lieved in about half an hour. Calomel and Warburg's tincture were given next morning, but did not act well. In the evening of this day, at about the same hour as on the previous day, another severe attack of headache came on and another dose of morphin was given her, which gave her some relief.

On the morning of the 29th she was given one ounce of Warburg's tincture, and in the evening she received ten grains of quinin. She had no attack of headache on this day.

On the 30th, in the evening, she had another very severe attack of headache. In the morning of this day she had taken ten grains of quinin and ten more in the evening. During the night of the 30th she noticed that her vision was becoming impaired, and on the morning of the 31st she was totally blind in both eyes. Pupils reacted but feebly to light. I saw her for the first time shortly after noon on this day. She acted like a person who was absolutely blind and was quite self-possessed. I found that the movements of the eyeballs were unimpeded in any direction. She was unable to recognize the position of a lighted candle held but a short distance from her eyes. The pupils of both eyes responded readily to light and in convergence. The ophthalmoscope showed absolutely normal eye grounds. In one of her eyes she had a patch of opaque nerve fibers such as is frequently seen in eyes with good vision. There was absolutely nothing hysterical about the woman. I feel very confident that she did not exaggerate her impairment of vision. The hearing was normal. I made a favorable prognosis. An examination of her urine showed it to have a specific gravity of 1030; it contained a trace of sugar, but no albumin. The quantity of urine passed during the day preceding the blindness is not accurately known, but it was said to have been of the usual amount. The bowels had not moved freely for some days, although sulphate of magnesia in large doses had been administered at frequent intervals. A high enema was given shortly after I saw her, which brought away a quantity of fecal matter, in which, on examination, were found seeds of berries eaten two weeks before. The total blindness continued for thirty-six hours, and then gradually her vision returned in both eyes. There was no rise in temperature during the attack, but on the day following her temperature rose to 102. A week after the attack her vision was as good as before the attack, and the visual fields were of normal extent for white and colors in all directions.

All our efforts to find a cause for the sudden blindness was fruitless. She has no disease of the kidneys. Habitual constipation, for which she always was taking cathartic mineral waters, was about the only abnormal condition which we could discover at the time. She has been in her usual good health ever since.

That this was a case of amaurosis from some kind of intoxication there can be no doubt. But as to whether it was due to a poison introduced into the body from without or whether the poisoning was the result of an inadequate physiologic elimination of the product of the tissue metamorphosis or of the formation of a poison in the intestinal tract due to abnormal processes of decomposition or fermentation, must remain in doubt. That the poison was not introduced from without seems, however, pretty certain. Neither the food of which she had partaken nor the drugs which had been administered can be held responsible for the eye affection. We know that quinin in comparatively small doses will occasionally produce blindness, but both the clinical features and the absence of all change in the backgrounds of the eyes, as well as the subsequent history of the case, show that this drug was not the cause of the blindness. The absence of disease of the kidneys probably eliminates uremia as the cause of the amaurosis, though it must be admitted that this attack closely resembles in all its features the blindness known to occur in this affection. In one of the examinations of the urine a trace of sugar was found, but only once, and none has been found since the attack. With the exception of habitual constipation, there is no evidence of the presence of a morbid affection of the digestive tract, and yet the most plausible explanation seems to me to be that the toxin which caused the amaurosis was formed here through putrefactive changes of the contents of the intestinal tract. As to the part of the visual apparatus

affected in this case, there can be no doubt. The blindness with prompt pupillary reaction to light established the fact that the optical centers were the seat of the lesion. But as to whether it was an edema of the meninges or an affection of the brain itself no one can tell. There are very few cases on record similar to the one here described, and in most of these the absence of albumin in the urine was not positively excluded. I am indebted to Dr. Cladek of Rahway for notes of the previous history of the case.

To recapitulate: In both of the cases above reported the blindness was due to an affection of the nervous visual apparatus. In the first the seat was in the conducting apparatus, as was manifest from the fact that the pupillary light reflex was absent during a part of the time that the blindness existed. In the second the seat of the lesion must be looked for in the optic centers, as the pupils reacted promptly to light while total blindness was present. In both cases the vision was completely restored. It is doubtful that the treatment adopted had anything to do with the restoration of the sight in either case.

I. PROLONGED INTUBATION. II. ESOPHAGOTOMY FOR A DENTAL PLATE.

III. LARYNGECTOMY FOR CARCINOMA.*

GEORGE F. COTT, M.D.

CLINICAL PROFESSOR OF OTOTOLOGY, UNIVERSITY OF BUFFALO
BUFFALO, N. Y.

I.—A CASE OF PROLONGED INTUBATION.

One of the rarest accidents following intubation for diphtheria is stenosis, which results from pressure ulceration of the subglottic region and is very difficult to remedy. There are, perhaps, half a dozen cases on record; several made complete recoveries. One of these is as follows:

Intubation.—Rosa McGlynn, aged 6, was taken sick with diphtheria in December, 1901, and in a very few days required intubation. Being otherwise engaged, I sent my assistant, Dr. James E. King, to perform the operation. A week later the tube was removed, but had to be replaced immediately. Several days thereafter I removed the tube, but within a very few minutes had to replace it. This occurred frequently for several weeks. In order to keep better watch of the child I had her removed to the Riverside Hospital, and there the tube was removed and replaced off and on for several months.

Excision of Stricture.—Being satisfied that intubation would do no further good, especially since it had become necessary to use a one-year tube, I split the larynx completely and found a fibrous stricture below the vocal cords in the subglottic tissue. This was cut out and considerable granulation tissue removed with a sharp spoon, and a silver tube passed up from the tracheal wound between the vocal cords and the larynx, and a tracheal tube downward through which the child breathed. These tubes were left in for some time, when intubation was again resorted to, but gradually the lumen was again diminished until it became very difficult to insert a one-year tube. The larynx was opened a second time and the stricture removed as before. The upper or laryngeal tube was not replaced, but the lower or tracheal tube was allowed to remain for several weeks. Intubation was intermittently performed during this time.

Course.—After a while the tracheal tube was removed and the child allowed to go several days without a tube, but occasionally she had to be intubated, on very short notice. The interne was instructed to be on his guard either to intubate or to do tracheotomy on a moment's notice. About 2 o'clock one morning he was suddenly summoned and found the child suffocating. Dr. Weed hurriedly opened the trachea and the danger was tided over once more. After that I opened the larynx for the third time, removed the stricture again and

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. George L. Richards, O. Joachim and G. V. Woollen.

continued to intubate with a large tube at lessened intervals until June, 1902. The child had now been intubated, during six months, over fifty times by Dr. King, Dr. Weed and myself, and tracheotomized half a dozen times. She was retained at the hospital several weeks after the last time the tube was removed, when her mother took her home.

After we had not heard from her for six months, we called on her, and found her in good health, grown fat, and her voice in perfect condition.

The patient came under my care while I was city physician. The family was poor and the surroundings very unclean, so she was removed to the hospital. We had several times intended to send her home with the tracheal tube, but for one reason or another she was kept at the hospital until finally it was thought safe to let her go with her mother.

Comments.—This case is another illustration of what perseverance may accomplish. Ordinarily after two or three months such a case would have been abandoned as positively incurable, and the child would have to wear a tracheal tube all her life. Dilatation certainly would have been practiced, but without avail. The stricture was altogether too firm to yield to pressure. Each time after the radical treatment the child reacted remarkably, in fact was up and playing the very next day.

We had all sorts of tubes made, of different sizes and shapes, without the slightest benefit. It is very seldom that intubation can be shown a class of students. I therefore thought this a good opportunity to demonstrate the operation, the little patient always being in readiness. Tubes were tried from six years down to one, but to my chagrin, and apparently to the students' amusement. The smallest tube could not be forced through the larynx. The result was more trying because I had told the class (about forty in number) how simple an operation it was. Not until long after the boys were being entertained by another teacher did I succeed. Two men from out of the city were in attendance at the lecture; after watching the performance a while they finally left in disgust. Failure to replace the tube, however, was a common experience to Dr. King and myself. We sometimes tried ten or a dozen times without accomplishing our object, only desisting when the child became exhausted.

This case is worth reporting on account of its rarity, as well as showing the recuperative power of the larynx.

II.—ESOPHAGEAL OBSTRUCTION CAUSED BY SWALLOWING AN UPPER ALVEOLAR PLATE.

History.—Woman, aged 35, had worn an upper alveolar plate of hard rubber containing on one end one, and on the other end two teeth. The outer one of the two had been separated from the plate leaving the two pins which held it exposed. The plate had sharp edges throughout. It was worn by the woman continually day and night for fifteen years without ever becoming displaced.

One day while at dinner the plate suddenly became loosened and was carried down the esophagus with a bolus of food. It caused her considerable pain, for the relief of which she sent for her physician, Dr. Hugh McIntyre, after having ineffectually tried to dislodge it. He called me in consultation. I advised having the plate located by means of the *x*-rays, which was done by Dr. Fred Preiss. The plate was found immediately behind the sternal notch. The center of the plate was two and one-quarter inches below the thyroid cartilage. The teeth in the plate were anterior; curve of plate was downward; ends of plate were lateral; higher on the right side than on the left by one quarter of an inch.

Operation.—Dr. Kenerson, a surgeon, was asked to see the patient, and the woman was informed that the plate would have to be removed by operation, to which she readily consented. She was removed to the Riverside Hospital. I made an incision on the outer side of the trachea and separated the tissues between the muscles and carotid sheath until I came down to the esophagus, which was properly located and opened. Dr. Kenerson then introduced through the esophageal opening a pair of forceps and gradually and carefully drew the plate into view, which I then grasped and rotated through the wound.

The esophageal opening was then sutured and the rest packed with gauze. We anticipated a fistula, therefore did not entirely close the outer wound. Two days after the operation saliva passed out of the wound, which continued for nine days, when the wound closed. No food had passed down the esophagus during that period.

Course.—The patient was very much emaciated at the time of the operation, having had the care of four little children, one of which she was still nursing. There was, of course, some doubt about the woman's recovery because of her extreme debility. She was nourished by rectal injections and cod-liver oil baths until the esophageal fistula closed. It was carefully dressed after the second day, to heal it up as rapidly as possible. She took very kindly to nourishment. At the end of three weeks she was discharged cured, vowing never again to wear another plate.

III.—PARTIAL EXTIRPATION OF THE LARYNX FOR CARCINOMA.

History.—Mrs. S., aged 55, complained of hoarseness for the past year, breathing then became so oppressive that she finally sent for Dr. Weil, who treated her for two weeks, when he sent for me to examine her throat. I found a large growth involving the entire left lateral thyroid cartilage and infiltration of the right arytenoid.

Tracheotomy.—The examination produced a spasm of the glottis and I thereon proposed tracheotomy, but the patient's son being informed of the necessity of cutting a hole in her throat, positively refused to have this done. I therefore left word to send for me when they were ready to have the wind-pipe opened. The next day I was summoned, and, after injecting a small quantity of a 1 per cent. solution of eucain, opened the trachea without much difficulty.

Up to the time of the operation she had had seven or eight spells of suffocation every night for two weeks, her pulse was, very rapid and she was extremely weak and emaciated. A week after the tracheotomy she had improved so much that I was enabled to remove a small piece of the growth for microscopic examination. This was made by Dr. Bentz of the Pathological Laboratory of the University of Buffalo, and he reported as follows:

Microscopic Examination.—Parts of the tissue are covered by stratified squamous epithelium. The epithelium dips down deeply into the tissue (fibrous) beneath. The epithelial cells have broken through the basement membrane and infiltrated the tissue, along the lymphatic clefts. These infiltrations are in the form of columns or groups of small and large spherical cells, atypical epithelium. Hyperkeratosis, hyperchromatosis, and mitosis were found in the cells. In some groups the cells show cornification and flattening and are arranged concentrically forming so-called 'pearly bodies' or 'cell nests,' characteristic of epithelioma. There is a marked inflammatory process in the tissue between the groups of atypical cells, as is shown by round cell infiltration.

"On these histologic findings an anatomic diagnosis of squamous celled carcinoma epithelioma was made."

I informed the patient of the serious nature of her trouble, and that the only possible chance of a cure was excision. Arrangements were made for operation four days later.

Operation.—August 5 an incision was made three inches in length, the thyroid cartilage was separated from its attachments, anticipating the removal of the entire larynx. After the larynx was opened for inspection, it was found that the swelling on the right side had entirely disappeared.

Being satisfied that only the left side was involved the thyroid and part of the cricoid cartilage were removed. The wound was then packed and a tracheal tube inserted. The operation took 50 minutes. No glandular structures were found enlarged.

Course.—The patient made a speedy recovery and was walking about the hospital in three days. Owing to the separation of the thyroid attachments there was so much narrowing that it became necessary for the patient to wear the tracheal tube permanently. Four months after the operation the patient complained of difficulty in swallowing, and for two weeks this continued with more or less severity, forming

a large swelling in the neck. From the amount of involvement of this secondary invasion, I was satisfied that removal was out of the question.

Recurrence was hardly expected so soon after operation. No glands were felt nor was there any indication that the disease had gone beyond a limited area. There had been up to this time a few cases recorded of successful treatment of carcinoma by the Roentgen rays. I therefore recommend that treatment, telling her at the same time that further operation was worse than useless. She went to the Buffalo General Hospital and there received treatment every other day. After the eleventh treatment I saw her again, and the growth had entirely disappeared, the parts looking normal. She had in all 16 treatments, and now, May 1, so far as outward appearances go, is entirely well.

DISCUSSION.

DR. B. R. SHURLY, Detroit—In looking over the literature of this condition throughout the world, I find that some observers report a 1 per cent. difficulty in removing the tube. While the tube is ordinarily removed in four days, we sometimes find it necessary to retain the tubes in place as long as a year. There are two cases in the Willard Parker Hospital now wearing the tubes more than a year. The etiology must be explained largely from the standpoint of traumatism. We have through traumatic conditions, which are frequent, an ulceration in the subglottic tissue due to the pressure of the tube in that region, or an ulceration in the anterior tracheal wall in the region of the lower border of the tube, or along the epiglottis at the head of the tube. A method of extraction which I find obviates much of the difficulty is the application of astringents to the intubation tube before again introducing it into the larynx. The spasmodic condition is due to an irritation of the laryngeal nerve endings, and we have frequent intubations and extubations with consequent injury. By applying ichthyol around the tube, alum gelatin or ointment the tube may be removed with comparatively little difficulty. This opens up a wide field for the treatment of the larynx in these conditions. We can use ichthyol, alum, argyrol, nitrate of silver, protargol, or suprarenal extract. An anodyne should be administered a half hour before extubation, thus keeping the child at perfect rest, and there will be comparative ease in removing the tubes. Ordinarily tracheotomy should not be performed. As O'Dwyer stated in a paper written shortly before his death, a condition of subglottic stenosis is almost certain to occur.

DR. D. A. KUYK, Richmond—I wish to report a case that shows how possible it is to make an error, especially without the desirable apparatus. I was called to see a woman who said that she had swallowed a set of artificial teeth. She had swallowed nothing for several days, was pale and nervous and had slept neither day nor night. At that time, ten years ago, we did not have the x-ray apparatus. I used an esophageal tube to ascertain the location of the foreign body. The esophageal bougie passed on down to the stomach without difficulty. I assured her that there was nothing in the esophagus, and that there was nothing but fear and fright. It was a case of autosuggestion about which Dr. Loeb will tell us. Afterward we found the teeth beneath the refrigerator, and in a few days the woman had entirely recovered.

DR. OTTO T. FREER, Chicago—The choice of esophagotomy for removal of the foreign body mentioned was, I think, a wise one. If a substance with sharp, jagged edges has been impacted for some time in the esophagus, extraction by the natural passages becomes hazardous, as it is impossible to tell how much damage has been done by ulceration or even by perforation of the esophageal walls by the pressure of the pointed prominences of the foreign body. Attempted removal through the mouth is apt to tear or perforate the ulcerated and softened esophageal wall with consequent peri-esophagitis, deep phlegmon of the neck, dangerous hemorrhages and mediastinitis. The patient encounters less risk in these cases from external esophagotomy, which does no violence to the esophagus and provides free drainage for peri-esophageal septic processes.

DR. GEORGE F. CORT, Buffalo, N. Y.—These stenotic conditions after diphtheria are almost always due to traumatism. There

may be some exception in constitutionally weak children, when the tube presses on the muscles forming the vocal cords so much that they suffer collapse and sudden death follows, as I have seen in perhaps a half dozen cases. The percentage of stenosis is no doubt as high as Dr. Shurly mentions, but the percentage of these extreme cases is very minute. I have had a patient in whom granulation tissue formed almost throughout the trachea. A boy aged 2½ years at first had worn a tube suitable to his age, but having coughed up successive tubes, by the end of four weeks he was wearing one for a seven-year child. The trachea was then opened, and intubation practiced intermittently. The trachea was opened radically several times by Dr. Roswell Park at the General Hospital, but reproduction rapidly followed and tracheotomy had always to be resorted to. At the age of 10, seven and one-half years after the first intubation, he coughed up the tracheal tube and suffocated before aid could be rendered. These are the only really severe chronic stenoses I have met in 108 intubations.

TRIPLE MAJOR AMPUTATION WITHOUT LIGATION OF THE BLOOD VESSELS.

WILLIAM B. PATTON, M.D.

SPRINGFIELD, OHIO.

The following unusual case has proved interesting to the local profession and may therefore be of general interest:

M. B., aged 8, was run over by the steam cars, Sept. 16, 1903. He was taken to the Mitchell Thomas (City) Hospital, where Dr. F. P. Anzinger and I examined him. The right hand was crushed and the arm was hanging by the skin three inches above the wrist; the right foot was crushed to the ankle; the left foot was hanging by shreds three inches above the ankle. There was also a laceration of the scalp as well as a number of contusions on the back and thighs. There was no evidence of any considerable loss of blood and the boy suffered comparatively little from shock. Dr. Anzinger amputated the right leg while I removed the left. To secure sufficient flaps it was necessary to reamputate each limb far enough above the point of the injury so that the vessels could not have escaped being cut. After completing the flaps, we each proceeded to look for the blood vessels. The larger vessels not being in evidence the tourniquets were slowly removed, but there was no hemorrhage. After searching for some time for the vessels we covered the stumps and proceeded with the arm. Here we found and ligated two small superficial spurs, but neither the radial nor ulnar arteries were found. We completed the dressing of the arm, suturing the flaps and again examined the legs, but found neither hemorrhage nor signs of pulsating vessels. We packed the stumps without suturing the flaps and put the patient in bed. Forty hours later we removed the dressings and found no more oozing than is usually found in such cases, if as much. We sutured the flaps on the legs at this time. There has never been a sign of hemorrhage. All the flaps became infected, but have healed nicely by granulation. Two large abscesses formed on the patient's back and one on his thigh at sites of contusion. Barring these complications, he has made an uninterrupted recovery and is now sitting up in a wheel chair apparently in good health.

New Instruments.

A COMBINED GASTROSCOPE AND GYROMELE FOR DIAGNOSTIC AND THERAPEUTIC PURPOSES.

FENTON B. TURCK, M.D.

CHICAGO.

Gastrosocopy is used to determine the condition of the mucous membrane of the stomach by inspection. For this purpose a stiff tube is used with an electric light at the end and a reflector to carry the image to the eye through a system of lenses within the tube.