labio-gingival fold and the periosteum raised over the swelling. The surface of the tumour was smooth and gradually shaded off into the maxilla, so that it was impossible to say which was tumour and which maxilla. Considerable portions were chiselled away and presented the appearance of rapidly growing bone. Microscopic sections show a condition of chronic osteitis with considerable rarefaction.

? Malignant Ulceration of Hard Palate.—W. M. Mollison.—Male, aged seventy-one. He has noticed a small lump under the left side of the tongue for some twelve months; it has slowly increased in size and is painless, though bleeding now and then. There is a hard, movable mass under the tongue on the left side scarcely painful to touch; not ulcerated. The tongue can be well protruded. There is superficial ulceration on the right side of the hard palate extending on to the posterior extremity of the alveolus; the palate is freely movable. There is a single hard gland beneath the angle of the jaw on the right side.

Mr. H. J. Davis said epithelioma of the palate often began in this way. One instance was shown at the Section three and a half years ago. Some thought it was herpes and others that it was lupus. He first thought it was lupus, and then tuberculosis, but the patient developed later a fungating mass which was malignant.

The President said Mr. Charters Symonds had drawn attention to the point mentioned by Mr. H. J. Davis.

Dr. Kelson was struck by the resemblance of the case to Mr. Lack's, sections of which proved to be papilloma. He suspected the present case was malignant, but possibly it might be papilloma.

Mr. Mollison said that he recently saw a man with a superficial ulcer on his soft palate, creeping into the right tonsillar fossa. There was a strong tubercular history—almost all his relatives had died from it. The ulcer was superficial and movable. He removed the growth, thinking it was a localised tuberculous ulcer; section, however, showed it to be epithelioma. With regard to his case he replied that he took the ulceration on the palate to be syphilitic, and thought the mass under the tongue was a chronic inflammatory condition becoming epitheliomatous.

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(*Continued from vol. xxviii, p.* 605.)

The Surgical Management of Diseases of the Frontal Sinus.—Robert Cunningham Myles (New York City).—The following rules for the surgical management of the diseases of the frontal sinus were proposed:

(1) When the acute cases have unbearable, severe and continuous pain in the sinus and above the eyes, attended with profound constitutional symptoms—fever, chills, and depression—one should proceed in a definite manner to relieve the pressure, if necessary by doing a submucous operation on an obstructive deflected septum and by removal of the anterior end of the middle turbinal, a part of the anterior ethmoidal

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cells, and the nasal process of the superior maxillary bone. If this fails, a small incision in the skin above the inner canthus of the eye and a small opening in the bone should be made, a radical operation to follow a few weeks later if necessary.

(2) Chronic cases should be treated by the external operation where there is evidence of bone necrosis, either with or without perforation; for neoplasms, especially of malignant nature; for meningeal symptoms which are probably due to sinus disease; for continued attacks of severe pain and discharge mixed with pus and decaying *débris*, and to satisfy patients who demand relief from recurring attacks of frontal sinusitis after failure to obtain relief by the internal operation.

The Killian operation, combined with the removal of the anterior ethmoidal cells and nasal process of the superior maxillary bone, has proved to be a most satisfactory method in cases of large sinuses. The drain-way into the nose from the space where the sinus has been should be kept open by tubes until the open space under the bridge has become obliterated. Compression over the sinus will aid materially in hastening the healing. The use of the artificial blood-clot, either combined with paraffin or not, will decidedly relieve many of the objectionable deformities.

The Surgical Management of Diseases of the Frontal Sinus.—Lewis A. Coffin (New York City).—Comparatively less extra-nasal operating is being done than at any time since this procedure came into vogue. This is partly because of having reached a better understanding of the disease of the frontal sinus, and of its relation to the diseases of the other sinuses, and partly because of having developed a better intra-nasal technic. There are, however, many cases of frontal and ethmoidal disease which demand extra-nasal attack.

The indications for extra-nasal attack upon the frontal sinus are stated as follows:

(1) Those apparently acute and fulminating cases which present symptoms of extreme pressure together with marked toxicity.

(2) Those cases which, less urgent than the first class, do not recover under intra-nasal treatment.

(3) Those chronic cases in which the membrane has become practically devitalised to the extent of at least being beyond repair.

(4) Children under the age of twelve years. The frontal sinus is seldom much developed at that age, may become diseased, and is best operated extra-nasally.

(5) Any case in which it is known or believed that the bony walls of the sinus are diseased either primarily or secondarily to the disease of the lining membrane.

The straight Killian operation, in the author's opinion, gives the best results in operating extra-nasally upon the frontal sinus.

Dr. H. Holbrook Curtis had said, in 1902, all he had to say on the pathology of this subject. He recalled three cases in which he had operated by the external open method and treated by packing exactly as in the mastoid operation. These were the first cases of the kind presented before the Society. Since that time he had given up much of the external surgery which he then thought necessary. He had, however, done over two hundred intra-nasal frontal sinus operations, and in only two cases had he found it necessary to do an external operation after the internal. He did not allow his patients to progress to the point which necessitated external operation. He did not wish it to be understood that he con-

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sidered his operation as originally presented, the object of which was to obliterate the cavity, to be comparable to the operations of Killian or Knapp, which prevented the deformity.

Dr. THOMAS J. HARRIS: This symposium was included in the programme for the reason that it has been a number of years since the subject has been discussed before the Society, perhaps not since Killian was present. Since that time there has been a more or less complete change of view. The speaker did not see a single extra-nasal operation in Germany last year. There must be some reason for this. The point at issue is the treatment of empyema confined to the frontal sinus. Did the members of the Society, as representative American laryngologists, believe that any treatment, other than treatment of the nose, was required for nasal discharge with frontal sinus involvement? Were the failures the result of faulty technique on the part of the operator, or of imperfect drainage? Should every drop of pus be eliminated? There is a large group of cases that are not cured by the intra-nasal method; is it true that this is a matter of personal technique, or is it true that in these cases this method should not be undertaken? The operation is a success as performed by Halle, who, having got the probe into the fronto-nasal duct, always cuts anteriorly, never posteriorly. He uses a silver tube, whereas Ingals uses a gold tube. The position taken by Dr. Haskin with reference to the use of suction in the treatment of frontal sinus disease was deserving of emphasis. The method should be employed not only to relieve symptoms, but with the idea of effecting a cure without going into the sinus at all.

Dr. LEE M. HURD said the indications, as given by the readers of the papers, differ very little from those outlined by Killian and Coakley. Suction is one of the best means for the treatment of both acute and chronic cases. In the local treatment Beck's paste is one of the best measures known to him. It acts even more satisfactorily in the antrum and sphenoid than in the frontal sinus. He has maintained for years that 95 per cent. of cases can be cured through the nose. The remaining 5 per cent. should be promptly opened externally. During the past year he has had three failures from leaving some little cell not drained. He cited a case in which there was involvement of the ethmoidal but not of the frontal sinuses, in which he had operated five times and had used autogenous vaccines, stock vaccines, and phylacogen without success. After prolonged intranasal treatment, osteomyelitis, resulting in death, developed.

Dr. HANAU W. LOEB thought rhinologists had progressed from the period of operative work when the discovery of a single drop of pus was considered an indication for radical surgery, and when a little greyish area on one side of the frontal sinus in an X-ray plate called for radical interference.

Dr. WENDELL C. PHILLIPS emphasised the necessity for the extra-nasal operation in some instances by citing a case in point. He was called in consultation, about a year ago, to see a young man, aged twenty-two, whose family refused to permit operation without further opinion. When he reached the private hospital he found Dr. Coakley and another specialist ready to perform the external operation. The patient had a deflected septum, which almost occluded the nose on the side on which the frontal sinusitis was present. A few weeks previous an operation, supposedly a septal resection, had been performed, resulting in a small perforation but no relief of the deflection. It was impossible to see the middle turbinate. A few days after this operation an infection developed,

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which involved all the sinuses on that side. The eye deviated from that side, and other serious symptoms were present. This was a case in which an intra-nasal operation was impossible.

Dr. MYLES, in closing the discussion, thought the external operation had been taken too seriously. If, in certain acute cases under general anæsthesia, a small opening were made, and too much not attempted, the patient would recover in a brief space of time. He had seen cases from different sections of the country, some of whom have had as many as a dozen external operations without being free from discharge. It is important, in doing the intranasal operation, to leave part of the mucosa of the naso-frontal duct, the best results being obtainable when this is done. Care should be taken not to do too much probing during the healing process, as this stimulates the formation of granulation-tissue.

Dr. COFFIN, in closing the discussion, could not understand Dr. Curtis's remarks with reference to having said, in 1902, all that he had to say with reference to the subject. The Killian operation had not been developed at that time. He thought Dr. Curtis considered the Killian operation the method of choice. The speaker believed it to be absolutely wrong surgery not to go in and clean out everything that is necessary, if surgery is to be done. It is the operator's fault when these cases, if seen before serious complications have developed, do not do well. Cases operated upon during the past two years show better results than those operated before that time, which merely shows improvement in technique. He did not wish it to be understood that because he reported cases operated upon by the radical method he advocated this procedure in all cases. In extreme cases he believed in going in and cleaning out thoroughly, according to surgical principles.

Notes on Laryngeal Cases.—Walter F. Chappell (New York City).—Neoplasms, swellings, thickenings and ulcerations in the vicinity of the larynx present so many confusing manifestations that a definite diagnosis can usually be made only after the patient has been under observation for some time. Believing that cases which present difficulties of diagnosis are the most instructive, the author presented the interesting phases of a number of cases which had come under his observation. Of these several were malignant tumours of the cord, in which thyrotomy was performed. A case of "laryngeal snoring" completed the series. The last case concerned a man who for five years had been in the habit of snoring at night, making unusual noises. Three years ago his wife noticed that his breathing would become gradually slow and shallow, continuing so all night, with an occasional snort and blow, which brought temporary relief. After about a year all these symptoms became more exaggerated, the respirations became more laboured and shallow, and the face gradually became blue. After about an hour of this breathing the patient became completely cyanosed, stopped breathing, threw up his hands like a drowning man, and had a general muscular convulsion. When this took place there was a loud violent expulsion of air from the larynx and trachea, and respiration was re-established. The attacks became gradually more severe, until death from suffocation was feared. Examination revealed the fact that the larynx was high in the pharynx, and that the uvula and soft palate were normal in size, but hanging lower than usual. The mucous membrane of the uvula, soft palate and larynx was œdematous and covered with white creases. The trouble was caused by the dropping, during sleep, of the

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uvula and soft palate low into the pharynx, being sucked in and out of the larynx until complete occlusion was produced. A violent expiration then expelled the uvula from the larynx, and temporarily re-established respiration. The uvula was, therefore, removed, after which there has been no further trouble. Since encountering this case he had seen several similar, though less severe, cases.

Intra-nasal Treatment of Meckel's Ganglion.—Edgar M. Holmes (Boston, Mass.).—The treatment of the spheno-palatine, as well as that of the Gasserian ganglion, is almost always instituted for the relief of severe neuralgic pains. It consists of removing the ganglion by an operation which is necessarily extensive and associated with considerable danger, of injecting some drug into the substance of the gland, or of making application through the nose to the mucous membrane of the area of the ganglion. Two distinct classes of symptoms are considered in the paper: (1) True tic douloureux, the distinguishing diagnostic symptom of which is a paroxysmal intense burning, cutting pain, lasting from a few moments to a minute or more; (2) severe acute recurring hemicranias, chronic almost constant hemicranias, facial neuralgias, and deep boring suboccipital pains. From the forty-six cases reported much knowledge as to ætiology and prognosis from treatment was obtained. By the application of a strong solution of cocaine over the area of the spheno-palatine ganglion twelve cases were relieved temporarily, ten were later apparently cured by the alcoholic injection, and of thirty-four cases not relieved by cocaine only eight were cured, and six were more or less relieved by the alcoholic injections. In the majority of the cases there was little or no pain during or after the injection, and therefore there has been as a rule but slight shock following the treatment. One injection may give permanent relief, or may give relief for a short or a long period. A first injection may give relief for a few days, and a second may last for a few weeks, while a third may last for months, and perhaps for years. If no improvement follows after three injections the case may be considered hopeless so far as alcoholic injections are concerned.

In one of his forty-six cases alarming hæmorrhage began on the fifth day following the injection, and coming, so far as he could learn, from or near the area of the injection.

Before injecting Meckel's ganglion the nose and epipharynx should be carefully cleansed, and other surgical precautions for sepsis observed. A fresh sterile $\frac{1}{2}$ per cent. solution of cocaine, a fresh sterile 40 per cent. solution of cocaine, and a Meckel's ganglion syringe filled with a 5 per cent. carbolic alcoholic solution, should be at hand. After cocainising the lower fossæ of the nose with the weak solution the naso-pharyngoscope should be inserted into the side of the nose opposite the ganglion to be injected, and should be pointed toward the side of that ganglion. The position of the ganglion, which varies somewhat, is approximately under the area just at the end of the middle turbinate, and at this place are almost always two or three small blood-vessels seen emerging from the spheno-palatine fossa. A cotton-tipped applicator soaked in the 40 per cent. cocaine solution is now passed through the same side of the nose as the ganglion to be treated, and when the tip is over the area to be treated the applicator should be held firmly in place. The naso-pharyngoscope can now be removed and the applicator remain in place for five or six minutes. If the pain ceases or is relieved one is probably dealing

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with a diseased or excitable ganglion, and in this case the chance of relief or cure is greater than when the cocaine has no effect upon the symptoms. Some cases, however, are not relieved or cured by the alcoholic injection. The author believed, therefore, that one is justified in injecting all cases which are of the type suggesting ganglion disturbance. After a sufficient time has elapsed to thoroughly anæsthetise the area through which the naso-pharyngoscope is to be inserted it should be again passed into the opposite side and the spheno-palatine area brought into view. The Holmes Meckel's ganglion syringe or other suitable syringe should now be passed through the side of the nose corresponding to the ganglion to be treated. The cannula tip, with the needle concealed in it, is directed by the aid of the naso-pharyngoscope until it is in contact with the area into which the needle is to be thrust. It is pointed outward and somewhat upward. The cannula is now firmly held and the needle pushed through it to the desired depth, and the alcoholic solution injected. At the first injection two drops are used, the amount being increased a drop at the time at each subsequent injection.

The series of forty-six cases reported proves that in a certain number of these distressing conditions temporary relief can be given by applying a strong cocaine solution over the area of the spheno-palatine ganglion. In the cases thus relieved marked results may also be expected from the carbolic alcohol injections into the ganglion. Cases not relieved by the cocaine are not hopeless, for a few have been relieved by the alcoholic injections. The procedure is comparatively precise.

Dr. Hanau W. Loeb recalled how often pain was referred from other regions to this region; careful study of other regions from which this pain might originate was therefore necessary. It could not be doubted that sensory nerves may be put out of commission for a longer or shorter period by the injection of alcohol, as may likewise the spheno-palatine ganglion.

Dr. William E. Sauer had employed the method described in six cases, with good results in four, and with failure to find the ganglion in the other two. In one case the patient had been free from pain for two years, in one for one year, and in the others for shorter periods of time. In one case he made six attempts to find the ganglion, without success. In one the patient began to vomit immediately afterward, and continued to do so for six hours.

Dr. Joseph C. Beck had injected the spheno-palatine ganglion forty or fifty times, with very favourable results. He cited a case in which failure from injecting the spheno-palatine ganglion was complicated by failure to relieve the patient even after removal of the Gasserian ganglion. The man had had all his teeth removed. The supra-orbital and mental nerves were principally involved. His suffering was intense. Morphia had no effect. Dr. Beck injected the ganglion, and following this he did the Cushing operation, removing the Gasserian ganglion, which was hardened, sectioned, and demonstrated microscopically. It showed no pathological changes, however. This was followed by absence of sweating when pilocarpine was given on the operated side. He had severe pain in the tongue. The neurologist then said he had hysteria. Three weeks later the patient was found to be suffering from sarcoma at the base of the skull.

Dr. Holmes, in closing the discussion, emphasised the fact that in submitting the paper he was not attempting to present anything new, except the guidance of the syringe by the aid of the naso-pharyngoscope.

(*To be continued.*)

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