On Adenoid Vegetations of the Naso-Pharynx

These growths, which have attracted so much attention both as regards their aetiology and treatment were discovered by Ogermack in 1860 ("Der Kehlkopfspiegel und seine Verwertung für Physiologie und Medizin," Leipzig, 1860). In the naso-pharynx he saw two small tumours situated near the opening of the Eustachian tube. He compared the appearance of the growths to a cock's comb.

The late Dr. Andrew Clark writing in 1864 gave a short account of these vegetations in an article on "nasopharyngeal gland disease" which appeared in the London Hospital Reports (Vol. I. p. 217). From his description it is probable that follicular pharyngitis was also present in his cases as a complication. He considered that the growths can be "demonstrated only by rhinoscopic examination."

The connection between these growths in the naso-pharynx and deafness was noticed by Voltozini in 1865. His patient was troubled with extreme deafness, and on making
a rhinoscopic examination he saw "stalactite-like growths" in the nasopharynx. When these were destroyed the hearing of the patient greatly improved. ("Allgemeine Wiener med Zeitschr." No. 33, 1865).

Professor Löwenberg in the same year (Archiv für Ohrenheilkunde 1865, Bd. II, p. 116) published cases in which he found deafness co-existing with naso-pharyngeal growths, and he considered the vegetations to be of the same structure as the hypertrophied mucous glands present in granular Pharyngitis.

The attention of the Medical Profession in Great Britain was drawn to the subject chiefly by Professor Meyer of Copenhagen. He gave an accurate account of the vegetations, together with their treatment, in the "Transactions of the Medical-Chirurgical Society," London, 1870 (Vol. 53, p. 191). He had previously described them in 1868 ("Hospitals Tidende," Nov. 4 and 11) and named them "Adenoid Vegetations." Sir Monell MacKenzie considered Meyer to be the discoverer of these growths in the vault of the pharynx, as he was the first to
to understand their importance to fully describe them. (Diseases of the nose & Throat. Edn. 1884. Vol. II p. 149.) At the International Medical Congress held in London in 1881, great interest was aroused in this subject. Dr. Woakes of London gave particulars of a large number of cases that had been under his care, and from this time the medical profession in general has taken up the matter & fully recognizes its importance. With regard to the Pathology of the growths many views are held. The terms "Chick's Tonsil," "the third tonsil," "hypeptrophied pharyngeal tonsil," and "adenoid growths of the naso-pharynx" all refer to the same condition—an hypertrophy of the adenoid tissue normally present in the naso-pharynx. This tissue is situated on the vault as a fleshy cushion lying between the openings of the Eustachian tubes commencing at the septum posterior from which it extends backwards along the roof & posterior wall of the pharynx. McBrice (Diseases of the Throat, nose & ear, 1894. p. 338) remarks that
That recent observers have noticed the existence of a bulge in the median line dividing the pharyngeal tonsil anterior-posteriorly and forming the median recess of the nasopharynx.

In the less severe forms of the disease, Dr. De Hameldon Hall (Diseases of the Nose & Throat, 1894, p. 153) thinks that the growth is confined to the roof of the naso-pharynx, and when regular and lobular is designated hypertrophy of the pharyngeal tonsil. In the severer forms, when the vegetations are very numerous, large, conical, they extend to the lateral walls of the fossa of Rosenmuller, even cover the orifices of the Eustachian tubes.

Ball (Diseases of the nose, 1890, p. 151) states that it is doubtful according to the investigations of Trautmann whether they ever actually grow from the lateral walls, those in the fossa of Rosenmüller possibly proceeding from the lateral parts of the roof and posterior wall.

There is frequently a connection between the enlarged pharyngeal tonsil and adenoid tissue at the base.
base of the tongue - the so-called lingual tonsil.

Histologically the growth is seen to consist of three parts: an epidermal surface covering the substance of the humour which is composed of an adenoid reticulum showing in its meshes lymph corpuscles. The epithelium on the surface is usually ciliated columnar. The single columnar cells are of various heights and show long or short bent cilia. Between the elongated tips of the epithelial cells irregular cor- puses of varying shape are visible. The surface is said to be split in various directions, dotted over with spine-like lamella which are formed by the openings of the excretory ducts of the mucous and follicular glands (Hawell, Diseases of the Ear, Nose, Throat, 1874, p. 273).

Bosworth (Diseases of the Nose and Throat, 1889, Vol. I, p. 542) describes furrows running between the lobes of the growths dividing the whole mass into a number of longitudinal ridges, some sometimes shallow, sometimes very deep. On each ridge there may be shallow papillary protrusions. Under the
the microscope are seen large pro-
tusions caused by the follicular
formation of the tissue, and also
small ridges having a papillary
appearance owing to narrow pro-
tusions of the subjacent tissue.
According to Bosworth there is
no epithelial formation in the
substance of the growths except
where there are depressions between
the lobules. In these sites epithelial
processes penetrate into the central
mass of the growths. He considers
the papillary elevations are produced
by a delicate connective tissue, he
mentions that the follicles are separ-
ed from each other by "inter-
follicular strings." *(Op. cit.)*

Dr. Woakes differs from other author-
ities in thinking that the vege-
tations are of a papillomatous
nature — "warty rather than gland-
ular in their origin." *(Seafress,
Giddiness + Hoises in the Head: 1880, p. 35)*

Their wart-like appearance when
removed, the tendency to bleed when
touched (like papillary growths in
the bladder) and the tendency to spon-
taneous disappearance after adult-
life.
life (as in the case of snails or the hands) are points which Dr. Woakes brings forward in support of his views as to their nature. He considers the term "adenoid" a misnomer because the glandular element is probably an accident of the situation of the disease, and is often absent. On microscopical examination he noticed closely packed connective-tissue fibres interspersed with cells proper to these structures as well as, in some cases, "nest-like cells." In the substance of the growths he found small connective-tissue cells in a state of active growth. (Op. cit.) Maclellan Mackenzie agreed with most observers in declaring the substance of the vegetations to be adenoid, or called it the "reiform adenoid tissue of Hsii" (Op. cit. p. 502). He found that a conglomerate gland is sometimes met with, that the glandular element is more noticeable in growths from the vault of the pharynx. In those removed from the lateral walls the stroma of Hsii was in greater abundance. Mackenzie attributed the vegetations
vegetations be an hypertrophy of Luschka's
tonsil, and this is the view commonly
held. Simple enlargement of the
pharyngeal tonsil is sometimes tend
"adenoid hyperplasia", whilst long
"stalactite" growths hanging down
even below the palate are known
as post-nasal growths or adenoid
vegetations.

With regard to the aetiology of adenoid
growths: Meyer (op. cit.) insisted on
the influence of heredity. De Harnell
Hall in his work (op. cit. p. 152) states
that although in some cases the
growths appear to be congenital
this point has not been confirmed
by dissections of new-born infants.

Several authorities, however, are
of the opinion that children are
born with them, e.g. Seames
Spicer believes that in such cases
there may have an anti-natal
naso-pharyngeal cataract. ("Post-natal
Adenoid Hyperplasia", Clinical Journal
Oct. 26, 1893, p. 402.)

Dr. Warkes (op. cit.) noticed at an
early date that these growths are
present in several members of the
same family very frequently, and
evidently from certain "family pro-
cesses."

In early life the lymph-follicles which
form Luschka's tonsil are numerous
and are easily excited into a condition
of active growth. It is very likely
that any irritation of the vaso-
pharynx will lead to excessive
development of the structures con-
cerned, will produce adenoid
vegetations. The congestion due to
a catarrh would lead to their
formation from hypernutrition
& consequent hyperplasia of the
tissues.

An enfeebled inhibitory power
exercised by the vaso-motor centres
might also cause hypernutrition
in the vaso-pharyngeal region;
this tendency to local vaso-motor
pauses can be transmitted from
parents to their children. It must
be noted also that in families
the same type of nose is frequently
present and with it the liability
to adenoid vegetations. It is very
probable that the former condition
has a good deal to do with the latter
disease; into the relation of cause & effect,

if
If the nose is small contracted, its channels are also small, and the mucous membrane is probably swollen & congested from a chronic catarrh thus causing further obstruction to breathing. In the thin nose there is frequently a crooked septum, which increases the difficulty & contributes to a condition of nasal stenosis. Whenever there is a difficulty in nasal inspiration it is found that, on determining the hygrometric condition of the air passing through the nose, the amount of moisture absorbed is greatly increased. The barometric pressure within the nose is diminished & as a consequence the attenuated air absorbs more moisture. Posterior to the obstruction at each inspiration there is a tendency for venous & arterial blood lymph to be drawn into the tissues of the nose & naso-pharynx. Macdonald ("Diseases of the nose". 1892 p.18) remarks that experiments have shown a condition of diminished air-tension behind the seat of nasal stenosis so long as respiration is carried on through...
through the nose & not per os. The arteries, capillaries vessels which lie in the venae comitantes become congested. If the air is partially exhausted from the external auditory meatus the walls & membranes tympani are immediately suffused with blood, as can be seen with a lige's pneumatic speculum.

Nasal stenosis therefore must be recognized as predisposing to keeping up a condition of congestion & consequently favouring adenoid hypertrophy. This is also induced by engorgement of the erectile tissue on the actual hypertrophy of the inferior turbinate bone. The septum may too may be hypertrophied & deflected.

In addition to these influences there is that of a highly arched palate encroaching on the nasal fossa, sometimes accompanied by a contracted state of the superior maxilla. The contraction is usually most marked opposite the incisors, the greater it is the higher is the vault of the naso-pharynx, the more the obstruction.

In children who have post-nasal
growths or enlarged tonsils, these anatomical peculiarities are often seen.

Cleft palate is sometimes associated with the presence of adenoid vegetations, and it is probable that the passage of cold air during inspiration and of food during deglutition, into the naso-pharynx irritates the tissues causing hyperplasia. The importance of cleft palate as an exciting cause of these growths is somewhat diminished by the opinion of Billroth who writes ("Clinical Surgery", New Sydenham Society 1881, p. 308) "it appears to me from what I have learned after minute observation in these cases (of cleft palate) that the soft palate is united to the posterior wall of the pharynx by a kind of sphincter apparatus, which lies above the union of the soft to the hard palate, and may be regarded as the uppermost portion of the constrictor pharyngis. This sphincter-like action would close the fissure to a certain extent by approximating the parts. However this may be, we have the statements of Lexer that in three out of four cases of cleft palate which he
he had seen adenoid vegetations were present (Op. cit. p. 207) & of Mowll MacKenzie that he had scarcely ever met with an example of cleft palate without finding a profusion of adenoid growths in the naso-pharyngeal region.

Vegetations are common in Jews, and this may be due to the peculiar formation of the nose. Mawer states that in Italy adenoids are quite rare, and when seen are seldom extensively developed (Sajous' Annual 1889. Vol. IV. p. 23.)

Though race must have some influence, that of climate seems to be more pronounced. Cold & moisture favour the production of the growths which are most prevalent in Denmark, the northern States of America, England, France & Germany. Dampness is also an important factor. In warm & dry climates they are not common. "deserene" is thought by many to be a predisposing cause. Mowll MacKenzies remarks (Op. cit. p. 1476) "my experience is quite in accordance with that of Beyer, for I have noticed that children suffering from adenoid vegetations seldom show any other marked signs of struma, such as enlarged cervical glands.
glands, ophthalmia baccii or obitis.

If by struma is meant a low condition of the system—a lowered vitality which has been inherited—we can trace its influence in the production of adenoid growths. If the tissues of adenous individuals are injured or inflamed being weak the congestion cannot easily be thrown off, the vitality being feeble. If congestion persists long enough hyperplasia results.

Sex has little influence. MacKenzie believed it has none. Meyer noted that out of one hundred cases fifty-two were males and fifty females. (loc. cit. p. 208.) Bosworth remarks that of his own patients forty-nine were females and twenty-six males, but his cases were on the average much older than those of Meyer. Meyer observed that after fifteen years of age the larger proportion were females. Dr. Grevelle Macdonald mentions that out of 154 cases in his practice, 97 were males and 57 females (op. cit. p. 234.) From the statistics furnished by the above and other observers it would appear that the question of sex is one of little importance.
so far as regards the frequency of the growths. One point is clear, however, that is the prouessness of these growths to develop between the ages of five and fifteen, their tendency to disappear after after puberty.

Of Meyer's 102 cases the greatest number occurred between these ages, i.e. 34 between 5 and 10, and 25 between 10 and 15 (Op. cit.)

In Monell Mackenzie's 82 cases, between the ages of 5 and 10 there were 51; between 10 and 15, 27 (Op. cit.). Dr. Felix Lennar (quoted by Mackenzie) stated that out of 56 cases that came under his care 53 were below the age of 20.

Whooping-cough, measles, diphtheria are frequently observed to precede the development of adenoid vegetations. They are notably diseases of childhood and probably have considerable influence in the causation of these growths. It must also be noted that the first two diseases are not frequently met with in adults in whom adenoids are also infrequent, except when of long-standing. Probably the enanthema, as well as pertussis, exude the adenoid tissue to over-growth by producing a catarrhal condition of the naso-pharynx.
It is supposed by some that syphilis is an existing cause. It probably has only an indirect influence by producing a small stunted nose which causes post-nasal congestion & subsequent hypertrophy. Engorgement of the erectile tissue caused by anterior stenosis (which in some cases leads to actual hypertrophy of the inferior alveolar bone) is more important as an exciting cause.

Symptoms: The one that first attracts the attention of the parents is usually noisy respiration especially at night & when the child is suffering from a “cold in the head”; however slight. This is often so marked as to disturb the rest of those who sleep either in the same room or an adjacent one & consequently impress upon the nurse or mother the necessity for taking medical advice. Tumid-suffocative attacks are also of frequent occurrence if the patient “catches cold”. During my course of attendance at the London Mission Hospital I noticed that many children were brought for treatment on account of “having the croup.” Many of these cases turned out to be affected with adenoid vegetations which caused the symptoms for
for which advice was sought.

Deafness is another symptom that attracts early notice, though usually at a later period than noisy breathing. The apparent stupidity of the child is not ascribed by its parents to want of hearing but to a defect in its mental powers. They often console themselves with the thought that this will pass off as the infant grows older and "develops its constitution." Even in marked cases of deafness the defect is denied, or only on going into the previous history of the case can it be ascertained that the child has been taken to task for inattention when spoken to.

In infants at the breast suffering from these growths there is a marked difficulty in sucking: the head is thrown out of the mouth in order to breathe more freely. In these subjects weakness and debility come on from want of nutrition as the mother concludes that the child does not want the breast, or that "the milk does not agree with him." Attempts to soothe him to sleep without satisfying him.

In older children "night-terrors" occur.
occur due to interference with respiration. The child may become restless, tossing about and moaning while asleep; or it may throw off the bed clothes and wake in a delirious condition. In more severe cases convulsions occur.

An inability to blow the nose properly is a marked symptom, also that when there is a cold in the head little or no mucous passes from the nose. The air owing to nasal obstruction cannot be driven through the nose with force sufficient to expel the secretion which accumulates at the back of the throat. In more pronounced cases the signs of cataract are absent altogether. There is often a complaint made of dryness of the throat on waking, owing to respiration through the mouth during sleep. In cases of long-standing this mouth-breathing becomes habitual even after the adenoid growths have been removed or have disappeared after puberty.

An old gentleman has quite recently come under my care who informed me that he has never been able to blow his nose properly even when his mouth open during sleep.
Though he is not aware that his voice was "thick" in early years I have been able to obtain evidence that this was the case. He has also been troubled for many years with deafness in the left ear. At present there are no adenoid vegetations but the whole mucous membrane of the naso-pharyngeal region is thickly thrown. There are signs that adenoid growths existed at the vault. These probably persisted for some time after puberty because the voice was "muffled" when he was a young man. It is not so now. This peculiarity of phonation is characteristic. In slight cases it is the timbre only of the voice that is lost; in severe ones there is a nasal crowly developed towards commencing with the letters M & N are pronounced as if they began with B & D. The voice is also muffled, or as Meyer termed it, is "dead".

Breath restoration or breathing through the mouth is not always present as it requires for its production the occlusion of the lower meatus of the nose. If the growths are mostly situated in the vault of the pharynx they obstruct the superior
superior middle meatus chiefly because the inferior meatus comparatively free, as a result there is little impediment to breathing through the nostrils, and it is through the lower passages that the air mostly passes in ordinary respiration. If there is complete obstruction in the nose manual respiration is well marked. In such cases the mouth is constantly kept open and the face assumes a stupid expression. There is also a drooping of the jaw present in many patients adding to the appearance of "vacancy" and stupidity. David (Reme Memmelle de Laryngologie 1883, loc. 12., p. 380 et seq.) seems to think that the deformity of the upper jaw (already referred to) is the outcome of vegetations in the nose pharynx which also produce a narrowing of the arch of the palate and a projection of the incisor teeth. He believes that as buccal respiration is constant, the palate is pushed upwards from constant pressure being exerted on its buccal surface at a line when it is developing as comparatively soft. Mackenzie (Op. cit. p. 479) considered that there is in such patients an irregularity in the mode of development.
and it is more likely that (as already mentioned) the condition of the upper jaw is antecedent to the formation of vegetations and is a predisposing cause to their development and a result of their growth.

Dr. Wokes (op. cit. p. 62) mentions the occurrence of "smuffles" as a symptom, and gives details of a case which proved to be one of adenoids without any taint of syphilitic disease.

As the vegetations are very vascular pure blood is sometimes expelled on coughing and causes suspicions of "consumption." The commonest symptom of hemorrhage occurs in the morning when the pillow is found stained with blood that has dribbled from the mouth during the night. Some little time ago I was asked my opinion regarding a boy of about 15 years of age whose father is known to have died of cancer. The history was that in the morning blood was constantly found on the pillow, ras his voice was peculiar in character both breathing and swallowing being difficult as well, it was found that cancer of the throat might be present.
The case proved on examination to be one of adenoid growths. The peculiar laugh of the patient was remarkable. It resembled a fit of sobbing, and on one occasion when he was at a theatre witnessing an amusing play several of the audience turned round in evident astonishment to see who was taking his amusement so sadly. Another symptom was the difficulty in swallowing solid food; the act of defluxion was accompanied with a loud noise and an appearance of suffocation, the mouth being opened and air gasped for. This was due to the difficulty of inspiration through the nose and the consequent want of breath. After the adenoids were removed the symptoms disappeared. A long period of catarrh is usually one of the note-worthy points in a patient's history. He is "constantly having a cold." As already mentioned, it is usually admitted that the vegetations are the result of this condition. The chronic catarrh continues after the growths develop and a yellowish-green secretion is noticed trickling down the back...
back wall of the pharynx. In the early stage the discharge is thick, whitish, gelatinous, and later on tends to form crusts which have a blood-stained surface and are expectorated. There is at the advanced stage usually much hawking and cough, the obstruction irritating the parts. The secretion may cause chronic laryngeal catarrh and gastric disturbances. Laryngeal stridulous or constrictions may also subsist from its irritative properties. In adults the discharge forms a viscid secretion which is got rid of usually in the morning after hawking and spitting, but is then frequently found to be blood-stained, or horribly foetid. In the latter condition it is apt to be associated with bronchial expectoration and to the supposition that the case is one of Chronic Bronchitis or of Bronchorrhea.

Meyer (Med. Trans., loc. cit.) noticed that in children the nostrils are flattened laterally so that the "nose appears compressed" and the patients have a peculiar way of panting, thrusting their lips together like this as if it were.

Justi (Ibemid Grown in Raco Pharynx, etc.)
125 of Volkmanis Suehling, 1878) remarked that the dull gaze is probably due to an extension of inflammation to the lacrimal sac & the conjunctiva, and also to headache which constantly occurs. The general disturbance of nutrition causes an anemic condition in many cases. It is produced in a great measure by defective aeration of the blood, which occurs chiefly at night, during sleep when there is a constant struggle for breath through an obstructed nose. During mechanical inspiration there is a deficiency of oxygen supplied to the lungs & expiration is also interfered with & the blood consequently becomes supercharged with carbonic acid. Dr. Mac Donald (Diseases of the nose. 2nd Ed. pp. 18-26) holds the opinion that the instinct of nasal breathing even when contending with great difficulties strongly asserts itself. In addition to a discharge from the posterior nares there may be one from the anterior, this irritates the mucous membrane of the nose & the external surfaces of the upper
and lower lips. The sense of smell may be dulled (dysosmia) or lost (anosmia) if the mucous membrane in the pituitary & olfactory regions is affected. The long-continued catarrh is the most frequent cause of anosmia, but the growths in the naso-pharyngeal region obstruct the posterior nares, prevent odoriferous particles from having access to the endings of the olfactory nerves.

Dr. Scares Spier (Brit. Med. J. 1890; p.619 Vol. II) noticed that the transverse nasal vein running across the bridge of the nose shows as a well-marked blue line, if dilated. He ascribes it to pressure of enlarged glands in the vault of the pharynx on the tributary veins as they pass through the palatine foramina. The typical broadening of the bridge of the nose met with frequently in children between 8 & 15 years of age suffering from adenoid growths shows that the pressure in the pharynx has marked effect.

Löwenberg noticed that a characteristic depression in the chest occurs at the junction of the lower and middle...
middle thirds with an appearance of an abnormal bulging at the upper part of the thorax. (On Ectoderm
Innominate of the Lasso. Pharynx, Their Influence on Hearing, Respiration & Phonation.
Translated by Dr. Munro Wright Jones - Medical Press Review, April to June 1879.) He
writes "A time must of necessity arise when the obstruction of the posterior nares which is habitually
incomplete becomes still more impeded during certain attacks of greater swelling or more copious
secretion. At these times nasal respiration is insufficient & the patient has not yet exclusively
breathed by the mouth, from time to time he involuntarily closes it and attempts to breathe by the nose."
This latter being closed the thoracic cavity cannot be enlarged; in consequence there is lowering of the
diaphragm & contraction of the intercostal muscles, particularly of the external, which tends to en-
large the thorax during the passage of air through the glottis, for the same reason there is a flattening
of it. This is from the predominance of atmospheric
atmospheric pressure, on the one hand, and on the elasticity of the pulmonary tissue, which tends to diminish the volume of the lung in proportion as the intra-pulmonary pressure diminishes. In this way the intercostal spaces are deepened and the cartilages are deformed.

Lambson in 1861, (Bulletin de l'Academie de Medicine, 1861) however, first accurately described the peculiar formation of the thorax & attributed it to enlarged tonsils.

The circular depression corresponds with the attachment of the diaphragm to the thorax, is caused by constant efforts at inspiration, the muscle contracting forcibly to overcome the obstruction in the naso-pharynx. A transverse constriction of the chest is also met with known as "Harrison's furrow", and is due to similar causes as the circular depression: imbedding to free inspiration, when during childhood the bones yield readily. If there is a sickly constitution the malformation is more marked, the bones being softer.

Dupuytren writing in 1828, mentioned the
the occurrence of enlarged tonsils & pigeon-breast (Repert. de Anat. et de Physiol. Vol. III). It is very probable that post-nasal growths also were present in these cases, as neither enlarged tonsils nor adenoid growths are likely of themselves to obstruct inspiration sufficiently to produce the deformity. If they co-exist the obstruction is greatly increased, & the contractions of the diaphragm are constant & forcible enough to cause malformation of the chest-walls.

Lyngue of Amsterdam (? International med. Congress, Brussels, 1875) noticed a want of power to fix the attention which condition he termed "Asthenia." He ascribed it to an interference with the lymphatic circulation in the brain, the effect being that the child is unable to commit things to memory & is disinclined to study.

Of the complications of post-nasal growths ear-troubles are the most frequent. They vary from the most transient form of middle ear catarrh to acute & chronic supplicative inflammation of the tympanum in which more...
or less destruction of tissue takes place.
If the growths are on one side the in-
flammation is liable to spread along
the Eustachian tube to the middle ear.
The conditions found are chronic hyper-
trophic otitis media & chronic purulent
otitis media in most cases. The hyper-
demia of the Eustachian tube & tympanic
cavities may cause an hypertrophy of
the mucous membranes & of the tym-
panic membrane & so lead to the first-
named disorder. If the hyperdemia
leads to greater activity of the secretory
glands the result is an excessive dis-
charge of fluid which becomes purulent
may cause perforation of the membra
 tympani, & otorrhoea. This membrane
is usually thickened, although Roseworth
(esp. cit.) believes that it sometimes is
atrophied, is in consequence easily up-
tured accidentally & by admitting air
into the middle ear causes purulent
otitis.
Two theories have been brought for-
ward to explain the otitis caused by
adenoid vegetations. One is that the
inflammation caused by the adenoids pro-
duces inflammation of the glandular tissue
& hypertrophy. If near the orifice of the
Eustachian tube the inflammation readily extends as already mentioned. Some think that the pressure of the growths on the orifices is sufficient to set up inflammation.

As the membrana tympani is often found to be retracted, stibis is thought to be caused by diminished air-tension within the tympanum. The chronic hyperemia so caused, as already discussed, may hypertrophic or suppurative stibis. As inflammation of the Eustachian tube is so constantly met with before middle ear troubles are well-marked or seem to exist. I think it is far more likely that stibis is due to an extension of the inflammatory process along the tubes, that the retraction of the membrane is a secondary & not a primary condition, as some observers seem to think.

On making a rhinoscopic examination: the growths are seen to be conical or villous in form, & less frequently pedunculated. Meyer (Op. cit.) described two chief forms—crystate & cylindrical, the former being the most common & occupying the posterior wall near the roof of the pharynx, the latter are found usually
on the sides of the cavity. In colour, they are generally pale or pinkish-grey, they are lighter than the mucous membrane to which they are attached, but Dr. Macleod (op. cit. p. 338) considers them to be of the same hue. The colour may be a bright red, the surface may show a large red, fleshy cushion with a fringe hanging down over the posterior nares. In the "stalactite" form the vegetations are paler. The posterior ends of the inferior turbinate, bones may be evident as mulberry-looking growths. The vegetations may be soft, shaggy, vascular or solid & firm. Occasionally irregular adenoid tissue bodies are seen at the posterior part of the septum nasi or little growths connected with the eustachian cushion. Dr. Macdonald (op. cit. p. 262.) the growths are never seen or felt attached to the septum nasi or turbinate, bones, as described by some observers, & their surface is never granular. The usual site of the vegetations has already been mentioned; they are most abundant on the vault & upper part of the posterior wall of the naso-pharynx. Macleod (op. cit. p. 497) stated that they vary in size from
from a hemp-seed to a currant, are occasionally much larger and often occur in clusters. Macdonald protests against the description of them usually given, denies that they resemble a "bunch of grapes." To the touch they are usually soft & gelatinous, but in cases of long-standing, as when they occur in adults they feel harder and firmer from fibrous development. To the finger the sensation is described as that of a bag containing worms, & when the hand is withdrawn it is found that bleeding from the growth has occurred. This is a diagnostic symptom.

Diagnosis: The "falling" voice are important points that direct one's attention to the naso-pharynx, & the history of the case as regards snoring at night, the difficulty of breathing in and out through the nose during the day & the other symptoms enumerated make the diagnosis almost certain. Before making a digital examination the anterior nasal passages can be examined with a speculum, if they are clear the obvious conclusion is that the obstruction is post-nasal & also that it is in all probability an hypertrophy of the pharyngeal tonsil.
If there is a catarrhal condition or thickening of the nasal mucous membrane, the diagnosis must be made by direct observation or by the finger to eliminate error. If ear troubles are present, the indrawn membrane, thickened and fleshy, is a great point in the diagnosis.

Digital examination is preferred to the use of the mirror on the principle that feeling—without seeing—is believing. If the educated finger recognizes the vegetations there is no need of rhinoscopy to confirm the diagnosis.

To make the examination by the finger the child is placed in a chair with a towel round his head. The surgeon standing behind the patient pushes the left cheek between the teeth with the index finger of the left hand, so as to keep the jaws apart with the right index passed behind the soft palate, and the muscles, feels for the septum nasi. The back of the nail is made to traverse the roof of the naso-pharynx & there recognizes the growths, if present.

The post-nasal mirror cannot be used in the case of young children, it is more suitable for adults. After the application of a cocaine spray the palate is
is drawn forward, with the palate hook & the nose-piece adjusted. The tongue being depressed, the mirror is inserted in the usual way. Dr. Felix (quoted by Mackenzie—op. cit.) recommends an inspection of the upper arches of the posterior nares; any tissue obstructing them is very probably of adenoid nature. Besides the above diagnostic methods other less important ones have been suggested. Bosworth (op. cit.) uses a spray of atomized oil in one nostril to note how it returns from the other. The amount of air expired through each nostril can be tested with a mirror & the obstruction estimated. These, however, not diagnostic.

Differential Diagnosis:

Polyps of the naso-pharynx is very rarely met with in children & may be neglected. In adults fibro-mucous polypi are said to be most common in women (but Briste—op. cit.). They are bluish in colour, pedunculated, and freely movable; these characteristics distinguish them from fibrous growths. Retro-pharyngeal abscess is situated lower down than adenoid vegetations
and the symptoms are more rapidly developed, some more acute. There is acting stiffness at the back of the neck and this is painful. Enlargement of the posterior ends of the inferior turbinate bodies resembles adenoid vegetations or polyps. In the former case the diagnosis is not easy if the bodies are pink in colour and appear to be smooth. When turbinate hypertrophy coexists with adenoid growths it seems as if the latter spring from the septum nasii. In some cases the hypertrophied bodies are distinctly granular or lobulated show a dusky rose colour. If large they overlap the septum nasii appear to resemble a ripe mulberry. To the fingers they feel firmer than adenoid vegetations & a careful digital examination clears up the diagnosis. Fibrous growths occur in children but are distinguished by their firmness & resistance to the touch; although they bleed easily, like adenoids, their colour is different, being purple or red. They frequently show large vessels on the surface, which is not the case with the other growths.
From a chronic catarrhal condition &
general hypertrophy of the mucous
membrane about the posterior nares
the presence of adenoid growths is
distinguished by making an examination
of the anterior nares. If these conditions
co-exist with the growths a digital
examination of the posterior nares &
naso-pharynx must be made. The
occurrence of "lymphoid granules" (Butt, 1890 cit.) on the posterior pharyngeal wall
is evidence in favour of vegetations
existing.
Enlarged tonsils cause symptoms simi-
lar in character to those attending
adenoid growths, but they are usually
not so well marked & in most cases
the two conditions co-exist. Chronic
follicular tonsillitis is in many
cases associated with vegetations.

Prognosis. This is to be considered under
two heads (1) without operation and
(2) with operation.

(1) There is a tendency for the growths
to disappear, or at all events to diminish
very greatly in size after puberty. For
this reason it may be justifiable to
leave mild cases to run their natural
course in hopes of recovery. This can
I think only be advisable if the age of puberty is not far distant. In many cases the growths do not become smaller but the cavity containing them becomes larger & in consequence obstruction is diminished. I have at present under my care a gentleman aged about 30 who is greatly troubled with vegetations. Both tonsils were greatly enlarged, have been excised. The symptoms were somewhat relieved yet are constantly aggravated when he takes cold, & in consequence he has finally consented to the removal of the growths.

If vegetations occur in young children & cause distressing symptoms they should without doubt be operated on; promptly. If this is not done their hearing & facial expression may be damaged permanently. Any operation undertaken would be useless to improve these conditions. A case in point came before me only the other day. The patient is a young man of 21 with the typical facies of adenoid growths. His mouth is constantly kept open, he has an appearance that might be termed "lantern-faced"
jauned in the school-boy acceptance of the expression. The troubles he complained of are constant cold in the nose, frequent hemorrhages, & a difficulty of breathing in damp cold weather & whenever he "catches a cold." This appearance is beyond amelioration, but that thought never troubles him & probably is not considered to have anything to do with these growths.

If left to run their own course the mental faculties may be obscured & many of the symptoms & complications already alluded to, make their appearance.

The most important undoubtedly are ear troubles. Hearing once affected & not speedily treated, may never return to a normal condition.

It is clear, then, that in all cases (except those which are unsuitable for operation on account of other diseased conditions, tender age, the homoeopathic diathesis &c.) the prognosis is good & the growths should be removed. After this is done recurrence of may occur but this is no bar to a subsequent operation: the prognosis is equally favourable. Indications for operating are furnished by
by the severity of the symptoms and also by the age of the patient. The operation has been successfully performed on infants a few months old.

Macdonald writes (Op. cit. p. 268): "When there is general malnutrition and anaemia, when there is interference with respiration (the thorax is contracted), when there is increasing deafness, post-nasal catarrh, laryngismus, or restlessness, the operation may be performed with the best prospects. In the case of epilepsy or asthma a guarded prognosis must be given though fair hopes may be entertained if the obstructed breathing is clearly connected with the onset of the attack."

Treatment. The growths can be removed in various ways: by searing them with the finger nail, or by a thimble having a cutting edge. Forceps, curettes and ring knives have also been introduced. The galvanocautery is a more recent introduction and is considered to be more painful than the forceps or the curette; this without any corresponding advantage. Searing by the finger has
has many advocates. Chief among them is Dr. Urban Ritcherd. If
first hardens the finger nail in alcohol
does not use a thimble. I have seen
him operate in this manner without
giving an anesthetic on several
cases although the operation is
quickly over. I cannot say that it
commands itself. Dr. Mc Bride in
the remarks he makes concerning
this method says, “It must be remem-
bered that if the operator detaches
tissue while his finger is still
kept in the naso-pharynx there
must be great danger of the detach-
ed mass falling into the larynx
as the position of the surgeon's hand
prevents the pharyngeal muscles
from guiding the fragment into
the oesophagus; on the other hand,
no operation which does not re-
move most of the adenoid hyper-
trophy can be considered satisfac-
tory.” Meyer uses a ring-knife which is
introduced through the anterior
nostrils. In this country most
operators remove the growths by
attacking them from the mouth,
not through the nose. Personally,
I prefer to use Gottstein's curettes, as it is simple, effective, and brings away the growths readily. Loewenberger's forceps, modified by Woakes, are also useful and recommended by many authorities, but I am of the opinion that forceps in general had better be avoided, because there is greater risk in seizing the septum nasi & other parts, too injuring the patient. I am well aware that in competent hands accustomed to their use there is little or no danger.

With regard to the anaesthetic, in London ether is generally employed, or a combination of ether, alcohol, & chloroform (the A.C.B. mixture). In some hospitals a gas (nitrous oxide) is first given either ether substitute. In the London Eye, Ear, & Throat Hospital this is done. I have noticed however that when ether is administered there is a greater tendency to hemorrhage after the operation; this is in young children is undesirable, & besides that they can take chloroform well, so I think in these cases it may be given with advantage, in preference to ether.
The position of the patient during the operation is most important. The one most in vogue is with the head hanging down over the edge of the table. In this way the blood can stream out of the mouth and nose instead of getting into the air-passages & lungs. Some operators have the patient seated in a chair, but this is a dangerous position, especially if chloroform is administered. Mr. Bublin of London prefers chloroform & places the patient on his side during the operation with the thighs flexed, the head a little forward, & a low pillow. The blood runs forward into the cheek & can be constantly removed without interfering with the operation in any way (vide Lancet, Feb. 18 1/2, 1893. p. 363).

The gag is inserted in the usual way, & sponges fixed on holders are used for removing the blood if it does not flow out readily. Those who had no experience of Bublin's position consider that with free sponging the method with the head hanging over the edge of the table is a good one. I think it has one drawback &
and that is a congested condition of the veins and greater hemorrhage in consequence.

The curette should be passed up to the nasal septum withdrawn, then passed backwards towards the spine downwards along the posterior wall. It is best to work in the middle line with the instrument pushed against the base of the skull, to avoid injuring the orifices of the eustachian tubes. If the curette is got into a good position behind the nasal septum in the first instance, & in descending along the posterior wall is firmly pressed against the spinal column, with the handle raised, a large amount of tissue is removed readily. After the tissue has been removed by the curette it is useful to finish by scraping with the finger so as to recognize any remaining portions of the growth. It is useful if some of the vegetations hang over the posterior choana.

"Irregular hypertrophies from the inferior turbinate bodies, and deformities of the septum must be dealt with at a subsequent time, but en-
enlarged tonsils must be removed before the growths. In hypertrophied
mucoa can be excised at the same
ime as the tonsils & adenoids.
The gag should be removed as soon
as the operation is completed, as if
retained unnecessarily there seems
to be increased hemorrhage. It
is sometimes left in to allow the
blood to escape freely, but this is
ineffectual in preventing the risk
of an accumulation in the throat.
To stop excessive bleeding Phenol
opium is useful or a gargle of Iainie
& gallic acid & water as used in the
"Throat & Central Throat" Hospitals in
London. Hot water is very effectual
in stopping hemorrhage & is said to be
of the greatest service in the most
severe cases.

The patient should be put to bed
after the operation & rested for a few
days; the diet must be light and
nutritious as there is always
soreness of the throat as a sequela.
"Ice pills" or ice creams are recom-
mended after the operation to relieve
pain & soreness. An antiseptic
wash or a mildly astringent gargle
is advisable after some hours to remove the secretions, if present, to make the patient feel more comfortable.

Subsequent treatment: The patient must be instructed on recovery to breathe through the nose, not the mouth. It is a new habit that has to be acquired by those accustomed to "buccal respiration." With regard to the proper pronunciation of words beginning with "m" or "n," special attention is necessary in some cases; it is necessary to have a "voice-trainer's" assistance.

Pneumonia occasionally occurs after the removal of adenoids. This is probably due to accumulation of blood in the lung during the operation and to chilling of the parts unless the patient has been exposed to cold, recklessly.

Medical treatment is of little use in curing the affection. Constitutional remedies are useful for any existing diathesis but cannot reduce the size of the growths.

Local treatment by spraying the parts with a saline solution can...
can be of service only in very mild cases. Baker (B. m. J. Aug. 5th, 1892, p. 205) thinks that the persistent use of a saline solution will cause wasting of the growths.