gitis; the distinction which he makes is as to the progression of the dyspnœa—the constancy is the best clinical distinction between the entity of subglottic laryngitis and the other forms just named. In subglottic laryngitis there is often that swelling beneath the cord, but when the condition is not at its worst the child breathes freely, especially in the daytime, and the attacks are paroxysmal. In the membranous form you cannot be so certain, because the membrane covers the subglottic portion, but on the wane and in the beginning I have seen the subglottic inflammation. The disease is by no means limited to children, even in those instances in which they may be taken for angio-neurotic œdema. I have seen several well-pronounced cases with fair voice and continuous dyspnœa in adults. I remember a woman who came to me with the history that she was subject to croup which would last about a week and she would feel that she must suffocate. She had been intubated on more than one occasion. The mirror showed a typical picture of subglottic laryngitis.

HENRY L. SWAIN: Thirty years ago, when I first yearned to look into a larynx, there were certain cases known as chorditis hypertrophica inferior; they went through acute exacerbations. Since then I have seen these cases in adults where they have the history of attacks of choking, I always thought them acute exacerbations for which there seemed no very good remedy. In two cases I remember using almost full strength nitrate of silver, and in one the galvanocautery, but I reduced the chronic hypertrophy only very slowly.

THOMAS HUBBARD: This condition is more common than is usually supposed. I have three cases in mind which I labelled subglottic œdema in children. Two were treated in the routine way, as though diphtheritic; the antitoxin made no difference, but in two cases in particular there was a copious flow of serum immediately upon the introduction of the tube, and there was such a quantity that there was no mistaking it. Diagnosis with the mirror I have also made, and I would take issue with the method of treatment as stated by Dr. Richardson. I think the proper line of treatment should be copious diaphoresis; if we could establish this when sure of the diagnosis, it is the best remedy. In one case where the diagnosis was made with the mirror, this treatment was very promptly successful.

CHARLES W. RICHARDSON: I wish first to endorse what Dr. Casselberry has said. He suggests passing the mirror into the pharynx and raising the epiglottis in order to get a rapid view. Although Dr. Hubbard thinks his treatment differs from mine, he agrees most thoroughly, because my method of treatment also produces diaphoresis.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

May, 1914.

(*Continued from p.* 447.)

Symposium: Aural Complications of the Exanthemata.

(*a*) *Ætiology, Diagnosis, and Treatment.*—CHARLES R. C. BORDEN (Boston): The present communication is practically a continuation of a

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paper, presented at the Ninth International Otological Congress, in Boston, in 1913, based upon a study of the aural conditions found in 454 autopsies after death from diphtheria, scarlet fever, and measles. Only aural complications of exanthemata are considered, and not aural diseases in general, and only severe cases, such as are seen in hospital practice, not the mild variety usually encountered in private practice.

Aural complications in the exanthemata occur in from 5 to 45 per cent. of clinical cases, as stated by different writers. In fatal cases this percentage was found to be greatly increased. In the autopsy reports upon which the paper is based the percentage in diphtheria was 82, in scarlet fever 94, and in measles 100 per cent. One would naturally expect unrecognised and untreated middle-ear inflammation or mastoiditis to go on to meningitis, brain abscess, and jugular thrombosis, but the autopsy records showed only four cases of septic meningitis (not necessarily of middle-ear origin), one case of infection of the jugular vein, and not a single case of brain abscess. Complications in the heart, pleura, joints, and kidneys, on the contrary, occurred with startling frequency. While it could not be held that all of these complications arise from middle-ear disease, a certain number are. Age is usually an important factor. Generally speaking, the younger the patient the greater the susceptibility to aural complications.

The symptomatology of the aural complications in the different exanthematous diseases is given in brief detail. The most striking variation between the three diseases—diphtheria, scarlet fever, and measles—is in the appearance and characteristics of the pus found in mastoiditis at autopsies in diphtheria. In scarlet fever and measles it is of the ordinary variety, and is usually copious in amount. In diphtheria it is repeatedly described as green, yellowish green, brownish green, or other colours bordering upon a greenish hue, and as being thick, tenacious, gummy, gelatinous, or semi-solid, etc. The marked peculiarity of the discharge may largely account for the lack of active symptoms which seem to be peculiar to aural complications of diphtheria.

As the infection in aural complications of contagious diseases reaches the middle ear by way of the Eustachian tube, and the nose and naso-pharynx are the seat of active inflammations, these would seem to be the structures to which preventive measures would be aimed, but experience and practice have proved otherwise. Irrigation of the nose and naso-pharynx, which was formerly so commonly practised, is now considered by the physicians and aurists at the Boston City Hospital to be absolutely contra-indicated, under any circumstances, and this includes all sprays and douches, as well as aural irrigations.

There is but one true method of preventing aural complications, viz., through the removal of adenoid tissue *before* the patient contracts a contagious disease.

Inasmuch as aural complications are usually well established before attention is called to them, the treatment is almost entirely surgical. In general it is the same in ordinary aural practice, with one or two exceptions. The important difference is the low vitality of the patient and the increased virulence of the infection. Nature is to be relied upon less in such cases than at other times. Middle-ear inflammation which might be aborted under other circumstances fails to respond to the usual mode of treatment in contagious diseases. The ordinary methods of treatment are not available. If the drum membrane is found to be red and inflamed, paracentesis is indicated. Hot irrigations seldom accomplish the desired results. Inflation of the middle ear and post-nasal applications not

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only avail nothing, but decidedly increase the inflammatory process. The inhalation of hot steam is a safe procedure, but usually fails to give relief. Free paracentesis is the only accepted method of procedure, and should not be delayed. Hot irrigations are advantageous. As the discharge becomes less in amount it is often better to discontinue the irrigations and to substitute warm peroxide.

The sudden cessation of a discharge that has been profuse should at once direct attention to the mastoid. Whenever the middle ear is suspected of being the primary source of infection in complications of a serious nature and free paracentesis has failed to control the aural inflammation, the mastoid should be opened at once.

Summing up the treatment of aural complications in exanthemata, two methods are efficacious, viz., hot irrigations and paracentesis.

Stanton A. Friedberg (Chicago). (By invitation.) In considering the ætiology of the aural complications arising during the course of the exanthemata, it may be broadly stated that their number and severity will depend upon the class of patients and the character of the epidemic. Other factors that must be taken in the light of predisposing and contributing causes are age, climate, season, physical condition of patient, condition of the upper respiratory tract, the specific infective disease, cross infections and systemic complications.

There can be no hard and fast rules established with reference to the diagnosis of the aural complications of exanthemata. In most cases conclusions in regard to the aural condition are reached in the same manner as in ear infection from other causes.

The treatment of aural complications naturally divides itself into preventive and curative. The preventive treatment aims at the alleviation of the accompanying nasal and pharyngeal conditions. Early treatment depends on the conditions present. Paracentesis and hot irrigations are advocated. The maintenance of drainage is important. In cases in which the aural discharge persists for several weeks, despite the most careful attention, consideration may be given (1) to the use of vaccines; (2) to the correction of conditions in the upper respiratory tract which contribute to a continuance of the infection; (3) to the mastoid operation to provide for better drainage from the antrum and middle-ear cavity.

The treatment of the more serious complications does not differ from that pursued in cases arising independent of infectious diseases.

In concluding the author emphasises the following points: (1) The closer co-operation between the attending physician and the aurist in private practice. (2) The necessity of competent aural surgeons being in attendance in contagious disease hospitals. (3) The isolation of patients in these hospitals at least up to the period of convalescence, lessening the liability to cross infections. (4) The necessity of the closest attention to patients, which includes routine examination of the ears in at least the younger patients, and careful observation and treatment when symptoms of aural extension arise.

Dr. Henry O. Reik thought the matter might well be brought more closely to the attention of the general physician, and he hoped each author would take it upon himself to force it home to those who have charge of infectious disease hospitals. Dr. Friedberg had called attention to the importance of this in referring to the frequency which aural infection takes place in infectious diseases. Dr. Reik had recently observed, in one large hospital in which 400 beds were allotted to diphtheria and scarlet fever, that practically no attention was paid to the

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middle ear. Tympanotomy was rarely performed, and the ears rarely examined; the attendant waiting until the child complained of pain. Practically one third of all the cases had spontaneous perforation and otorrhœa, and a large percentage of these went out of the hospital with discharging ears. The number of complications which resulted could not be estimated in figures. In a similar hospital in Baltimore the same conditions pertained in 1912. With the advent of a new superintendent in 1913 the situation was changed. An otoscopic examination was made in every case admitted, and examinations daily after admission—one in the morning, one at four o'clock, and one at night. Thirty-seven patients had developed some indication of otitis media. The examiner was very keen to observe this condition, and if there were any doubt as to the need of paracentesis he would operate. Each one of the thirty-seven had tympanotomy, and each child was dismissed with dry ears. In 191 cases of scarlet fever every patient went out without otorrhœa. That showed what could be done with careful observation and examination. Dr. Borden referred to mastoiditis without tenderness. The speaker called attention, in this connection, to the fact that there is an instrument for measuring the presence and amount of tenderness, or rather, the amount of pressure necessary to elicit tenderness, which is much more accurate than measuring it with the thumb and finger. The algesiometer was a very simple device, consisting of a rod working in a cylinder, with a spring arrangement for measuring grams of pressure. This apparatus could be placed directly over the antrum or over the tip cells. With this instrument it was often possible to elicit tenderness which the thumb and finger would not detect.

Joseph C. Beck said that every large hospital should have a contagious ward, in charge of physicians and nurses specifically trained for these diseases. Attending physicians should be called only when absolutely necessary. Another point to which he wished to refer was the matter of operating upon the nasopharynx and tonsils while the patient is still in the hospital. He had seen a large group of cases operated upon with excellent results, particularly with reference to recovery from the nephritis which is going on without typical findings in the urine or other manifestations elsewhere in the body. In a large hospital where operations could be performed under the most advantageous circumstances, especially with reference to the anæsthetic, very satisfactory results could be obtained. He thought the open method of anæsthesia a distinct advance. With reference to *post-mortem* changes in the ear, Bezold's latest statistics showed that these changes are *post-mortem* unless the autopsy is very promptly made.

William B. Chamberlin (Cleveland) mentioned a case of aural complications of scarlet fever which had come under his observation during the winter. The patient was a man, aged thirty-five, whose drum membrane had ruptured spontaneously without premonitory symptoms. He was still in bed, the scarlet fever infection having almost spent itself. There was still a profuse discharge from the ear, but no signs of mastoiditis. One morning the nurse noticed a swelling behind the ear. He operated, finding the most extensive mastoid process he had ever seen and every cell filled with pus and granulation tissue. He called attention to the value of the X ray in making a diagnosis in the class of cases under discussion. Dr. Ingersoll and he, at the Lakeside Hospital, had X-ray examinations made in all cases. In chronic cases he did not rely so much upon it, but in acute cases it was of the greatest value. In questionable cases he thought the simple mastoid operation would do no harm if there proved

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to be no mastoid involvement. It was attended with little danger. Should there be mastoid involvement, failure to operate would do great harm.

A. P. Voislawsky (New York City), asked if the essayists were able to stop the aural discharge. He had had a great deal of trouble in having to keep children week after week on account of his inability to check the otorrhœa.

George M. Coates (Philadelphia) referred to the value of vaccine therapy in the management of the conditions under discussion. He called attention to a report of McKernon, made to the Society in 1910, in which he stated that by the use of autogenous vaccines in cases of mastoiditis following measles and scarlet fever upon which he had operated, the time for wound healing, which is usually much prolonged in these cases, was reduced to the normal. A report of Weston and Kolmer, in 1911, shows the results of 100 cases of suppurative otitis media (scarlatinal) treated with autogenous vaccines. Their work was done in the Philadelphia Hospital for Contagious Diseases. Under old methods of treatment, according to the histories of many hundreds of cases, it was found that the percentage of dry ears obtained under thirty days was only 7·46. With the use of bacterins this was increased to 22·9, which is a considerable gain and a fair index of the value of bacterins in this class of cases. Undoubtedly more dependence will be placed on this method in the future.

Dr. Dunbar Roy (Atlanta) agreed with Dr. Borden with reference to the irrigation of the nasal chambers in exanthematous conditions, believing that it produced more irritation and gave rise to more possibility of infection of the middle ear than if it was omitted. In the later stages, when the discharge was very thick and muco-purulent secretion came from the nasal sinuses, it was sometimes pitiful to see young children trying to get air through the nasal passages. So long as the secretion existed it rendered them more liable to infection of the middle ear. In such cases he used a small rubber tube with a bulb at one end. By inserting the free end of the tube into the nasal passage of one side and blowing air through it, he had found it possible to blow through the opposite side large quantities of secretion. The secretion was thus prevented from going up into the Eustachian tube. The child was rendered much more comfortable by clearing out the nasal chambers in this way.

H. Holbrook Curtis thought it would be better to suck the secretion out than to blow it up in the manner described by Dr. Roy.

Dr. Talbot R. Chambers (Jersey City) spoke favourably of the Yankauer nasal speculum, through which he had relieved the discharge in a number of cases of Eustachian catarrh, by means of iodine applications.

Norval H. Pierce emphasised the importance of early paracentesis. It was absolutely necessary to resort to paracentesis early in order to prevent mastoid bone complications. If one remembered the anatomy of the regions involved—the aditus, the cavum, the pneumatic spaces, all communicating by minute tubes with the antrum, it would be easy to see that paracentesis can prevent involvement of the mastoid bone only when done early. At the very inception of otitis media the infection spread immediately down these tubes, and unless the paracentesis be done at a point in the course of the disease before the mucosa of the tubes swells one would be unable to draw off the infectious material by capillary drain or otherwise, and it would dam up in the pneumatic spaces. The muco-periosteum, as was well known, has the power of swelling enormously; no other tissue in the body having this power to an equal extent,

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nor of exercising it so suddenly. In twenty-four hours it could swell sufficiently to fill a large pneumatic space. Paracentesis, therefore, did most good when performed early. It was the retention of discharge and the swelling of the muco-periosteum that produced decalcification of the bone and consequent mastoid involvement.

THOMAS J. HARRIS thought this symposium one of the most important which had come before the Society in many years. He regretted that the general practitioner could not have joined in the discussion. He asked the essayists, in closing the discussion, to speak particularly of the prevention of the complete destruction of hearing following the exanthemata. Milligan, of Manchester, had advocated the mastoid operation of post-auricular drainage in these cases.

FRANCIS P. EMERSON advocated frequent inspection, and, if in doubt, incison of the drum. He cited a case in which the patient, when first seen, had no other symptom than fever. He decided to wait, and four hours later the drum ruptured spontaneously.

Dr. FRIEDBERG, in closing the discussion, maintained that the majority of acute otitis cases would recover if properly handled. The result depended largely, as Dr. Borden had said, upon the virulence of the infection and the vitality of the patient, but ordinarily the percentage of recoveries was large. In the series reported there were two cases out of thirty-five dismissed from the hospital with discharging ears. This showed what could be done by proper attention.

The Exploratory Opening of the Sphenoidal Sinus.—Charles Prevost Grayson (Philadelphia).—By this exploratory opening is meant one that can be made so extemporaneously, with so little discomfort to the patient, so little derangement of his ordinary pursuits, that it may be employed for merely exploratory or diagnostic purposes. The artificial opening advocated is made on the anterior wall of the sphenoidal sinus, at a point as close as possible to the angle of junction of its floor with its internal wall. As regards the safety and facility with which it is made, this opening is on a par with the puncture of the nasal wall of the antrum beneath the inferior turbinate, or with the simple enlargement of the ostium frontale by means of the rasp or other instrument. This opening can be utilised for both exploratory and therapeutic purposes, and it has the advantage of not involving either the destruction or the crippling of any of the functionally valuable intranasal structures.

The technique of the operation is as follows: The inner or nasal portion of the anterior surface of the sphenoid body is exposed as widely as possible by shrinking the turbinates with one of the adrenal preparations. The field of operation is anæsthetised with cocain and then rendered ischemic by the adrenal solution. When this has been done, the course of the spheno-palatine artery is usually so distinctly visible that it can be readily avoided. The application of a dilute tincture of iodine will be sufficient for purposes of sterilisation. The instrument with which the sinus wall is perforated is a straight drill, tipped with a conical burr 6 mm. in length and measuring 2–12 mm. from its point to its greatest diameter. The drill is applied 2 or 3 mm. above the line which divides the anterior from the inferior surface of the sphenoid body and close to the attachment of the ethmoid plate in the middle line. The opening it makes is 2 mm. in diameter, which is quite sufficient to permit the escape of any fluid within the sinus, the introduction of an appropriate irrigation cannula, or, should it seem advisable, the distal jaw of a biting forceps with which the opening may be enlarged. If the explora-

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tion of the sinus proves to be pathologically negative, the breach will close within twenty-four hours.

In closing, the author reiterated that his object in exploiting this method of investigating the sphenoidal sinus is, in the first place, to dislodge the idea that the ostium sphenoidale should always be the starting-point for any operation upon the sinus; to lessen, if successful in this, the frequency with which the middle turbinate is unnecessarily removed, or, in other words, to substitute for a somewhat formidable and tissue-destroying operation one that is technically simple and unattended by any loss of functionally useful tissue; to lessen, also, the hesitation with which some thoroughly qualified men contemplate the surgical invasion of this sinus.

H. Holbrook Curtis defended the usual operation of opening the sinus through the natural orifice, for the reason that the frequent excursions of the cell described by Sieur and Jacob, impinging on both the sphenoidal and antral walls, might, by injury, lead to an infection, and because the cell overhung the spheno-palatine fissure and ganglion, these structures, as well as the optic and superior maxillary nerves, might be injured in case Sieur's cell was entered by accident and infected. Dr. Curtis then went into the question of opening the inferior face of the sinus, which Dr. Grayson explained he had not advocated, and the remarks were withdrawn.

Ross Hall Skillern was not in accord with the essayist as to the indications for, or the method of opening the sphenoid. Unless purulent secretion were present in the spheno-ethmoidal fissure in frank cases, or the typical pressure symptoms were present in the closed and latent type, he did not perceive the indication for exploratory opening. As to the method, he preferred the one which is constantly under control of the eye. This was nearly always possible in the presence of disease, for it was a well-known fact that a diseased sinus is always easier to sound than a healthy one, this being due to the enlargement of the drainage passages by the constantly outflowing of secretion. In his experience this was peculiarly adaptable to the sphenoid. Under these circumstances, after the sound had found the ostium and has penetrated into the sinus, it was a simple matter to introduce a small Hajek curette or an evulsor and to make a comparatively large opening in the anterior wall and at its thinnest part. All danger of penetrating the cribiform plate or completely missing the sinus was obviated. would seem that this is really the safest and sanest method of approaching this cavity for diagnostic and therapeutic purposes.

Frank R. Spencer (Boulder) said one could easily use the Andrews' probe to find the opening. It was perfectly justifiable to remove the posterior half or one-third of the middle turbinate in order to expose the sphenoid cavity. The thin anterior wall could be broken down and an opening gained which would be large enough for therapeutic purposes. That could be done with cocain anæsthesia in simple cases.

John O. Roe said: It is not difficult to find the natural opening of the sphenoidal sinus, although I think Dr. Skillern has located it somewhat lower than I have generally found it. My own method of locating the opening is to pass the probe along the lower border of the middle turbinate, using it as a guide, then, by turning the end of the probe slightly upward, the sphenoidal opening is readily entered. In some cases the opening can be seen by anterior rhinoscopy when the middle turbinate is small. When the opening has been found, the cavity can be explored in every direction and any abnormalities dealt with as conditions

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indicate. Since suppurative conditions are those most commonly found in these cases, free drainage of the cavity, as pointed out by Dr. Grayson, is of the utmost importance. This I have established most easily by taking away the lower wall with forceps cutting downward in an antero-posterior direction. In the removal of this bone, however, I have not often found it so slender and fragile as Dr. Grayson has indicated, but, on the contrary, usually quite hard and dense, sometimes requiring the use of the chisel. I might relate, in this connection, that a few years ago there came under my observation an exceedingly interesting case of tic douloureux, due to a myxomatous growth, occupying the entire cavity of the sinus, and on removal of this growth the tic douloureux subsided. When we consider the great anatomical variations in different skulls, in no case would I attempt to drill or chisel an opening into the sphenoid sinus without first having found the natural opening to serve as a guide for the operation.

Talbot R. Chambers (Jersey City) thought it better to start with the natural opening, enlarging it as much as necessary, rather than to make a second opening.

Dr. Grayson, in reply, could only repeat that in his opinion the chief objection to the usual method of opening the sphenoid sinus was that it was begun in what was a region of risk instead of being cautiously ended there. He thought it better from every possible point of view to begin the operation at the point he had designated. Anyone familiar with the normal anatomy of the sinus, as well as with its occasional abnormalities, must admit that this is the safest locality, not only at which to enter it, but from which to begin the removal of its anterior wall. The terms thick and thin which had been applied to this wall were purely relative, and when one spoke of its lower being thicker than its upper portion it meant no more than a difference of one or two millimeters, which was certainly of no surgical consequence whatever. It was scarcely conceivable that anyone with the delicacy of touch that the rhinologist should possess could inflict any injury through this operation. Its greatest merit, in fact, lay in its freedom from any unnecessary or concomitant injury. The opening was made under the direct inspection of the eye, and there was no flow of blood to obscure the field of operation. In the large majority of cases it was necessary to remove no more than the inner portion of the anterior wall, and he had yet to hear a single good reason for continuing the ablation of the middle turbinate in order that we might begin our sphenoid operation at its awkwardly and comparatively dangerously placed ostium.

A New Technique for the Removal of Intrinsic Growths of the Larynx.—Robert Clyde Lynch (New Orleans).—As perfect quiet is of the greatest necessity, the author insists on his patients being kept continuously in the surgical stage of anæsthesia, securing perfect relaxation of the parts, conducing to the most accurate work. Having obtained a perfect view of the larynx (using his modification of the Killian and Albrecht suspension apparatus), with that organ and its owner quiet, he proceeds as follows: In vocal nodules the affected cord is picked up gently, turned to nearly an angle of 45 degrees, in order that the under surface may be seen. The Killian baby forceps and Killian baby double cup forceps are used according to the size of the nodules. If the growth occupies the superior surface and is seen to involve mainly the sub-epithelial structures, the surface layer is split with the knife and the small tumour picked out with appropriate forceps. The surface membrane

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is reapplied and the wound dressed with tincture of benzoin compound and collodion. In single pedunculated tumours the tumour is picked up with the forceps, encircling the base with a wedge-shaped incision, removing it by clear dissection with a knife. Single papillomata are grasped with forceps and shaved off below the level from which they spring. In the case of multiple papillomata the mass is grasped with Killian baby forceps and the entire area clearly dissected. Lest some small portion might be left behind, the whole surface is gently curetted, including the sub-glottic area.

Intrinsic epithelioma of the larynx is removed completely, by dissection through the mouth, the tumour being delivered in one mass upon a cartilaginous plate. A case cited by the author was the first on record, so far as he knew. The diagnosis and the fact of complete removal were verified by the microscope. By this method the tumour is removed in one mass without itself being disturbed by instrumentation or manipulation, which is the accepted surgery of malignant growths, thus diminishing the danger of recurrence.

The Proper Fields of Medicine and Surgery in Diseases of the Upper Air-Passages—John A. Thompson (Cincinnati).—One half of all the diseases of the upper air-passages are curable by medicinal means alone. An intelligent use of known methods in medicine will often prevent complications that make operation necessary. The common diseases of the nose and throat are easily separated for treatment into three classes: First, those the treatment of which is purely surgical, such as deformities, deflections of the septum nasi, chronic sinusitis, all tumours, benign or malignant, adenoids, hypertrophied tonsils, quinsy, retropharyngeal abscess, foreign bodies, hæmorrhage, and stenosis of the larynx. In some of these preliminary treatment makes the operation easier and the recovery surer.

The second class includes diseases where combined medical and surgical treatment is necessary. The most important, because the most frequent, disease of this class is hypertrophic rhinitis. After removal of the newly-formed connective tissue in the turbinates, an analgesic germicide that will at the same time relieve congestion, is indicated. Menthol meets these requirements. Camphor is similar to menthol in its local action, and can be advantageously combined with it.

Other conditions which require combined treatment are tertiary syphilitic ulcer, chronic granular pharyngitis, and œdema of the glottis.

The third class is chiefly represented by acute rhinitis. Other conditions which may be treated by medicinal measures alone are acute catarrhal sinusitis that often accompanies acute rhinitis, acute laryngitis, simple chronic rhinitis, chronic purulent rhinitis, atrophic rhinitis, chronic laryngitis, chronic tracheitis, and chronic bronchitis.

The treatment ordered to abort an acute attack, with variations to suit the individual, is first a sweat, however procured. To open the nose blocked by the swelling, a solution of adrenalin may be used every three hours. A saturated solution of boric acid may be advantageously employed to dilute the adrenalin. Where the patient is seen in the second stage of the disease and the serous discharge from the nose is annoying, a spray containing 1 gr. of atropin to 2 oz. liquid of petroleum is very effective.

Two cases of Vincent's angina successfully treated with salvarsan in glycerine were cited.

Emphasis was laid upon the utilisation of simple means, by which

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much can often be accomplished in various affections of the upper air-passages.

[A paper by Dr. Beck read at this point has failed to reach us.—Ed. Journ. of Larngol., Rhinol., and Otol.]

Joseph H. Abraham (New York City), with reference to Vincent's angina, wished to present a remedy which he had used in four cases of verified Vincent's angina. It consisted of pure carbolic acid, fused, and applied, upon a cotton-tipped applicator, to the ulcerating surfaces. Two applications were made a day—one when the patient came in in the morning, and the other in the afternoon. The acid was allowed to remain in contact with the tissues from two to five minutes, and then neutralised with pure alcohol. The patient was given a simple cleansing mouth wash to use at home. In three cases, when the patient was sent to the pathologist the next morning, no bacilli and no ulceration could be found. In the fourth case a few scattered organisms could be found in the tonsils and quite a number in an ulcerated tooth socket. He removed a root of a tooth, curetted in the cavity, and applied carbolic acid, and the next morning there was no culture. In each case the acid was used twice. Subsequent examination failed to reveal any bacteria, and the patient was dismissed with a cleansing wash.

Lee M. Hurd considered intra-tracheal injections of various medications with oil one of the best methods of treating these inflammations. Intra-tracheal injections were not employed as much as they should be. In Vincent's angina any acid would do—trichloracetic, strong nitric, or any acid or strong caustic. The spirillum would not be found the next day. In very severe cases salvarsan, as suggested, was good. The oily injections would relieve the chronic laryngitis, and was useful in chronic and acute inflammation of the trachea. Sweet oil or petroleum, about 2 drm., with some medication, injected into the trachea and bronchi had been found efficacious.

Talbot R. Chambers (Jersey City) referred to the theory of Sir W. Arbuthnot Lane, of London, concerning the use of petroleum. According to this theory, petroleum passes through the intestine and is not absorbed. Dr. Hurd advocates, in consonance with Dr. Thompson, the injection of 2 drm. into the bronchi; Dr. Chambers would like to know what becomes of that oil. If not absorbed, it would become a foreign body.

Dr. Hurd said the vaseline which he used was probably absorbed.

Theodore Corwin (Newark) thought the intra-tracheal injections most valuable. Patients could be taught to make the injections themselves, using a long dropper and injecting 15 or 20 minims two or three times within ten minutes and repeating this every half hour, or hour, so long as the cough was annoying. He used vaseline or other oil in combination with menthol, 1 or 2 per cent., camphor 1 per cent., or anything that might be desired. For office treatment the tracheal syringe was preferable, giving doses of 1 or 2 drm. It should be preceded by a downward spray of 2 per cent. menthol to render the larynx less sensitive to manipulation with the syringe.

Dr. Richards added that some years ago he used oils of one kind or another, and instructed his patients to use nebulisers. He had reached the conclusion that oils are nearly valueless. It was better to employ something corresponding as nearly as possible in specific gravity to that of the normal serum.

Dr. Thompson, in closing the discussion, said that when Dr. Harris

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sent out his circular letter asking for suggestions concerning this meeting, he thought it wise to have several papers concerning the treatment of the diseases of the upper air-passages. Dr. Beck agreed to discuss the scientific side, while he took the therapeutic side of the question. He had endeavoured to discuss the matter from the point of view of every-day practice. The most important point, and one which he would reiterate, was expressed in the opening sentence of his paper: "One half of all the diseases it is our daily work to treat, are curable by medicinal means alone."

(*To be continued.*)

Abstracts.

PHARYNX.

Richardson, Charles W.—Indiscriminate Tonsillectomies for Remote Infections. "The Laryngoscope," 1915, p. 293.

Richardson says that it has been thoroughly ingrained during the past decade that the tonsils are the portal of systemic infection. The small-sized, buried tonsils, we are told, are the greatest offenders. It has even been stated that no adult should possess tonsils, nor even the site from which the tonsils had been removed. Richardson thinks that it is incumbent upon us to consider some of the indications for tonsillectomy. Even the layman nowadays considers himself competent to judge of the advisability of operation, and frequently says he has come to have his tonsils removed.

Independent of the tonsils there are many points which may be the origin of general infection. Richardson mentions the accessory nasal cavities, the mastoid antrum, the teeth, gall-bladder, appendix, and seminal vesicles. The writer allows that it is permissible to remove hypertrophied tonsils or those which are the seat of chronic lacunar infections, or of follicular tonsillitis, or abscess formation; he even admits tonsils which are painful on swallowing or tender on pressure. What seems to Richardson objectionable, however, is the frequent removal of tonsils which show no macroscopic evidence of disease. That the possessor of this type of tonsil may be the subject of an infection that cannot be accounted for does not justify the removal of the tonsil. Numerous instances can be enumerated of acute and chronic rheumatism and rheumatoid arthritis where tonsillar enucleation has been followed by total failure to obtain relief. Some practitioners send patients with the statement that they have expressed pus from the tonsil, but in the great majority of cases Richardson fails to confirm their findings. On the other hand, he meets with many cases in which patients come to him in the hope of being relieved of the faucial dryness due to tonsillectomy. The article concludes with the report of several illustrative cases.

J. S. Fraser.

Figdor, P.—Pericarditis in Diphtheria. "Proceedings of Royal Society of Medicine, Section of Disease in Children," June, 1915, p. 89.

The author reports the case of a boy, aged three, who was admitted to hospital for laryngeal diphtheria. Tracheotomy was performed shortly after admission, with instant relief.

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