack of bulbar disease, the only remnant of which was the abductor paralysis. The ganglionic centre, presiding over the respiratory movements of the larynx, lay in the area of distribution of the artery concerned. Why does this abductor paralysis persist? Either because the ganglion is permanently destroyed, or there is an essential proclivity on the part of the abductor muscles to become the seat of paralysis.

Dr. BOSWORTH related another case of partial ankylosis of the crico-arytenoid joint due probably to rheumatism, and thinks that a good number of so-called "paralyses" should be relegated to another category. The author reviews the literature of recorded cases of laryngeal recurrent paralyses due to bulbar disease (Hughlings Jackson, Proust, Senator, Eisenlohr, Sokoloff), and of recurrent laryngeal paralysis in locomotor ataxia (Oppenheim, Kehler, Wegner, Krause, Saundby, Semon, Hubbard, and himself); cases of double abductor paralysis with extensive lesion of the medulla (Ollivier d'Angers, Krause, Penzoldt, Smith). The number of cases reported of unilateral paralysis of the abductor is small (Gerhardt, McBride, Nothnagel, Delavan, Wright).

The author thinks that a central lesion is responsible for a genuine paralysis of the vocal cords in a larger proportion of cases than is usually believed.

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DISCUSSION.

Dr. WESTBROOK: I should like to ask the author of the paper if he would not consider it possible that the short duration of the motor paralysis, the suddenness of onset, and subsequent history of the case, might rather tend to exclude the idea of lesion of the medulla. A lesion of the medulla sufficient to cause so extensive a paralysis, to give complete hemiplegia, I should not think could be recovered from so readily. I should think that a case like this might be accounted for on the supposition of an embolus passing into the middle cerebral artery, or a thrombus in the sinus, or in one of the other vessels at the base. An embolus or thrombus affecting the internal capsule might account for the paralysis. But the whole thing might be due to a tumour, or clot in one of the venous sinuses at the base of the brain. It seems more probable that it was of this character than that it was a lesion of the medulla itself; a lesion of such an extensive nature as this must have been, occurring near the medullary centre for respiration and the vaso-motor centre, would have been likely to be quickly fatal. At all events, the patient would not be likely to recover so completely or quickly.

Dr. BOSWORTH: In reply to the question, I would say that there is no doubt about the bulbar nature of the lesion in view of the extent of the paralysis. There was loss of deglutition and of power in other muscles supplied by the eighth pair of nerves; the laryngeal paralysis, with hemiplegia, all point to the bulb as the origin of the eighth pair of nerves in the floor of the ventricle. The extent of the case, the history of a chronic suppurative process in a closed cavity, suggest thrombosis of one of the small arteries, from the basilar supplying the medulla. The absorption of the embolus would account for the rapid recovery, for the occurrence of softening would naturally take some time. An interesting point is the occurrence of hemiplegia. I recall no case on record in which thrombosis in the medulla caused hemiplegia, which makes this case especially interesting. There was also some cervical adenitis, which still further supported the view of lesion at the base and in the cerebellum.

The British Laryngological and Rhinological Association

Met on November 28th, at the Medical Society's Rooms, in London.

Papers were read as follows:—

"On the nature of the Tonsils and Lymphoid Tissue of the Pharynx."—Mr. MAYO COLLIER.

"A case of Lymphadenoma affecting the Tonsils and Naso-Pharynx."—Dr. KENDAL FRANKS.

"A case illustrating the possibility of hypertrophy of the Pharyngeal Tonsil being an etiological factor of papillomata in children."—Mr. LENNOX BROWNE.

"A case of unrecognised impaction of artificial teeth for twenty-two months, with successful removal."—Mr. LENNOX BROWNE.

"Progressive immobility of a Vocal Cord, and its value in diagnosis."—Dr. HUNTER MACKENZIE.

"A case of persistent immobility of the right Vocal Cord after complete recovery from an attack of Hemiplegia, with exhibition of the patient."—Mr. LENNOX BROWNE.

Cases were shown by Drs. DUNDAS GRANT and LENNOX BROWNE.

A Report of the Meeting will appear in the next number of the Journal.

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