

Chronic Aural Catarrh.—With regard to this disease, Wilde (*op. cit.*, p. 254) says: "All the cases I have seen of this affection occurred in young men, and generally those of fair complexion and blue eyes, who had had primary sores upon the genitals from six to twelve months previously, which sores were rather of a deceptive character, so that mercury was seldom given, in the first instance at least, in a legitimate form. Sore throat, papular eruptions, copper-colored blotches, fissures and ulcers of tongue, with loss of strength and slight nocturnal pains, existed previous to the aural affections, which should, I think, be ranked as tertiary symptoms. In almost every case I have witnessed the disease appeared suddenly as an eruption was fading off: in two it came on at a later period and was accompanied by loss of hair; in most it appeared in the upper and middle ranks of life. In some cases there is at first a sensation of fullness in the head, and often vertigo upon stooping or rising up suddenly, but in no instance have I seen it accompanied by acute pain. Tinnitus is not always present." In all of the cases observed by Schwartze, except two, in which the patients positively stated that the disease began with lancinating pain, and in all seen by the writer of this article, the disease was insidious in its approach, and pain in the ear was absent throughout its course. Pain in the bones of the head was, however, occasionally complained of. Tinnitus was present in nearly all the cases, though it was not always very annoying.

As regards the appearance of the drum membrane Wilde says: "Upon inspection the amount of redness and vascularity will be found much greater than in subacute myringitis, and in this consists one of the chief characteristics of this disease, that while it is unaccompanied by local pain, the membrana tympani will be found to present an amount of redness equal to, and sometimes exceeding, that seen in acute myringitis.* The redness has generally, however, a brownish hue in the syphilitic form. There is not at first much loss of polish, but in a short time the membrane assumes a fuzzy appearance. Both ears are usually attacked at the same time." Schwartze (*op. cit.*, p. 264), Roosa, and most of the more recent writers on this subject, on the other hand, have been unable to find in the appearance of the drum membrane in this disease anything that could be regarded as pathognomonic of its syphilitic character. Pomeroy⁴¹ believes that it very frequently does not differ in appearance from that in non-syphilitic disease, but that signs of infiltration of the membrane, giving it a greater degree of opacity than would result from a non-specific inflammation, will cause one to suspect constitutional disease. In his opinion the most important aid, however, to diagnosis is the history. Sturgis (*Boston Med. and Surg. Journal*, June 3d, 1880) regards the infiltration of the tympanum, conjoined with the absence of vascular congestion, as characteristic of syphilitic catarrh of the middle ear.

The Eustachian tube is usually easily permeable, at least by the aid of the catheter. The sounds heard on auscultation are usually dry and broad, but sometimes moist râles are heard. The inflation rarely improves the hearing even for a short time, though it sometimes temporarily arrests the tinnitus. The lining membrane of the pharynx is nearly always hyperæmic, and very often superficial ulcers are found on the arches of the palate and the tonsils. The nose is usually not markedly diseased. The impairment of hearing, which is commonly already well advanced when the patient comes under treatment, in the majority of cases goes rapidly from bad to worse, so that in the course of a few months only loud speech can be heard close to the ear. In the remainder the progress is much slower, and instead of months years may pass before this state is reached. In a case seen by Schwartze a sudden and great increase in the hardness of hearing followed a blow on the head. In many of the

* Wilde applies the term myringitis to the disease now generally called acute catarrhal inflammation of the middle ear.

cases, even in persons under thirty years of age, an impairment or loss of bone conduction occurs at an early stage of the disease when the tick of the watch is still heard at some distance from the ear. In several of Schwartze's cases even the large tuning-fork C was heard indistinctly or very faintly when placed on the vertex.

Our knowledge of the pathological anatomy of syphilitic catarrhal inflammation is very imperfect, as it must be of all diseases which are not fatal. Moos³⁸ found in a case of deafness, supposed to have been due to syphilis, beside adhesive inflammation of the labyrinth and the deposit of chalky concretions on the membranous semicircular canals and sacs, inflammatory changes in the drum membrane, thickening of the pale mucous membrane of the middle ear, and ankylosis of the malleo-incudal joint and of the stapedio-vestibular articulation, all of which have been seen often enough in non-syphilitic cases. In Toynbee's case ("Catalogue of the Museum," No. 512), which occurred in a man about forty-eight years of age, the deafness began five years before death. Right ear: loud voice close to the ear. Left ear: total deafness. The deafness commenced while he had a severe ulceration of the fauces from syphilis. Post mortem: Right ear: ankylosis of the stapes; the articular surface of os Sylvii much flatter than usual; adhesion between the anvil and hammer; tensor tympani atrophic; membrane of round window thickened; cochlea of a deep-red color. Left ear: ankylosis of stirrup; thickening of membranous vestibule. Schwartze (*op. cit.*, p. 135) surmises that the pathological change in the syphilitic cases is a periostitis, and Roosa³⁹ thinks that this view is correct. The last-named author is also of the opinion that there may be also, in the course of the later periods of the disease, a syphilitic exudation into the tympanum and about the ossicles; and that it may be said, in general, that the syphilitic diathesis seems to cause a more rapid proliferation of tissue, and one that is less amenable to treatment. Kirchner⁴⁰ has had the opportunity of examining microscopically the mucous membrane of the promontory of a man, twenty-nine years of age, who four years before his death had had a primary sore and later an inflammation of his middle ear with amber-colored exudates in the tympanic cavity. At the autopsy a moderate amount of bloody serous exudation was found in the tympanic cavity and some congestion of the mucous membrane of the promontory. He found the mucous membrane somewhat thickened in some places and the walls of the blood-vessels and the tissues around them infiltrated with small cells. The calibre of some of the larger branches of the arteries was much narrowed by a syphilitic endarteritis, and some of the larger arteries were entirely obliterated by an inflammation of both the intima and the adventitia. In the periosteum corresponding to the most diseased places in the mucous membrane were found patches of newly formed bone, the result of a periostitis similar to that found in other bones. In the Haversian canal of the bone were seen patches of thickening together with an infiltration of small cells and heaps of pigment. In the bone itself were hollow places filled with detritus.

Woakes⁴¹ claims to have seen through the drum membrane a gummatous exudation in the tympanic cavity.

From what has been said with regard to the symptoms, it must be evident that there is none by which we can positively distinguish chronic catarrhal inflammation of the middle ear, due to syphilis, from that arising from other causes. The supervention of symptoms indicative of disease of some part of the acoustic nerve (impairment or loss of bone conduction, etc.) in the earlier stages of the disease, occurs unquestionably much more frequently in the syphilitic cases than in others, but is by no means a positive sign of the specific character of the disease. Such symptoms, when present, especially in young and middle-aged persons, should, however, arouse our suspicion as to the presence of syphilis, and lead us to make a very careful search for other symptoms of this disease. Only when such are found, or a clear history of constitu-

tional syphilis can be obtained, are we justified in making the diagnosis of syphilitic ear disease.

The prognosis of the syphilitic chronic middle-ear catarrh is, on the whole, even less favorable than that of the idiopathic form. Nearly every writer has met with some cases in which, under judicious local applications and a thorough course of antisyphilitic remedies, the hearing was improved and even restored. But such cases are, after all, according to the writer's experience, rarely encountered—outside of the books. To arrest the progress of the disease is about the most we can hope for.

In the treatment of this disease it will be found necessary, in addition to the usual remedial measures for the ordinary chronic catarrhal inflammation, to resort to constitutional remedies. In all cases in which no doubt exists as to the diagnosis, the patient should be brought rapidly under the influence of mercury by inunctions or injections under the skin, and this should be kept up for a considerable period. Iodide of potassium may be given at the same time. The muriate of pilocarpine, in doses of gr. $\frac{1}{2}$ to gr. $\frac{3}{4}$ administered hypodermically, once daily for several weeks, has been of some service in the hands of Politzer, Lucae, and others, in cases complicated with disease of the inner ear.

Purulent Inflammation.—Among the writers on otology much diversity of opinion has always existed as to the occurrence of a syphilitic purulent inflammation of the middle ear. Thus, Frank⁴² and Lincke⁴³ describe an otitis interna the result of lues. In this form, they say, the inflammation and ulceration extend from the throat and nose to the ear, are accompanied by great pain, and often terminate in suppuration of the middle ear, destruction of the tympanic membrane, and caries of the temporal bone. Wilde (*op. cit.*, p. 252), on the other hand, says that under certain circumstances such a disease may, no doubt, occur, although he himself has never seen such a case and has not met with a well-authenticated instance of it recorded. Kramer⁴⁴ doubts that syphilis can cause a specific disease of the ear, and adds that he has never in his own practice, or in that of others, observed such cases, and Erhard⁴⁵ is of the same opinion. Virchow⁴⁶ mentions, as the result of syphilis, primary purulent inflammation of the tympanic cavity; stricture of the Eustachian tube resulting from cicatricial closure of its pharyngeal mouth; and caries of the temporal bone. In the treatises on diseases of the ear of more recent date, but little can be found relating to this disease. Politzer (*op. cit.*, p. 330) devotes less than a page to it, and Gruber (*op. cit.*) merely mentions syphilis as one of the causes of otitis media purulenta. Pritchard,⁴⁷ in speaking of the affections of the middle ear caused by syphilis, says that they are of comparatively rare occurrence, and that in some cases suppurative catarrh is set up with perforation, etc. Pomeroy (*op. cit.*, p. 239) thinks that syphilis may interrupt the progress of the disease toward recovery, and Schwartze (*op. cit.*, p. 176) only says, with regard to this disease, that under the influence of constitutional syphilis the suppuration may become chronic. Troeltsch, Roosa, Burnett, and others make no mention of it whatever. It may also be stated here that the number of cases of this disease reported in the medical journals within the last twenty years is exceedingly small.

Of our present knowledge of this form of otitis media purulenta it cannot be said that it is much more definite than it was in Lincke's time. Schwartze has seen cases in which syphilitic disease of the fauces was absent, but most other writers, including the present, have found such an affection existing in nearly every case. The disease of the naso-pharyngeal cavity may be any one of the various manifestations of constitutional syphilis met with in this locality, or may be a primary chancre due to the accidental inoculation of this part during catheterization of the Eustachian tube. Fortunately such accidents have but very rarely occurred.

With regard to the symptomatology and course of the purulent otitis media, most authors are agreed that they do not differ essentially from the non-syphilitic form. Buck,¹⁵ while not disputing this statement with any great

degree of positiveness, owing to the scantiness of the material which has come under his observation, cannot help feeling that, with increased experience and a closer study of this particular class of cases, we shall in time learn to recognize in these parts textural lesions as distinctly characteristic of syphilis as are most of its external manifestations. In one of the cases reported by him (Case XII.), a second perforation developed in the drum membrane more than two months after the first, through a melting process similar to that observed so frequently in the velum palati, and he regards this occurrence as totally different from anything that he has ever observed in any case of non-syphilitic inflammation of the middle ear. Probably a similar melting away of a limited area of the drum membrane took place in another of his cases (Case XI.). In neither of these cases was there any evidence of pressure from within. In the first-mentioned case caries and facial paralysis were subsequently developed, while there was no evidence of interference with the free escape of the pus formed, and this Buck regards as certainly not in harmony with the ordinary course of non-syphilitic otitis media purulenta acuta. Politzer and others frequently noticed a high degree of deafness in these cases, caused by the frequent simultaneous occurrence of syphilitic disease of the labyrinth. Of the occasional occurrence of condylomata and ulcers in the external canal, in connection with this disease, mention was made in the first part of this article. In the cases observed by the present writer the symptoms were precisely those of the non-syphilitic form, and the course and termination of the disease differed in nowise from the other. Ulceration of the mucous membrane, with caries and necrosis of the walls of the tympanic cavity, the mastoid process, and the petrous portion, and facial paralysis, may, according to Politzer, occur under unfavorable circumstances or inappropriate treatment, and end fatally through some intracranial affection. Caries has been observed in this form probably no more frequently than in the non-syphilitic forms.

Fatal hemorrhage from erosion of the internal carotid artery, caused by caries of the canal of the vessel, has been observed in syphilitic, as well as in non-syphilitic, subjects. Thus we find in the nineteen cases of fatal hemorrhage collected by Hessler,⁴⁸ two in which syphilis was present. One of these cases (reported in full by Tüngle in the *Deutsche Klinik*, No. 23, p. 223) occurred in a patient suffering from tertiary syphilis. Two years after he had come under observation he had a sudden profuse hemorrhage from the left deaf ear, and four months later, after repeated hemorrhages, the patient died. An autopsy revealed a complete destruction of the interior of the petrous portion of the left temporal bone. The membrana tympani and ossicles were wanting. Of the other case (described by Pilz in his dissertation, "De Arterie Carotidis utriusque Ligatura," Berlin, 1865) it is only known that, after severe pain in the region of the right ear, without objective symptoms, a sudden and copious hemorrhage occurred from this ear; subsequently the blood was mixed with pus. The patient had syphilis, and a fistula on the posterior wall of the pharynx from which pus escaped. After repeated hemorrhages Billroth first ligated the right and then the left carotid. The patient died under symptoms of anæmia. The autopsy showed extensive caries of the lower wall of the carotid canal, exposing the vessel. The eroded spot in the artery measured 8 mm. in length and 6 mm. in breadth.

Metastatic irido-choroiditis of the eye on the same side as the purulent middle-ear disease, developed in a syphilitic subject, observed by the writer of this article.⁴⁹ In this case the ear disease was arrested and the hearing restored under general treatment alone.

As regards the *diagnosis*, the writer must confess that he knows of no aural symptoms by which the syphilitic form of this disease can be distinguished from the ordinary form. Woakes⁴¹ thinks that the caries due to syphilitic purulent inflammation of the middle ear frequently has this distinguishing feature: the caries is symmetrical,

that is, there is a corresponding lesion in both ears. In this disease, as in the diseases previously described, the presence of other symptoms of syphilis can alone decide the diagnosis.

Of the *pathological anatomy* of syphilitic suppuration of the middle ear we know but little. Quite recently Moos and Steinbrügge⁵⁰ have had the opportunity to examine both temporal bones of a case of tertiary syphilis. Moos first saw the patient fourteen years before his death. At that time the faucial orifices of the Eustachian tubes were closed by numerous thick, radiating, fibrous bands, so that the ventilation of the drum cavity must have been almost impossible; notwithstanding, there was no demonstrable deviation in the plane of the drum membrane, in the position of the handle of the hammer, or in the cone of light. Strange to say, the patient never complained of subjective noises nor of dizziness. Bone conduction was always sufficiently preserved to detect the loud tick of a watch and the tuning-fork; the capacity for hearing speech was, however, so much reduced that ordinary conversation was not heard beyond one metre. The patient remained under Moos' treatment for about two years, and then passed from under his observation till a week before his death. At this time he was examined by Steinbrügge, who found that he was now able to hear spoken words only in close proximity to the ears; a watch of twelve metres normal hearing distance was heard merely on contact in the right ear, and not at all in the left. Tuning-fork A' applied to the forehead was not perceived, applied to the teeth it was heard in the left ear. The otoscopic examination of the right ear revealed a cicatrix in the inferior posterior quadrant of the membrane; the external canal of the left ear contained pus, and there was a round, medium-sized perforation directly under the handle of the malleus. Post mortem, the following conditions were found: Syphilitic caries of the skull and hard palate. Chronic pneumonia. Amyloid degeneration of the spleen, kidneys, and liver. *Right temporal bone:* The greater part of the mastoid process was sclerosed. The mucous lining of the remaining cells was slightly injected. The Eustachian tube (a portion of the pharyngeal orifice was missing) was patent throughout. The tympanum contained a quantity of pus. The mucous membrane was thickened. The drum membrane was in an atrophic state. The bony roof of the labyrinth was hemorrhagically infiltrated. *Left temporal bone:* Greasy pus in external canal. Membrana tympani perforated. The mastoid process was sclerosed and of ivory-like hardness. The mucous membrane of the tympanum was very much thickened, and enveloped all structures contained therein. The cavity was filled with a secretion composed of pus cells and giant cells. The Eustachian tube (also here a portion of the pharyngeal orifice was wanting) was pervious. *Carotid artery and osseous portion of Eustachian tube:* There was no noticeable change in the outer and inner coats of the artery on either side, not even in the part where the bony partition between the artery and the Eustachian tube measured but 0.087 mm. in thickness. The mucous membrane of the Eustachian canal was normal, but the periosteum of the osseous portion in a medial direction was changed and thickened in a manner to be described below. *Periosteum and bones of middle and internal ear:* In the bony floor of the tympanum and below the cochlea, as well as in the roof of the tympanum, in the bone over the semicircular canals, and in the lateral wall of the osseous portion of the tube, were found markedly dilated medullary spaces, not only enclosing the usual normal contents, but also invariably filled—sometimes more, sometimes less—with larger or smaller groups of cells enclosing blood corpuscles, and also with a conglomeration of yellow or yellow-brownish pigment. Evidently we had to deal here with the products of a metamorphosis of blood extravasation, the result of rupture of the thin-walled vessels contained in the medullary spaces. In the anterior wall of the bony vestibule, and in the osseous tissue anterior and posterior to the second curve of the Fallopiian canal, were noticed

several spaces in the bone, varying in size up to 3 mm. in length and 2 mm. in width on the left side, and 2 mm. in length and 1½ mm. in width on the right side. A similar condition was observed in the bone tissue below the first turn of the cochlea on the right side. The cavity here was circular; its diameter measured 2 mm. The contents of these spaces clearly demonstrated two separate stages in the pathological process. In the early stage these spaces were filled with a fibrous network, which in several sections showed unmistakable connection with the periosteum of the labyrinthine wall. The meshes of this network were filled with vessels more or less numerous, and a small-celled infiltration. The condition demonstrating a later stage, however, mostly predominated. Here the meshes were filled with yellowish coagulated masses, composed to a limited extent of blood corpuscles and large round cells, and mainly of fat globules and fatty-degenerated cells stained black by the osmic acid. In addition, there were seen in many places, as indications of the earlier stage, the remains of fibres of this network in connection with the periosteum of the labyrinth mentioned above.

The condition of the periosteal covering of the promontory on both sides is worthy of special notice. Very much thickened, at places to 0.7 mm., the presence of numerous cavities imparted to it a cavernous appearance. The spaces were here and there lined with a low cylindrical epithelium, and in some places were filled with a tissue composed of fine fibres enclosing coagulated fibrin and fatty-degenerated cells. At first glance these spaces gave the impression of gland tissue; closer examination, however, proved them to be numerous circumscribed foci of inflammatory products undergoing retrogressive changes. The presence of smaller and larger portions of bone, cut off from the main bony mass of the promontory by strangulation of the proliferating periosteum, deserves additional notice. In some portions of the sections these spicula of bone were arranged in rows separated from each other by narrow bands of periosteal tissue. In other parts the proliferating periosteum produced deep indentations in the bone. The periosteum of the canalis pro tensore tympani and that lining the delicate canaliculi of the plexus tympanicus presented a similar pathological appearance.

In their comments on the above the authors say that, taking into account the fact that in their case they had to deal not with a fresh gummous neoplasm but with the later consequences of periosteal proliferation, the above-described changes in the periosteum with their consequences would show a close correspondence with the description given by Rindfleisch of syphiloma ossium. Several hemorrhagic extravasations were found in the perineurium of the tympanic plexus and these as well as the proliferation of the periosteum explained, they thought, the genesis of many of the so-called pure nervous otalgias occurring without objective signs of ear disease in the course of constitutional syphilis. They are also of the opinion that in cases of aural trouble without objective symptoms, occurring in syphilitic subjects, in which the functional examinations pointed to a peripheral disease of the ear, the diagnosis of periostitis of the labyrinthine wall might thereafter be made with a great degree of probability. The attacks of otalgia would serve as an adjunct in making the diagnosis.

The penetration of the proliferating periosteum into the thin, long septum dividing the osseous portion of the tube from the carotid canal will afford an explanation for those fatal hemorrhages which occasionally occur in syphilitic subjects, and which are attributable to caries. The observed changes in the floor of the right tympanic cavity invite attention to the possible involvement of the bulbus venae jugularis, similar to that of the carotid in the dangerous hemorrhages occurring in tertiary syphilis.

Among other changes found may be mentioned: the absence of a not inconsiderable number of fibres of the right facial nerve; the presence of rust brown, homogeneous deposits between the fibres of the acoustic nerve; the destruction of ganglion cells and nerve fibres in Ro-

senthal's canal in the first turn of the cochlea, and hemorrhagic extravasations between the nerves of the modiolus of the same side; and the absence of the outer cells of Corti, which may, however, have been due as well to the action of reagents as to a pathological process.

In marked contrast with the great changes found in the above case was the condition of the structures of the ears in a case observed by Betz,⁵¹ who with von Troeltsch made the autopsy. A man, thirty-six years of age. Otorrhoea and moderate hardness of hearing since infancy. Eight years before death he contracted syphilis, of which symptoms were still present five years before he died. A few years after infection there was a great increase in the hardness of hearing. During three years of his life he was totally deaf.

Autopsy: The right ear was free from caries. The left ear revealed otitis media purulenta with kidney-shaped perforation of the drum membrane. The lining membrane of the tympanic cavity was much thickened and injected. Ulceration of mucous membrane or exposure of bone could not be discovered. The anvil and stirrup were completely preserved and freely movable. There was no caries anywhere. With the exception of a slight thickening of the contents of the vestibule, and uncommon abundance of otoliths, the inner ear seemed normal. In his comments on the autopsy von Troeltsch points out that it does not in the least explain the total deafness, the cause of which must therefore be sought for in the brain.

In the other cases examined after death, only such alterations were found as are seen in purulent inflammation of the middle ear in non-syphilitic subjects.

The *prognosis* is favorable only in the beginning of the ear disease, in the milder cases, and in persons of strong constitution; but when this disease occurs in cachectic individuals, or is complicated with polypi and caries, or the hearing is totally destroyed, the prognosis is very bad. Yet recovery has been observed under judicious general treatment in cases which seemed hopeless.

The *local treatment* usually adopted for the non-syphilitic form—viz., thorough and frequent cleansing with warm salt water when the otorrhoea is at all copious; instillation of warm nitrate-of-silver solution or of alcoholic and watery solutions of corrosive sublimate (as recommended by Bürkner), after all pain has ceased; the removal of granulations with the wire snare or with the sharp spoon, etc.—will be found of service as well in the syphilitic form. That in this, as in all syphilitic ear affections, a thorough course of antisyphilitic remedies, perhaps combined with tonics and a generous diet, is as necessary as the local treatment for the ear affection, is the experience of all who have written on the subject.

Neuralgia of the middle ear, due to constitutional syphilis, is an extremely rare disease. Usually syphilitic disease of the faucial orifice of the Eustachian tube or of some part of the pharynx or larynx is present at the same time, and is probably the starting-point of the pain in the ear. The entire absence of objective symptoms of disease of the tympanic cavity, and the paroxysmal character of the pain, will establish the diagnosis. Moos, as we have seen, thinks that the hemorrhage in the neurilemma of the plexus tympanicus, as well as the proliferation of the periosteum which he found in one of the cases examined by him, explains to us the genesis of many cases of so-called pure "nervous otalgia," occurring without objective signs of ear disease in the course of constitutional syphilis. Kirchner⁴⁰ also believes that the otalgia is due to a periostitis and disease of the vessels of the tympanic cavity. The treatment must be directed against the constitutional disease; and if disease of the pharynx or larynx is present, applications to these parts will also be of benefit. Of these, cocaine will probably give greater temporary relief than any other remedy. Schwartz has found of especial use gargles of a solution of the bromide of potassium in such cases.

THE EUSTACHIAN TUBE.—Instances of primary syphilitic sores at or near to the pharyngeal orifice of the Eustachian tube have been observed, according to Politzer,

by Ricord, Lancereaux, Blanchet, Fournier, Bouquay, Laboulbène, Baratoux, and others. J. Solis Cohen ("Diseases of the Throat," p. 113) says that he has seen a fearful case of ravage from a chancre (locality not specified), communicated by the incautious use of the Eustachian catheter. Chancres of the naso-pharyngeal cavity are, however, according to all writers, of extremely rare occurrence. The contagion is probably always conveyed through the Eustachian catheter. The sores present no characteristic features. The floor of the chancre is usually indurated and the lymphatic glands at the angle of the lower jaw are commonly much enlarged. The sore, as a rule, causes but little pain. Primary chancres of the pharynx, like erratic chancres occurring in other parts, are usually single. The treatment must consist of mercury administered internally or by inunction, and local application of iodoform or iodol; but if the sores prove intractable, they should be touched with the acid nitrate of mercury or other caustics.

Constitutional syphilis rarely causes isolated affections of the Eustachian tube. As a rule, the adjacent mucous membrane is the seat of the same morbid process. The earlier manifestations of syphilis met with in this locality are erythema, mucous patches, and superficial ulceration. The erythema may be generally diffused over the whole mucous membrane, or distributed in irregular patches between which the mucous membrane is of normal color. While not infrequently the syphilitic erythema presents no features by which it can be positively distinguished from the simple catarrhal inflammation of the mucous membrane, a symmetrical distribution of the erythematous patches is regarded by many authors as strong evidence of the syphilitic nature of the disease. Mucous patches may occur in any part of the naso-pharynx, and have been occasionally observed on the tubal prominence. They present themselves as small, round, slightly elevated patches of a grayish-white color, surrounded by a zone of more or less inflamed mucous membrane. Ulcers are comparatively seldom found in the naso-pharyngeal cavity in the early part of the secondary stage. They are usually quite shallow, and are nearly always the result of the breaking down of mucous patches. Usually the ulceration begins in the middle of the mucous patch, and gradually spreads to its periphery.

Excrescences resembling pointed condylomata have been observed on the pharyngeal mucous membrane in two cases by Schwartz. In connection with the morbid states above briefly described, we very often find redness and more or less oedematous swelling of the mucous membrane of the greater part of the cartilaginous portion of the Eustachian tube. Frequently there is also a great increase in the secretion from the mucous membrane, so that then on inspection the upper portion of the pharynx is found covered by or filled with it.

The subjective symptoms are those of ordinary catarrhal inflammation of the Eustachian tube, viz., slight pain in the throat, extending to the ear, especially on swallowing; pressure and a sense of fullness in the ear; more or less impairment of hearing, and subjective noises. Vertigo and headache are rarely complained of. Auscultation, during inflation of the Eustachian tube through the catheter, commonly reveals distant moist râles, which cease after the secretion has been forced into the pharynx. The drum membrane shows changes here, as in simple catarrh of the tube, only after the ventilation of the tympanic cavity has been interfered with for some time, and these consist chiefly in a retraction and dulness of this structure.

The *prognosis* is always favorable under proper management of the case.

The *treatment* of the diseases of the Eustachian tube occurring in the secondary stage consists in the administration of mercury; the cleansing of the naso-pharyngeal space by means of the posterior nasal syringe or an atomizer; topical applications of weak solutions of corrosive sublimate or nitrate of silver to the mucous membrane of the naso-pharynx; and frequent inflation of the Eustachian tube through a catheter or by Politzer's method.