the epiglottis which upon inspiration was drawn down over the opening of the tube, thus preventing respiration through it.

Dec. 8. With the assistance of Dr. Hawk, of Iowa, chloroform was administered and the growth at the upper portion of the larynx removed with a curette. A tracheotomy tube with an opening in the outer canula was also introduced.

Dec. 11. He was able to breathe quite comfortably through the intubation tube with a cork in the tracheotomy tube.

It is unnecessary to detail the further history of the case. There has been a constant tendency to recurrence of granulation tissue above the head of the intubation tube requiring frequent operations. The intubation tube was changed on an average of once a month, its diameter being gradually increased. The tracheotomy tube was removed and cleansed daily by the attendants. After wearing both intubation and tracheotomy tubes for two years the latter was dispensed with and the intubation tube increased both in length and diameter. For the last two years the intubation tube alone has been worn. The patient at times wearing it as long as two months without changing. The head of the tube is occasionally altered in shape in order to prevent too long continued pressure upon one point. The patient is now able to do without his tube a few hours at a time. The boy is now six and a half years old and as strong and rugged as any boy of his age. We are hopeful that as he reaches puberty and as the larynx increases in size at this age there will be sufficient room for normal respiration notwithstanding the amount of cicatricial tissue present.

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Discussion.

Dr. Wigler called attention to the late paper of Dr. Hooper, of Boston, in which he described endo-laryngeal operations under chloroform in children. He also referred to an instrument lately devised by Dionisio, an endo-laryngeal speculum which holds the glottis open in the living subject.

Dr. Thrasher said that he was much interested in the paper of Dr. Waxham. About a year ago a 6 year old boy was brought to him suffering from dyspnoea. Examination revealed the chink of glottis blocked by a red granular mass, apparently papillomata. After a preliminary tracheotomy the larynx was pretty well cleared by the cutting forceps and when the respiration per *vias naturales* was restored (in about 3 weeks) the patient went home. In about 2 months he returned with an increased growth of the neoplasm. These were removed under cocaine at one sitting and the patient was not seen again for a month when the operation was again repeated. The recurring growths were removed at intervals of 4 to 8 weeks until January 1, of this year. At that time the dyspnoea was not sufficiently relieved by the attempted removal of the warty tissue and a small intubation tube was inserted to permit of the child's returning home. This tube was worn about a month and brought back in the hand of the patient, having been coughed out. Dr. T. then re-inserted a larger tube and the patient has worn a tube ever since. Some 3 weeks ago Dr. T. learned that the little fellow had taken whooping cough but was getting along as well as could be expected. There was a marked atrophy of the sessile growths, apparently from the pressure of the tube, after the tube had been worn for only a month, and this atrophy gradually continued up to the time of the invasion of the whooping cough, since when the patient has not been seen.

Dr. Von Klein remarked that he had been called in the night to see a case of dyspnoea from papillomatous obstruction. He attempted to introduce an intubation tube, failed, tried a smaller and found that there was not room to pass the smallest size tube. He then advised tracheotomy but parents objected and soon the child died of CO₂ poisoning.

HÆMORRHOIDS rapidly diminish in size, become free from secretion and pain, and generally improve, according to Dr. James, if powdered daily with pure calomel.

SPONTANEOUS CURE OF MULTIPLE PAPILLOMATA OF THE LARYNX AFTER TRACHEOTOMY.

SAME CASE ALSO DEVELOPED THE RARE ANOMALY OF PAPILLOMA OF THE EPIGLOTTIS.

Read in the Section of Laryngology and Otology at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY JOSEPH A. WHITE, A.M., M.D.,

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Frank Bigby, aged 5 years, was brought to me on June 11, 1886, suffering with dysphonia and severe attacks of dyspnoea. I had no difficulty in making a laryngoscopic examination, and found his trouble was due to the presence of several small growths of the larynx, located especially on the left cord and ventricular band near the commissure, and

Fig. 1.—In June, 1886.

also at the inter-arytenoid space. After two or three sittings to accustom the larynx to the contact of the forceps, I succeeded in removing the obstructions and cauterizing their seats with chromic acid. In October he was brought back because of the return of dyspnoea, and I found the growths had not only recurred, but also had extended to the right side. I also noticed a small protuberance on the lower face of the epiglottis on the right side as if a similar neoplasm were developing there. October 10, I operated with the forceps, removing most of the growths. November 14, he came back with a more decided recurrence, a regular cauliflower mass, and with the protuberance on the epiglottis developed into a small pediculated tumor. I again removed all the growths, and fearing they might be malignant, I sent one specimen to Dr. Wm. M. Gray, the pathologist of the Army Medical Museum in Washington, and another to Dr. Geo. Lefferts, of New York. The former replied that the growth was a hard papilloma, composed of squamous epithelial cells, and histoid in character. Dr. Lefferts answered November 16, 1886, that the growth was a papilloma, and that there was no reason why it should not be radically extirpated, although he did not think this could be done per *vias naturales* in a child only 5 years of age, and suggested thyrotomy as the best means to that end. He added, "I have never seen, heard or read of a papilloma of the epiglottis".

My reply to this, was to send him the growth that had been removed from the epiglottis and preserved in a solution of chloral.

He wrote me again January, 1887, stating that the gross appearance of the little tumor sent him certainly resembled papilloma, but that his eyes then debarred him from the use of the microscope. On January 11, 1887, the case again

returned with oppressive breathing, and the larynx refilled with a cauliflower excrescence. Removal *per vias naturales* was followed by relief. This time I could not remove all the growth, and on January 23, at 12:30 A.M., I was summoned to go to the boy a mile in the country. On my arrival, I found the resident physician of the Confederate Soldier's Home, Dr. Franklin, endeavoring to resuscitate an apparently dead body. There was no perceptible respiration, the pulse could not be detected at the wrist and the only evidence of life was a feeble heart beat.

I opened the trachea by the inferior method of tracheotomy as rapidly as possible. When the air was admitted there was no inspiration and no cough from irritation of the trachea. Artificial respiration was commenced and kept up continuously about three hours. Any cessation of it was followed by disappearance of the apparently restored respiratory action. The trachea was opened at one o'clock, and consciousness returned about 8 o'clock A.M. The boy recovered rapidly from the effects of the asphyxia and the operation, and two weeks later came to my office. I removed the growths again, and repeated the operation several times in the next six weeks. Each operation seemed to be followed by rapid repululation of the growths, and in March they projected above the level of the cartilages of the larynx preventing the epiglottis from closing the latter. They also

Fig. 2.—In November, 1886.

extended sub-glottically down to and out of the tracheal opening when the tube was removed to be cleansed. I several times passed a wire loop through the external opening in a small rubber tubing up and out through the mouth, cutting off pieces of the growth from the sub-glottic region. I have also seized them, and drawn them out through the opening in the neck. These operations were repeated from time to time until I filled a half ounce bottle with the tissue. Microscopic examination months after showed the character of the tumors to be unchanged.

At last I became disgusted with my results. I recognized that the more I meddled with the case the more abundant became the pathological formations. Several times I was about to adopt Dr. Leffert's suggestion to perform thyrotomy, but I was averse to doing this, as the voice invariably suffers, and I was not satisfied it would prevent a recurrence.

During the summer of 1889 I was absent a great deal. The boy came to my office and missed me several times, so that two or three months passed without my seeing him. When I did so, I noticed the mass had diminished in size. So I concluded to let him alone as far as instrumental interference was concerned. He came to see me now and then. I did nothing but look at his larynx and use a simple astringent spray. Under this "do nothing treatment" he generally improved, the mass constantly diminishing until the larynx began to assume something of a normal aspect.

The growth on the under side of the epiglottis also diminished *pari passu* with the laryngeal neoplasms. In April, 1892, I exhibited the case to the Richmond Academy of Medicine and Surgery, several members of which who give some attention to laryngology examined him. His condition then, as now, was an almost perfectly normal larynx, with white pearly cords, a small projection on the epiglottis at the seat of the former papilloma, and a larger remnant of the growths on the anterior wall of the trachea just below the commissure. He still wears the tube on account of the latter abnormality. I am afraid to remove it until this disappears. But instead of a full tube, he wears only a piece of a hard rubber tracheal canula, cut off just long enough to keep the opening in the neck patent. At night he wears the inner tube—in the daytime he removes this and keeps the outer tube closed with a cork; and when thus corked up he can breathe well and speak distinctly, the voice being strong and natural. To hear him speak one would not know he had a tube in the neck.

This case is especially interesting for several reasons:

1. It is, as far as I can discover, the first case on record of papilloma of the epiglottis, for although Uchermann reported a similar case to the Christiania

Fig. 3.—In March, 1887.

Medical Society in 1889,' the date of my correspondence with Dr. Lefferts antedates this report fully two years. In his case the growth originated from the epiglottis and vocal cords in a child 7 years of age, who had been aphonic four years. He extirpated it entirely in six sittings, and had a perfect result with no recurrence.

Eliasberg in 1889 also reported one of secondary papilloma of the epiglottis in his case of recurring papillomata of the larynx in the case reported below. Dr. Louis A. Bull, of Buffalo, N. Y. (*Jour. of Ophthalm., Otol. and Laryng.*, July, 1889), records a case of what he calls papilloma of the epiglottis and base of the tongue, but it appears to have been an overlapping of the lingual tonsil.

2. It is the sixth case in literature of spontaneous cure of recurring multiple papillomata of the larynx after tracheotomy, the other five being two cases by Prof. Oertel, quoted by Hoppmann (*Volkmann's Sammlung. Klin. Vorträge*, No. 315); one by G. Hun-

¹ See report of the Christiania Med. Soc., Medicinsk Læstabs Forhandling, 1889.

ter Mackenzie (*Lancet*, April 6, 1889); one by Eliasberg (*Meditzinskoia Obozrenie*, 1889, No. 1, p. 46); and one by Garel (*Annales des Maladies de l'oreille et du larynx*, June, 1891). In Mackenzie's case the boy was 5 years old, and wore the tube one year after the operation, which was done in 1883. Eliasberg's case was a boy 10 years of age. Thyrotomy was performed in 1887, a mass of polypoid growths removed and cauterized with Paquelin's cautery. In February, 1888, there was a recurrence. In April following thyrotomy was again performed. In June there was a second recurrence, occupying vocal cords and epiglottis. In June, 1888, alarming asphyxia necessitated tracheotomy, and a month later the neoplasm filled the larynx. Two months later this began to improve, and in December nearly all the growths had disappeared.

The canula was worn until March, 1890, when it was removed, as it caused irritation with bleeding granulations about the wound, and cough. The voice became very harsh because of the thyrotomies previously performed.

Fig. 4.—Status Præsens.

Garel's case was a girl of 4 years who was tracheotomized after an attack of suffocation June 11, 1890. The presence of papilloma in the larynx was demonstrated by laryngoscopic inspection. The tube was removed July 30, forty-nine days after the operation, all signs of the growth having disappeared.

Garel also speaks of another case in which he did tracheotomy on a boy 11 years old for presumed growth in the larynx, but as he was unable to see into the windpipe, the diagnosis was doubtful. In all of these cases there was the same result, a spontaneous disappearance of the growths, following tracheotomy, although in each one the tube was worn during a different period. Garel's case was the shortest (forty-nine days), and mine was the longest (five years). Eliasberg's case resembled mine more closely than any of the others.

There was the same tendency to repullation of the papillomata after each attempt at their removal, the same enormous development of the growths almost

immediately following the tracheotomy, and the same gradual shrinkage of them when all operative interference ceased.

3. It shows that the tracheal canula can be worn indefinitely without secondary paresis of the vocal cord, or impairment of the voice, and that in such cases it is best not to be in a hurry to remove it, because of the probable development of tracheal polyps after the operation. In this case they developed even after the larynx was clear of any abnormality, and he still retains the tube, because there is a small remnant on the anterior wall of the trachea.

These growths are of two kinds: 1. Vegetations existing whilst wearing the tube and retarding its removal; and 2, growths appearing after removal of the tube and healing of the wound; but the latter danger is only to be feared when we are in too great a hurry to get rid of the tube. Sometimes if their pedicle is weak they may be coughed out, otherwise a secondary tracheotomy may be necessitated by the consequent suffocative spasms, and death may result from one of these attacks before the operation can be performed. That this is no imaginary danger is shown by the fact that over twenty cases have been recorded, by Gigon (*Union Med.*, 1862), Wanscher (*These de Copenhagan*, 1877), Archambault (*France Med.*, 1879), Voight (*Jahrb. fur Kinderheilk.*, 1882), Kock (*Arch. fur Chirurg.*, t. xv), Waldsberg and Reedel (*Deutsh. Zeitsch fur Chirurg.*, t. xv), Kohl (*Tese de Zurich*, 1887), Hume (*Cleveland Med. Gaz.*, 1886), Revilloid (*Rev. Med. de la Suisse Romande*, March, 1891), and others.

The risk of a too early removal of the tube is also shown by a case recorded in one of the last numbers of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, April 30, 1892, by Dr. F. G. Raynor. A girl of twelve with laryngeal growths was tracheotomized during an attack of suffocation by Dr. Sherwell, Nov. 9, 1889. On the 20th, thyrotomy was performed and the larynx thoroughly cleaned out. Two days after the tube was removed. June 5, 1890, seven months after, she died in a suffocative attack before assistance could be obtained. Had the tube been worn long enough to be sure there would be no recurrence, the result might have been more favorable.

4. The result in my case helps to show the advantage of tracheotomy over thyrotomy in recurring papillomata of the larynx. Some writers claim the latter operation to be free from danger to life and even to voice if properly done, but I doubt if statistics bear out this assertion.

A. Malthe (*Norsk Magazin for Lægevidens-Kaben*, 1886, p. 490), reports a case in a four year old boy of multiple papilloma of the larynx tracheotomized June, 1883. On August 15, thyrotomy was performed to remove the growths, and on August 20 the child died. Salzer (*Langenbeck's Archives*, Band 39, Heft. 2), in his report of the laryngeal operations in Billroth's clinic from 1881 to 1889, records ten cases of thyrotomy with three deaths. These references prove it is not free from danger to life, and it is an untenable claim made by Shalita of Kiev (*Uratch*, 1889, No. 17, p. 389), that it will not affect the voice if properly done. I doubt if any of us has ever performed it without detriment to the voice.

Bornemann (*Deutsch Med. Wochen.*, 1891, No. 15), in reporting four cases of multiple papillomata in children from B. Fraenkel's clinic in Berlin, in three of which thyrotomy was done, and in one (6 years old) an endolaryngeal operation was successfully per-

formed, claims that the latter method is preferable to the former, because of the danger to voice and life from thyrotomy. Tracheotomy has the great advantage over thyrotomy that it gives perfect rest to the larynx, by temporarily suspending its respiratory functions, thus in all probability removing some irritating factor in the redevelopment of the growths, whilst guaranteeing unimpeded respiration without risk of suffocation.

Thost ("*Ueber papillom in der oberen Luftwegen*" *Deut. Med. Woch.*, May, 1890), in a capital article on this subject, states that papillomata of the larynx in children will always disappear spontaneously if let alone, that it is benign neoplasm, and without danger. If this is correct, why should thyrotomy with its attendant risks to life and voice be performed? Is it not better to let such cases alone, merely keeping them under observation to guard against suffocation from any sudden or unusual excessive development. It is only in these exceptional cases that tracheotomy is called for, and it will be all the surgical interference required. Malignant growths in children are rare and these proliferations of the mucosa, as papilloma are claimed to be in contradistinction to organized tumors, are comparatively free from danger. Their causation is uncertain, but any direct irritation of the laryngeal mucosa can produce them. Probably they often result from naso-pharyngeal secretions dropping into the larynx at the arytenoid space, and which not being coughed away, act as a local irritant.

Lennox Browne ("*A case illustrating the possibility of hypertrophy of the pharyngeal tonsils being an etiological factor of papillomata in children*," *Brit. Laryng. and Rhinolog. Ass'n.*, Nov. 1890), reports a case upon which he bases an argument to show that adenoids of the naso-pharynx are a factor in their production. This is probably true, as adenoids are accompanied by considerable secretion which may drop into the larynx, and keep up a prolonged irritation of the mucosa.

CATARRH OF CHILDREN AND THE IMPORTANCE OF EARLY TREATMENT.

Read in the Section of Laryngology and Otology, at the Forty-third annual meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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In this paper I wish to consider briefly, nasal catarrh as met with in children, and characterized by an inflammation and purulent discharge from the nasal and naso-pharyngeal mucous membrane.

The word catarrh in the sense that it is ordinarily used, is a kind of cloak to cover up our lack of knowledge of the true inwardness of these cases.

The literature on this subject is rather confusing and unsatisfactory.

MacKenzie recognizes two forms, acute and chronic; under the acute form, he classes the gonorrhœal and leucorrhœal infection that may occur in the new born.

Frankle describes but one form, the acute. Cohen is inclined to attribute all cases of purulent discharge to remote specific infection. Lennox Browne, Sajous, Seiler, and Robinson, make no special mention of purulent discharge in children, but class it

along with other cases and hypertrophied glandular structures.

Bosworth in his recent work, devotes a small chapter to purulent catarrh of children, in which he takes the ground that "it is purely local in character, and depends on no constitutional taint, and consists essentially in an increased secretion of mucus in the earlier stages, together with a rapid desquamation of the epithelial cells, which runs its course as a purulent disease in from five to ten years, developing finally into atrophic rhinitis."

In children up to the age of 12 to 15, epithelial structures are especially liable to take on diseased action; we see this manifested in the frequent hypertrophic condition of the glandular structure of the naso-pharynx; whereas in adults, the inflammation of mucous membrane results in hypertrophy of the connective tissues.

During childhood, the lymphatic system undergoes its greatest development: hence it is, that the lymph glands are more prone to alterations of nutrition than in adults.

In children there is great activity in the development of epithelial cells, and when stimulated from any cause, may lead to one of two distinct results. 1st, they may pile themselves upon each other and so adhere as to form a true epithelial hypertrophy, together with an increase of lymph tissue and lymph corpuscles, as in the case of adenoid growths and many enlarged tonsils; this form is likely to follow scarlet fever, measles or diphtheria. 2nd, the epithelial cells may fail to adhere and result in a rapid desquamation, with an increased flow of mucus, forming an abundant muco-purulent discharge.

Both these processes may go on in the same case, or desquamation from the turbinates may follow the adenoid growths in the vault.

My observation leads me to believe that children of a strumous or scrofulous diathesis are more prone to take on the second form, or exfoliation of the epithelial structures.

An acute cold of a child differs from that of an adult, in that the inflammation involves the epithelial coat and naso-pharyngeal glands, thus producing nasal-stenosis; while in the adult, the inflammation involves the mucous membrane proper, extending into the deeper structures.

These inflammatory changes commence as a rule, in children between the ages of three and five years, and if not cared for, will culminate in one of two results, or may be, a combination of both: viz., the desquamative or suppurative form, or the coalescing or adenoid form.

If the case is confined strictly to the desquamative variety, it will gradually extend into the mucous follicles and rob them of their epithelial lining and destroy their secretive power, and in this way lead to formation of crusts, and finally terminate in atrophic rhinitis, about the 14th or 15th year.

The characteristic symptom of this disease, is a muco-purulent discharge from both nostrils, usually of a cream or straw color, and can be diagnosed from the other varieties by there being no special obstruction to the nasal passage, except the accumulation and drying of the secretions. In case of a foreign body the discharge is always confined to one side. In syphilis and in cases of necrosis, the discharge is very offensive. When the discharge is due to adenoid growths, the first thing noticeable is the marked