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Held in the City of Washington, D. C., May 4, 5, and 6, 1897

by

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# TRANSACTIONS

OF THE

## NINETEENTH ANNUAL MEETING

OF THE

# MERICAN LARYNGOLOGICAL ASSOCIATION

HELD IN THE CITY OF WASHINGTON, D. C.

MAY 4, 5, AND 6

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# TRANSACTIONS OF THE NINETEENTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION,

HELD IN THE CITY OF WASHINGTON, D. C.,
MAY 4, 5, AND 6, 1897.

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## THE PRESIDENT'S ADDRESS.

BY CHARLES H. KNIGHT, M. D.

IN accordance with custom, it becomes my agreeable duty to extend a cordial greeting to you all, and especially to our guests, both from this country and from abroad, who honor us by their presence. I trust that this occasion may be rendered memorable, not only by the warmth of our welcome, but by the zeal and earnestness of our scientific labors.

As your presiding officer, it is my privilege to occupy a few moments in reviewing the affairs of the association, and in referring to various matters of possible interest or importance. I wish to take advantage of my position to say a word or two upon a subject which has been recently forced upon my attention by several circumstances. When we become absorbed in professional work, especially in clinics, and are thrown into familiar contact with infectious disease, we are apt to become careless as to certain safeguards which involve both ourselves and others. A series of cases has impressed upon my mind with startling reality the lamentable con-

sequences of neglect of those precautions as to instruments and manipulations which we are all supposed to observe. In view of the possibilities of infection thus acquired and perhaps for a long time unrecognized, it has seemed to me worth while to call your attention to the subject. In our special work there is particular liability to mishaps of this kind, since specific lesions of the mouth and fauces are extremely common, and are among the most contagious of morbid phenomena. It is unnecessary to detain you by going into details as to methods, well known to all of you, by which such accidents may be avoided.

Closely allied to this subject is that of septic infection in general. In the growth of our specialty surgical procedures in the upper air-passages have assumed important proportions. Absolute asepsis in the wounds we are in the habit of inflicting may be impossible and, in view of the satisfactory drainage usually insured, unnecessary. In this connection it is a pleasure to refer to another circumstance which has doubtless already attracted your notice, as a revelation of what may be accomplished by earnest, intelligent study of scientific problems. At the last meeting of the British Association for the Advancement of Science the story of the birth of antisepticism was told in an unassuming way by that distinguished surgeon who more than any one now living has contributed to the advance of surgical science. We shall begin to appreciate the importance of that epoch which he describes when we hear that in a single day hospital gangrene was banished from the Allgemeines Krankenhaus, of Munich, by the adoption of Professor Lister's principles. We are told that pyæmia and erysipelas also soon disappeared, and that the transformation in his own wards in the Glasgow Royal Infirmary was almost equally marvelous. In reading Lister's masterful address, one sentence in particular caught my eye. He has been reviewing the question of putrefaction in wounds, and to illustrate the desperate state of affairs at the time he began his researches, he mentions that Syme, to whom he refers as "the safest

surgeon of his time," was inclined to believe that amputation, rather than any attempt to save the limb, was the proper course to pursue in all compound fractures of the leg. In his search for some way of preventing putrefaction, he remarks: "I had done my best to mitigate it by scrupulous ordinary cleanliness and the use of various deodorants." No positive results were obtained until he began the use of carbolic acid, to which he still adheres as the safest and most effective antiseptic.

Whether we accept with Lister the germ theory of disease and the principles of antisepticism, or discard with derision every antiseptic detail; whether we pin our faith to germicidal agents known to be fatal to bacterial organisms, or endeavor to combat "certain specific poisons of unknown nature" in accordance with rules of simple cleanliness, it is obvious that there are *degrees* of cleanliness, and that the more rigid our observance of careful methods of practice, the greater will be the reduction in the chances of infection from whatever source. It may be difficult, and perhaps unnecessary, to shut out every septic germ from the upper air-passages, but we may readily exclude the commoner and coarser forms of wound infection.

In looking over the eighteen volumes containing the record of our labors, we shall find cause to congratulate ourselves upon the spirit of wise conservatism which has characterized our work. We may flatter ourselves that we have not been carried away by fads of the moment. In the wild haste to gain fame and fortune from a new idea, the temptation is strong to present crude and untried theories as established facts. The premature announcement of new cures for tuberculosis, which experience has proved to be inert or injurious, has taught us a healthy skepticism. It is well, however, to cultivate a judicial temper of mind and not reject everything new, because of its novelty, without thorough trial. Statistics are, no doubt, misleading; but every allowance being made for variation in severity of epidemics and for other modifying conditions, there is reason to hope that

in diphtheria antitoxine we have an agent capable of, at least, restraining the ravages of that terrible scourge. The spirit in which the question is still being investigated, especially by the American Pædiatric Society, can not be too highly commended.

With the marvelous growth of specialism in medicine laryngology has more than held its own. Nevertheless, we not infrequently hear the question asked, After all, what has the laryngoscope accomplished, especially with relation to the development of the singing voice? I fear that we shall be compelled to admit that it has done little or nothing more than corroborate theories and knowledge acquired in other ways. Vocalization is a very complicated process. On the one hand, we know that a normal larynx is essential to a perfect voice; on the other hand, we know that one may learn to speak intelligibly without a larynx, by means of the aid provided by the accessory organs. These accessory structures—the lips, the teeth, the tongue, the palate, the pharyngeal wall, the nasal chambers, and the bones of the skull—all contribute their part to vocal function. An imperfection, a deviation from normal conformation or proportions in any one of these, must inevitably modify the quality of the voice to a degree more or less perceptible. While we are by no means agreed as to all the elements concerned in the correct production of the singing voice, it may be said that nearly all the information given by the laryngoscope as to the movements and position of the vocal bands during tone formation had been already furnished by dissection of the larynx. We knew beforehand, from the attachment of the intrinsic muscles of the larynx, what must be the action of individual fibres in accordance with well-known mechanical laws. The laryngoscope does not tell us why, of two individuals, with apparently identical vocal apparatus, one is a great vocalist and the other can not sing a note. Nor does it tell us why a singer with a voice of fine quality and perfect intonation, and used in accordance with a so-called good method, fails to thrill us. In other words, no scientific theory and no instruments of precision will discover

that musical instinct, that artistic temperament, which inspires the voice of every great singer. No more trying ordeal confronts the medical practitioner than the attempt to manage the case of a youthful aspirant for lyric honors to whom Nature has denied those gifts essential to success. On the other hand, he experiences no more intense satisfaction than in proving his ability to restore a lost voice or in giving such advice as will assist in its recovery. Here, then, is the chosen and successful field of our art. An individual comes to the physician with hoarse, husky, or whispering voice. No one can deny the importance and feasibility of determining with accuracy, in most cases, the site of the difficulty—whether it be a fault of innervation, a defect of muscular action, a neoplasm or overgrowth of tissue, or a simple inflammatory condition. In the detection and relief of disease, and in thus protecting and preserving the singing voice, the laryngoscope will continue to be of inestimable value.

We are compelled with regret to chronicle the occurrence of two breaks in our ranks since we last met—one owing to the resignation of Dr. Clinton Wagner, of New York, and the other to the death of Dr. Charles M. Shields, of Richmond, Virginia. Dr. Wagner was one of the original members of the association and has added not a little to the fame of our organization.

In the death of Dr. Shields we have lost a most genial and accomplished gentleman. During the few years he had been with us his industry, his exceptional mental endowments, and his attractive personality had fully vindicated his title to membership. He joined the association in 1893, and had been an active and efficient fellow. The announcement of his death will be heard with sincere sorrow.

A suggestion or two as to our management may be permitted. In the first place, let me ask you to consider the propriety of increasing our annual dues. You are made painfully aware about every three years of a deficiency in our revenues by a call from our worthy secretary for an extra assessment. It seems to me and to some

other members of the council that a slight addition to our income would be desirable, not only to forestall our triennial exigency, but to provide us with a fund for other purposes. For example, it would be eminently proper for this association, as a body, to be represented on the subscription lists of memorials to distinguished members of our profession who have passed away. Individually our response to such calls is always liberal, but as an organization it seems to me we should recognize movements of this character.

Another purpose to which a part of a surplus fund might be devoted is the collection and preservation of instruments devised by members of the association. At our meeting in 1894 a committee was appointed to consider this matter. The plan they suggested of necessity involves more or less outlay. If suitably provided for, such a collection would be of interest and value.

Still another project has long been in my mind, but may seem to you impracticable and utopian—namely, the establishment by this association of a bulletin, or periodical, which should be not only the official organ of this society, but the mouthpiece of all American laryngologists. In view of the long list of names of those more or less identified with our specialty in this country and of the voluminous literature relating to diseases of the throat and nose, it seems not unreasonable to expect that such a publication would receive adequate support. The realization of this hope may not be impossible, and I venture to commend the idea to your serious consideration.

No reference to the events of the year which has elapsed since our last meeting would be complete which failed to mention the continued interest manifested in the new world opened to us by the Röntgen ray. We may take pride in the fact that one of our corresponding fellows, Dr. John Macintyre, of Glasgow, has been especially active and successful in experimenting with this wonderful discovery. It remains to be seen whether it will be of any practical value to us in our special line of work. In locating foreign bodies and in determining

the dimensions of tumors and the extent of infiltration in malignant disease, it may prove to be of service.

At the meeting of our association a year ago a committee was appointed to draft a memorial to Congress protesting against the adoption of a bill to restrict vivisection. In our business meeting to-morrow we shall hear more in detail of this matter. Let me remind you, however, that it becomes us to approach this subject with caution, and at the same time with candor. Such apparent brutalities are said to have been committed in the name of science that we can hardly wonder at the earnestness of those who oppose vivisection. On the other hand, the extravagant and intemperate language of some fanatical antivivisectionists is most exasperating. If scientists may be justly charged with misrepresentation, surely the arguments of their opponents have, in many cases, descended to vituperation. While the question would seem not to concern us very closely as specialists, yet we find that one of our fellows, whose memory we cherish, was a particular object of attack by certain champions of the dumb animals. You have not forgotten the warm discussion which took place at our meeting in New York, in 1887, when our lamented friend, Hooper, read his paper on the Anatomy and Physiology of the Recurrent Laryngeal Nerves. With the exception of that paper and others by him, and of contributions in a similar line by Donaldson, the record of our work in our published *Transactions* contains little or nothing which may be fairly regarded as the product of that barbaric ferocity which is supposed to characterize the bloodthirsty frequenters of the physiological laboratory. Yet the subject is one of vital interest to all scientific physicians. Who shall say that vivisection has accomplished nothing, has bestowed no boon upon humanity in view of the achievements of Harvey and of Magendie, of Claude Bernard, of Pasteur, and of our own investigators? The jubilee of anæsthesia might not have been celebrated last year had sympathy for the lower animals prevailed. Without preliminary tests even Morton, with all his courage, would hardly have dared

to apply his beneficent discovery to human beings. Thus the race might have been long deprived of that blessed immunity from pain which it has enjoyed for the last fifty years. The lives and the sufferings of thousands of such animals as are used in experimentation are not to be considered if a single fact which may improve the health and increase the happiness of mankind may be established. More than that, we claim that vivisection is justifiable and should be permitted as a means of impressing certain important phenomena upon the minds of students in our schools, not indiscriminately to a general medical class, but to the more advanced and special students in pathology and biology. As a stimulus to interest, as an incentive to study, and as a means of perfecting technical skill, vivisection is a valuable educational resource. No reasonable man can object to restrictions which look to the prevention of wanton cruelty, but those contemplated by the bill and urged by ill-informed agitators of the question would practically prohibit animal experimentation in the District of Columbia. The adoption of the proposed measure would be merely a step to the introduction of similar bills elsewhere, with the result of eventually closing all our schools for biological research. Erelong we should reach the condition of our English cousin, a celebrated surgeon, who, bemoaning the difficulties of vivisection under the stringent law of Great Britain, remarked that he had filled many graveyards with human beings in learning intestinal surgery. Probably our friends are not aware that they are offering themselves as substitutes upon the sacrificial altar of science. What shall we say of the sickly sentimentalism which evokes spasms of maudlin sympathy over the death of a worthless dog and sits with folded hands before the horrors of the unspeakable Turk, or denies to suffering humanity hope of exemption from disease, the study of which may be most readily conducted upon the lower animals? A distinguished Philadelphia physician is being extensively quoted as representing the more enlightened sentiment of the profession. One of his points which our "humane" friends have taken

up with great alacrity refers to the ingenious contrivances for confining animals in position for vivisection. The necessity for such apparatus is thought to indicate that the anæsthesia employed "is frequently nominal rather than real," whereas the immobility of human beings in surgical operations is secured by profound anæsthesia. I should hesitate to invite this tender-hearted gentleman to witness one of my own operations for adenoids, in which the reflex, unconscious struggling of the patient under partial anæsthesia and while the operation is in progress would surely appall the souls of our gentle critics. The childlike reasoning which jumps at the conclusion that every movement of an animal or of a human subject under anæsthesia is an index of pain, is quite in keeping with most of the arguments against vivisection, and only merits attention because persistent repetition of even the most baseless of statements finally gives it a certain authority. It is to be hoped that the good sense of our lawmakers will enable them to relieve the question of the plausible sophistries and silly calumnies associated with it by ignorance and prejudice. Let it be our duty to show the world that we are not actuated by motives of frivolous curiosity. Let us endeavor to disabuse the public mind of the notion that we are a cruel and heartless band of inquisitors. Let us demonstrate the fact that many of the advances in surgery and therapeutics hitherto made have had their origin and confirmation in experiments upon the lower animals, and that one of our great hopes for future progress in these departments rests upon further intelligent and unhampered exploration.

In conclusion, let me again express my keen appreciation of the honor you have done me in choosing me to preside over your deliberations. May I, without impropriety, express the hope that no shortcomings of mine may by contrast add brilliancy to the official career of my illustrious predecessors? To that end permit me to crave your forbearance. It now gives me pleasure to invite your attention to the programme which has been prepared for your consideration, and to declare the

Nineteenth Annual Congress of the American Laryngological Association open for business.

*Paper.*

## GUAIACOL AS A LOCAL ANÆSTHETIC IN MINOR OPERATIONS ON THE NOSE AND THROAT.

By JAMES E. NEWCOMB, M. D.

The old advice "to let well enough alone" is as applicable in medicine as elsewhere. Considering the ease and comparative lack of disagreeable by-effects with which local anæsthesia for minor operations on the nose and throat is obtained with cocaine, the query naturally arises, Why seek further? In reply it may be said that cocaine is not always devoid of very unpleasant and even alarming after-effects, and it is always assuring to have more than one string to one's bow.

Several substitutes have been suggested for cocaine. Perhaps the most prominent rivals have been eucaine and tropococaine. The former has the advantage of not spoiling when kept and of not being decomposed by heat. It is said to dilate rather than contract the blood-vessels. I have had no personal experience with either of them, and they do not seem to have come into any extended use.

In 1895 Lucas-Championnière brought up before the Academy of Paris * the question of the possibility of using guaiacol for local anæsthesia. The matter had been suggested to him by André, a Parisian chemist.

First, a word about guaiacol itself. It is, as you know, the active principle of creosote. The latter itself is not a definite product, but a mixture containing, along with guaiacol, toxic cresols and toxic derivatives of pyrogallol. Liquid guaiacol is never quite pure, as it contains only seventy-five per cent. of the pure substance. Chemically pure guaiacol is a pharmaceutical possibility, but, like all the phenols, it is too irritating to be used

* *Bull. de l'Acad. de méd. de Paris*, July 30, 1895.

except in very small doses. Moreover, it has an offensive odor and a burning, bitter taste.

Raymond * and others have suggested its employment by friction in cases of acute tonsillitis; so also Scroda.†

Lucas-Championnière advised its employment by incorporation into ointments and its subcutaneous injection for local anæsthesia in various minor surgical conditions. He found its employment without danger, and offering as complete anæsthesia as did cocaine. At first it was dissolved in oil of bitter almonds. The amount employed for injection was five centigrammes of a five-per-cent. solution. In tooth extraction painful sensation disappeared, while tactile remained. At first, some eschars appeared on the tongue, but these were referred to a bad method of injection and an initial defective solution. Anæsthesia was fair in five minutes after injection and complete in seven or eight.

In the discussion following the paper above alluded to Magitot suggested that the remedy was hypothermic, antipyretic, anæsthetic, and analgetic. Laborde declared that it possessed an intense vaso-constrictor action, to which the sloughs could be assigned. Ferrand found hypothermia, lypothymia, and even incipient collapse follow its use, but no alarming accident.

Its first definite application in the special field of laryngology was made by Laurens.‡ This writer found it necessary to purify the oil before the introduction of the guaiacol. This special mode of purification is hereinafter referred to. In aural practice he advises the preliminary cleansing of the ear with some warm alkaline fluid, then with an antiseptic, and finally the instillation of five or six drops of the warmed guaiacol solution. This is left in for some fifteen to twenty minutes and then withdrawn with hydrophile gauze. Under these circumstances he was able to perform paracentesis of the drum. It is worthy that the remedy succeeded here in a field where

* *Medical Record*, March 24, 1894.

† *La Sem. méd.*, No. 27, 1894.

‡ *Ann. des mal. de l'oreille*, xxii, 1896, p. 9.

cocaine is of little benefit. His first case was that of a nervous patient convalescent from typhoid fever, and the puncture caused but very little pain. In his second, a neuropathic individual, the anæsthesia was incomplete, but the puncture was effected with but very little annoyance to the patient. He ventures to observe that guaiacol may be of service in incising furuncles of the meatus.

In the nose, he advises the laving of the operative field two or three times with the solution, and then the application of a saturated tampon in the usual manner. To produce anæsthesia a much longer time is required than with cocaine. Fifteen to twenty minutes, however, suffice for an ordinary intranasal operation. Laurens made seven cauterizations of the inferior turbinates. In four there was complete anæsthesia, and in the remaining three only a slight sense of burning. He noted, as an effect of the application, only a slight retraction of the tissues, and this was probably due to the massaging of the erectile bodies. At first, indeed, there may be an initial tumefaction of the tissues. Hence guaiacol can never be as serviceable as cocaine where we wish to make a methodical examination of the nares, or in cases of supposed reflex neurosis, to determine the possible existence of sensitive areas.

The same thing is true with reference to the so-called mucous polyps. The cold snare was used in six cases of the latter without pain, and a like happy result followed in one case where the hot snare was used in polypoid degeneration of the middle turbinate.

In the pharynx Laurens found anæsthesia more difficult to obtain, owing to the reflex movements which the remedy caused. He bathed the operative field thoroughly three or four times. He records five cauterizations of voluminous granulations of the buccal pharynx (three being in women) without pain, three of tonsils in infants with a like happy result, and two of removal of tonsillar tissue by forceps (*traitement par morcellement*). The remedy proved a failure in one case of attempted removal of a tonsil with the hot snare. Laurens also corroborates the statements of Raymond as to the efficacy

of guaiacol in acute amygdalitis, a daily application causing an abatement of all local symptoms for twelve hours.

In the larynx the slight absorption of the remedy proved an obstacle to satisfactory anæsthesia. There might have been a possible utility in submucous injections, but these were not tried. Repeated applications were necessary to cause the slightest deadening of local sensibility.

Laurens further notes that the remedy forms a sort of emulsion with mucus, a sort of whitish magma which, previous to operation, should be removed with hydrophile cotton. No eschars resulted after application, though tumefaction sometimes remained for twenty-four hours. There was no sweating or disturbance of either the respiratory or circulatory systems.

The only other article on this special application of guaiacol which I have seen is one by Geronzi.* Finding, as did Laurens, that the oily solution of guaiacol made with mucus, a whitish magma, disagreeable alike to both patient and operator, it occurred to him to make a solution in alcohol. We know that alcohol at 90° produces a caustic action, and tissue retraction ensues both by the coagulation of the albumin of the tissues and the abstraction of water, and that at 25° it produces painful sensations. Alcohol alone constricts the vessels, produces a coldness and paleness of the parts, and consequently a slightly anæsthetic action. Under such circumstances it should not be stronger than fifty per cent. Geronzi finally settled on a solution composed of two grammes of guaiacol dissolved in fifteen grammes each of alcohol at 90° and distilled water. To destroy the disagreeable odor of the mixture he added a few drops of oil of bergamot or tincture of vanilla. As regards the relative advantages of the oily and alcoholic vehicles, the former allows the guaiacol to remain longer in contact with the tissues, but the latter has the greater diffusive power.

Geronzi's personal results were as follows: In four cases of nasal polyps and in five of cauterizations of the inferior turbinates, sufficient anæsthesia resulted in fifteen

* *Arch. ital. di otol.*, iv, 1896, p. 323.

minutes to enable the necessary manipulations to be made without pain. No special features were noted. In the pharynx it was successfully used seven times for granulations. In two cases of nasopharyngeal polyps, in spite of frequent applications to the soft palate, it did not effect sufficient abolition of the reflexes to allow of the proper use of the rhinoscopic mirror.

In the ears the drum was punctured four times, granulations removed from its surface twice, polyps five times, and the malleus was removed three times. There was not always complete anæsthesia, but then this is not always the case with cocaine. Application also relieved various aural pains. This latter result was doubtless favored by the cooling and anæsthetic effect of the alcohol. In attacks of middle-ear trouble a certain disadvantage arose from the fact that the field became obscure. This was probably due to oxidation, which arose from contact of the guaiacol with the blood, an obscure color being thereby produced. Geronzi suggests that guaiacol prepared by synthetic crystallization would probably be more constant in action and less irritating. In general, he summarizes the disadvantages of guaiacol as compared with cocaine as follows:

1. It produces burning and formication.
2. It does not retract the tissues.
3. It requires a long time for action.

So far as I know, the two papers just alluded to comprise all that has been written upon this particular application of the remedy now considered. The fairly favorable reports concerning its use led me to give it a trial. At first a five-per-cent. solution in olive oil was made, and later a weaker solution in alcohol. The latter seemed to cause considerable smarting, though offering no better anæsthesia than the oily one, so after a few trials its use was abandoned. Guaiacol does not mix well with olive oil, even the purest. The latter must first be cleared of its albuminoids, resinoids, and coloring matters by zinc sulphate, and from its free fatty acids by absolute alcohol. Mr. A. P. Kerley, a skillful chemist of New York, kindly experimented on

these points for me, and after a few trials devised the following formula: To a given weight of oil ten per cent. of dried sulphate of zinc (by weight) is added and the mixture heated over a water bath for an hour. It is then filtered, and then twelve and a half per cent. of absolute alcohol (by weight) introduced. It is shaken occasionally for a few days and then decanted. The result is a clear limpid fluid with which guaiacol mixes readily.

The oily spray applications, tampons, and injection by needle have all been employed. Quite to my surprise, I have not noticed in a single instance the formation of a whitish magma or emulsion mentioned by both the writers quoted. I have employed guaiacol as a local anæsthetic thirty-six times on twenty-eight different patients, sixteen men and twelve women, whose ages ranged from sixteen to fifty-five years. The conditions treated were as follows: In the nose, cold snare for polyps, 3; and for polypoid degeneration of the middle turbinate, 2; curetting of ethmoid cells, 4; removal of sæptal spurs and ridges by saw, 5; cauterization of the inferior turbinate, 2, and of the middle, 3.

In the pharynx, large tonsils were cauterized eleven times, lingual tonsil once; granular pharyngitis curetted twice, and uvulotomy done once.

In the larynx the remedy was used only once—viz., for anæsthetizing the surface of a tuberculous ulcer to which a strong solution of lactic acid was to be applied.

Of the results, so far as anæsthesia was concerned, it was perfect in fourteen, partial in sixteen, very slight in two, and wanting in four. These results might have appeared in a better light if I had waited in many instances longer before beginning the operation. The course followed in this respect was to determine the time limitations of this remedy. In looking over the tabulated results, it is seen that of the four cases in which anæsthesia was wanting the time of application in two was only three and six minutes respectively. The same is true of the cases called "partial," most of them having had the remedy applied less than eleven minutes.

It is distinctly stated by both Laurens and Geronzi that the action of guaiacol on mucous surfaces is much slower than that of cocaine, requiring from fifteen to twenty minutes for complete absorption. On the other hand, I have obtained complete anæsthesia in ten minutes.

In spite of the fact that guaiacol is said to have no power to contract the vessels, I have not noticed any more bleeding in cutting operations than with cocaine. With the remedy in aural practice I have had no experience. If, as Laurens and Geronzi assert, paracentesis of the drum membrane can be done without pain, it would appear that guaiacol is a remedy of very great value, for it is well known that at this particular anatomical site cocaine has but very little effect, as we have to do with a surface which is essentially cutaneous rather than mucous in structure.

From no point of view can it be maintained that guaiacol is superior to cocaine. I have made no such statement, but have sought to fairly record clinical results. Guaiacol requires for absorption a much longer time than does cocaine. In oily solution, at least, it is more difficult to prepare and less agreeable to handle. To some few people its odor is disagreeable.

In the cases thus far reported, numbering, with my own, ninety-eight in all, not the slightest constitutional effect (much less a dangerous one) has been noted. The anæsthetic effect is less certain than that of cocaine, but where, for any reason, the latter is inadmissible, guaiacol is in the majority of cases a reliable substitute.

*Discussion.*

Dr. H. L. SWAIN: I should like to inquire if Dr. Newcomb has made any observations upon the penetrating power of guaiacol as an anæsthetic. I mean in operations where there is need to go some distance beneath the surface—in sawing the sæptum, or curetting, for instance —whether he would get as much penetration with guaiacol as he would from the use of cocaine.

Dr. NEWCOMB: So far as I observed, I found the anæsthesia as complete as with cocaine, allowing the requisite amount of time for the guaiacol to act, as it is much

slower in producing its effects than cocaine. If any one were to use this remedy and forget that it requires from fifteen to twenty minutes to produce its anæsthetic effect he would be disappointed with it. In answer to the question of Dr. Swain as to its penetrating power, I would say that it is quite as great as cocaine, but slower. So far as sæptum operations go—in sawing, for instance—I have been pleased to see how complete the anæsthesia was. In four cases that I can recall I inquired on this point of the patients, though without asking any leading questions, and they all declared that the operation had been free from pain. At the request of several of the fellows, I will read the formula again for the solution: "To a given quantity of olive oil, add ten per cent. of dried sulphate of zinc, by weight. Heat this over a water bath for an hour, filter, and then introduce twelve and a half per cent., by weight, of absolute alcohol. Shake occasionally for a few days, then decant, and introduce five per cent. of pure guaiacol."

*Paper.*

## SUBMUCOUS HÆMORRHAGE OF THE VOCAL CORDS.

By S. W. LANGMAID, M. D.

The occurrence of five cases of submucous hæmorrhage in the vocal cords has seemed to me worthy of record, especially since these lesions had a definite cause and were so similar in appearance and situation, and because few like cases have been reported.

The situation of the extravasation was in every case at the junction of the anterior with the middle third of the cord. In only one case was the hæmorrhage diffused, but, with this exception, it consisted of a globule of blood underneath the delicate mucous membrane, whose diameter was nearly that of the transverse diameter of the cord.

This red disc was as well defined as is the globule of air in the mechanic's spirit level—in fact, that appearance and its *apparent* movement during phonation made the comparison inevitable. That the situation of the hæmorrhage in the exceptional case was the same as

in the others was afterward shown by the small hæmatomatous tumor which remained after the extravasated blood had been absorbed.

In every case the cause of the hæmorrhage was vocal strain, long continued or sudden, where there had undoubtedly been a previous catarrhal condition. The occurrence in every case was marked by sudden vocal inability. All the patients were singers except one, and he was an actor. Two of the patients were males; their ages varied from twenty to sixty years, but most of them were under thirty-five years of age. The impairment of the voice consisted in hoarseness and, in singers, in limitation of register in the upper notes.

That the laryngeal catarrh was an important factor in this laming of the vocal apparatus I have no doubt, because the lack of tension seemed to exist equally in both cords, and not especially in the cord into which the hæmorrhage had occurred.

In four of the cases the hæmorrhage occurred in the right cord; in one it was in the left. In the latter the extravasation was smaller and it disappeared sooner. In every case the cure was perfect and the voice restored.

The cause of this lesion is, in my opinion, as follows: In consequence of a laming of the vocal muscles from a catarrhal chorditis much greater force is required than is natural to bring the glottis into sounding position. This results in congestion, even to the extent of rupture of a blood-vessel. The congestion certainly occurs in the catarrhal larynx when no rupture of a vessel results.

That bad vocal technics is not always a factor in this lesion is shown by the fact that it occurs to the most finished and effective singers. One of my patients is one of the greatest lyric actors, and has been for more than thirty years a most brilliant and accomplished singer.

It can not be doubted that the misdirected vocal efforts of an untaught singer who possesses great physical ability would tend to produce the accident which has been described; nor that frequently repeated attempts to use a register or quality of tone foreign to the natu-

ral voice, as in the case of the actor to whom I shall refer, would result in some such lesion. The history of the following cases, however, would show that a pre-existing catarrhal condition is the factor which predisposes to the laryngeal apoplexy:

Case I.—Miss W., aged about twenty years, unusually robust and taller than most women. A pupil of the conservatory of music. Her instruction had not been such as would insure the best voice delivery. A slight laryngeal catarrh had existed for some weeks and had probably been perpetuated by unwise vocal practice, which seemed necessary in view of a public performance on the occasion of her graduation from the conservatory. After successfully singing at this performance, which was in a very large auditorium, she became instantly aphonic and had pain in the region of the larynx.

The examination which I made the following day revealed the condition which I have described—viz., a globule of blood in the right vocal band. The lack of tension of the vocal cords was very marked. Complete rest of the laryngeal voice, with the ordinary local applications for the catarrhal condition of the larynx, resulted in complete restoration of the voice. The extravasation disappeared in a few days.

Case II.—A leading young actor, who was performing every night in a play which required the use of two qualities of voice. To represent a double personality he was obliged to make use of a cramped position of the neck, and at the same time to speak in an acquired, unnatural low quality of voice. The result was hæmorrhage into the right cord, which assumed the globular form which has been described.

Another play was substituted for the one that had produced the accident, and the effusion was quickly absorbed. In this case there was a marked laryngeal catarrh of recent origin which had caused some hoarseness.

Case III.—A world-renowned barytone and actor, at the close of a long engagement during an especially inclement winter, was found to have the same submucous, globular hæmorrhage into the right cord. Slight hoarseness had been previously complained of, but the patient was such a consummate actor and singer that he was able to almost conceal a defect of voice which would have disabled a less experienced artist.

The extravasated blood was quickly absorbed—in

fact, it had almost completely disappeared after seventy-two hours.

CASE IV.—Miss A., teacher of vocal music in the public schools. She said that the voice had gradually become somewhat hoarse and that she had to use great efforts to continue her work. Her general strength was so great, however, that she persisted in performing her duties, until suddenly she became aphonic and suffered from laryngeal pain.

When I saw her, after five weeks or more, the voice was quite hoarse but had regained some vocal quality. The right cord was uniformly red from extravasation of blood under the mucous membrane. There was also laryngeal catarrh.

The patient was made to use a slate for all communications for some days. Then whispering was allowed, and as the extravasation was seen to disappear the natural speaking voice was resumed.

After a month nothing remained of the hæmorrhage except a minute dusky red granule on the edge of the cord, at about the junction of the anterior with the middle third. This was swept off by forceps, and in a few days the speaking voice was perfect. Singing was gradually resumed, and the patient performed her regular duties as a singing teacher and leading soprano in a church choir.

CASE V.—Miss N., a chorus singer in an English opera company. Health and strength unusually good. In addition to singing in the chorus during eight performances each week she was ambitious to assume leading parts, and was therefore constantly studying to acquire leading rôles, for which it should be said she had the ability.

Such extravagant use of the voice had produced a laryngeal catarrh and some loss of tension of the cords, the effect of which was to render the attack and continuation of the tone difficult unless unusual effort was made.

The opportunity to assume the difficult rôle of Ortrude was suddenly afforded her and, against my judgment, was undertaken. The performance was in every way creditable, but almost complete aphonia resulted. The next day examination showed a globular extravasation into the left cord which, as she continued to use the voice, became slightly diffuse. After three days absorption was complete, and after some weeks the voice became quite normal.

It will be noticed that in none of my cases was there hæmoptysis. In similar lesions recorded by others more or less hæmoptysis was the rule, and in a few of these cases the extravasation was recurrent. In none of them has the peculiar globular extravasation been described.

The case related by Dr. Dundas Grant has some points of similarity to mine. His patient was a young lady, twenty-four years old, who experienced sudden hoarseness and loss of voice. In the left cord there was a submucous extravasation involving its whole extent. Ten months later there was a return of the same appearances, "except that the redness stopped short at the vocal process posteriorly and the prominence was most marked at the junction of the anterior with the middle third of the cord." A vascular tumor of the size of a hempseed existed near this point, attached to the upper surface and edge of the cord. The cause in this case was a fit of sneezing or some vocal effort.

In view of the fact that a similar tumor was left in one of my cases after the subsidence of the extravasation would seem to indicate that hæmatomata of the cord may always have their origin in such extravasations.

In none of my cases were both cords affected, although this is rather the rule than the exception in observations by others.

Laryngeal pain was frequently complained of.

With regard to prognosis, it may be said that all cases recover, and very quickly, the only exceptions being those where a vascular tumor remains, which must be removed before the voice can be restored.

The treatment should consist, first of all, in *absolute* rest of the voice when this is possible.

The laryngeal catarrh will be removed by such rest and by the local use of astringents. I have thought that application of menthol by means of a spray has been efficacious.

To help in the restoration of the vocal tension, strychnine and, after the complete disappearance of the extravasated blood, intralaryngeal galvanization may be beneficial.

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*Discussion.*

Dr. J. W. GLEITSMANN: I reported a case of laryngeal submucous hæmorrhage to this association as long as nine years ago. It was quite different from those just reported in its origin, and also in the appearance of the submucous effusion. It was caused by a very severe blow received on the larynx, producing a contusion of the posterior part. There was considerable effusion in this part, especially over the arytænoids, and it extended forward over the ventricular bands to the junction of the middle and anterior thirds. There was free hæmorrhage; the man spat blood for three or four days; soon afterward the effusion disappeared by absorption. If I am not mistaken, our late fellow-member, Dr. Morgan, reported a case, also in a singer, in which the ventricular band was swollen. After the blood was wiped off from the surface, and the swelling reduced, he found a lesion also in the vocal cord; therefore there was a lesion of the vocal cord as well as of the ventricular band. Both of these cases, I remember, recovered without any difficulty.

Dr. C. E. BEAN: It was some ten years ago that I reported two cases of submucous hæmorrhage of the vocal cords to this association. In one case it was a recurrent hæmorrhage; three times, I think it was, that it occurred—it has been so long that I hardly remember—but this man was not a singer, he was a business man

in ordinary position in life, and with no reason for any great strain upon his vocal cords. It is true that, as in Dr. Langmaid's cases, there was a catarrhal condition, that had existed for several years previous to the hæmorrhage, and, contrary to the case reported by Dr. Langmaid, it was a considerable length of time in getting well. He had no special treatment outside of rest and constitutional remedies. The effusion lasted for several weeks. He had no hæmorrhage, either at that time or since. He has been under my care on several occasions since then, and, although he has had several attacks of acute laryngitis, there has been no recurrence of the hæmorrhagic effusion.

Dr. LANGMAID: In closing, I should like to say that although I did not report observations made by others a number of references will be found at the end of my paper. I recall, however, a similar case reported by Dr. Douglass Grant, the particular points in which, as in the other cases, were that there was no hæmoptysis and there was no recurrence. I have seen no case of recurrence, and therefore I did not think it worth while to mention it.

The fact that a small hæmatoma was left in the place of the effusion seemed to me to be worthy of record for the light that it throws upon the origin of such growths. It would seem as if this condition must be much more frequent than is ordinarily supposed. A patient, who has been suffering with laryngitis, suddenly becomes hoarse and aphonic and may not consult a laryngologist at this time, but when he comes under observation later the hæmatoma is discovered. Another point I think worthy of remark is that the same observer should have seen these several cases of the same kind, having the same cause, and pursuing the same course; the observations having extended over several years. The fact that there was no hæmoptysis, that the condition was caused by some strain and on top of a laryngeal catarrh, and the fact also that they all recovered so quickly without treatment, except rest, seemed to me sufficient reason for bringing the subject before the association. I also feel that I was justified in reporting these cases in view of the fact that in the discussion there was so little comment upon them.

*Paper.*

## HYSTERICAL DYSPHAGIA.

By A. COOLIDGE, Jr., M. D.

My excuse for bringing before this meeting a subject which has nothing new is simply a plea that it should receive the attention among other neuroses of the throat to which its frequency entitles it. Hysterical aphonia is regarded as an entity, and is recognized or suspected by every practising physician because its possible existence is common knowledge and the diagnosis is comparatively simple. But with hysterical dysphagia there is no such distinct type, it is not so easy to rule out other possible causes, nor to follow accurately the perversion of function in the mechanism of swallowing.

The occurrence of functional dysphagia was described as early as 1733 by Hoffman. With the growth of medical literature the number of cases reported in which pronounced dysphagia was evidently not dependent upon organic disease increased until they were no longer thought worthy of record unless showing some peculiarity of symptoms, age, or sex. Most of these cases are described under the head of œsophageal spasm or œsophagismus, and are often called hysterical in the absence of other apparent cause.

The subject of œsophageal spasm appears in medical text-books since the time of Hoffman, and especially since the researches of Mondière * in 1833. Bamberger † describes it as a spasm occurring more frequently in the upper part of the œsophagus with simultaneous spasm of the constrictor pharyngii, not infrequently in the neighborhood of the cardiac end, and sometimes in any part of the gullet; it may travel upward, as in globus hystericus, with the sensation of an ascending ball. It may come on spontaneously, or only with attempts at swallowing. If high up and in the pharynx there is

* *Arch gén. de méd.*, April, 1833.

† Virchow's *Pathol. und Therap.*, Bd. vi, p. 94.

complete dysphagia; if lower down, regurgitation. He doubts if there is ever a complete idiopathic cramp. It may be due to disease of the brain or pneumogastric nerve, or be a reflex disturbance from the uterus, stomach, heart, respiratory organs, or disease of the œsophagus itself. It may occur with emotional disturbance, seasickness, or hysteria; from poisoning by belladonna or other drugs, and it is a pronounced symptom of hydrophobia. Sir Morell Mackenzie * quotes several reported cases, many of them hysterical. He believes that a gouty condition of the blood is the most common source of reflex disturbance of the gullet, excepting foreign bodies. Pepper † says that œsophagismus is often associated with other evidences of neurosis, but sometimes constitutes the sole manifestation. It can sometimes be traced to a fear of strangulation induced, primarily, by some accidental impediment to deglutition, or the entrance of some foreign body. Fitz ‡ notes that there may be pain—either dull, a sense of constriction, or burning and darting—or there may be no pain at all. Osgood * reports a series of cases which he calls a peculiar form of œsophagismus, in which sudden attacks of distress—apparently arising from the lower end of the œsophagus, with pain radiating along the œsophagus, sometimes through the pharynx, into the ears—came on without apparent cause. Hyperæsthesia of the mucous membrane of the œsophagus is mentioned as a possible cause of œsophagismus by Rosenheim || and others. Hyperæsthesia of the pharynx is often associated with it. The lingual tonsil is sometimes thought to be responsible for many of these cases. Operating upon it will sometimes remove the symptoms, but so also do many other suggestive manipulations.

Although many cases of œsophagismus are hysterical, and most cases of hysterical dysphagia exhibit a true spasm of the œsophagus, we must not consider these con-

* *Diseases of the Throat and Nose*, vol. ii, p. 207.

† *System of Medicine*, vol. ii, p. 419.

‡ *Twentieth Century Practice of Medicine*, vol. viii, p. 110.

* *Boston Medical and Surgical Journal*, April 25, 1889.

|| *Allg. med. Central.-Ztg.*, 1895, lxiv, 1173.

ditions identical. Œsophagismus may be the only symptom in the beginning of a cancer of the cardiac extremity, or be due to reflex from some other unsuspected disease, especially in the domain of the vagus, spinal accessory, and glossopharyngeal nerves. Some of these reflexes may be more or less hysterical, but we must be careful not to diagnosticate hysteria too quickly when we find œsophageal spasm. And, on the other hand, dysphagia may be purely hysterical without any spasmodic contraction. This is the case in hysterical paralysis of the œsophagus, in which the constrictor of the pharynx sometimes joins. In these cases solid food may be more easily swallowed than liquids; and pieces of food may become lodged in the gullet. There is no pain in swallowing, and a sound passes very readily.

In the records for the hospital out-patient clinic for diseases of the nose and throat in my service I find a diagnosis of functional difficulty in swallowing in about one in every five hundred cases, or about one fifth of one per cent. I shall not report my cases in detail, as the clinical picture is a familiar one.

Briefly, functional dysphagia occurs more frequently in women than in men, but it is not uncommon in the latter, and may appear in children.* It is sometimes met with in pregnancy without other cause, and may be induced by emotional strain or by reflex irritation from some other part of the body. There may be pain, or a sense of constriction, or a feeling of a foreign body in the gullet often at about the cricoid cartilage, or even higher. The condition may be associated with globus hystericus or other evidence of hysteria, or the dysphagia may be the only symptom. Where there is evident spasm of the gullet, this comes on in advance of the act of swallowing.

The onset is generally sudden, not infrequently dating from a temporary lodgment of a foreign body, an acute pharyngitis, or amygdalitis. Liquids can generally be swallowed with much less difficulty than solid food,

* Haushalter. *Med. mod.*, 1891, ii, 176.

and the amount of difficulty varies more or less at different times of the day, or from day to day. There is often loss of flesh and weakness from lack of food. There may be regurgitation from the œsophagus, but this is rare. In many cases the trouble seems to be pharyngeal rather than œsophageal. The symptoms may have persisted, generally with more or less intermission, for months or even years; or after entire relief may recur, following a recurrence of an acute pharyngitis or other exciting cause.

An œsophageal sound may pass without obstruction, or there may be temporary obstruction from local spasm in the œsophagus. This latter symptom I have not observed as frequently as many of our text-books would lead us to expect. Auscultation of the œsophagus is generally negative.

For diagnosis the laryngoscope is a great aid in ruling out sufficient cause for the dysphagia in its field of vision. The aspect of the patient, a sudden onset of the complaint, temporary abatement, obstruction to the first act of swallowing, and the free passage of bougies, help to make it probable that there is no more serious disease; but it must be borne in mind that the dysphagia may be reflex from something unsuspected.

As in many similar neuroses, suggestive treatment, doing something active, convincing the patient that there is nothing wrong, will, in most cases, be sufficient. Passing bougies as often as possible is the simplest and most effective agent. The treatment of any trouble in the pharynx or neighboring regions is important, not only for the time being, but to prevent recurrence. Electricity with an œsophageal sound is to be avoided, as cases of syncope, and even of death, have occurred from cardiac irritation through the vagus.

Some patients recover immediately, others only after prolonged treatment directed to the general nervous system. An instance of immediate cure, reported as early as 1707, by Van Helmont, is quoted by Mackenzie. A woman had hardly swallowed anything for three months.

Van Helmont adds: "I came, recognized the disease, and immediately the Lord cured her." There is a modesty about this that we seldom find in our more modern clinical reports.

It has been suggested that the dysphagia may sometimes be due to a reversed peristalsis. Also that the circular contraction which normally takes place just behind the bolus of food on its passage downward may, by an error of reflex, occur just in front of it.* This would have to be classed as a faulty mechanism rather than as a true spasm.

Difficulty or pain in swallowing, due to some transitory inflammation in the pharynx, or foreign body at the cricoid, may leave a mental impression which persists long after the cause has subsided, in the same way that hysterical aphonia may follow acute laryngitis; or some local tenderness, insignificant in itself, may be magnified into a belief in some mechanical obstruction or fear of arousing intense pain. In these cases it is the first act of deglutition which is wanting, the seizing of the bolus of food by the pharyngeal muscles. Fluids which trickle into the lower pharynx are swallowed by the normal reflexes, although sometimes only with a protest, as it were, on the part of the patient. Inability to swallow is well known as appearing in hypochondriacs, and especially when the patient has a delusion that he has hydrophobia. There is often a true œsophagismus aroused by these attempts to swallow, but where we have no evidence of this I see no reason for taking it for granted that it exists. Spasm is accompanied by transitory pain or a sense of constriction, subsiding as the contraction subsides. If sufficiently frequent and strong to prevent swallowing, it can generally be detected by a bougie.

Hysterical dysphagia should be described as an inability to swallow, or difficulty in swallowing without cause other than hysteria, or by reflex from some irritation so trivial that the reflex must be considered hysterical. There is often local spasm, there may be local pa-

* Smith. *Virginia Medical Monthly*, 1877, p. 743.

ralysis, in the œsophagus or in the pharynx, or both. It seems to me that in other cases we must look upon it as an hysterical refusal to swallow; not that the patient is to blame or can avoid it, but that there exists no muscular action which can not be imitated by voluntary nervous control.

*Discussion.*

Dr. THOMAS HUBBARD: There is one form of difficulty in swallowing which was not dwelt upon by the reader of the paper. It is where there exists sacculation or dilatation of the œsophagus, with intermittent spasmodic obstruction due to contraction of the muscle below the dilatation. This obstruction may be partly inflammatory and partly nervous in character. I have seen a case of this kind in which it was exceedingly difficult to say whether there was inflammation or merely disturbed coordination.

In the case of a colored woman that I had recently under my care it was observed that she had hysterical dysphagia after eating very freely of sweet potatoes. I have known this to occur in two cases. The other was an old lady, who nearly suffocated from eating hastily boiled sweet potatoes, which formed a slippery bolus which overdistended and paralyzed the œsophagus.

The history and course of the case first mentioned is, I believe, suggestive of the cause of many attacks of spasmodic stricture. Any one attempting to eat sweet potato hastily will soon become aware of a feeling of fatigue in the throat. Incoordination of the muscles of deglutition results, and a large bolus overdistending a section of the œsophagus, so that it can not contract, there is spasmodic stricture above and below which still further increases the overdistention, producing paresis of this section. So long as this weakness persists any attempts at deglutition excite spasmodic constriction.

Dr. JOHN H. LOWMAN: Some of the cases of the kind reported by the lecturer are purely nervous. I remember the case of a child four years of age, in whom difficulty in swallowing had come on gradually. Her physician had used bougies, but with no benefit, and the difficulty in swallowing increased until she was unable to swallow anything. There was no history of any great emotion, but I remembered that the patient was a female, and this led me to think that it was a case of hysteria. I therefore made my examination as formal as I could.

I darkened the room and impressed upon her that as soon as I was done she would be able to swallow as the result of the application which I would make to her throat. She was very much impressed with the proceedings, and a little frightened. I made an examination, and applied cocaine to the pharynx. Immediately afterward I had a piece of cake brought in to her on a plate and told her that she could swallow now, and that she was to eat it. This she did, and then went home and ate her dinner. It was undoubtedly a case of hysteria.

I may mention another case, which was not hysterical, and which went into the hands of a surgeon. It teaches a special lesson with regard to examinations with a bougie. A man came to me with difficulty in swallowing, and with some difficulty in breathing. From the symptoms, I thought that the difficulty was outside of the œsophagus and that it might be an aneurysm. I examined him, but I could not pass the sound, and concluded that the obstruction was due to pressure from the outside. The patient was sent to a surgeon, who passed a sound. He thought that it was a spasmodic stricture. He then told the man to go out and eat a little soft food, like eggs, which he did. Three or four days later the man died, and was found to have aneurysm of the aorta and a perforation of the œsophagus. I met the surgeon one evening, and I asked him if he had had any difficulty in passing the tube, as I could not do it. He said that his plan was to introduce the sound as far as he could, and, after waiting a few moments, he pushed it suddenly so as "to surprise the stricture." By so doing, as it happened, he had ruptured the œsophagus and produced the fatal result. This accident nearly occurred to Fraenkel. He was called to pass a sound for a patient, but he could not get there that night. When he came in the morning he was informed that the patient was dead; he had died of hæmorrhage from the rupture of an aortic aneurysm during the night. If Fraenkel had been able to get there at first, and he had passed the sound, he would have ruptured the aneurysm, with an immediately fatal result. The act of passing the tube, therefore, is not without danger. Gratz has reported three cases of death from simply passing the stomach tube. In one case that I know of myself, a stomach tube was passed into the stomach and the stomach washed out with warm alkaline solution. The man complained of feeling weak, and he was made

to lie down, but he continued looking pale; stimulants were given, but he shortly afterward died. The mere passage of the bougie is, therefore, not without risk of a fatal result. The danger is so much less where an application of cocaine has been made before the passage of the bougie, and the reflex disturbances are so much reduced by cocaine that it seems that it should always be used previous to the passage of the tube.

Dr. J. W. GLEITSMANN: If I understand the reader of the paper, he spoke only of that class of hysterical cases where there is no lesion. I have had a case which might belong to this group. It was in a little girl, from eight to ten years of age, who came to my office with the statement that she could not swallow any food. I made her swallow a little liquid, but nothing more. When examining her throat I found that she had a large lingual tonsil. It was not large enough to obstruct swallowing, but quite prominent. I cauterized it with nitrate of silver, not sufficiently to make any impression upon the growth, but simply in order to produce a mental effect. The next day she came back and said that she was able to swallow a little water, and after repeating the treatment she recovered entirely. I thought that this case was purely nervous in character. I saw another case in which the difficulty in swallowing came on in paroxysms, and was attended by muscular rigidity and by loss of consciousness, and I cured this one also by removing the lingual tonsil. I refer to these cases as I think that they really belong to this group which Dr. Coolidge has just brought before us in his paper, as there was no obstruction to swallowing.

Dr. H. L. SWAIN: I am glad that Dr. Gleitsmann has preceded me, and has anticipated my remarks upon this class of cases, as it emphasizes what I wish to say. The subject of enlarged lingual tonsil interests me very much, and I have paid especial attention to its study for a number of years. If nervous or hysterical symptoms may arise from reflex disturbances connected with enlarged faucial tonsils, it seems only reasonable to suppose that dysphagia might also be due to enlargement of the lingual tonsil. Therefore, in the last few years, in all these cases of nervous dysphagia that have come to me I have been accustomed to give my first attention to the lingual tonsil. Many of these patients can so accurately refer their trouble to its source that immediately upon making an application of the probang to certain red or swollen portions of the lingual tonsil, they will tell

you that you have found the site of the trouble. By acting upon this, I have succeeded in relieving the patient by making applications to such sensitive points; and I have observed that by paying attention to these portions of the lingual tonsil the patients, as a rule, promptly improve.

I do not think that the reader of the paper laid too great stress upon the symptom of inability to take certain kinds of food, of which the patient complains, with the absence of any obstruction in the œsophagus, as indicative of the nervous character of the dysphagia.

I think that Dr. Lowman's remarks are valuable in a precautionary sense to all who have occasion to make examinations in cases of difficulty in swallowing. We certainly should be circumspect in our use of œsophageal sounds, on account of the bad results which have been occasionally reported during the past few years.

The subject of varicose enlargement of the vessels at the base of the tongue is also of interest in this connection, but the effects ascribed to this condition are usually those due to the existing enlargement of the lingual tonsil and not merely to the enlarged veins.

Dr. SAMUEL JOHNSTON: In making our diagnosis in cases of dysphagia, we should not omit to examine the external auditory canal. Not long since, I had a case in which the symptoms simulated those of hysterical dysphagia; but when I removed impacted cerumen from the auditory canals the symptoms were entirely relieved.

Dr. EMIL MAYER: I should like to call attention to the value of auscultation over the œsophagus in making the diagnosis between hysterical dysphagia and other conditions. I remember a case that occurred under my care some years ago, which I have reported, and which eventually turned out to be a case of congenital stricture of the œsophagus. In that case it was only with the aid of auscultation with the greatest care, while the patient was in the act of swallowing water, that we were able to decide upon the diagnosis of a stricture, as the fluids were found to be held in the œsophagus for a few seconds, and then were heard to trickle into the stomach. This subject was brought before this association some years ago by Dr. J. Solis-Cohen and Dr. Elsberg, whose communications will be found in the *Proceedings*. I think that auscultation should always be practised in cases of difficulty in swallowing, and the treatment based thereupon.

Dr. DELAVAN: The ætiology of hysterical dysphagia

and of other similar neuroses of the pharynx generally depends upon the existence of some definite local lesion. This fact seems to be established, both upon theoretical grounds and as the result of clinical observation. It may not always be possible to recognize the lesion which is causing the trouble. On the other hand, there are cases where, after every possible method of discovering and treating definite lesions which seemed to be the cause of the neurosis have been adopted, and where the cause of the irritation to all appearance has been removed, the neurosis may continue to annoy the patient the same as ever. The full explanation of these matters may not have been reached, but it certainly seems to be in the direction suggested by the other speakers. Of course, I have been alluding to the simpler forms of dysphagia and not to those due to grave mediastinal conditions.

Dr. FARLOW: A year ago I was consulted by a middle-aged gentleman, who had suffered for some time from pain in the throat on eating and speaking. While at table, or when talking or reading aloud, he would often have a paroxysm of pain in the throat, obliging him to hold perfectly still for some time. He had been treated for tonsillitis, as the tonsils were slightly enlarged, for malaria, and also for nervousness, but without benefit. I found no special trouble with the throat, but both ears were filled with very hard masses of cerumen. There was a painful gland under the jaw, and immediately after the removal of the wax the gland diminished in size and was no longer painful. All the symptoms disappeared, and he was able to eat and talk without any difficulty. I suppose that the impacted cerumen caused the sensitiveness of the gland, and the latter was pressed on by the movement of the muscles in speaking and eating.

Dr. S. W. LANGMAID: There is one class of these cases which has interested me for many years. It is possible that the reader may have spoken of the condition to which I wish to refer, but he did not lay any stress upon it. These cases are all anæmic. The dysphagia is not intermittent, but constant, has existed for several years, and is caused, I think, by weakness of the swallowing muscles consequent to the anæmia. Upon examination of the throat, there is nothing to be seen, no hypertrophies, and nothing to note in the larynx except the anæmic condition. But it will be found that these patients have complained for many years of inabil-

ity to swallow solids. They can get down liquid foods generally, but sometimes only with difficulty. Usually there is no history of hysteria. They generally belong to the class of working girls. I have seen a number of these from time to time, and have kept some of them under observation for fifteen or twenty years. If there had been any malignant growth, it would have shown itself. I have still some of these patients coming into my office, who have been coming for years, every few months, to have a bougie passed. With regard to the danger of the use of this instrument, I may say that the whole secret consists in passing the bougie carefully. I formerly used the *bougie à boule,* but thought that the abrupt constriction near the extremity allowed the olive point to hurt the patient. I then adopted the plain bougie, and used larger and larger sizes. I never knew any of these patients who did not experience benefit; many of them have returned, from time to time, to have the operation repeated. They speak in the most matter-of-fact way about it, and say that they have come to have the bougie passed. When it is done, they are relieved for a long time—it may be one or two years. May I ask the reader of the paper if he mentioned this class of cases, and if he includes in the subject of his paper this class of cases?

Dr. COOLIDGE: Yes; such cases were included in the subject of my paper.

Dr. W. H. DALY, of Pittsburgh: I did not have the pleasure of hearing the paper, but the condition is one that demands more careful attention than we sometimes give it, and I feel myself just now derelict, for within a few days I have had a serious lesson in regard to hysterical dysphagia. A beautiful young girl was about ten days ago admitted to the Western Pennsylvania Hospital as a private patient. She had been under the care of one of our best physicians for laryngitis, and, owing to her persistent refusal to swallow solids, had been entirely nourished on cream and beef tea.

When I examined her on her admission to the hospital, there was an entire cure of the laryngitis, and, though prostrated, a careful examination of all her organs revealed no organic disease, and notwithstanding there was no œsophageal obstruction whatever, as revealed by the bougie, there was always a voluntary rejection of solids after one or two hysterical attempts at deglutition. Solely for the purpose of getting the girl to do better, I reprimanded her for her apparently foolish and

hysterical behavior, and in the presence of two of her sisters intimated to her that she was not very ill, but if she persisted she might in the end make herself seriously ill.

I suspected the girl had some love affair that was preying on her mind, and she did not deny this. I was called away from town for a few days, and upon my return was informed the girl had died during my absence. No post-mortem was permitted.

I was naturally shocked to learn of her death, and regretted having reprimanded the girl in the presence of two members of her own family, the hospital nurses, and internes, but I acted conscientiously for the purpose of endeavoring to get her to pull herself together and try to get well, instead of carrying on in what seemed the most varied and determined hysterical attempts to die.

This case shows us that a patient must first of all be ill before she can have hysteria, and if she has that, our solicitude should be aroused to guard the patient's life as well as restore her to health. There must in this case have been some grave disorder of the nerves of organic life. The cause of death was mentioned as heart disease, by the internes and my colleagues, but there was no evidence of organic disease of that organ or any other organ that I could discover in a prolonged and careful examination. This case teaches a severe lesson, and one to be regarded. It teaches us to treat with a great deal of care a supposed hysterical patient and to be guarded what we do and say.

I have always advised the complete rest cure in these cases, with entire isolation—often a difficult thing to obtain, since the patients insist on being allowed to make an exhibition of themselves to their friends, for motives of sympathy. If they resist proper nourishment by the mouth, I feed them through the tube introduced into the stomach by way of the nares. Six or eight weeks' rest cure will start them on the way to health surely.

Dr. Coolidge: Dysphagia can not be considered hysterical if it is due to a reflex from some local lesion. But where some slight local lesion or obstruction is magnified by the imagination of the patient there may be dysphagia, which is not simply reflex, but due to central weakness or hysteria. And the dysphagia may persist after the original source of irritation has passed away. With regard to the lingual tonsil, I think that it is a very frequent cause of reflex disturbance in the throat. A cough of doubtful origin can often be relieved by

attacking it, and I have no doubt that hysterical dysphagia would be also. But in many cases I believe that it is the operation *per se*, or counter-irritation, which benefits, and that the same result could be obtained by electricity or by passing bougies, or other local manipulation. Impacted cerumen frequently causes cough and pharyngeal discomfort—it might well cause dysphagia. I can not agree that dysphagia is always due to some reflex irritation. It may be purely mental, the result of hysteria or hypochondriasis. There are two important points emphasized by cases reported in the discussion. Do not be too ready to rule out a serious unsuspected cause. Be careful in passing stiff and unyielding œsophageal instruments, which may injure the œsophagus or start hæmorrhage from malignant granulations.

*Paper.*

## REMARKS ON TREATMENT OF CHRONIC AFFECTIONS OF THE FAUCIAL TONSILS, WITH DEMONSTRATION OF INSTRUMENTS.

By J. W. GLEITSMANN, M. D.

A few years ago I began to pay greater attention to chronic affections of the faucial tonsils not complicated with actual hypertrophy, and soon became aware that I could relieve many vague pharyngeal ailments and neurotic symptoms for which no other pathological condition could be found.

While looking over the literature in the preparation of this paper I found that quite a number of excellent essays had been presented to the association on this subject: Dr. Smith (1883) and Dr. F. I. Knight (1887) wrote on neuroses of the throat; Dr. Delavan (1883) on the lacunæ tonsillarum; while Dr. Roe (1889), Dr. Allen (1891), and, finally, Dr. Farlow (1895) gave an exhaustive description of the treatment of tonsillar diseases. With these valuable monographs my task has been greatly facilitated, and I need not have recurrence to the different chronic affections or to the various procedures recommended for their treatment. I shall therefore confine myself to a few points which have lately engaged

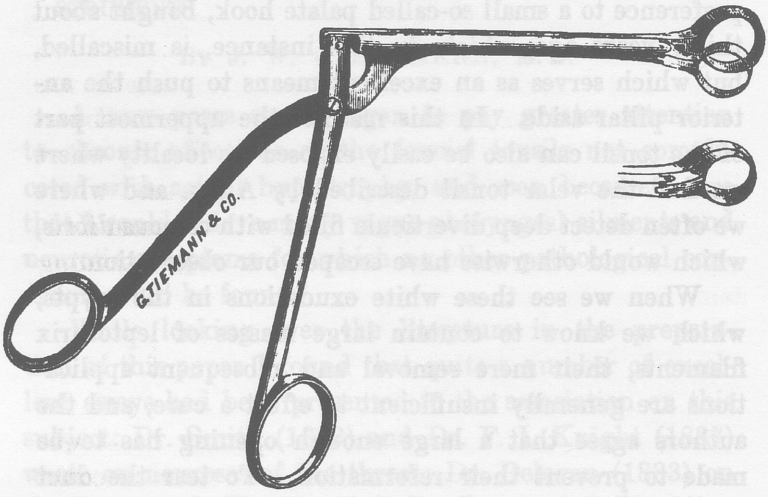
my attention, and for which I endeavored to devise some means for relief.

With the exception of hypertrophy there is probably no other chronic affection of the tonsil more frequent than chronic inflammation of its follicles, so well described by Roe as to require no further detailed exposition. The smooth surface of the tonsils disappears; they present an irregular contour, the follicles undergo a process of destruction, and the lacunæ become often filled with white masses, the products of inflammation, which, being retained, are a fruitful source of different ailments. Roe also correctly gives as the reason for these exudations being frequently overlooked that they give rise to little or no discomfort to the patients, and emphasizes at the same time the necessity of a thorough examination of the tonsils. Retching exposes the inner surface of the tonsil too short a time for therapeutic measures; and of all devices recommended, I have given preference to a small so-called palate hook, bought about thirty years ago, which, in this instance, is miscalled, but which serves as an excellent means to push the anterior pillar aside. In this manner the uppermost part of the tonsil can also be easily exposed—a locality where we find the velar tonsil described by Allen, and where we often detect deep diverticula filled with caseous *débris*, which would otherwise have escaped our observation.

When we see these white exudations in the crypts, which we know to contain large masses of leptothrix filaments, their mere removal and subsequent applications are generally insufficient to effect a cure, and the authors agree that a large enough opening has to be made to prevent their reformation. To tear the duct open, I have employed, for two years Moritz Schmidt's instrument, which is a blunt hook, but answers the purpose very well. As the pulling required to separate the parts is often painful, especially when the instrument has been deeply inserted into a lacunar opening, I had the side of the instrument sharpened, retaining its blunt tip, and also constructed another one with a pointed tip, to enable it to enter the tonsil at any

desirable point requiring severance of the tissue. The after-treatment necessarily followed I shall pass over, as it has been fully described by others. I can conscientiously recommend these little instruments to those who approve of this method of operating. They will also be found useful for separation of the anterior pillar from an enlarged tonsil when such proceeding is advisable.

Another abnormal condition which is of rarer occurrence, but generally associated with the affection just described, is the presence of a flap or fold of the tonsil, sometimes occupying its whole surface and preventing an inspection of its posterior portion. At a superficial examination this fold may erroneously be considered to constitute a part of the anterior pillar, but, drawing the latter aside with a suitable hook, an intervening space between the two, containing in some cases a small amount of lymphatic tissue, can easily be seen. The larger part




of the tonsil will always be found behind this fold, and in the majority of cases I have seen it is this locality in which the greatest destructive changes, with accumulation of white deposits in the lacunæ, will be observed.

I am not prepared at present to give a satisfactory explanation of this dense membranous formation, but am inclined to believe it to be the result of a previous attack

of acute inflammation, combined with the chronic follicular disease. Harrison Allen gives a very good description of this condition in the *Medical News* of July 8, 1882, in which he says that in one of his cases the palatoglossal fold stretched out as an operculum over the tonsillar space, almost touching the palatopharyngeal fold. When the opercular fold was drawn forward a number of tonsillar pellets were seen lying against the face of a flattened nodular tonsil. We learn from his remarks that in his case the fold was part of the palatoglossal arch, which was adherent to the tonsil and pushed toward the median line, but otherwise the conditions and their sequelæ are the same as in my own patients. Allen removed the fold with a pair of blunt curved scissors, and A. B. Kelly, of Glasgow, devised a punch, closing anteroposteriorly, by which small pieces of tonsillar tissue—especially at the upper angle—can be excised.*

I had a very typical case of this affection two months ago in a lady who suffered from severe indigestion and nervous debility, for which she consulted a well-known practitioner. Complaining of throat trouble, she was referred to me, and at inspection revealed the above-mentioned lesions in the most striking manner. Behind the anterior pillars on both sides there was a moderately deep groove, containing a minute amount of normal follicles; then came a broad, dense, thick fold extending the whole height of the tonsil, and covering the latter to such an extent that it could only be seen when the fold was forcibly drawn forward. The tonsil was in a state of complete destruction, nodulated, and countless white deposits were interspersed in its tissue. It was evident to me that before a satisfactory treatment could be instituted the removal of the dense fold, which hemmed in the secretions and prevented their expulsion, was necessary. The destruction of the fold by galvanocautery was in this case deemed inexpedient on account

* *Lancet*, 1894, ii, p. 18. Hartmann's instrument (*Deutsche med. Wochenschrift*, 1894, p. 571) is identical with Ruault's punch, shown to this association by Dr. Farlow two years ago, only smaller in all directions.

of its size and density, and I resolved to remove it with curettes. As Heryng's laryngeal double curettes were difficult to handle, I employed Ruault's punch. The result was perfectly satisfactory, but I was not pleased with the large size and the vertical action of the instrument, which necessitated its horizontal introduction, making it difficult to grasp the fold between its cutting blades.

At my suggestion, Tiemann & Co. constructed the tonsillar clipper which I present for your inspection and criticism. The instrument is a modification of Ruault's punch, the blades being reversed, cut in a horizontal instead of a vertical plane. It is also considerably smaller, and admits of easy adaptation; it grasps the tissue firmly, and removes the parts seized without difficulty. I have used the instrument recently in a similar case, and have not been deceived in my expectations. The pain caused by the operation is moderately severe, and with some patients it is advisable to inject a few drops of a ten-per-cent. cocaine solution into the fold before excision. If the fold is very large, it is better to remove it in two or three sittings than all at once, if we want to avoid unpleasant reaction. The hæmorrhage is not severe and can be readily arrested with cracked ice. After-treatment I have found unnecessary, but, if desired, some light styptic or caustic solution can be applied.

When the blades are made still smaller, the clipper may also be employed as a conchotome, working on the same principle as the conchotome shown to the association two years ago.

*Discussion.*

Dr. FARLOW: At the meeting of this association in Rochester two years ago I read a paper in which I advocated the use of the punch for removing diseased tonsils which did not project beyond the pillars of the fauces. Soon afterward I received a marked copy of a medical journal containing an unsigned editorial which said that the removal of a tonsil which did not project was meddlesome surgery. I am unable to see why a diseased tonsil should be allowed to remain just because

it happens to lie behind the anterior pillar. The latter simply makes the manner of removal different from, and often much harder than when the tonsil projects so as to be easily grasped by the guillotine.

It seems to me that the instrument presented by the reader would be better if the handle were longer. As to the direction in which the jaws of the punch open, it is not necessary to have instruments which open at different angles, as it suffices to turn the handle vertically or horizontally to cut in either direction. The punch which I show you, and which I now use, is different from his, and I have come to the conclusion that it should be as strong as this to cut the dense tonsillar tissue. I also show you a punch which I got in London, but which I have not found strong enough.

In some cases, instead of using a palate hook to pull back the anterior pillar, I have used the ordinary tongue depressor, with the edge of the blade pressing down the tongue, and the end can then be used in pulling the anterior pillar back from the tonsil; thus using only one instrument beside the punch. I have found that the cutting of the tonsillar fold is much more painful than the tonsil, and is much sorer afterward. I agree thoroughly with Dr. Gleitsmann as to the importance of these cases, and think that they often escape notice unless carefully and thoroughly examined. I have here a few knives of different shapes, which I have found useful in opening up the diseased crypts.

Dr. W. H. DALY, of Pittsburgh, Pennsylvania: I am of the opinion that the faucial tonsil is not necessarily a part of the normal throat, and if it extends beyond the pillars of the half arch it ought to be excised back as far as the half-arch pillars.

In listening to the troubles recounted by the various gentlemen about instruments for these operations I must also enumerate one trouble more, a very glaring one, and that is the instruments themselves. We have entirely too many instruments; many of them are mere toys; even the amygdalotome is not a necessary instrument. There is no operation upon the tonsils which may not be well done with two knives curved upon their flat surface and of proper length, a rat-tooth forceps, and a tongue depressor. I say this advisedly, and after considerable experience with these instruments, and a dexterous operator can do the neatest possible operation in abscission of the tonsils with them, which is not always possible with the amygdalotome.

Now with regard to these cases of hypertrophy of

tonsil, which have the crypts filled with cheesy matter, with possibly fifty to eighty points, more or less, of deposit, and the connective tissue all absorbed, so that there is little more than a diseased mass of network of fibrous tissue, and this mass is in all effects like a foreign body. The only right thing to be done is to get the patient as quickly as possible prepared for an operation, and then, after antiseptic precaution, dissect out the tonsils carefully, leaving the throat in a normal, or as nearly a normal condition anatomically as the condition will admit of.

Dr. GLEITSMANN: I am very glad to have heard the criticism of my paper as well as of the instrument presented, although I am decidedly at variance with some remarks made in the discussion. When Dr. Farlow considers the instrument not strong enough to excise the tissue to be removed I must answer that it cuts as well and accurately as Heryng's double curettes and Ruault's forceps, both of which I have made use of in the case described before my clipper was finished. I did not experience the least difficulty in cutting through the fold, and was rather surprised at the ease of its removal, when compared with the awkward position in which Ruault's instrument had to be introduced when desired to cut horizontally, for which purpose it was not devised.

In regard to Dr. Daly's remarks, I may say that I have always hesitated to introduce new instruments, and I agree with him that there are too many already. But I do not consider instruments superfluous or discourage new devices when they are apt to facilitate our work. I have not said for my clipper that it was anything but a modification of Ruault's forceps, which is applicable when there is not enough tonsillar tissue left to use the amygdalotome, and when the symptoms warrant a removal of the offending tissue—in the instance described, of a vertical fold covering the diseased tonsil. Excision of the tonsil is here out of the question, as there is no actual hypertrophy present. Other means can be employed—for instance, curved scissors, as cited by Allen—but a quicker and more satisfactory result will be achieved by an instrument constructed on the principle described in my paper.

*Exhibition of Cases.*

**A Neoplasm of the Nasal Fossa.**—Dr. J. H. BRYAN: I take the opportunity of bringing before you this

young man, twenty years of age, who is suffering with a growth in the left nostril, causing some projection of the nasal bone externally and extending backward into the nasopharynx; occluding the left posterior naris entirely, and nearly occluding the right also. In exhibiting this case, I feel somewhat embarrassed in presenting him in the shape in which he now is. I expected to show him and the tumor separately. But having made several attempts at removal of this mass without success, having failed to get the wire of the galvanic snare around its base on two or three occasions, I desire to bring him before you, hoping to receive some suggestions as to how best to remove it. He has had this growth for several years. When he first entered the hospital he was suffering from symptoms of obstruction; the growth filled the nasal fossa on the left side, but did not then extend through into the nasopharynx. It obstructed the posterior naris completely on the left side, and extended through to the lip anteriorly. It appeared to have broken through the sæptum as the result of pressure. I have made several attempts to get a wire around the growth, but have not been able to accomplish it. I removed a small portion for microscopic examination, and the manipulation was attended by free hæmorrhage. Dr. Walter Reed, United States Army, our pathologist, reported that it was a fibrosarcoma.

Dr. RICE: What is the attachment of the growth?

Dr. BRYAN: I do not know. It seems to be confined to the nose, and does not extend into the antrum. It is evidently growing. There is some tumefaction externally on the side of the nose. There is no hæmorrhage now, but it bleeds readily upon any interference.

Dr. M. R. WARD: The case just presented by Dr. Bryan recalls to my mind a case of nasopharyngeal growth in which I operated four years ago, and illustrates the exceeding great difficulty of making a differential diagnosis between a simple fibroma undergoing inflammatory change and a fibrosarcoma. The specimen was submitted to four different pathologists, two of whom pronounced it a simple fibroma, and the other two called it a fibrosarcoma. The fact that the young man still lives, four years after the operation, with no evidence of recurrence, leads me to believe that the growth was most probably a simple fibroma undergoing inflammatory change. While sarcoma of the nose is not necessarily a fatal disease, yet I am inclined to the opinion that it is far more fatal than the literature on the

subject would warrant us in believing. It is no easy matter for a microscopist to differentiate between an inflammatory exudate and a small round-celled sarcoma, and in all such cases an element of doubt exists in my mind when recovery follows an operation for sarcoma of the nose.

Dr. J. E. BOYLAN: I agree with the gentleman who has just spoken, that there might be a question as to the certainty of the diagnosis in some forms of sarcoma—as, for example, in the small round-celled variety—even when a most careful microscopic examination is made. In the frequently occurring spindle-celled growth, however, such as we would expect to find in fibrosarcoma, I believe the microscopic diagnosis can be accepted as conclusive, as there is no condition with which the characteristic spindle-celled formation can readily be confounded.

I am, further, not prepared to accept the fact of the patient's recovery as proof that the growth is not a true sarcoma; quite a number of cases of recovery—with immunity lasting for years at least—are on record, and I wish to take this opportunity of stating that in the case which I had the honor to report in our *Transactions* of last year, and in which the microscope demonstrated the nature of the growth in the opinion of several expert microscopists, the patient is still in good health, although nearly three years have now elapsed since the operation.

Dr. CASSELBERRY: Regarding the distinction between fibroma and sarcoma, I am reminded of a case which I operated upon several years ago, and reported as a rare case of genuine fibroma of the nose proper. It was of firm consistence, vascular on section, of about four years' growth, distended the nostril, did not protrude into the nasopharynx, and was visible by casual anterior inspection. It was packed so firmly in the inequalities of the nostril that it could not be enveloped by a wire. I adopted the expedient of first slitting it into pieces by a galvano-cautery knife electrode, and then removing these by an incandescent snare. It was attached in the ethmoid region, and the sæpta between these cells, and also the turbinated bodies, had undergone absorption, producing a single large nasal cavern with moderately smooth walls, in which it was easy to see and operate. Microscopic examination by a competent expert showed it to be a pure fibroma. In the course of two or three weeks I removed an ounce bottleful of the fragments. The case made a good recovery and has had

no recurrence. This case of Dr. Bryan's differs, however, from mine, and I find upon touching the anterior portion with the probe that it is soft. This is a point of distinction: the sarcomata are rather soft, while fibromata in the nose are harder. In this case the growth fills up the nose, extends into the pharynx, and causes the eye to bulge forward, which makes me think that it arises from the antrum of Highmore. I recall a similar case of sarcoma in which the primary origin was in the antrum. In that event only an external major operation is available. That it is a sarcoma is reasonably certain, both from the microscopic report and from its clinical aspects, and nasal sarcoma in this stage of development should be extirpated with thoroughness, in order that a hope of non-recurrence may be held. It is unfortunate that patients so commonly refuse external operations for nasal malignant growths until too late a period.

Dr. WRIGHT: The fact that a growth exists in the nasopharynx raises in my mind considerable doubt as to its benign character, even at the age of this patient; but, when springing from the upper anterior part of the nose, as it appears to do in this case, I should, in the absence of a microscopical report, consider it a sarcoma. Pure fibroma of the nasal passages is very rare, while pure fibroma in the nasopharynx is of comparatively common occurrence in male adolescence. In the posterior portion of the nose the fibrous aponeurosis of the pharynx is continued for a short distance upon its upper wall and over the posterior extremities of the turbinate bodies, and the new growths of this region consequently resemble those occurring in the pharynx. A pure fibroma growing from the anterior portion of the nose is almost unknown—that is, a pure fibroma.

Dr. J. SOLIS-COHEN: As regards the therapeutics of these cases, and the choice of operations, I think the best one in this case would be extirpation after access by Rouge's operation—lifting the nose up, and access by the capacious pharynx to the remainder.

Dr. BRYAN: I would say in reply to the last speaker that the eye symptoms are of very recent date, and have appeared only since my last effort to pass the wire—about a month ago. At that time I spent two hours working over him, and he lost some blood and was very much exhausted, and since then he thinks that his symptoms have been worse than before. He has no headache at present, and his dizziness is less troublesome.

Dr. SIMPSON: Could this not be classed as an "inop-

erable" case? It has existed for several years, an operation would be very difficult to perform, it could not be wholly removed, and there would be absolute certainty of its return.

Dr. SOLIS-COHEN: I recall one of my patients, a woman, who got along very well, and who lived for several years after the operation of extirpation from nose, antrum, and pharynx, after exposure by Rouge's procedure. There was no return of the disease for several months and she did very well, but growths recurred and recurred, rendering several subsequent operations necessary through nose and pharynx, until she finally succumbed from exhaustion. This patient can be operated upon. The boy is only twenty years of age, and we should try to save him, or at least do something for his relief and to prolong his life. There is no difficulty in getting into the pharynx and in removing that portion of the growth. I examined it hastily and, of course, from only a momentary view of the case, could not say positively, but it would be my opinion that the growth should be removed by operation. The boy will die without the operation. Is it worth while to try to save him? That is the question for us to decide.

Dr. RICE: I have had several cases of growths arising in the nasal passages, not unlike the present case. The question is, as Dr. Cohen has said, whether we shall allow this patient to die without any assistance or attempt to afford him some relief. The growth develops rapidly, the eye symptoms and other effects of pressure will increase, until finally the patient meets a welcome death. This recalls a similar case under the care of Dr. McBurney, of New York, during the last winter. Dr. McBurney did a large operation, involving the removal of the upper jaw, the orbit, ethmoid, and antrum. The boy lived for several months—it may have been a year. In my opinion it was much better to operate than to allow the boy to die without operation. This case is undoubtedly malignant. As Dr. Wright says, pure fibroma is very rare in this portion of the nose. As regards the operation, it should be thorough and radical. Operations with the cold or hot snare are insufficient; we can not accomplish anything with simple intranasal work in the majority of these cases. These patients will go on from bad to worse if nothing is done for them. We can not see them die without making an attempt to assist them. Once having decided that the growth is malignant, the entire portion affected should be removed by radical operation.

Dr. MACKENZIE: Long experience with this class of cases teaches me that, for complete extirpation, a radical operation is nearly always, if not always, necessary. In many instances, unfortunately, resort to capital measures is too long deferred. Time and, in the case of malignant neoplasm, life are thereby lost.

In Rouge's operation, referred to by Dr. Cohen, it is often impossible to get at the entire area occupied by the growth, and therefore some such procedure as that of Langenbeck, in which the upper jaw is rotated outward, must be undertaken. I think the present occasion a peculiarly appropriate one to insist upon the importance of early diagnosis and radical operative procedure in cases of actual or suspected malignant or semimalignant tumors of this region.

Individual growths occupying the extensive area covered by the present one should always be regarded with suspicion, as they are often malignant in nature. On the other hand, enormous simple fibrous tumors are occasionally seen in this situation, producing great deformity and occupying both nasal passages and nasal pharynx. Such a case has recently come under my notice. After ineffectual attempts at removal through the natural passages, a modified Langenbeck operation was resorted to and the entire growth, with its attachments, removed. The microscope showed it to be a simple fibroma.

*Paper.*

## ON THE TREATMENT OF CHRONIC FRONTAL SINUSITIS BY MEANS OF AN OPENING THROUGH THE ANTERIOR WALL OF THE SINUS, AND DRAINAGE THROUGH THE NOSE.

By J. H. BRYAN, M. D.

In bringing this subject before the association again it is with the desire of trying to impress still further upon you the frequency of the anomalies that are met with in the fronto-ethmoidal and the fronto-maxillary regions; and also to direct your attention to a method of treating chronic suppurative inflammations of the frontal sinus which seems to shorten very materially the duration of this most obstinate disease. There is probably no affection in the whole domain of surgery that tries the patience and skill of the surgeon more

than chronic abscesses affecting this cavity, especially when they also involve the ethmoidal region. When we consider the accompanying photographs, the wonder is not that they are so resistant to treatment but that recovery ever takes place.

With an increased knowledge of the anatomy of these cavities, and the advances that have been made in surgery, the success met with in treating these affections has, it may be said, kept abreast of the surgery of other regions.

Until within recent years suppurating frontal sinusitis has been considered to be an uncommon disease in this country, but since the frequent visitations of epidemic influenza the cavity involved, as well as the other accessory sinuses, are found to be very frequently affected.

The mortality of this affection is much greater than is generally supposed, owing to the ready extension of the morbid process to the brain.

The three sinuses, the frontal, ethmoidal, and maxillary, are frequently affected at the same time, having a common origin for their disorder in the extension of the pathogenic organisms of an influenza from the nose. In some instances one cavity, generally the frontal, is acutely inflamed in the course of an influenza, and the ethmoidal and maxillary are subsequently involved by an extension of the morbid process to them, which can readily take place owing to their very intimate relations and to the very thin bony partitions separating them. Again, the extension may take place through direct but anomalous passages which are occasionally found connecting the sinuses. This is especially the case in the relation of the frontal and maxillary cavities. In a previous communication I exhibited a drawing of an interesting preparation in the Army Medical Museum which showed a direct communication between the frontal and maxillary cavities, thus explaining the readiness with which abscess of the antrum could complicate a suppurative inflammation of the frontal sinus. I regarded this as a rare anomaly, for I could find no mention of this condition in the anatomical works consulted. Recently,

however, I have read a paper by Dr. Fillebrown,* of Boston, who has made some interesting investigations on this subject. He states that he examined "eight different specimens in which the infundibulum, instead of terminating in the middle meatus, continues as a half tube, which terminates directly in the foramen of the maxillary sinus. In seven of these specimens there was a fold of membrane which served as a continuation of the unciform process, and reached upward covering the foramen, forming a pocket which effectually prevented any secretion from the frontal sinus getting into the meatus until the antrum and pocket were full to overflowing." In a private communication he further states that he examined fifteen more crania and found the infundibulum as described in his paper, and the pocket was present in all but two. This so-called anomalous condition, according to this authority, then occurs very often. As it has a very important bearing on the pathology of these cavities, it is a subject that should be still further investigated. Owing to the very intimate relation of the frontal sinus to the ethmoid bone, an involvement of the fronto-ethmoidal cells, or the cells formed by the union of these two bones, by an extension of the morbid process from the frontal sinus is of common occurrence. I believe in nearly all severe cases of empyema of this cavity the fronto-ethmoidal cells and the ethmoidal cells proper are involved to a greater or lesser degree.

In approaching a case of frontal-sinus abscess, with the view of an external operation, great caution must be exercised by the surgeon, for the sinuses vary greatly in size, and the variation between the two cavities in the same subject is sometimes very marked. In nearly all cases in normal conditions they are separated by a sæptum, which in the majority of instances is complete, although the cavities occasionally communicate through a small opening. The sæptum is frequently not straight, deviating to one side or the other, thereby rendering

* *International Dental Journal*, 1897.

one cavity smaller than the other, while in disease it is either entirely or partially destroyed.

There is no external sign which will enable us to ascertain the size of the sinuses, the prominence of the superciliary ridges being no guide as to the dimension of the cavities beneath them.

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Herbert Tilley,* in an examination of one hundred and twenty skulls, found these cavities varying to a great degree. He found the sinus large enough in some in-

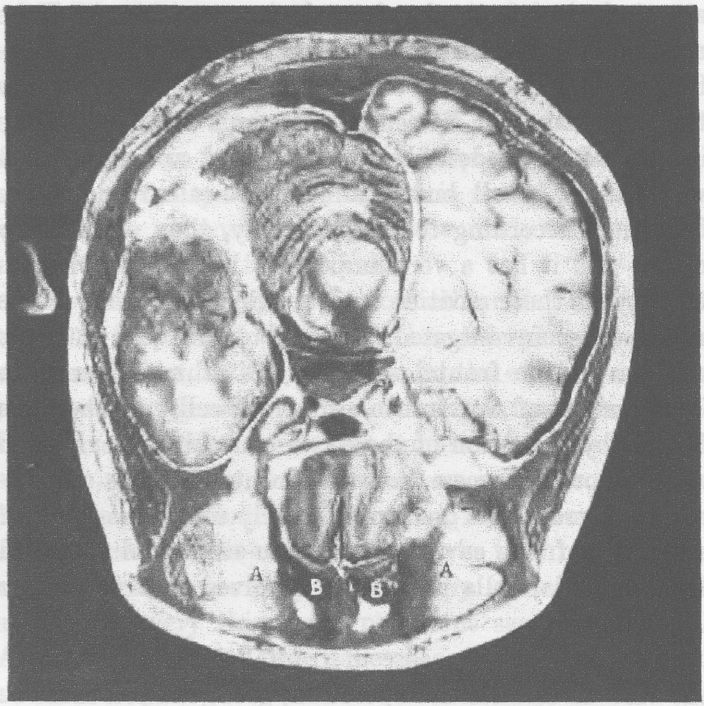



FIG. 1.—A, A, floor of frontal sinuses, which is observed to extend posteriorly to an unusual degree. B, B, anterior fronto-ethmoidal cells projecting into the sinuses.

stances to contain an ordinary bean, while the other was ten times as large, and occasionally the sinus was absent. He considers a sinus normal when it measures twenty-eight millimetres from the median line outward, reaching to about the junction of the inner and middle thirds of

* *Lancet*, London, September 26, 1896.

the supraorbital ridge; and in vertical extent, measured from the nasion, from twenty to twenty-two millimetres.

Lamb * has also made some measurements of these cavities which may be of some interest, as they are expressed in a different way. He states that he found the right cavity with a varying capacity from a third to a drachm and a half, or one and a third to six cubic centimetres, while that of the left cavity was from a third to a sixth of a drachm, or one and a third to four and two thirds cubic centimetres; as showing the difference existing between the two sides, he found in one case the left sinus was to the right as 70 to 95.

Fig. 1 is a photographic view of a frozen section of

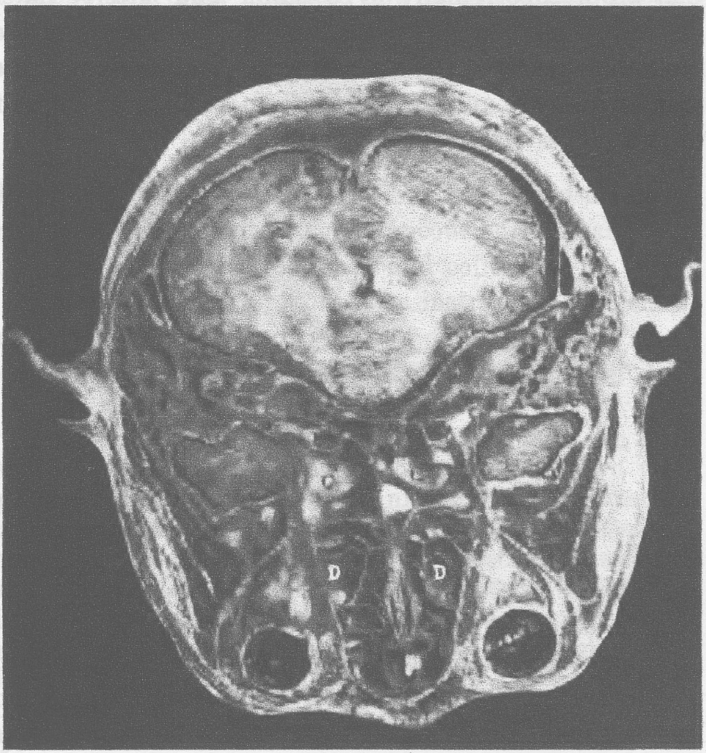



FIG. 2.—Showing the intricate arrangement of the ethmoid cells, with the posterior cells, D, D, unusually developed. C, C, sphenoidal sinuses.

the head of an adult negress just above the floor of the frontal sinuses.

* *Reference Handbook of the Medical Sciences*, vol. vii, p. 659.

In this subject the size of the cavities is unusually large, and they project posteriorly to a greater depth than usual. Another interesting feature of this section is the development of the fronto-ethmoidal cells, the most anterior of which are seen to project into the frontal cavities.

Fig. 2 is a section made on a lower plane, passing through the ethmoid cells, and which shows very clearly the intricate arrangement of these cells.

Of the various methods proposed for the treatment of these chronic cases, the external method is generally conceded by most authorities to be the best.

The operation that offers the greater advantages is that proposed originally by Ogston,* and latterly independently advocated by Luc.† In this operation the incision is made in the median line, commencing at the root of the nose and extending from an inch and a half to two inches on to the forehead.

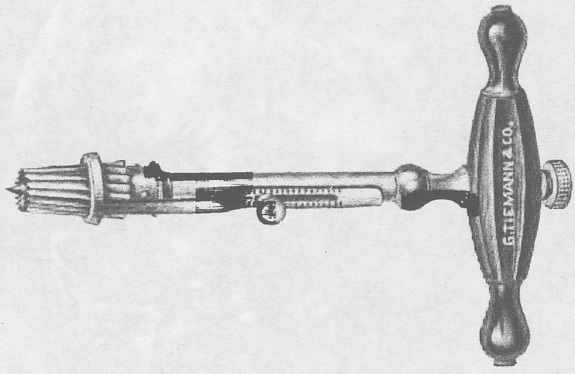



Fig. 3.

The skin and periosteum are elevated, and a centimetre of bone removed by means of a small crown trephine (Fig. 3) applied just outside of the median line and immediately above the supraorbital ridge. This opening will be found sufficiently large to allow of a thorough exploration of the sinus, and of the removal by means of the curette of any carious bone or polypoid

* *Medical Chronicle*, December, 1894.

† *Archiv. internat. de laryngol.*, Paris, 1896, ix, pp. 163–178.

tissue that may be present. The fronto-nasal duct should now be located with a probe, and enlarged by passing a trocar into the nose, using the little finger within the nostril as a guide. This duct is, as a rule, situated quite far back, and generally forms a large curve in its passage into the nasal cavity. If the trocar is passed into the nose at this point all danger of fracture of the cribriform plate of the ethmoid bone will be avoided, as well as the risk of septic infection.

After thoroughly removing all diseased tissue and washing the cavity out with antiseptic solutions the lining membrane may be touched with a twenty-per-cent. solution of chloride of zinc. A self-retaining rubber drainage-tube (Fig. 4) should now be introduced through

FIG. 4.

the enlarged fronto-nasal duct, and the wound closed by means of interrupted or subcutaneous sutures, and hermetically sealed with iodoform and collodion.

The following is a report of an instructive case, showing some of the difficulties met with in treating these very obstinate and serious conditions.

Mrs. ——, aged fifty-eight years, consulted me June 26, 1896, giving the following history: About two years ago she had a severe attack of influenza, which was prevailing at that time. The inflammation was confined principally to the upper respiratory tract. She suffered from excruciating headaches, the severity of which subsided as the inflammation grew less severe. The headaches have been continuous, however, being greater at times than at others, and they have been attributed to various ocular disturbances, which were not relieved by treatment.

She also complained of catarrhal symptoms, the secretions being thick and yellow and confined to the left side of the nose. When she came under my observation, June 26th, she had the following symptoms: Pain over the left side of the face, but of greatest intensity over the supraorbital ridge and at the internal angle; morn-

ing nausea, loss of appetite, and general lassitude. The facial expression was an anxious one.

On rhinoscopic examination pus was observed in the left middle meatus, passing freely into the nasopharynx and through the anterior nares. The middle turbinate was somewhat enlarged. Percussion on the frontal bone and over the canine fossa was accompanied by considerable pain. The electric light showed the left frontal and maxillary sinus to be opaque.

*July 1st.*—The left second upper molar tooth was extracted and a small abscess found at the apex of the palatine root, which, however, did not communicate with the sinus. The antrum was opened by means of a small trephine at this point and a large quantity of thick, fœtid pus evacuated. The cavity was irrigated daily with a saturated solution of boric acid and hydrogen dioxide. Under this method of treatment the inflammation in the antrum subsided within three or four weeks. While the quantity of secretion within the nose was somewhat reduced, the frontal headaches continued with about the same severity. Upon my return from my summer vacation, September 1st, I found the patient's condition about the same as when I left her on July 1st, with the exception that the frontal pains seemed to be more severe. On attempting to probe the fronto-nasal duct the anterior ethmoid cells were found to be in a state of caries, which condition did not exist or was not discovered when previous attempts at probing were made.

*September 14th.*—Curetted the anterior ethmoid cells, removing several large spicula of bone, which resulted in better drainage, with a slight abatement of the frontal pain.

*October 10th.*—During the past ten days there has been no improvement in the patient's condition; the frontal headaches have increased and are accompanied by nausea and vertigo. To-day, for the first time, there was detected a slight swelling of the skin over the left frontal region with some pitting on firm pressure. The patient's condition had now become so serious that an external operation was insisted upon.

*13th.*—After thoroughly cleansing the parts a vertical incision was made in the median line extending from the nasal boss to two inches on the forehead; the integument and periosteum were elevated, and a small button of bone about a centimetre in diameter was removed from over the frontal sinus by means of a crown trephine applied about two lines to the left of the

median line and about three to four lines above the supra-orbital ridge. After removing the bone with the trephine the cavity was found filled with a thick, fœtid, purulent secretion, and with numerous small granulations.

The cavity was thoroughly curetted and washed out with a solution of bichloride of mercury (1 to 3,000). It was then discovered that the posterior wall at its most dependent part was the seat of extensive caries, which was carefully removed with a sharp spoon. The sæptum was examined and found to be intact. The fronto-nasal duct, which was situated unusually far back, was enlarged by means of a trocar passed into the nose, using the little finger as a guide, and a drainage-tube was introduced through the enlarged opening. The external wound was then closed by means of a subcutaneous catgut suture, and hermetically sealed with iodoform and collodion.

*15th.*—The patient has fully recovered from the effects of the operation, and is quite comfortable, with no pain in the head. Temperature and pulse normal. The secretions are passing freely through the drainage-tube. The sinus was washed out with a solution of formalin (1 to 2,000). This application was attended with considerable pain, which, however, subsided in a few minutes.

The use of the formalin solution was persisted in notwithstanding the pain, as it was considered to be an ideal antiseptic for such cases, in view of its supposed penetrating qualities; but little benefit could be obtained from its use, as the secretions continued to flow through the drainage-tube in about the same quantity. The patient continued to do well until the morning of October 23d, when the drainage-tube slipped out of the nose. The cavity was, however, thoroughly washed out with the formalin solution through a Eustachian catheter. 8 A. M., temperature, 98°; 9 P. M., 100.6°. During the day she complained of great general discomfort and pain in the head. There was also noticed a slight puffiness of the skin over the opening into the frontal sinus.

*24th.*—The patient passed a restless and wakeful night, suffering greatly from hiccough, and complaining frequently of chilly sensations. 8 A. M., temperature, 98°. At 9 P. M. she had a severe chill, followed by vomiting. 11 A. M., temperature, 103.6°. She was given a brisk cathartic, and, after a thorough evacuation of the bowels, she received in a suppository ten grains of quinine every

three hours, and half an ounce of whisky every two hours. The swelling over the frontal sinus was greatly increased and more painful. The iodoform and collodion dressing was removed, when an abscess was found to have formed in the lower half of the line of incision. This was thoroughly cleansed with hydrogen dioxide and dressed with iodoform gauze. The sinus was washed out with a saturated boric-acid solution and hydrogen dioxide. At 10 P. M. the temperature had fallen to 101.4°.

*25th.*—There was a decided improvement in the patient's condition this morning. The sinus and wound were treated as on the previous day. 8 A. M., temperature, 99.4°; 9 P. M., 100.4°.

*26th.*—Passed a good night; secretions from the frontal sinus very much diminished, and frontal wound healing, the margins of which were now drawn together with adhesive strips. 8 A. M., temperature, 99.2°; 9 P. M., 99.2°.

*27th.*—The temperature was normal this morning, and continued so during the rest of the patient's illness. Under the local application of the boric-acid solution and hydrogen dioxide the secretions from the sinus rapidly subsided. The frontal wound healed within ten or twelve days without leaving a very perceptible scar, the natural cleavage of the skin being a little more pronounced than originally.

The patient was practically well within six weeks from the date of the operation. The duration of her treatment might have been very much reduced had it not been for the unfortunate accident resulting in a slight septic infection. This infection can be accounted for in one of two ways. The operation was done in as thoroughly an aseptic manner as possible, but after the drainage-tube slipped out of the nose some retention of pus probably took place and the under surface of the frontal wound, which was in close proximity to the opening into the sinus, might have received some infection from the cavity, or the catgut suture employed may not have been absolutely sterile. I believe the infection took place from the sinus. All danger of retention could have been avoided had a self-retaining drainage-tube been used.

The operation offers many advantages over that of

making the incision along the under surface of the supra-orbital ridge and entering the sinus at the inner angle, in that the opening is made sufficiently large to permit of a thorough inspection of the interior of the cavity, and any diseased tissue, as carious bone, granulation or polypoid tissue can be thoroughly removed; the sæptum dividing the two cavities can be thoroughly inspected to ascertain whether it is intact, and a drainage-tube passed from the sinus into the nose without any danger of injuring the cribriform plate of the ethmoid bone.

The method of treating empyema of this cavity by passing a drainage-tube through the frontal opening into the forehead leaves a very unsightly scar, and occasionally the patient recovers with a fistulous opening in the forehead.

*Discussion.*

Dr. SWAIN: I should like to inquire where the incision was made?

Dr. BRYAN: It was made in the median line, beginning at the root of the nose and extending from an inch and a half to two inches into the forehead.

Dr. COHEN: What is the condition of the scar at present?

Dr. BRYAN: There is a fine line, exaggerating somewhat the natural cleavage of the skin.

Dr. CASSELBERRY: Did you dissect up the skin and periosteum together in one flap?

Dr. BRYAN: Yes.

Dr. MACKENZIE: Great caution should be exercised in the use of strong antiseptics in the nasal and accessory cavities. Experiments carried out by Halsted, in Baltimore, show that they lower the vitality of wounds, and therefore increase suppuration. Bichloride of mercury, in the strength of 1 to 10,000, produces in fresh wounds a line of superficial necrosis recognized by the microscope. I have long since abandoned the use of strong antiseptic solutions, and have substituted for them simple methods of producing asepsis. The same may be said of drainage-tubes, which are often nothing more than pus-producers and carriers of infection.

Dr. CASSELBERRY: I have noticed in the foreign journals during the past year reports of several cases of success following Luc's new operation for empyema of the frontal sinuses, and we are indebted to Dr. Bryan

for what is probably the first report on this particular operation made in this country. He confirms Luc's favorable advices. The success of this external operation and its freedom from objections is the more marked since intranasal operating, in my experience, is unsatisfactory, so far as concerns an absolute cure of the frontal-sinus empyema, and since by the old external operations there was left a scar and often a permanently discharging sinus. The chances of success, therefore, are much better by Luc's method, which offers in the first place a better chance of permanent cure, and, secondly, that without much scar. In cases in which I have operated by the intranasal method, removing the anterior end of the middle turbinated body and all obstructing granulations and polypi, in order to secure better drainage, benefit has accrued; the headaches stopped, the discharge lessened, and the patients are more comfortable, but generally dissatisfied that a perfect cure has not resulted, and yet wearied by treatment to the point of refusing, as a last resort, an external operation. Therefore, I should consider it expedient in future to carry out the plan of Dr. Bryan, and recommend Luc's external operation at once without losing time by intranasal procedures other than the removal of obstructing polyps, which should be done in any event.

Dr. W. H. DALY, of Pittsburgh: I should like to express a thought which arose while I was listening to this report, and that is, that it is a source of high gratification that this able work has been done by an honored member of our association, and I know of no one who is so well situated and equipped to do the work as Dr. Bryan, situated as he is in proximity to all the advantages afforded by the Army Medical Museum and other facilities. I have advised this operation repeatedly, but the patients had always declined on account of the external scars which are necessarily produced.

Now also let me say that while I like to agree with almost anything that Dr. Mackenzie says in our discussions, I must differ with him totally about the use of 1-to-4,000 solution of bichloride of mercury. I don't see how I could get along without it in my operations about the nose, throat, and mouth. I am using it now three times in the twenty-four hours, in three or four cases, with absolutely no necrosis or other untoward effect—quite the contrary in one case where I recently removed all of the left side of the lower jaw, from the median line to the ramus, by means of the chisel and gouge, leav-

ing only enough dead bone to protect the periosteum and insure new growth of bone, and give the jaw support. There is now almost entire reproduction of the jaw, and there has not been at any time any necrosis from the use of the mercury solution of 1 to 4,000. I have watched this growth of bone from day to day, removing the packing of iodoform gauze and using the douche of 1 to 4,000, then repacking, and nothing could be happier in its effect or more rapid in its progress.

I sincerely hope that Dr. Mackenzie's remarks will not lead a single person to abandon that most useful of all the antiseptic solutions known to surgery in any case where one can prevent the solution from getting into the lungs or stomach.

Dr. WRIGHT: I remember that about a year ago I examined a large number of sections of the skull with especial reference to the questions which had been raised by Dr. Bryan, incited thereto by a pearl of wisdom dropped by him at our meeting at Rochester—that is, that the proximity of the mouths of the ducts of the frontal sinus and the ethmoid cells to that of the antrum of Highmore in the hiatus semilunaris would suggest that secretions from the ethmoid cells and the frontal sinus in many cases would drain into the antrum of Highmore. In my investigations I found that by filling the frontal sinus with water, the fluid, in almost every case, instead of going out through the nose passed into the antrum of Highmore. I have seen a number of cases in which pus in the antrum was the first symptom of disease of the frontal sinus. I recall a case in which the patient gave a clear history of previous disease of the frontal sinus. I made a large opening into the antrum of Highmore and found it contained a large quantity of pus; this secured a good result in spite of the fact that in this case I am sure that the disease originated in the frontal sinus. If the drainage is good, it is perfectly certain that many a patient with frontal-sinus disease may get well spontaneously, but if the duct is obstructed it is a very different matter. I can not quite agree with Dr. Bryan as to the rarity of frontal sinusitis. That is to say, I regard catarrhal inflammation of the frontal sinus as of rather frequent occurrence, and most of them get well of themselves. Although cases of acute abscess of the frontal sinus are rather uncommon, even many of them get well without radical treatment.

Dr. NICHOLS: Last year a case of this kind came under my care in the hospital, and it was doing very well

after operation, when a young house surgeon introduced a solution of 1-to-3,000 bichloride of mercury. An intense degree of inflammation resulted, and a cellulitis was set up, obliging me to open the wound. The wound finally healed up, but the result was delayed several weeks by the use of the bichloride of mercury.

With regard to the remarks of Dr. Wright, as to the close relation between diseases of the frontal sinus and maxillary antrum, there is a point of differential diagnosis that I would submit for consideration: if the discharge comes from the frontal sinus, it will be observed to be in the form of long, wormy shreds; but if it originates in the antrum, the discharge is in the form of a thick mass of pus.

Dr. MACKENZIE: Dr. Daly has misunderstood me. The structural changes produced by the antiseptic in question are only discoverable under the microscope. I have by no means discarded the use of bichloride of mercury. No sane man questions its value as an antiseptic; but, in open wounds, if I use it at all, I use it in very weak solutions.

Dr. FARLOW: I would inquire of Dr. Bryan if it is not also possible for the disease to extend from the antrum of Highmore into the frontal sinuses, going from below upward? In some experiments made at the Harvard Medical School it was possible to inject fluids through the antrum into the frontal sinus, and an inflammatory process might extend in the same way. In the ordinary erect posture the drainage would naturally be in the opposite direction. In certain positions of the head, however, a disease which had originated in the antrum might extend to the frontal sinus.

Dr. BRYAN: I am very glad to see that Dr. Wright has corroborated my remarks with regard to the frequency of communication between the frontal sinus and the antrum, for I think that this point has not received sufficient attention. I have seen a number of cases of antrum disease originating in the frontal and ethmoidal cavities. I have now a case of antrum disease following suppurating ethmoiditis. The physician who saw the case with me in consultation thought that it was some intramaxillary disease. Treatment was instituted, and the patient improved, but after an interval of eight years the patient has returned, and there is now decided involvement of the frontal sinus, with necrosis of the ethmoid cells, while the antrum is clear.

Now, with regard to the question of Dr. Farlow,

as to whether or not the disease could extend from the maxillary sinus to the frontal sinus on account of working its way upward, I would say that these specimens made by Dr. Fillebrown decide this point, and it is seen that the discharge could work its way upward as well as downward.

In speaking upon the subject, I referred to the fact that in clinic cases of suppurating frontal sinusitis there is a possibility of invasion of the ethmoid as well. The point that I would insist upon is the frequency of the involvement of these cells. In such cases we can get at them by removal of the floor of the frontal sinus, as suggested by Janner; this is, however, a very serious operation.

With regard to antiseptics, I agree freely with Dr. Mackenzie as to the injury resulting from very strong solutions of antiseptics, especially as it happens that the discharges in such cases are very often kept up by strong solutions of bichloride of mercury. While I do use it as strong as 1 to 3,000, it is a question whether it is not better generally to use a saturated solution of boric acid, or hydrogen dioxide properly diluted.

Dr. DALY: After a long use of the several and varied preparations of peroxide of hydrogen I have concluded that they are almost worthless therapeutically.

*Paper.*

## PAPILLARY ŒDEMATOUS NASAL POLYPI AND THEIR RELATION TO ADENOMATA.

BY JONATHAN WRIGHT, M. D.

BILLROTH, in his classical work, *Ueber den Bau der Schleimpolypen*, in 1855, reported two cases of nasal tumor to which he gave the name of *Zottenkrebs*. One sprang from the middle turbinated bone among a mass of œdematous polypi. It was removed and recurred, and finally resulted fatally. In the other case the growth sprang from the inferior turbinated body. It passed from his observation, but he regarded it as belonging to the same category as that of the first case. In the light of our present knowledge of such cases as the latter we may be allowed to conjecture that it was a papillary hypertrophy of the inferior turbinated body. The rea-

sons for this surmise will appear later in the course of this article. Hopmann (1), in his well-known paper on Papilloma of the Nose, gave a careful description of a papillary growth of the middle turbinated bone and referred to a similar one by Michel, which they both called an epithelioma papillare, but Hopmann hastens to say that he regarded his own growth as of a benign character. In another paper (2) I have had occasion to remark upon the confusing nomenclature introduced into rhinological literature by Hopmann in describing nasal

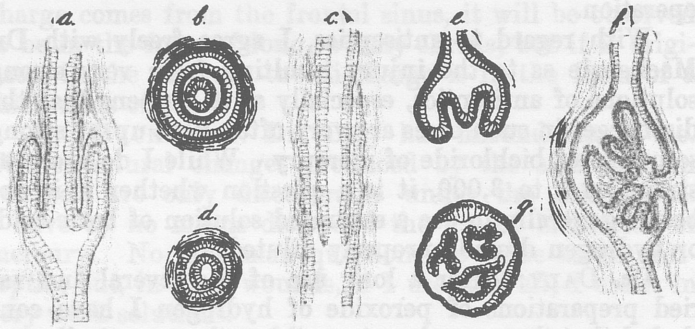



FIG. 1.—Schematic drawings from Amann.

In order to make this matter more clear I reproduce here some of the schematic drawings from Amann's book.

A cross-section of the duct *a*, at the line indicated, would give us the appearance *b*. There may be a solution in the continuity of the epithelium as in *c*; then in cross-section we have the appearance *d*. The cells of the acini may proliferate also as in *e* or in *f*, and a cross-section would give the appearance *g* or a still more complicated figure in the cross-section of *f*.

After careful study I am unable to distinguish the actual segmentation of the cells in their long axes, and I am inclined to think that some of the cells at least are formed from the underlying connective tissue, or by some other form of proliferation than segmentation through their long axes; but the comparatively slight increase in the number of layers and the convolutions of the rows of epithelium would bear out Amann's description.

growths, and I may add that in this instance it certainly seems unwise to give the name of epithelioma to a benign growth. Hopmann's case was also associated with œdematous growths. Zarniko (3) reported a similar case in a man of fifty years under the name fibroma of the nasopharynx, of a peculiar shape and structure; but it evidently had its origin in the region of the middle turbinated bone among œdematous growths. Again, a year later, Kiesselbach (4) reported a case, and adopted

Hopmann's classification of a benign epithelioma papillare.

Several years ago I examined microscopically a growth removed by Dr. Charles H. Knight, of New York, from the middle turbinated bone of a man of fifty

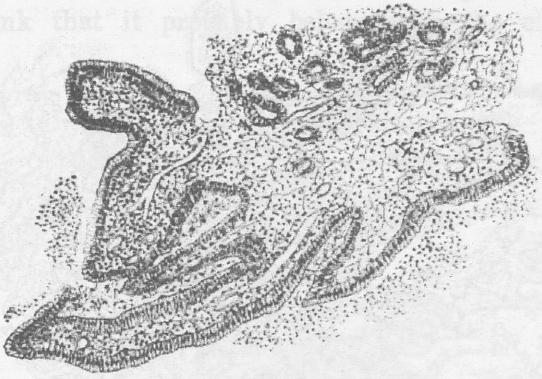


FIG. 2.—Dr. Knight's case.

years. Figs. 2 and 3 represent drawings of the microscopic appearances of this growth.

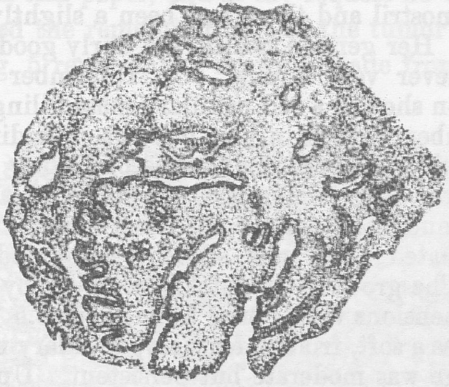


FIG. 3.—Dr. Knight's case.

No history of the case can be obtained at this time.

About a year ago Dr. F. W. Hinkel, of Buffalo, sent me a slide containing sections of a growth, from which I have had a drawing made representing the structure (Fig. 4). Later, he very kindly furnished me with the following history of the case:

Mrs. J. G. C., aged thirty-five years, in the winter of 1891 had an attack of *la grippe*. After this she began to notice the gradual increasing obstruction of the right nostril and a feeling of pressure in the right ear. During the summer she had blown a few fleshlike pieces

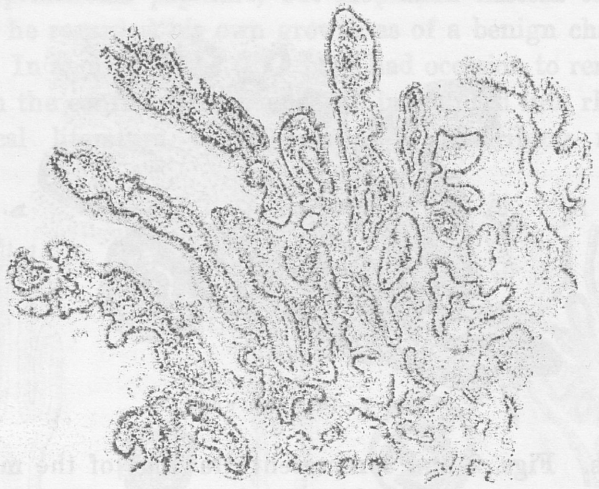


FIG. 4.—Dr. F. W. Hinkel's case.

from that nostril and there had been a slightly purulent discharge. Her general health was fairly good, although she was never very strong. On November 22, 1892, examination showed a red papillary mass filling the right nasal chamber, bathed in pus, but not extending beyond the vestibule. A posterior rhinoscopic view could not be obtained. The tumor was movable and attached to the upper and back part of the nasal cavity. The inferior turbinated body was slightly atrophied or compressed. The growth was quickly removed by the snare, and its dimensions were found to be about $2.5 \times 1.5 \times 1$ ctm. It was a soft, friable, feathery, papillary mass. The hæmorrhage was moderate but persistent. Upon February 17, 1893, the patient returned, when the pedicle was seen to project from above the middle turbinated bone. This was removed by the snare. She was seen four days later, and again after an interval of seventeen days. She was feeling quite weak, and there was a pultaceous discharge over the vault of the pharynx. Some adhesion of the right middle turbinated bone to the sæptum had occurred. For three years and a half there was no recurrence of the symptoms, but three months later, symptoms

having again appeared, the patient was examined, and it was found that the growth had recurred.

Dr. E. T. Dickerman (5), of Chicago, has lately published the report of a case which he called a nasal papilloma. The photograph of a microscopic section of the growth which accompanied the report led me to think that it probably belonged to the class re-

FIG. 5.—Dr. Dickerman's case, showing adenomatous tissue.

ferred to in this paper, and at my request he very generously placed the remaining part of the tumor at my disposal. Fig. 5 represents a drawing made from a section

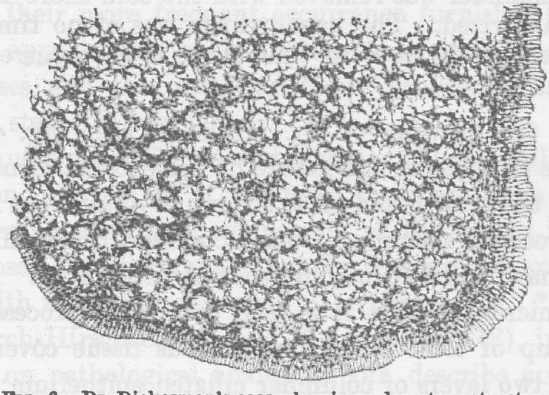


FIG. 6.—Dr. Dickerman's case, showing œdematous structure.

of one part of it, and Fig. 6 that of a section made from another part of the same growth. From Dr. Dicker-

man's published report of the case I copy the clinical history of it:

"*May 2, 1896.*—John O'Connor, aged sixty-two years, presented himself at my clinic complaining that his right nostril had been occluded for some time. The man was in perfect health, and his previous and family history good. He stated that nine years ago his nose had first become occluded, and that he consulted a local surgeon, who had gone blindly into the nose with forceps and curette, and had removed a large amount of 'flesh.' For about a year he was well, but for the last five years his nose had been closed. On examination I found nothing of importance externally. On looking into the right nostril I found the nose filled to the vestibule with a pinkish-gray cauliflower mass. It was not ulcerated and was movable, apparently having a small pedicle. With a probe I was able to locate its attachment to the upper and anterior part of the quadrangular cartilage to what seemed to be a small ecchondrosis. Posteriorly the choana was filled with the same growth, with the one exception that here one or two of the branches appeared œdematous and protruded through the middle meatus. The absence of ulceration, infiltration at the point of insertion, and enlargement of glands and the duration of the disease, compelled the diagnosis of sæptal papillary fibroma. With a strong pair of scissors I was able to remove a large portion of the growth with the thickened portion of the sæptum attached. The remainder was removed with the cold snare and the base cauterized. The hæmorrhage was at no time profuse, and at the present time there is no recurrence of growth."

By the drawing of Dr. Hinkel's case (Fig. 4) you will see at a glance the nature of the external configuration of the growth and of its structure—numerous finger-like processes springing from a common base. Many of them have rounded or club-shaped extremities. Examined microscopically, it is seen that these processes are made up of loose œdematous fibrous tissue covered by one or two layers of columnar ciliated epithelium; but it is apparent that the epithelial development is a complex one. In no place is there any marked thickening of the layers, but the surface epithelium is seen to communicate and to be continuous with deep indentations and rami-

fications of it into the underlying stroma. Separate rings of epithelium, ovoid, circular, or ramified in shape, and varied in extent, are seen to occupy and make up a large part of the bulk of the growth. The structure in Dr. Dickerman's case and its external configuration is almost identical with the above.

Examined with the high power one is immediately struck with the amount of mitotic granules in the epithelial cells (Fig. 7). Evidently proliferation is rapidly going on, but not in such a way as to increase markedly the number of layers. By the study of these growths alone it is impossible to arrive at an understanding of the method of their pathogenesis. To do that, we must not

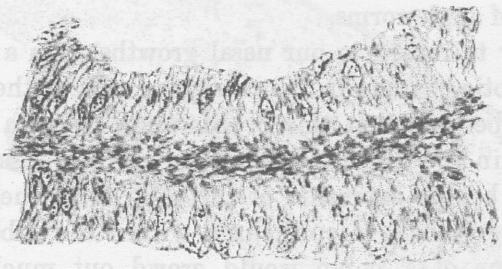


FIG. 7.—Dr. Hinkel's case, showing mitosis in the cells.

only study like processes in other parts of the body, where their more frequent occurrence furnishes a more ample opportunity, but we must study analogous nasal processes and this same epithelial proliferation at an earlier stage if possible.

I quote from Cornil and Ranvier (6) the following: "Among the polypi of the nasal fossæ are some which so resemble the cystic adenomata of the uterus that it is impossible to distinguish them by comparative examination with the naked eye or with the microscope." *

Birch-Hirschfeld (7) and Weichselbaum (8), in their works on pathological anatomy, both describe and give drawings of papillary cystomata of the ovaries and of processes of chronic inflammation of the uterine mucosa

* I have in my possession a good example of the same process in a glandular polypus of the rectum.

which closely resemble the nasal growths under consideration, and Amann (9) has lately given an admirable description and explanation of their complicated structure. He shows that in glandular hypertrophy the cells of the ducts and of the acini of the glands proliferate by segmentation parallel to their long axes. This causes an elongation of the rows of epithelium and not an increase in the number of the layers. This necessarily leads to a convolution of the ducts or to an invagination of their walls. The walls of the acini are also doubled and folded on themselves in such a way as to increase the labyrinthian maze of epithelial rows. On cross section, therefore, we have very much the same appearance as would be presented by section through a bunch of angleworms.

Now to return to our nasal growths. On a study of the mitotic changes in the columnar cells of the surface, it may be seen that this proliferation goes on there as well as in the glands, so that the surface is raised into papillæ by the extension of the rows of epithelial cells. This overgrowth of epithelium within the substance of the tissue of a polyp would crowd out much of the œdema and compress the stroma fibres. This is the condition we have both in Dr. Hinkel's (Fig. 4) and in Dr. Dickerman's specimen, in that part from which Fig. 5 is taken. You will observe, however, that in the other section from Dr. Dickerman's case (Fig. 6) the structure is that of an ordinary mucous polypus. The stroma in Dr. Hinkel's case is also œdematous in places, and this must be borne in mind with the clinical fact apparent in most of the histories, that these growths have usually been found combined with polypi of the middle turbinated bone. It becomes necessary for us, therefore, to see if any pathogenic connection exists between these growths.

You may remember that several years ago I read a paper (10) before this association to show that nasal polypi are not usually myxomatous. In the light of much subsequent experience in the histological examination of morbid nasal conditions I am ready to state my

belief that true myxoma, as it is understood by histologists, never occurs in the nose. In arriving at this conclusion I have examined, in the aggregate, nearly a hundred mucous polypi from the nose. I believe that they are the result of chronic inflammation.

It so happens that I have preserved one or more slides of nearly all my pathological material, and in looking over those of œdematous polypi I am able to select a

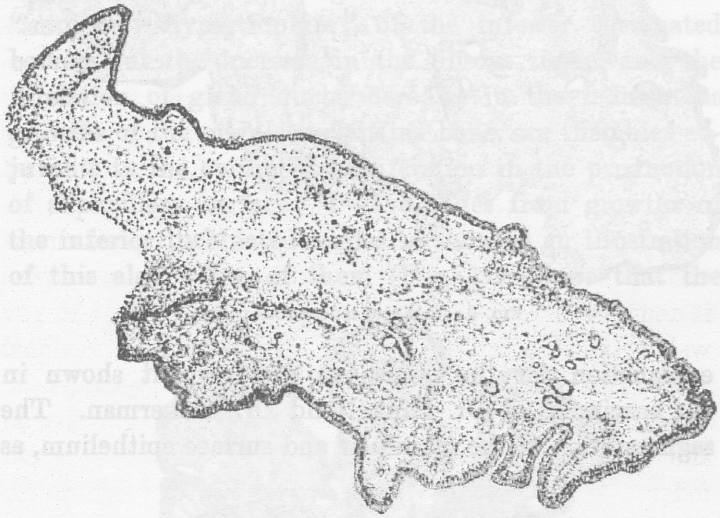


FIG. 8.—Papillary œdematous polyp.

series of slides which show fairly well an apparent transition from the ordinary smooth form of the latter to the papillary state (Figs. 8, 9, and 10).

It is evident that other influences are at work besides epithelial proliferation to produce this papillary surface in mucous polypi. Zuckerkandl (11) says that he has observed a dilatation of the mouths of the glands produce a curvature of the surface epithelium: "The chief ducts of the glands become dilated; the same occurs in their communicating acini, which thus among themselves and with the ducts unite to form indentations" (Buchten). On a reference to the drawings from my specimens, as in Fig. 10, at *x* you will note the phenomenon referred to by Zuckerkandl. This will doubtless explain some of the puzzling curvatures of the epithelium

within the growth (Fig. 3) and yet communicating freely with the surface, but will not suffice by itself as an

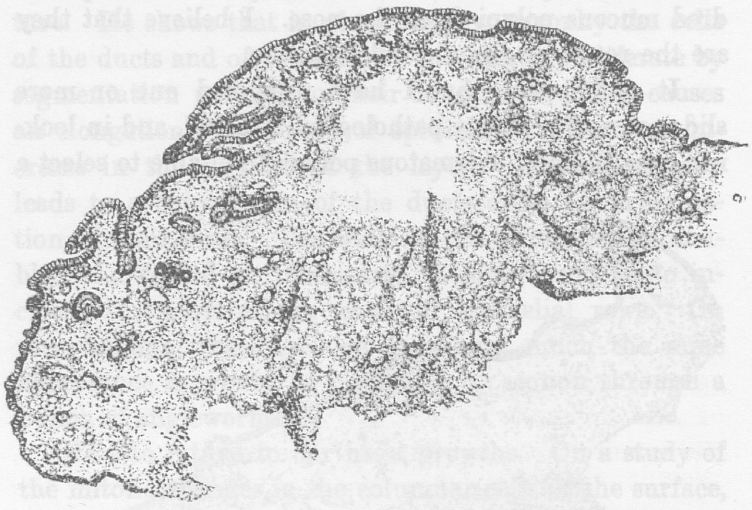


FIG. 9.—Papillary œdematous polyp.

explanation for the enormous development shown in the specimens of Dr. Hinkel and Dr. Dickerman. The segmentation of the glandular and surface epithelium, as

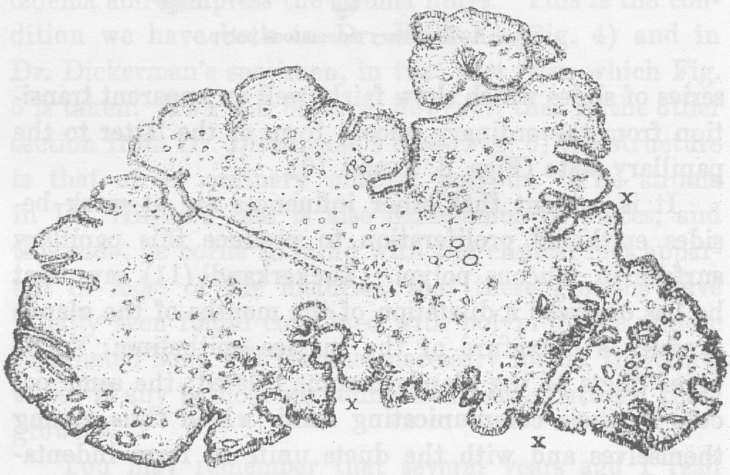



FIG. 10.—Papillary œdematous polyp. X, dilatation of gland ducts.

noted above, will supply this deficiency, but we still have another influence at work to lengthen out the papillæ

of the surface, and that is the proliferation of the fibrous tissue. Abundant mitotic figures may also be seen in some of the cells of the connective tissue. This brings us to the realization of the fact that we have instances of these processes going on in other growths of the nose than mucous polypi, and in other situations than upon the middle turbinated bone. I have suggested that the dilatation and collapse of the erectile tissue determines, to some extent, the configuration of the surface in the "mulberry hypertrophies" of the inferior turbinated bodies, but the increase in the fibrous tissue, and the dilatation of gland ducts, here, as in the œdematous growths of the middle turbinated bone, are the chief adjuvants to the epithelial proliferation in the production of a papillary surface. I have slides from growths of the inferior turbinated bodies to show as an illustration of this also. One of them (Fig. 11) shows that the

FIG. 11.—Papillary hypertrophy of the posterior end of the inferior turbinated body.

growth of the fibrous tissue is the chief element in the digitations, while the other (Fig. 12) shows also considerable epithelial hyperplasia.

Since the completion of the observations which form the subject of this paper I have received from Dr. F. E. Hopkins, of Springfield, a specimen which proves to be an adeno-carcinoma of the nose. In many places it is

impossible to distinguish the structure from that found in Dr. Hinkel's and in Dr. Dickerman's cases, and it is therefore impossible to say with certainty that there are not, in unexamined parts of their growths, carcinomatous elements which are not to be found in the parts submitted to me for examination. Dr. Hopkins, I believe, is to report his case at this meeting, and you will see from the drawing of the microscopic appearances the resemblance of the structure to that of those growths of which I have been speaking.

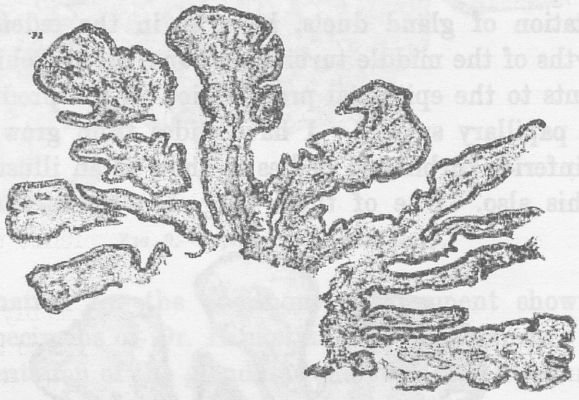


FIG. 12.—Papillary hypertrophy of the inferior turbinated body approaching an adenomatous condition.

Thus you will see the gradations in development from the ordinary mucous polypus through a benign adenomatous growth to a malignant one. In the mucous polyp and in the adenoma we have the results, I believe, of an inflammatory process. At first we have the effusion of serum into the tissues from the blood-vessels. Afterward, or *pari passu* with it, we have the proliferation of the fibrous tissue. This makes an œdematous mucous polyp. Then, in these rare adenomatous and papillary growths we have the proliferation of the glandular and surface epithelium.

The tendency of adenomatous growths to become sarcomatous or carcinomatous is well known, and has been long recognized. This brings us to the ætiology of carcinoma and sarcoma, and into that I am not capable of entering.

We know that epithelial proliferation of another type produces the fibroma papillare or true papilloma of Virchow, and that this also has some affinities with chronic inflammation, as exemplified in the pachydermia verrucosa of the larynx. The tendency to papillary formations is seen not only in the epithelium covering fibrous tissue, but, as I have lately had occasion to observe, lymphoid tissue of the faucial tonsil is occasionally thrown into the digitations covered by proliferated squamous epithelium, which give to the surface a papillary vegetating appearance.

In fact, so close a relation exists between the products of inflammation and many of the various forms of benign tumors that I must acknowledge my inability to draw any practical line between them. So far as my observation goes in reading works on pathology, this can only be done to the satisfaction of those who know nothing of the subject, but it is a great convenience to the teachers of students.

In presenting this paper I desire to express my sense of great obligation to the gentlemen who have so generously placed their pathological material at my disposal for study.

1. Hopmann. Virchow's *Archiv*, No. 93, pp. 234–236.
2. Wright. *N. Y. Medical Journal*, December 26, 1891; *Trans. Am. Lar. Assoc.*, 1891.
3. Zarniko. Virchow's *Archiv*, No. 128, p. 132.
4. Kiesselbach. Virchow's *Archiv*, No. 132, p. 371.
5. Dickerman. *Annals of Ophth. and Otol.*, October, 1896, p. 1125.
6. Cornil and Ranvier. *Manuel d'histologie pathologique.*
7. Birch-Hirschfeld. *Lehrbuch der path. Anatomie*, Bd. ii, p. 746, 1887.
8. Weichselbaum. *Grundriss der path. Histologie*, 1892.
9. Amann. *Lehrbuch der mikr. gynäkologischen Diagnostik*, 1897.
10. Wright. *N. Y. Medical Journal*, November 4, 1893; *Trans. Am. Lar. Assoc.*, 1893.
11. Zuckerkandl. *Norm. und path. Anat. der Nasenhöhle*, ii, 1892, p. 109.

*Paper.*

## A CASE OF ADENO-CARCINOMA OF THE NOSE.

By F. E. HOPKINS, M. D.

For every point of material value in connection with the report of this case we are indebted to Dr. Wright, who by his examination of the specimen demonstrated it to be of interest, secured the microscopical drawings, and furnished the notes on the general subject of carcinoma of the nose. I greatly appreciate his courtesy, the more so that I have had no leisure for research since my attention was called to the case; indeed, it did not come under my observation until after the publication of the programme for this meeting. The case presents the following history:

Isaac A., a native of Massachusetts, eighty-three years of age, a large, well-developed man, who has always enjoyed good health, and continues to do so notwithstanding the local affection. The term "good health" is of course a relative one as here used. The patient has long been in the vegetative stage. He has an excellent appetite, good digestion and assimilation, and is well nourished, but naturally presents the decrepitude of advanced age. No trace of cancer can be discovered in his family history, but many of his immediate relatives have died of tuberculosis. About twelve years ago he began to suffer from nasal obstruction attended by a watery discharge. The symptoms at the beginning were limited to the left nasal fossa. The obstruction increased until this passage was occluded, but the patient did not seek relief until six years ago. Up to this time there had been no symptoms other than those of mechanical obstruction and the constant flow of mucus. No pain and no epistaxis. Operation was then attempted, but to no purpose so far as securing relief was concerned. The manipulation caused a hæmorrhage from the nose of such severity that the doctor declined to proceed with the operation, and nothing more was done at that time. A month later free epistaxis occurred spontaneously. The doctor has written me that the tissue broke down easily and bled freely upon any attempt to use the snare, and that he secured but a small frac-

tion of the growth. His suspicions were not aroused, and he evidently regarded the growth as one of myxoma.

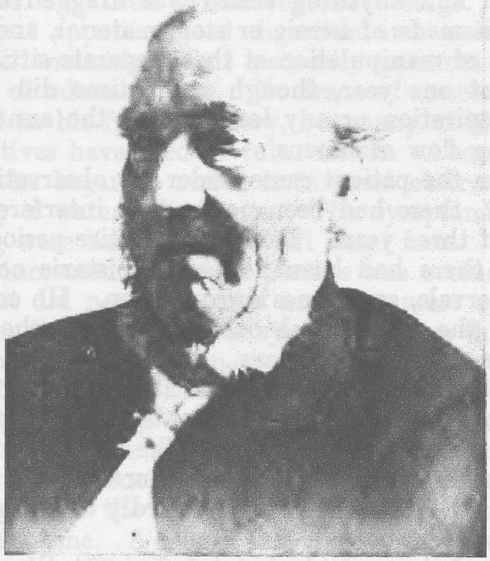
Later the patient made a further attempt to get rid of the neoplasm by calling upon another physician, who, with a strong forceps, removed some portion of the growth, and pronounced the case one of polypi. The descriptions given by the patient and his son of the tissue removed would lead one to infer that the diagnosis might then have been correct. The description of form, consistence, and color, together with the fact that the rough manipulation with the forceps was not followed by any considerable hæmorrhage, tallies with the supposition that the growth removed was myxoma. The doctor also has written me that this was his diagnosis. A description of the method of operation still further impresses one with the probability of the transformation of a possible benign into a malignant growth through rough treatment. The old gentleman was taken into the orchard beside the house and there, without anæsthesia of any kind, without the aid of head mirror or speculum, a large, strong forceps was introduced and anything seized was dragged out. The patient is made of heroic or stoic material, and endured this sort of manipulation at three separate sittings at intervals of one year, though at no time did he secure nasal respiration or any lessening of the annoying and persisting flow of mucus.

When the patient came under my observation, April 10, 1897, there had been no surgical interference for a period of three years. During the entire period of nasal stenosis there had been no pain; epistaxis occurred at long intervals, sometimes during sleep. He complained only of the mechanical obstruction and the constant flow of acrid sanious mucus. Of the two, the discharge seemed to trouble him more, for it was of such quantity as to make him present a constantly untidy appearance, and had a decidedly bad odor. The left side of the nose is deformed by the internal pressure of the neoplasm, and the left eye is displaced outwardly to a slight degree by the same force.

The photograph does not bring out the deformity as I had hoped it would do. The strong light upon that side of the patient's face makes this region appear as a plane surface. The sæptum is forced toward the right side till it lies in contact with the outer wall of the nose. The mass of tissue protruded into the vestibule and extending backward into the nasopharynx reached across

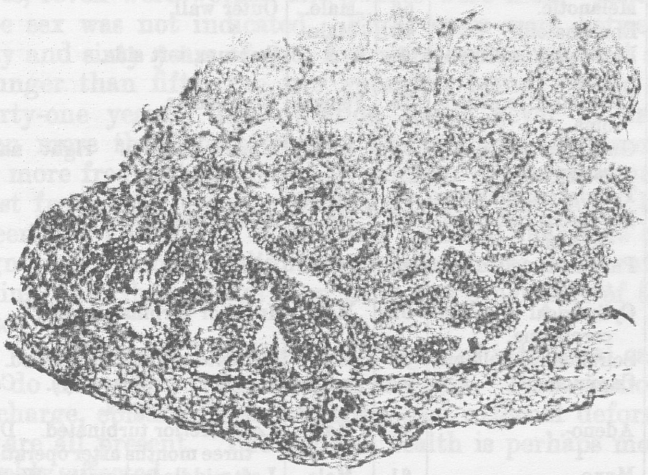
the sæptum and completed the occlusion of the right naris. The mass protruding from the choana was covered by a grayish slough; that lying in the vestibule was of a dusky red, almost brown, color, a liverlike mass, easily breaking down and bleeding even upon the gentlest touch. There is no glandular enlargement. With the cold-wire snare I secured a small fragment for examination. This was followed by hæmorrhage, which was controlled with difficulty. The specimen was submitted to Dr. Wright for examination, and the following is his report:

"Two irregular papillary masses about three centimetres in their long diameters. Microscopically, it is seen to be made up almost exclusively of cylindrical-celled epithelium arranged in the form of tubules and acini in places, but in others crowded together in irregular masses, but with a general tendency to concentric



arrangement. As a rule, the cell bodies are pale and granular and the nucleus more distinct. In places the degenerative changes in the cells were advanced further. There is very scanty connective tissue. Diagnosis, adenocarcinoma."

Primary carcinoma of nasal fossæ is a rare affection. No man, however wide his opportunities for observation, has seen more than a few cases. Indeed, but a very limited number have been recorded by all observers. The medical journal of widest circulation in this country has a record of but one case in twelve years. The *Journal of Laryngology, Rhinology,* etc., for a period of nearly six years has but one. The former was seen by Dr. Wright,



and he gives a description of it in his notes here appended. The latter was reported by Dr. Sikkel at the second annual meeting of the Dutch Society of Laryngology, Rhinology, and Otology in July, 1894, and appears in the *Journal of Laryngology, Rhinology,* etc., for June, 1895. This occurred in a peasant woman aged forty-six years. It was attached to the sæptum. The growth was removed, and after ten weeks there had been no recurrence. The microscopical diagnosis was carcinomatous lymphoma.

Dr. Leland has recently had a case of adeno-carcinoma of the nose which he will report at this time.*

It seems quite probable that a larger number of cases of carcinoma of the nose will be reported in the future,

* Dr. Hamilton, of Brattleboro, Vt., has just written me of a case of cancer of the nose, but the description is not sufficiently definite to allow of its being classified with this list.

for even if the number of cases of cancer is not increasing the number of observers is, so that the record will be more complete.

| No. | Variety. | Age. | Sex. | Origin and attachments. |
|---|---|---|---|---|
| 1 | Medullary. | 31 | Female. | Sæptum. |
| 2 | ? | 50 | Female. | Sæptum. |
| 3 | Encephaloid. | 60 | Female. | Apparently (from history) in upper portion of nose. |
| 4 | Melanotic. | 66 | Male. | ? |
| 5 | Melanotic. | 56 | Male. | Outer wall. |
| 6 | Encephaloid. | 40 | Male. | ? |
| 7 | Lobulated epithelioma. | ? | ? | Sæptum, left side. |
| 8 | Lobulated epithelioma. | 73 | Female. | Right fossa. |
| 9 | Glandular (adeno-?) carcinoma. | 54 | Male. | Upper part of right nasal cavity. |
| 10 | Tubular epithelioma. | 57 | Female. | |
| 11 | Pavement-celled epithelioma. | 53 | Male. | Roof of left nasal cavity. |
| 12 | Pavement-celled epithelioma. | 44 | Male. | Ala. |
| 13 | Cylindrical - celled carcinoma. | 51 | Male. | Inferior turbinated, left. |
| 14 | Scirrhus epithelioma. | 56 | Male. | Beneath middle turbinated. |
| 15 | Carcinoma. | 31 | Female. | Inferior turbinated (?). Case of Dr. Douglas. |
| 16 | Adeno-. | 47 | Male. | Left inferior turbinated. Died three months after operation. |
| 17 | Myxo-. | 61 | Male. | Left middle turbinated. Well (?) three months after operation. |
| 18 | ? | 46 | Male. | |
| 19 | ? | 59 | Male. | |
| 20 | Epithelioma. | 64 | Female. | Upper part nasal fossa. |
| | Three cases are to be added to Dr. Wright's list, but which do not change his conclusions, as follows: | | | |
| 21 | Adeno-carcinoma. | 50 | Female. | Adherent to ethmoid. Died. Dr. Leland's case. |
| 22 | Carcinomatous lymphoma. | 46 | Female. | Sæptum; operation; no recurrence after ten weeks. Dr. Sikkel's case. |
| 23 | Adeno-carcinoma. | 83 | Male. | Probably originally in upper part of nose. Hopkins's case. |

The following are Dr. Jonathan Wright's notes on carcinoma of the nose:

"This is a very rare occurrence. Seifert and Kahn picture one in their Atlas, without giving any reference to the history. Dr. Beaman Douglas has lately reported a case (New York *Medical Record*, August 8, 1896) of carcinoma of the inferior turbinated, which I had the privilege of seeing. Although the ulceration was on the

turbinated body, it is a matter of some doubt, judging from the history, whether it really was not primary in some contiguous structure. The variety of carcinoma is not mentioned in the history. Bosworth collected from literature the records of thirty cases, but less than half of them are supported by a satisfactory microscopic diagnosis. I have tabulated these cases, together with Newman's two cases and Dr. Douglas's case, making twenty cases in all in which the diagnosis seems to have been established by histological evidence. Of the twenty cases, seven were women and twelve were men. In one case sex was not indicated. Eight cases were between fifty and sixty years of age; five were over sixty, and six younger than fifty, the two youngest being women of thirty-one years. The duration seems never to have been more than three years. Sarcoma and carcinoma are more frequent in men than women. Sarcoma occurs most frequently between forty and fifty; carcinoma between fifty and sixty. It will also be noted that, like benign true tumors, malignant growths more frequently spring from the sæptum than from any other part of the nose.

"*Symptoms.*—Practically the signs of intranasal cancer do not differ from those of sarcoma. Pain, sanious discharge, epistaxis, nasal stenosis, and external deformity are all present. The general health is perhaps more quickly affected.

"*Diagnosis.*—Examination reveals a fungous mass filling the nasal fossa, which bleeds easily. The only condition that it may be confounded with is syphilis. As between carcinoma and sarcoma the only reliable method of diagnosis is the use of the microscope, while the iodide of potassium should always be used in every case of supposed intranasal malignancy, that syphilis may be excluded. As was said, the microscope must decide between carcinoma and sarcoma, because these growths are both so rare that no rhinologist can have a wide enough experience with them to render his differential diagnosis of any value.

"*Prognosis.*—This is uniformly bad, the duration of the disease being frequently not longer than a year, and never longer than three years. The vascularity of the mucosa renders extensive involvement of the parts a rapid process. The foregoing statement applies more particularly to carcinoma of the nose; the adeno-carcinomatous cases run a much more prolonged course.

"*Treatment.*—A careful analysis of the cases seems

to show that operative procedures in cancer of the nose neither lengthen life nor alleviate suffering. Detergent and antiseptic washes are to be constantly used in the nose, and narcotics are to be given with a free hand."

*Paper.*

## A CASE OF ADENO-CARCINOMA OF THE NOSE.

By G. A. LELAND, A. M., M. D.

THE announcement on the programme of the papers of Dr. Wright and Dr. Hopkins suggested to me that the following case, which came under my observation in hospital practice, might be of interest; and at the latter's request it is here submitted. It will be noted that the very accurate account of the autopsy by Dr. Councilman shows three points brought out by Dr. Wright—viz., the primary adenoma, its transition to carcinoma, and a tendency in one part to papilloma.

Ellen W., a rather frail, undersized woman of fifty years, was admitted to the Boston City Hospital about the middle of October, 1895. Has always had good health until present trouble. About a year ago nose began to stop up on right side, especially at night; obstruction gradually increased until it was complete. The left side became involved soon after the right, but she is even now able to force some air through left naris. No pain until three months ago, since when it is described as neuralgic in nose and over right side of head. Epistaxis has occurred six or eight times since onset, at times quite copious. About middle of July had more or less of the growth removed at the out-patient department. It has grown rapidly since.*

*Examination.*—Bridge of nose markedly flattened and broadened, the nasal bones seemingly lifted upward and loosened so as to give a soft feel to finger; no crepitus; skin over bridge reddened, more deeply in centre. In inner canthus of right orbit a swelling with a fistula discharging pus—the suppurating lacrymal sac, or an abscess which has broken through the ethmoid bone into the

* From Out-patient Department Record Book. "July 26, '95. Ellen W. 50 yrs. W. Specific rhinitis and caries of sæptum. Curette. Potas. iod."

orbit. The right eye is pushed to right a small fraction of an inch, and slightly bulging. Nares filled with a firm, grayish-white granular polypoid mass, right more than left. The same kind of tumor is seen by posterior rhinoscopy to nearly fill the nasopharynx, more on right than left. A watery, muco-purulent fluid continually comes from nares, at times sanguinolent. The mass bleeds easily if wounded.

*12th.*—A piece removed for pathologist; considerable hæmorrhage; controlled by iodoform-gauze packing.

Dr. Councilman reports probable carcinoma, but awaits more thorough microscopic examination after hardening.

*November 23d.*—About five weeks after admission. Patient is up and about; complains of very little pain; several hæmorrhages have demanded attention, controlled by packing, which is kept almost continually in the nares. To-day is noted a slight increase in size of right superior maxillary region, especially outward under zygoma.

*December 2d.*—Patient has been losing strength for a week, and confined to bed. Marked cellulitis developed under right zygoma six days ago, and right cheek is now very tender and somewhat reddened; no fluctuation. About the same time discharge from lacrymal region became somewhat hæmorrhagic and has increased. Three days ago the right half of the roof of the mouth became infiltrated and thickened, and very tender—probably a submucous cellulitis. Mouth is very sore, and only liquid nourishment can be taken.

*15th.*—Rapidly becoming weaker; swelling has increased so that right cheek protrudes as large as a small orange. Discharge from nose and eye increased. Still pain is not prominently complained of.

*24th.*—Death ensued from gradual failure of vital function.

*Autopsy, December 27, 1895.*—From records of pathological department, by Dr. Councilman.

Glabella driven forward. Nose flattened and broadened; right eye somewhat protruded; right cheek swollen.

Skull of ordinary thickness; meninges and brain normal. On stripping off dura from orbital plates a small amount of pus welled up. Cribriform process was eroded, and in place of it a reddish granular-looking purulent mass appeared. Skin of face was dissected off, and bone split in the median line. The entire nasal passages extending back into the pharynx were filled with a

reddish granular tumor mass. This appeared to spring from all the processes of the ethmoid bone, which was entirely destroyed. The tumor was also adherent to and grown into the cartilaginous sæptum. The tumor was infiltrated with pus, and there was an opening through the outer wall of the antrum into the cheek, and pus infiltration of the connective tissue and muscle throughout, this infiltration extending up to the back of the orbit on the right side, involving the left to a much smaller extent.

Lungs free from adhesions; posterior lower lobes congested and slightly œdematous. On pleural surface of lung were several small, flat, grayish metastatic nodules of the same character as the primary growth. Right pulmonary artery contained a loose fibrinous embolus, with fresh fibrinous masses adherent to it.

Liver, spleen, and kidneys amyloid. In the left kidney the renal vein was entirely occluded by a thrombus, which projected into the vena cava and was continuous with a thrombus on the right side coming from the renal vein and partly occluding it; this united thrombus was continued upward in the vena cava, was adherent to the posterior wall, and had fresh clots upon it.

*Anatomical Diagnosis.*—Tumor of ethmoid. General amyloid infiltration.

*Microscopic Examination.*—Cover slides from pus from ethmoid cells showed many short chains of streptococci and many bacilli.

*Bacteriological Examination.*—Cultures from pus from ethmoid cells, heart's blood, liver, kidney, lungs, spleen showed many colonies of streptococci—prevailing organism, streptococcus.

*Bacteriological Diagnosis.*—General infection with *Streptococcus pyogenes.*

Microscopic examination of tumor in various places showed that it was an adenoma with some tendency to carcinoma, but the most of the tumor had a purely adenomatous type. The cells composing the tumor were long and spindle-shaped, and where it was best preserved they were covered with cilia; in other portions the cells were swollen and the ciliæ were not evident. There was a very slight degree of purulent infiltration of the tumor in places. In one of the sections on the edge there was a very remarkable formation of long papillæ from which the epithelium had fallen off in many places; the blood-vessels of these papillæ were dilated and filled with blood, and they were so long that they could be seen on the section with the naked eye.

*Discussion.*

Dr. SWAIN: Perhaps no other one of the gentlemen present more greatly appreciates at the present moment the value of Dr. Wright's paper upon the pathology of papillary œdematous nasal polypi and adenomata than I, because during the past year I have been working upon the same line, examining a large number of ear polypi and incidentally drawing some analogy between their development and that of nasal polypi, in the hope that some light might be thrown in this side way upon the origin of nasal œdematous fibromata. I have a number of sections of fibro-papillomata which Dr. Wright has described, and I regret that I did not bring them with me to this meeting. I think that he does not lay too great stress upon the activity of the fibrous tissue in producing the peculiar superficial appearances of this growth, especially the growth in a horizontal direction in producing corrugations upon the surface. There can be no doubt that in the ear polypi it is the growth of the fibrous tissue which mainly contributes to produce this condition. As regards the development of adeno-sarcomata, they occasionally present a hard appearance in the nose, rather than the soft character observed in Dr. Leland's case.

I had a case in which the first specimens presented the appearance of papilloma, but subsequent examinations led to the belief that it was a carcinoma. The growth extended into the pharynx and finally broke down and the patient died. There was no deformity of the face or neck. She suffered greatly from difficulty in deglutition, owing to a growth at the base of the tongue. I hope to report the case at length on some future occasion.

Dr. WRIGHT: I have examined microscopically a few ear polypi, and have read some of the literature on the subject. The structure of some of the ear polypi is very similar to those occurring in the nasal fossæ. There seems, however, to be a larger proportion of ear polypi which present this adenomatous condition than we get in the nose. The most frequent site of this kind of growth is in the uterus. The cavernous bodies of the genital organs resemble those of the turbinate bodies in the nose, but whereas in the reproductive organs adenomatous growths are very common, they are very rare in the nose. The general character of adenoma is to be remembered; there is a close affinity to the malignant growths, and this lends some force to the views of those

who hold that benign growths may degenerate into malignant ones from surgical injuries. Of late years evidence has accumulated which it is difficult to overcome, that the distinguishing characteristic of malignant growths is due to infection by micro-organisms, and recent investigators advance the view that the reason why adenomata degenerate so easily into malignant growths is because this development of glandular epithelial structure forms a good culture ground for the development of these peculiar organisms which are thought to be the cause of malignant growths.

*Paper.*

## ATROPHIC RHINITIS: ITS NATURE AND SYMPTOMS.

By W. E. CASSELBERRY, M. D.

This somewhat worn but ever-worthy topic is attracting renewed and earnest attention. It has recently been the subject of special discussion before the British Laryngological and Rhinological Association. Many papers on its varying phases are fresh from the press, and now the council, doubtless imbued with the general desire to clarify obscure features, has selected it for discussion by the American Laryngological Association. Naturally, latter-day interest has centred about the ætiology from a bacteriological standpoint, in the expectation that, given a specific cause, there might be found a specific remedy. No review of the "nature and symptoms" of atrophic rhinitis would be complete without at least a passing reference to these findings, yet my present obligation and purpose tend rather toward a study in aspects purely clinical, for it is evident that no theory of causation can obtain which does not harmonize with the life history of the disease. For instance, it is quite futile to attempt to explain the origin of ozæna, as seen in young children, on Fränkel's theory that it is a mere sequence to hypertrophic rhinitis, for there has not been time for such a cause to act; but when referring to another type of the disease—simple dry rhinitis of elderly persons—correspondence with its clinical course at once

lends plausibility to his theory. In fact, none of the many hypotheses advanced has been found satisfactorily applicable to all cases of atrophic rhinitis, for the reason, perhaps, that different phases of the disease are of diverse or multiple causation. Two forms of the ozænal type, the fœtid and non-fœtid, have long been recognized, cases which are alike as regards the atrophy, crust formation, and the youthful period of development, differing only in that the majority are fœtid, while the exceptional minority are devoid of this symptom. Is it not probable, therefore, that the atrophic state may be due to one cause—a trophoneurosis, or possibly an infection by the cocco-bacillus of Löwenberg (1) or other micro-organism, and the fœtor to another cause, probably an addition or mixed microbic infection?

A better general classification, embracing all cases which present in common the condition of atrophy, one which is subject to subclassification if desired, is into two types—(1) simple dry rhinitis, and (2) ozæna, as suggested by Greville MacDonald, and with certain amendments herewith again submitted. It has reference to the comparative age at which the disease first manifests itself, as well as to the presence or absence of fœtor.

Both types are characterized by atrophy of the mucosa, submucosa, vascular plexus of the turbinated bodies, and the bone itself; also by degeneration of the mucous glands, by reason of which the altered secretion accumulates in the form of crusts.

(1) Simple dry rhinitis, while it sometimes affects young subjects ("ozæna non fœtida"), more commonly afflicts individuals approaching or past middle age, and it is usually associated with pharyngitis sicca. It is not accompanied by the characteristic fœtor of ozæna, although retained crusts may occasion a slight odor.

(2) Ozæna, on the other hand, commences in early life, even in early childhood or infancy, tends toward partial recovery after middle age, and is accompanied, as a rule, by persistent fœtor.

I have recently seen two typical cases occurring in children at four years of age, both said by the parents

to have been "born with it"—one a boy, whose mother was likewise affected, and the other a girl whose father had the disease. In over one half (thirty-four) of Wingrave's (2) series of sixty cases it developed under fifteen years of age, and in most of the other half under thirty years (seven from thirty to fifty-three).*

While thus fairly distinct in most cases, and suggestive of the operation of varying or multiple causes in their production, instances are not wanting in which the two types seem to blend one into the other, or in which an intermediate state is apparent.

Both types are further characterized by an atrophic or rudimentary condition of the muco-lymphoid glands —the faucial, lingual, and postnasal tonsils, and the isolated glands of the posterior pharyngeal wall; but here again an occasional exception to the rule is encountered, especially in simple dry rhinitis, one or more tonsils remaining still enlarged. Also, in both types the local peripheral sensory nerves partake of the general atrophy, their functional inactivity varying in accordance with the gravity of the affection. The nostrils are less sensitive to irritating medicaments and the pharyngeal reflex is sluggish; hence they are favorable subjects for practice by novices with the laryngoscope. The velum, faucial pillars, posterior pharyngeal wall, and even the base of the tongue are thinner than usual, thus affording a more spacious pharynx through which to reflect light. The bones themselves are similarly affected, not alone the turbinated bones, which in advanced ozæna are reduced to rudiments, but also the nasal bones and their contiguous cartilages. The dorsum of the nose is broad, foreshortened, and sometimes slightly depressed, simulating then the "saddleback" nose of syphilis, only less pronounced; the tip is tilted upward, and the dilated nostrils present rather forward than downward, consti-

* The term ozæna is now by common consent among recent German and English authors restricted to this type of atrophic rhinitis, and in this sense alone it is employed in this article, not referring to any other disease accompanied by a foul odor.

tuting a "facies" quite characteristic, but by no means always present.

The whole sæptum is affected, but especially its cartilaginous segment, in which perforation frequently ensues. This seems more common in simple dry rhinitis of later life than in ozæna, and should be ascribed in the main to the progressive emaciation of the cartilage rather than to erosion simply from the detachment of crusts. It is easy to pick through a cartilage already in a state of atrophy and without recuperative power, when perforation would not ensue from the same act on a normal structure.

These widespread nutritive changes, which involve not only the mucous and submucous tissues but also the muco-lymphoid, muscular, and osseous structures and the nerve supply as well, are suggestive, as voiced by Gottstein (3), Zarnike (4), Rethi, and others (5), of a primary centric trophoneurosis. This idea is further supported by the fact that in certain cases there is dryness of the roof of the mouth or of the whole mouth, there being an evident deficiency of both the mucous and salivary secretion. Moreover, it is a bilateral disease, the two sides, not only of the nose, but also of the pharynx and larynx when involved, ultimately becoming about equally affected. The exceptions to this are apparent rather than real, and are due to some special modifying condition, such as a markedly deviated sæptum, to the concave side of which atrophy, limited to the whole or part of one nostril, may be observed. It is indeed doubtful if this unilateral dryness and incrustation is the real atrophic disease, for correction of the sæptal deformity will result in a speedy cure, as exemplified in the following case:

Miss ——, aged twelve years, patient at St. Luke's Hospital, complained of dryness and incrustation of one nostril. The sæptum throughout nearly its whole extent was bulged toward the right side with a spur developed upon its convexity, causing occlusion of the right nostril. The left nostril was widely capacious. Crusts accumulated in the concavity of the sæptum and over the turbinated bodies, reaching even to the nasopharynx. They maintained constant irritation and excoriation of

the nostril and irritability of the throat. An operation on the sæptum succeeded in placing it in the median line, with a complete cure of all the catarrhal symptoms.

Nevertheless, in certain cases, long-continued overspaciousness of a nostril results in persistent dryness, with mild atrophy of the pharynx and aural complications.

Cases thus of unilateral dryness lend a quasi-confirmation to the suggestion that congenital malformation of the bony framework of the nose is the underlying cause of atrophic rhinitis; by Hofman (6), that there is decreased length and increased height; and by Zaufal (7), that there is increased width of the nasal chambers, and in consequence poor ventilation with stagnation. However, simple dry rhinitis is known to attack nostrils previously of normal width, and ozæna may affect comparatively narrow chambers, so that faulty anatomical considerations can not be viewed as the sole cause.

Dryness and incrustation, oftentimes unilateral, are likewise observed in syphilitic cases, especially where gummatous softening of the sæptum has resulted in narrowing one nostril and widening the other, a condition which is not to be confounded with true atrophic rhinitis; but in consequence of the similarity of the two conditions it is felt that the latter might be a remote manifestation of the syphilitic dyscrasia in an hereditary form.

Many cases of ozæna can be coupled with a tuberculous family history, but not so with others, while the same can be said of alcoholism and gout as predisposing influences in simple dry rhinitis.

In both types, but especially in simple dry rhinitis, the atrophy varies much in degree and distribution. In the milder cases it may at first sight be difficult to discover, but on close inspection areas which present a dry, glazed appearance indicative of atrophic degeneration of the mucous glands or commencing gross shrinkage of the mucosa will be discerned. The posterior nares may be thus affected in conjunction with the nasopharynx, while the anterior parts appear fairly normal, or con-

versely. Many, but not all, of the cases of simple dry rhinitis of later life have previously been affected by hypertrophy, and have passed to the atrophic state either as a matter of consequence or coincidence. If seen during the transition period one may observe hypertrophy at one point and atrophy at another point of the same turbinated body, or inequality between the two nostrils. In fact, it seems unnecessary for the hypertrophic change to exhaust itself in one stage before the atrophy takes its turn, for both processes can exist and progress side by side and intermingled with each other in the same tissue.

Wyatt Wingrave (8) makes the point, with special reference, however, to the ozænal type, that there is a wide histological difference between true cavernous or erectile hypertrophy and the inflammatory thickening which precedes or courses along with atrophic rhinitis. But it is not unusual to find the middle turbinated bodies in a state of positive plain hypertrophy, or they may present the aspect of polypoid degeneration to the point of packing the upper nasal spaces, while the inferior conchæ are distinctly atrophied.

Hajek (9), however, contends that genuine atrophy is never accompanied by hypertrophy of the middle conchæ, and designates the condition in this class of cases as pseudo-atrophy.

The following case exemplifies the transition of the hypertrophic condition into the atrophic state not only of the nose but also of the pharynx and larynx:

Mrs. R., aged about thirty-five years, was treated six years ago for hypertrophic laryngitis. The interarytænoid fold was markedly infiltrated, and the vocal cords and ventricular bands were thickened and relaxed. Aid was sought only on account of impairment of the voice, although she even then complained of a sense of dryness in the pharynx, although it showed follicular enlargements. The tonsils being enlarged were abscised, and the larynx curetted and swabbed with lactic acid. The nasal turbinated bodies were somewhat, but not greatly, enlarged, and were not subjected to treatment. The condition improved, and she passed from observation till

last February, when she returned with symptoms of simple atrophic rhinitis and pharyngitis. The turbinated bodies and posterior pharyngeal wall are now distinctly atrophied, while the larynx is nearly normal and the voice good. A remnant only remains of the excrescence on the interarytænoid fold. Tuberculosis can be excluded. Syphilis was considered, but lacked any sort of confirmation till within the last two months, when two suspicious gummatous swellings have appeared on the sæptum. Should they prove to be true gummata, it will confirm my opinion that many cases of atrophic rhinitis, and of those which undergo the transition from the hypertrophic state, are manifestations of an attenuated form of syphilis, either hereditary or acquired.

In theory it is contended that the cirrhosis is a natural sequence to hyperplasia analogous to similar changes in the liver, and that the cellular proliferation which is incidental to hypertrophy serves by pressure to obstruct the vascular supply, thus leading to atrophy.

Dr. J. N. Mackenzie (10) is of the opinion that this transition theory is supported by satisfactory microscopic as well as clinical evidence.

Its vulnerable points are that it affords no explanation of the ozænal type of very early life; that simple dry rhinitis of later life is not invariably preceded by hypertrophy; and that hypertrophy does not always terminate in atrophy, facts which should lead us to seek farther for the dominant underlying causes of the disease.

Michael (11), and later Grünwald (12), have sought to establish the dependence of all cases of ozæna upon suppuration in one or more of the collateral sinuses, but his elaborate argument and mass of testimony only serve to convince one to the contrary.

Bosworth's (13) theory, that it is a sequence to suppurative rhinitis of childhood, is awaiting confirmation. It at least suggests a more thorough handling of all cases of suppurative rhinitis, since neglect of this is fraught with the danger of ultimate atrophy and ozæna.

Is it of a microbic nature?

Fränkel and Löwenberg (14) have isolated a specific

cocco-bacillus (bacilli generally appearing as diplococci and distinguished by large size—1 to 1.65 $\mu$) which is quite uniformly present in ozæna, and to which the fœtor at least is attributed; but inoculation experiments, the crucial tests, have so far failed to produce the disease.

Abel (15) has described apparently the same organism, under the name *Bacillus mucosus*, as invariably present in all stages and types of the disease. He declares it to be identical with the *Kapselcoccen* previously observed by others, but different from Friedländer's pneumo-bacillus, similarity to which has been noted by Hajek (16).

Wyatt Wingrave (17) has described hyaloid bodies, possibly of a parasitic nature.

Finally, the novelty is suggested by Belfanti and Della Vedova (18) that the diphtheria bacillus is the cause, and they report cures in one half their cases by a series of thirty antitoxine injections; but Professor Gardinigo (19) reports negative results.

*Symptoms, with Special Reference to Type I, Simple Dry Rhinitis.*—The milder forms of Type I are accompanied only by a sense of dryness in the nose or discomfort in the nasopharynx. A lady of fifty years, who had previously been affected with hypertrophic rhinitis for which the cautery had been perhaps too freely applied, was annoyed by subjective sensations of a web or veil across the nostril. Regarding the possible effect of cauterization in developing atrophic rhinitis, as the atrophy in this case was equally apparent on the sæptum, I regarded it as *post hoc* rather than *propter hoc*. Still, it would be wise to avoid the too free use of this remedy, especially on patients past middle age.

A gentleman, aged fifty-five years, exemplified a wide group; he complained solely of soreness and distress in the throat in consequence of the formation of crusts in the nasopharynx. The posterior third of the nasal chambers, in conjunction with the nasopharynx, presented atrophic changes. He gave a history of hypertrophic disease earlier in life, of which evidences still remained in the anterior nares and pharynx.

Incrustation over the cartilaginous sæptum tempts the patient to pick the nose, which leads to troublesome attacks of epistaxis. Even a rough use of the handkerchief can excite bleeding.

As stated, the characteristic fœtor of ozæna is not present, although a faint disagreeable odor may ensue from accumulated crusts.

The ears are commonly implicated, and impairment of hearing will at times be the first symptom for which relief is sought, the earlier nasal manifestations having been disregarded, and the same may be said for the symptom of impairment of the voice from implication of the larynx.

On examination of the nose inspissated secretion will be seen adhering, especially to the middle turbinated bodies and sæptum, or the surface will have a dry, glazed appearance in whole or part.

The symptoms, both subjective and objective, of advanced cases of simple dry rhinitis are much the same as those of the ozænal type minus the fœtor, and may therefore be considered in conjunction therewith.

*Symptoms, with Special Reference to Type II, Ozæna.*—Crust formation and fœtor are the most prominent symptoms of ozæna, although other secondary manifestations are numerous.

The crusts may accumulate in thin scales or in large masses of horny consistence, which may even occlude the nostrils at times, being firmly adherent and impacted in the sinuosities of the nares, until, by decomposition and softening of the layers adjoining the mucosa, they are finally cast loose and expelled in large pieces by blowing, often leaving abraded but not ulcerating surfaces behind.

The fœtor varies in intensity in different cases, but in its severe form it is so horribly nauseating and penetrating as to contaminate the atmosphere of an entire room in a few minutes, and to necessitate comparative isolation of the afflicted person. It interferes with his social and business usefulness, and actually restricts his earning capacity. The odor is mostly due to decomposi-

tion of the incrusting secretion *in situ*, but there is reason to believe that this decomposition extends somewhat to the secretion, which is still in process of elaboration in the structure of the glands themselves, although this is difficult of absolute demonstration, for, however, thoroughly one may cleanse the parts, fœtor persisting might still be caused by small invisible particles of crusts in the accessory cavities, ethmoid cells, or sphenoid sinus.

In advanced cases, commonly, the sense of hearing is impaired, the sense of smell obtunded, the eyes occasionally inflamed, and the physiognomy lacking in acuteness of expression. The disease is prone to extend, following the air-passages downward even to the bronchioles.

On rhinoscopic examination, both anteriorly and posteriorly, one is impressed by the spaciousness of the nasal cavities and the presence of scales or crusts. Even when the conchæ are yet quite large there will be an abnormal width of space between them and the sæptum unless, as occasionally happens, the middle turbinated bodies are the seat of hyperplasia. In advanced cases the turbinated bodies appear merely as rudiments, and one seems to look into a large cavern through which can be seen the dry and glazed posterior pharyngeal wall and the crater-like Eustachian orifice. The faucial and post-nasal tonsils and lingual adenoid tissue will have disappeared or appear much atrophied. After thorough cleansing the mucous membrane looks smooth and thin, although somewhat congested and abraded in spots from the irritation of long-retained incrustation.

In conclusion, it would appear that the theory of mere transition from hypertrophic rhinitis is inadequate to explain all the clinical aspects of atrophic rhinitis, although it affords a rational explanation of certain cases of simple dry rhinitis of later life.

For the ozænal type the choice, in the main, would lie between the trophoneurosis and microbic theories, with the probabilities in favor of the latter, and bacteriologic methods should certainly be exhausted in an effort either to prove or disprove its microbic origin.

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*Paper.*

## ABSTRACT OF REMARKS ON ATROPHIC ENDORRHINITIS.

By JOHN N. MACKENZIE, M. D.

In order to confine this discussion within reasonable bounds, I shall address myself strictly to the pathological anatomy of so-called atrophy of the intranasal structures,

as announced on the programme. Let us consider the problem from a purely anatomical standpoint and inquire what is the nature of the structural changes found, and in what order do they appear?

I wish at the outset to disclaim any idea of opening the ozæna question. That has been done by Dr. Casselberry in his paper just read. As every gynæcologist has his vaginal speculum, so every rhinologist has his theory of the causation of ozæna. Speculations on the subject are as multitudinous as the stars. One thing, however, should be remembered—ozæna is not atrophy, although frequently a symptom of that condition. It is only in this way that it is at all related to our subject.

At the beginning of our inquiry I would lay stress upon the fact (to look at the subject from a novel standpoint) that in the condition involved in our conception of so-called hypertrophic and atrophic nasal catarrh we are dealing not simply with an inflammation of a mucous membrane, but with definite structural changes in an important organ of respiration, using the term organ in its highest physiological sense. This organ of varied function consists anatomically essentially of myriad vessels and blood spaces in wonderfully exquisite correlationship, bounded on the one side by periosteum and on the other by mucous membrane, set in a network of connective tissue containing glands, muscle, and elastic fibre, by which is rendered possible the alternate erection and collapse of the tissues which is essential to its proper and complete discharge of function. Call these bodies by whatever name you may—erectile bodies, corpora cavernosa, nasal lungs—we have a definite peculiar anatomical arrangement of tissues endowed with specific physiological function and fulfilling a manifest and manifold destiny in the organism.

A great deal of confusion surrounds the subject under discussion from (1) a loose and inexact use of the term atrophy, as applied to the changes under review, and from (2) failure to distinguish between the different forms of atrophy which may affect the nasal mucous membrane, and the causes that conspire to produce them.

A lazy disregard of certain elementary facts in pathological anatomy has thus led to hasty generalization and inadequate hypothesis.

Atrophy is the diminution in size of an organ, the result of diminution in size and disappearance of the structural elements of the tissues. In this process the highly specialized portions suffer, while the connective tissue may not show any wasting—indeed, is often notably developed in excess. There are two forms of atrophy—simple atrophy and atrophy with degeneration. Simple atrophy may be the result of (1) excessive waste, (2) impaired nutrition, (3) pressure, (4) impaired functional activity, or, finally, (5) imperfectly defined trophoneurotic changes. The consideration of simple atrophy of the intranasal structures opens up a vast field of almost boundless horizon which has been heretofore very imperfectly explored. Except perhaps in the case of pressure atrophy, we know little or nothing of the subject. It is, of course, conceivable that simple intranasal atrophy may be produced by all of the causes indicated above; but we have very little exact knowledge concerning it. The atrophy of which I shall speak is not a simple atrophy, but an atrophy with degeneration. The very use of the term atrophic *rhinitis*, or, more correctly, *endorrhinitis*, excludes the idea of simple waste, and presupposes that of degeneration—the degeneration of an inflammatory process. Just here let me say that the use of the terms "hypertrophy" and "hyperplasia" as expressive of the changes found in chronic intranasal inflammation is unfortunate. True hypertrophy and hyperplasia, if they exist, must be exceedingly rarely found. If, then, we are to retain them, we must not insist on a too rigid application of their definition as given by the pathologist.

It was in attempting to bring order out of the existing chaos of terminology that some years ago * I proposed to substitute the term *cirrhosis* to denote the changes found in the condition under discussion. Here, too, we have another unfortunate term for which we have to thank

* Some Notes on the Pathology of Intranasal Inflammation. *Medical News*, Philadelphia, October 4, 1884.

Laennec. Of all its various synonyms, sclerosis is perhaps the most exactly descriptive. Cirrhosis or sclerosis is a chronic inflammation in which atrophy of the specific tissues is associated with hypertrophy of the connective tissue. It begins either acutely or more insidiously, and is characterized by atrophy and degeneration of the gland tissue, by hypertrophy of the connective tissue, by cellular infiltration, by the formation of granulation tissue, and by obliteration of old vessels and by the formation of new (Ziegler). In so-called intranasal hypertrophy and atrophy we have two forms, or, to speak more accurately, stages of the sclerotic process—viz., a stage of hypertrophic and a stage of atrophic sclerosis—and these terms I would propose to substitute for those in common use. Instead of speaking of a stage of hypertrophy and a stage of atrophy, therefore, we would indicate the condition found by the terms hypertrophic and atrophic sclerosis.

Now in regard to the ætiology of the process. Apparently the most common cause is the *chronic irritation produced by inflammation of the nasal mucous membrane,* the chronic catarrh extending to the interstitial tissue of the erectile organ. This chronic catarrh may or may not be originally due to the action of micro-organisms.

In another class of cases the irritation causing the sclerotic process may reach the nose through the blood, as an *infection,* as in the case of syphilis and tuberculosis, or as an *intoxication,* as in the case of alcohol.

That the atrophic or, to speak more exactly, the sclerotic process owes its origin to the constant contact of pus with the nasal mucous membrane, either as a product of disease of that structure or in the form of discharge from the accessory sinuses, is a view that has been gravely maintained by more than one observer. In all pathology there is no parallel to such a condition.

What is the nature of the sclerotic process? Are the changes in the connective tissue primary or secondary? Do the highly specialized elements suffer first and disappear, to be replaced later by a connective-tissue

scar, or is their disappearance due to a primary contraction of an inflamed and hypertrophied interstitial tissue? It will be the task of the future to answer these questions. In other organs of the body—as, for example, the liver and brain—it is probable, though not yet completely proved, that in the cirrhotic process the highly specialized tissues suffer first. In the liver, especially, it seems probable that the disease originates in the hepatic cells and that scar tissue subsequently takes their place. It is quite possible that this may be the chain of events in sclerosis of the intranasal tissues, especially in those cases in which the irritation producing the sclerosis reaches the erectile organs through the blood either as an infection or as an intoxication. In cases, on the other hand, which presumably result from an extension of inflammation of the mucous membrane to the interstitial tissue of the turbinated bodies, the connective-tissue changes are doubtless primary, and the highly specialized elements disappear as the result of the contraction of the newly formed interstitial tissue. Not to mention other evidences of its contraction, the frequent presence of cysts and the sæpta formations which I have described elsewhere * certainly point to the presence of a strong constricting force. That the highly specialized tissues do not, however, always disappear by virtue of such constriction is shown, I think, in the specimens taken from the ethmoid region exhibited at the last meeting of this association.† Here the glands are being destroyed by young granulation tissue.

In considering the order of appearance, the chronological relationship of the two stages of nasal sclerosis, let us first inquire, Is the process ever *ab initio* atrophic?

I do not by any means wish to deny the possibility of such an occurrence. It is quite conceivable, indeed, that, as the cirrhotic changes sometimes occur without antecedent hypertrophy in the liver, so they may originate in the nose in a similar manner. It is also possible

* *Transactions of the American Laryngological Association*, 1885, p. 159.

† *Transactions*, 1896.

that the sclerotic process may take its departure from diseased conditions of the periosteum and may not be heralded by apparent increase in volume of the tissues.

The problem is a difficult one for the reason that the affection often develops very insidiously, and its stage of inception and course are therefore imperfectly known. While we can not dismiss from consideration the idea of primary degenerative atrophy of the intranasal tissues, the clinical and pathological facts in our possession indicate that, if it exist, it must be reckoned among the exceptions to the rule.

There is no direct histological or clinical proof that the sclerotic process is atrophic from the beginning. No man has demonstrated microscopically or on the cadaver, nor has occasion ever arisen, except in a few doubtful cases, for clinical demonstration of the possibility of such an occurrence. In reply to the stricture of Dr. Casselberry that ozæna often occurs at a period too early in life to warrant the assumption of a preexisting hypertrophy, I would say that ozæna and atrophy are not convertible terms. Ozæna is not a disease *per se*, but a symptom of a number of pathological states. As is well known, it is often present in hypertrophic catarrh. Ozæna in children does not necessarily imply atrophy. In children, too, as in the adult, the transition period from hypertrophy to atrophy may be very brief, the wasting occurring rapidly from malnutrition, due to constitutional taint or other causes. The congestion or hypertrophy that precede the stage of complete waste, too, are not always strikingly marked as regards the naked-eye appearances, and are therefore liable to be overlooked.

Assuming that atrophy occurs soon after birth, it is possible that it may have been antedated by a catarrh *in utero*. This is, of course, assumption, but not extravagant speculation.

That the atrophic is usually preceded by a hypertrophic stage is rendered highly probable from a number of clinical and pathological facts. If the clinical history is accurately taken, it will often point to a preexisting catarrhal hypertrophic condition. The hypertrophy—

that is to say, the swelling—need not necessarily by any means be very pronounced. Why it should in one case terminate in fibrosis leading to the formation of the dense, so-called "hypertrophies," or to formation of nasal polypi, and in another case terminate in atrophy, are questions as yet unsolved.

The rapidity with which the hypertrophic passes into the atrophic form is proportionate, in all probability, to the possession of some constitutional taint, such as, for example, the congenital or acquired form of syphilis. The early appearance of atrophy in some cases is dependent doubtless, too, upon certain modes of life and other conditions which influence the rate of progress in simple inflammation in general. I have seen it occur with rapidity after the profound impression made upon the nutrition of the parts as the result of acute systemic disease.

If the patient is not under observation from the outset, it may be difficult to establish with certainty the chronological relationship of the two stages; but, so far as my observation goes, I have never been able to satisfy myself of the independent origin of the atrophic form.

The pathological history of the process is, moreover, that of the conversion of hypertrophic changes into those of an atrophic form. In the rhinoscopic picture, in the microscopic section, the processes of hypertrophy and atrophy are found side by side. More than that, the atrophic changes are more pronounced in situations in which the catarrhal inflammation originally developed. Thus, for example, if the disease originates as a catarrh of an accessory sinus, the atrophy is more pronounced in the latter situation, the nasal mucous membrane proper presenting evidences of simple or hypertrophic catarrhal inflammation. If, on the other hand, the disease originate in the nasal fossæ, the morbid condition of the sinus, if such exist, is that of simple or hypertrophic inflammation. Finally, as the hypertrophic variety almost always begins in the respiratory portion of the nostril, so in the atrophic form, the region of the inferior meatus, the classical seat of atrophy, is the first to be destroyed.

Weighty evidence in support of the position that atrophy is usually preceded by hypertrophy in cases that follow catarrhal inflammation is furnished by the microscope. Here the processes are found side by side in the section, or portions of the membrane show signs of atrophy, while in others, when the disease is less advanced, hypertrophic changes are discovered.

The above considerations encourage the belief, I think, that in *sclerosis which is the result of intranasal irritation* the atrophy is usually preceded by a hypertrophic or congestive stage.

I have not elaborated the propositions which form the basis of my remarks this morning.* Until they can be successfully overthrown it may be well to accept them, provisionally, at least.

In the absence of direct histological and clinical proof of such a condition; in view of the rapidity with which, in some cases, the hypertrophic variety passes into the atrophic; in consideration of the many obvious difficulties in the way of certain historical data in its favor, and in the light of anatomical investigation, the question "Is intranasal sclerosis ever *ab initio* atrophic?" must, for the present at least, be answered in the negative.

*Paper.*

## THE TREATMENT OF ATROPHIC RHINITIS.

By CLARENCE C. RICE, M. D.

I am sure we all feel that nothing remains to be said concerning the ætiology and pathology of the disease now under discussion. This part of the subject has been very exhaustively stated by the gentleman preceding me, and yet I should like to say that I am so thoroughly convinced that atrophic changes in the nose and throat are

* For an elaboration of the subject, see the article in the *Medical News* already referred to, and also the chapter on Cirrhotic Rhinitis in Burnett's *System*, vol. i, 1893.

intimately dependent, if not upon constitutional taint of some kind, at least upon unhealthful occupation or unsanitary manner of living, that it is necessary to classify the treatment of atrophic rhinitis under the double heading of constitutional and local. I know that constitutional relationship to this apparently local atrophy is strenuously denied by many good observers, but when we recall that this disease is so much more frequently seen among dispensary patients than in private practice, and often present in all the children of a family; and when we find that it is this form of catarrhal trouble which commonly attacks the anæmic, ill nourished, improperly cleansed people working at trades within doors, I am sure we can not but feel that something more than local causes are to blame for atrophic rhinitis. I speak of this because I feel that we have in the past been too anxious to discover some new drug which would prove of specific benefit in restoring the normal nasal secretion and have paid too little attention to the general condition of the patient. I am willing to be frank enough at the outset to say that if it were left to me to choose as between the value of the benefit to be obtained in the treatment of atrophic rhinitis by the use of all the local medications which have ever been employed, or, on the other hand, if I were given the opportunity to put my patient at out-of-door work and under favorable hygienic and sanitary conditions, I certainly should choose the latter expedient, asking only that the patient should be instructed to cleanse the nose with suitable washes. Perhaps this is as proper a time as any to say that I have had the opportunity during the last two years to send, among a large number, eight persons, men and boys, who were suffering from advanced atrophic disease of the nose and throat, to a stock farm in New Jersey, where they were employed as ordinary farm hands. These men were taken out of factories and workshops of various kinds. They had been treated before going into the country with the ordinary remedies for atrophic rhinitis and with the usual small amount of benefit. Their improvement commenced as soon as they were turned out

of doors. Such an observation as this proves a great deal. The general health of these people was, of course, improved by this change of occupation and manner of living. The country life, too, did not afford the opportunity nor the temptation for so large a use of alcohol and tobacco. I consider cigarette-smoking a very potent factor in the causation of atrophic changes in the nose. I am not sure but that the American Laryngological Association owes and could perform a great duty to the community by endeavoring to send advanced cases of atrophic nasal and throat disease from city workshops to country farms. The benefit would be far more reaching than simply the local benefit to these people alone. I am sure that no member of this association believes for a moment that the effect of any drug upon the nasal mucous membrane compares in importance with an increased amount of pure oxygen, proper habits of living, etc.

Again, before speaking of the treatment of this disease, let me say that we find in our cases two widely different local appearances, depending upon the general condition of the patient or owing to difference in habits of living. In both atrophic changes are present, but the pale, anæmic, parched mucous membrane of the working girl presents a very different aspect from the mucous membrane of the man of full habit, which is as dry, but is congested and thickened by the immoderate use of alcohol and tobacco. The two conditions require different local treatment and general advice.

In looking over the literature of the subject somewhat, we find that although many drugs have been employed in the treatment of atrophic rhinitis, yet they have nearly all been used upon the general principle of producing what is called by some "stimulation," by others "irritation." These two terms, I imagine, are alike in kind, differing only in degree.

We find that the German school, clinging as usual to their belief that this disease, like all others, is caused by the presence of unusual kinds of bacilli or bacteria in unusual numbers, advocate the use of solutions of bichlo-

ride. Koch * tells of the great benefit and complete cure in some cases of atrophic rhinitis by the use of a spray of 1-to-4,000 bichloride.

Löwenberg always uses antiseptic douches of mercuric bichloride (1 to 4,000), having first removed the crusts with warm saline solution.

Thost † applies bichloride of mercury in a solution of 1 to 2,000 with a camel's-hair brush twice a day. He remarks that this treatment has been in vogue for a number of years and has always produced good results.

Of the Italian school, Cardone ‡ (professor at the University at Naples), believing that atrophic changes in the nose are similar to the process of pneumonia and dependent upon the same bacilli, uses the bichloride in a solution of 1 to 2,000, giving internally iron and cod-liver oil. And Marano bases the same treatment upon the same belief.

One of our fellows, Dr. Mackenzie, of Baltimore, has made use of a solution of mercury bichloride, two grains to a pint of water, by atomization, and recommends the same as a gargle and nasal wash.

Belfanti # says that having used with great benefit the diphtheria antitoxine in ozæna, he employed it also in atrophic rhinitis, and to his great astonishment obtained very favorable results. He has not as yet tried the treatment long enough to publish his cases.

I need not take the time of this association to repeat what has already been said here in regard to the use of electrical applications to the nasal mucous membrane in the treatment of this disease. I believe Dr. Shurley, ‖ in 1880, was the first to recommend it, but the treatment has been used to quite a large extent by a number of the fellows of this association, and they can tell us how far they have succeeded. The application of the positive pole

* Koch. *Mitthcil. d. kaiserlich. Gesundheits.*, Bd. 1881.

† Thost. Schmidt's *Jahrbücher*, 1887.

‡ Cardone. *Archivii italiani di laringologia*, 1886.

# Belfanti. *Associazione medica lombardia*, 1896.

‖ Shurley. On Atrophic Pharyngitis. *Transactions of the American Laryngological Association*, 1880, p. 20.

of the galvanic current to the back of the neck and the negative pole to the nostrils to produce stimulation has been the usual method employed by Dr. Shurley, Dr. Delavan,* Dr. Hartman, and others. The exact technique can be found in our *Transactions*. Even the faradaic current has been used and recommended; also the use of copper electrodes on the principle of electrolysis.

Another method of treatment is that recommended by Gottstein, by which the nasal mucous membrane is stimulated or irritated by the introduction of absorbent cotton into the nostrils, or some form of medicated wool, as recommended by Woakes.†

Among the various drugs which have been employed in this way are iodoform, iodol, aristol, salicylic acid, camphor, iodine, perchloride of iron, tannin, alum, rhatany, and opium. Medicated bougies, manufactured with a basis of gelatin and glycerin and medicated with the drugs just mentioned, have been used a good deal in atrophic rhinitis, and this method by which drugs can be kept in contact with the mucous membrane for a long time seems to be a reasonable one. The inhalation of stimulating volatile substances obtained from the essential oils and from cubebs, tar, eucalyptus, and thymol has also been largely employed; and we find in the shops a number of varieties of so-called auto-insufflators, by means of which the patient is enabled to blow into his own nostrils the fumes of carbolic acid, menthol, oil of pine, etc.

A somewhat different plan of treatment, but intended to produce proper stimulation and secretion, is called "massage" of the mucous membrane. Laher,‡ of Vienna, says that this method of treatment has given most satisfactory results. The method is employed by wrapping cotton around a probang introduced against the atrophic mucous surface and held in position by the

* Delavan. Treatment of Atrophic Rhinitis by the Galvanic Current, *Transactions of the American Laryngological Association*, 1887, p. 145.

† Woakes. *Lancet*, 1880

‡ Laher. *Die Heilerfolge der inneren Schleimhaut-Massage bei den chronischen Erkrankungen der Nase.*

left hand, while regular motion is made by vibrating the left arm with the right hand. The writer states that after a few days normal secretion is established and the crusts become thinner and fewer in number. He believes that this method of treatment will recommend itself very highly to anybody using it.

Demme * has found that massage performed after the manner described is made still more efficacious by using a twenty-per-cent. solution of pyoctanin in lanolin. He has succeeded, he says, in every case. Garnault † and others have used massage by means of electrical vibrations.

It seems to me that the use of destructive agents in the treatment of this disease deserves mention only to be censured. It is possible that an obstinate ulceration will require to be cauterized, but it seems to me a very unsafe procedure to recommend the galvano-cautery and chromic acid where their use can be indicated only in rare instances and then should be employed in the most judicious way. If the middle turbinated body needs to be reduced in size or a deflected sæptum is too prominent, as may be the case in atrophic rhinitis, cutting instruments will accomplish the result desired in a much more reasonable way. We can not afford to still further devitalize an atrophic sæptum with a heated electrode.

I find that many articles have been written on atrophic rhinitis where nothing more is offered in the way of treatment than the spraying of solutions of borax in glycerin, ammonium chloride in glycerin, solutions of chlorate of potassium and of phosphate of sodium and phosphate of ammonium, snuffs of animal or wood charcoal, compounds of honey and terebene, and ointments of creosote. Mather thinks it important to combine opium with his saline douches, and, if irritation and headache are produced by the nasal wash, recommends the smoking of a cubeb cigarette.

* Demme. *Deutsche medizinische Wochenschrift*, 1891, No. 46.

† Garnault. *La Massage vibratoire et électrique dans les maladies du nez*, Paris, 1891.

Struebing * affirms that he has used every medication that has ever been recommended, and he has arrived at the conclusion that the nose should be cleaned by instruments because douching is harmful to the ears, and that the only successful plan of treatment is the use of bougies medicated with creolin, or, better still, metacresolaristol in one-per-cent. aqueous solution.

Wendell Phillips recommends an antiseptic solution called baptoline, and also one of acetotartrate of aluminum in water, half a drachm to the ounce.

Several drugs have been employed which deserve rather more attention. One of these is resorcin.

Masini,† as far back as 1882, was using one half of one per cent. of resorcin combined with vaseline, applied with the brush. He says the treatment is an ideal one. Other practitioners have used it in solution, and I know that it has been employed quite generally in New York, though I do not hear that the results obtained by its use have fulfilled expectations.

The use of hydrogen peroxide seemed for a time to promise great amelioration in this disease, and as a germicide and disinfectant its ability is unquestioned. It is, however, a rather troublesome medication to employ, and in my hands, while it produces cleanliness, is not a useful stimulant, but leaves the mucous membrane quite as dry as ever. In anything like strong solution I have found it quite irritating and apt to produce a subacute nasopharyngeal catarrh.

Professor Cozsolino, writing in 1887, says that after cleansing the nostrils, either absolute or diluted ethyl alcohol ($C_2H_5OH$) should be applied on small sponges or on pieces of absorbent cotton. He considers this application as one of the best antiseptics and fulfilling in a remarkable degree the properties of stimulation to the mucous surface of the nose. I used ozone for a time and with some benefit, but the apparatus is complicated, and such remedies are apt to fall into disuse.

* Struebing. *Centralblatt für Bakteriologie*, vol. xiii, 1893.

† Masini. *Archivii italiani di laringologia*, 1882, p. 74.

We can safely say that nearly every expedient for the cure of this disease has been resorted to when we read that Dr. Hayes Agnew,* after exhausting every known remedy, finally conquered this disease by using douches of sage tea, and Dr. Reebus † extols the virtue of milk douches. He advises irrigation lasting for three quarters of an hour, and says that from twenty-five to fifty pints of milk should be passed through the nostrils.

In my opinion one of the most valuable agents was obtained when the various oily preparations came into use. You are all perfectly familiar with the various formulæ, some better than others, but many exceedingly good ones. As protectives, they are certainly sedative in their effect, and so allay irritation; as lubricants, they prevent the formation and retention of scabby crusts; as vehicles for stimulating drugs, they hold them in position for a much longer time than when watery solutions are employed. Many drugs have been used, in oily solution, in the treatment of atrophic rhinitis where disinfection as well as stimulation was desired, such as iodol, aristol, iodoform, etc.

Time forbids the mention of other methods of treatment or of a larger variety of drugs.

The results which we wish to obtain in the treatment of this disease are perfectly familiar to all: cleansing of the nasal passages; healing of ulcerations; the promotion of adequate nasal respiration and proper drainage, and the restoration, so far as possible, of the nasal lining to its function of a moisture-producing mucous surface.

It seems unnecessary to recommend any form of nasal irrigation to this body of men. I think it is wise, in teaching beginners, to recommend the smallest quantity of fluid which accomplishes the result, and it is hardly safe to advocate nasal douching without caution. The post-nasal syringe, when employed by rough-handed practitioners, is not a harmless instrument. I have found that

* Hayes Agnew. *Therapeutic Gazette*, 1885.

† Reebus. *Jahresbericht der Klinik für Laryngoscopie*, Wien, 1880.

patients succeed in removing dried incrustations rather more easily when they first spray plain oil into the nostrils. I think there are not many cases in which the nasal-douche cup does not furnish sufficient fluid if the saline solution—and I like Seiler's as well as any—is allowed to remain in the nostrils a few moments in order to separate the dry secretions from their attachments. This is a wiser procedure than using greater force with the fountain syringe, or blowing the nostrils with great intensity. When the nostrils are cleaned, if the middle turbinated body offers much obstruction or is wedged against the sæptum, it is desirable to make a channel between the two, and this can be done by removing the soft structures and perhaps a small part of the bony tissue with scissors. The snare is hardly a safe instrument, as it will sometimes remove the entire middle turbinated body; and with the crushing forceps more tissue is frequently taken away than is expedient. It is most important of all to remove the gray granular surface of the mucous membrane, which frequently presents small ulcerative points where the scabs have been attached. I like friction with some stimulating disinfectant much better than applications of nitrate of silver or of any other drug I have used. Perhaps the advocates of "massage" would say that this treatment should be placed under that head. I have succeeded in a good many instances in a form of treatment which I advocated in a paper some two years ago. I found that by the use of weak solutions of bichloride, or of borolyptol, or of boroformalin, applied by rubbing the mucous surface with a hard cotton pledget for perhaps half a minute at a time, I obtained, after a few applications, not only an even surface but a slippery one, whereas solutions of nitrate of silver nearly always leave the mucous membrane granular enough to retain the secretions. I would term it "polishing the mucous lining of the nose." This frictional method for the first time or two produces slight bleeding, but after that the mucous membrane becomes hard and white. I have employed the same method over the inferior body and far back over the middle tur-

binated. I hope this form of treatment may commend itself to you in spite of its simplicity. After the washing at home and the stimulating friction at the office, the next most important procedure is suitable and constant lubrication with oils. I do not believe that any advantage is attained by incorporating the many drugs which have been mentioned in the oily solutions. Protection and lubrication are the points to be obtained. I think the matter of stimulation is a very uncertain factor, and if great stimulation is produced by pungent drugs, greater dryness results.

In those cases only where there is a tendency to subacute inflammatory attacks with discharge of watery secretion should powders be employed. We see this condition in children where a purulent rhinitis is rapidly manifesting an atrophic state. I have found in these cases that after proper washing—and if there is much irritation they should not be washed at all—an appropriate powder will control the abundant discharge and at the same time remove congestion. I like better than anything else a combination of seventy-five per cent. compound stearate of zinc with boric acid and twenty-five-per-cent. compound stearate of zinc with alum. This powder should not be used after the discharge has been stopped and congestion controlled, as it is too drying. In the markedly congestive forms of atrophic rhinitis, seen in immoderate cigarette smokers and drinkers, this powder is a valuable one. It goes without saying that we should not promise any benefit from treatment unless excessive smoking and drinking are given up.

I do not consider the prognosis in these cases nearly as discouraging as I did formerly, because I have seen so many patients who, although washing and oiling the nasal chambers once or twice a day, expressed themselves as perfectly comfortable; and the patient's comfort is of more importance than a normal appearing mucous membrane. A young woman of nineteen or twenty expressed her great satisfaction but a short time ago at the treatment she had received and said she was cured. She had persisted in washing and oiling, and did not suffer from

foul odor, or from the retention of secretions, or the feeling of dryness. I could not see that the mucous membrane was anything but dry, but was quite willing to agree with her in her belief that she was cured. I can not believe that better results can be secured by the tedious application of the electrical currents or the introduction of medicated tampons or bougies. These all require much time, and we are compelled to relinquish them sooner or later. We can not get patients to persist in the use of remedies which are difficult of application. Nor do I believe that we have any drug which has anything like a specific stimulating effect in atrophic rhinitis, unless it be that of iodide of potassium, where the destruction of tissue is due to syphilis. In the use of solutions, both oily and watery, we should err on the side of making them too weak rather than too strong. Any application which produces irritation enough to cause an apparent coryza is followed by harmful reaction. In looking over formulæ recommended in the treatment of this disease I have been impressed with the fact that many of them are far too strong.

I must repeat that too much attention can not be paid to the improvement of the general health. Let us get our patients out of factories and workshops, if possible, where they can get an abundance of fresh air and healthful exercise. It was Zeim, I believe, who ordered his patients to the seashore or to the woods for a certain time each day, in order that they might, as he expressed it, "thoroughly ventilate their nostrils." Probably the seashore is better for the majority of this class than the mountains are. Not all of our patients can play golf or ride bicycles, but some of them can, and it is within the power of nearly all of them to keep themselves in a healthful condition by proper bathing, by out-of-door exercise, and by reasonable habits of living.

*Discussion.*

Dr. WRIGHT: This subject is always an interesting one; unfortunately, so far, it has been also one of very little profit to discuss, simply because contributions made

from time to time to the question have merely kept it open, without advancing anything toward its solution. It has been very many years, it seems to me, since anything has been added to the discussion which really contributed anything to our knowledge of the disease, and especially of its pathology.

So far as relates to the changes in the mucous membrane and the production of fibrous tissue, these can be shown to occur in atrophic rhinitis, but after a time this fibrous tissue also atrophies. Not only does the fibrous tissue disappear, but the bone itself atrophies, until finally the disease leaves only a hollow arch, consisting of the outer frame of the nose. The fibrous development is only a part of a general atrophic process, which extends to the bones, causing them to diminish in size. All the structures simply disappear.

I have talked of this subject with Dr. Park, who has done more in the line of the bacteriology of the nasal fossæ than any other man in this country, and he suggested that the Löwenburg-Abel coccus, the false diphtheria bacillus, or some other micro-organism might secrete some form of ptomaine which produced these curious results in atrophic rhinitis. Certainly, I am not acquainted with any other process in the human body which is at all comparable to it.

Another point to remember is that the morbid process usually begins at the time of puberty. Some cases are seen in childhood, but generally they are first observed at the time of puberty. Now, it is just at this time that structures containing cavernous tissue begin to be developed enormously, and we observe the production of erectile-tissue spaces in the nasal mucous membrane.

Another point is the very great preponderance of this disease in women. Nineteen out of twenty cases are in women. The symptoms of the disease frequently cease at the menopause or are greatly ameliorated. Rarely do we see persons suffering from atrophic rhinitis after forty years of age. A certain number die, it is true, before attaining this age, but the fact that so few are seen among old women is remarkable. It seems to be coterminous with the power of reproduction in the female.

As regards atrophic processes arising at the point where we most frequently find hypertrophy, it is to be remembered that this is also the place where we have the most evident development of erectile tissue. A number

of years ago, when I thought that I knew a great deal more than I know that I do not know now, I was positive that atrophy was always preceded by hypertrophy, but I am not so sure now. This theory has not been proved. I believe that if we could examine the nasal mucous membranes of everybody in this room we should find inflammatory changes going on. So that we can not say that it is necessarily due to preceding inflammation. On the other hand, there is no warrant for saying that cases can arise *de novo*.

In many of these old patients who have previously suffered from ozæna you see a moist surface, although where the glands have been almost entirely destroyed, and the mucous membrane is greatly atrophied, you see a moist surface and no crusts. In cases originating after twenty years of age very few patients are troubled with crusts in the nose; the discharge is of a fluid character and does not tend to the formation of crusts.

With regard to stimulation, which Dr. Rice objects to, I always use some form of stimulation. A weak solution of thymol, for instance, seems to work very well. The chief indication, however, of course, is cleanliness.

Dr. DELAVAN: I concur in the final remark of the last speaker, at least to some extent; that a certain amount of stimulation, preferably of a mild character, is indispensable in these cases. As to electrical applications, the difficulties attending their application preclude their use in the majority of cases. Where electricity has been used, it has been in many cases effective, and its good results have depended upon what has just been referred to—namely, to its effects as a method of stimulation.

One form of treatment of atrophic rhinitis has been warmly advocated in England by Dr. George Stoker—namely, the local use of oxygen, the nasal cavities being exposed to the action of the gas for several hours each day. The value of this method has not yet been proved.

Dr. VAN DER POEL: I should like to refer to a plan of treatment which has but briefly been spoken of in this discussion. In one of the journals last year reference was made to some experiments made in Italy, based upon the similarity between the bacilli found in these cases of atrophic rhinitis and the Klebs-Loeffler bacilli of diphtheria, which had led to the use of injections of diphtheria antitoxines for the cure of atrophic rhinitis. I merely refer to it, as a case lately under my care tends to corroborate the efficacy of antitoxine in atrophic rhi-

nitis. A woman thirty-two years of age who had been a sufferer for years with very severe ozæna, and who had been treated in the usual manner, special attention being given to the hygiene of the nose, became affected with laryngeal diphtheria. For this diphtheria I administered during a period of three days three thousand units of antitoxine serum, from which she made an uneventful recovery. I have examined her several times lately, and I requested her to come back to report from time to time. I found that her nasal difficulty had almost entirely disappeared. Of course, destruction of the turbinated bodies had occurred, but the crusts did not recur as before she had the diphtheria. Now it is only necessary to cleanse the nose twice a week.

Dr. HARTMAN: With regard to the electrical treatment referred to in the paper, I would say that I read a paper before this association on this subject some years ago, and that I have had no reason to change the views therein contained. The only objections to it are the difficulty of application and the unwillingness of patients to submit to it. I think the stimulation by this means is more advantageous than any rapid form of stimulation caused by the ordinary applications; although thorough cleansing is of course necessary in order to carry off the accumulated secretions and prevent further irritation from them.

Dr. LOGAN: This subject of atrophic rhinitis appeals to me very forcibly in view of the fact that in the climate in which I live we come in contact with a great many of these cases. The records of my clinic will show, I think, a surprisingly large percentage of these cases. The many methods of treatment hitherto suggested have for the most part resulted in nothing in my hands. In my experience the classical site of this disease is in the *middle* turbinate body, and not the inferior, as suggested by Dr. Mackenzie. I have seen many cases where the middle body *alone* gave evidence of disease. To me this seems very rational if we are willing to accept the theory of accessory sinus inflammation as suggested by Michel. The middle turbinate body serves as the drip-string or drainage canal to these cavities. The drying of these discharges by the currents of air, the formation of crusts, the contractile power exerted by these crusts, all together might produce mechanically the condition of atrophy.

In the light of mechanical production I have for the last year and a half opened up these accessory cavi-

ties and established free drainage, and I can exhibit some very pleasing results.

Dr. CASSELBERRY: In German literature the term ozæna is now by common consent restricted to that type of atrophic rhinitis which is accompanied by fœtor. So used it means more than a bad odor, and it does not mean a bad odor from other causes, such as syphilitic bone necrosis. It is in this sense that I employed the term in my introduction to this discussion, and to make the subject still plainer, designated it the ozænal type of atrophic rhinitis. My remarks upon Fränkel's transition theory, which is advocated by Dr. Mackenzie were not intended as "strictures." I accept this theory in part, but regard it as inadequate in explanation of all cases, and notably those of early infancy. The suggestion that the previous hypertrophic stage occurred in intra-uterine life I regard as an evasion because of its improbability.

The remarks of Dr. Rice are very suggestive. I have often been requested by these patients to consider for them a choice of climate. What part of the United States can we recommend? Those members who are familiar with the climates of different parts of the country, particularly in the South, might inform the association of localities favorable for such cases. On purely theoretical grounds I have refrained from sending them to the dry regions of the West, and have recommended the seashore or warmer moist and salubrious parts. Nevertheless, I have at least one patient who of late has resided in Denver with certainly no greater difficulty with his dry rhinotracheitis than he suffered in Chicago.

Dr. MACKENZIE, in reply to Dr. Logan, said that the production of atrophy by the dripping of pus and the formation of crusts on the mucous membrane had no parallel in all pathology. Such a view had no proper place outside of the imagination. In reply to Dr. Rice's mention of his use of strong solutions of bichloride of mercury, he said that was a long time ago, at the time of the great interest in the announcement of Koch's discoveries, which led to the use of strong antiseptics. In later years he had recanted and advised very weak solutions. He had already replied to two of Dr. Casselberry's questions in his remarks. In regard to the use of the term sclerosis, instead of describing a stage of hypertrophy and a stage of atrophy, he would simply substitute the terms hypertrophic and atrophic sclerosis.

Oxygen gas was, of course, stimulating, but its action, with that of hydrogen dioxide, was superficial.

Dr. RICE: I think that Dr. Roe, of this association, first suggested the use of oxygen in the treatment of atrophic rhinitis. I believe that several German authorities started the theory that the atrophic process originated in the sinuses, but the value of treatment by curetting and other measures to secure drainage and cleanliness does not depend upon this theory.

With regard to the bichloride of mercury, I will state in justice to Dr. Mackenzie that it was a long while ago, and that he even then cautioned against the use of strong solutions.

With reference to the question of climate, I think that most of us are of the opinion that for these cases the seashore is more comfortable to the patient, and the mucous membrane more moist than when the person resides far inland.

*Paper.*

## TERTIARY ULCERATION SIMULATING SARCOMA OF THE TONSIL.

BY D. BRYSON DELAVAN, M. D.

THE following case is of more than passing interest on account of the difficulty which was experienced in establishing a diagnosis. In this case the history of the patient and the condition found in the throat simulated closely some of the characters of malignant disease (sarcoma). Indeed, it was only possible to make the diagnosis of tertiary syphilis after a painstaking microscopical examination, and then only after repeated examination of different specimens, by a process of exclusion rather than by finding in the sections anything which could reasonably be regarded as definitely indicative of syphilis.

It is to be remembered that in the study of the lesions due to syphilis from a pathological standpoint there is no one characteristic feature by which the disease may be distinguished from lesions which may be due to other causes. In tuberculosis, for instance, there is rarely difficulty in determining the nature of the in-

fectious process, since we may either demonstrate the presence of the tubercle bacillus in the lesions or by inoculation or the tuberculin test make apparent the organism which dominates the morbid process. In the case of syphilis, however, the specific organism has not yet been discovered and the pathological lesions in cases known to be of syphilitic origin present such a diversity of features and are, on the whole, so uncharacteristic that it is unusual for the pathologist to be able to make more than a tentative diagnosis of syphilis rather than a positive one.

There is one effect of the syphilitic virus, in the tissues, aside from the formation of gummata or giant cells, which is often an important feature of the lesion. This feature is the proliferation and desquamation of endothelium; whether it be the lining of blood-vessels or lymphatic reticulum or the endothelium of certain of the serous cavities. Oftentimes such proliferation of endothelium is more marked in syphilitic lesions than is commonly found in the lesions of simple hyperplasia.

In the case about to be recorded such a proliferation of the endothelium of the tonsil was the predominant feature in the sections of all the three samples submitted, at different times, for examination. In this case so extensively had this proliferation progressed that the bulk of the tonsil showed in places little else than an aggregation of large polyedral cells, separated for the most part by a delicate fibrillar reticulum. Such an appearance, it is needless to say, in the light of the accompanying clinical history, could not be regarded as being of ordinary inflammatory or hypoplastic origin. The appearances were rather such as are found in some forms of the sarcomata (large-polyedral-cell sarcoma); and the case was so regarded by several competent pathologists. Dr. Hodenpyl reasoned that, in the event of the case being one of polyedral-cell sarcoma, marked evidence of rapid growth should be expected. This evidence was entirely wanting; indeed, on the third examination of the entire tonsil removed, some two weeks

later, the tonsil was even smaller than normal, but yet presented the same peculiar features as were noted at first. Accordingly, both the diagnoses of chronic hyperplasia and that of sarcoma were abandoned and a provisional diagnosis of syphilis of the tonsil was made, which, happily for the patient, who was successfully treated with antisyphilitic remedies, proved to be correct.

The patient whose history forms the basis of this report was sent to me for advice as to the removal of a tumor, apparently malignant, of the left tonsil. He gave the following history: X. Y., aged forty-three years, American, married, and father of a family of healthy children; merchant. Family history good. Previous history excellent. No evidence whatever of syphilis, and knowledge of any symptom suggestive of it denied.

About two months before consultation began to notice soreness of left side of pharynx. The tonsil began to increase in size, although prior to this time there had never been any trouble with it. As the enlargement continued the tonsil became inflamed, and finally began to break down, an erosion appearing near the centre of its surface. This extended until about half of the tonsil had become involved in a deep, destructive ulcer, with foul interior and everted edges. At the time of the consultation the remnant of the tonsil was indurated, but there was not marked extension of general infiltration outside of it. Several cervical lymph nodes immediately below the tonsil, however, were slightly enlarged and indurated. The rest of the throat was normal. There was moderate pain in deglutition and upon palpation.

The clinical appearances of this case were highly suggestive of sarcoma. Although the family physician was a well-known practitioner of unusual ability and experience, neither he nor myself were able to find the slightest evidence of syphilis after repeated careful examinations. The patient was a gentleman of excellent intelligence and social position. He was aware of the gravity of the situation and of the danger of the operation necessary for the removal of a malignant tumor of the pharynx, and while professing the utmost willingness to aid us by every means in his power positively denied the knowledge of having contracted specific disease. In order to arrive at a diagnosis as speedily as possible a fragment of the diseased tissue was removed

and sent to Dr. Eugene Hodenpyl, of the College of Physicians and Surgeons, New York, and as a matter of routine practice based upon the uncertainty of cases of apparent malignant disease of the throat, the patient was placed upon a course of iodide of potassium. The first report of the pathologist expressed a doubt as to the nature of the lesion, although several other microscopists who saw the specimen considered the case one of sarcoma. A second small fragment was removed and examined about ten days after the first, and this also gave a like negative result.

At this time Dr. Hodenpyl suggested that a positive diagnosis might be arrived at by the examination of one of the affected glands. Meanwhile the latter had almost entirely disappeared. In order to secure enough tissue to make the examination complete, the entire tonsil was removed by means of a cold-wire snare, and the mass thus separated was sent to the pathologists without any reference being made to the change in the condition of the lymph nodes. Again, the general verdict was sarcoma, excepting on the part of Dr. Hodenpyl, whose report was as follows:

PATHOLOGICAL DEPARTMENT OF COLLEGE OF PHYSICIANS AND SURGEONS,
*November 26, 1896.*

*Tonsil, X. Y.*—The conditions present in this organ are an exact counterpart of those observed in the specimens first examined. The lesion is one of a chronic hyperplastic nature. If it were a polyedral-cell sarcoma (which is a highly malignant variety) we should confidently expect a rapid growth in the past weeks. This tonsil did not seem to be greatly enlarged. The conditions observed, moreover, do not exactly resemble an ordinary chronic hyperplasia, in that, besides a considerable amount of fibrous tissue, giant cells, etc., there is a very unusual number of endothelial cells in the sections, an appearance sometimes found in cases known to be syphilitic. The resemblance of the sections to sarcoma is very striking, but this diagnosis must be excluded on account of the relatively normal size of the tonsil and of the appearance mentioned above.

EUGENE HODENPYL.

The subsequent history of the case fully confirmed this diagnosis. Under the continued administration of iodide of potassium the patient steadily improved, and in a few weeks had entirely recovered. Up to the present time he has remained perfectly well.

*Paper.*

## A NEW METHOD FOR THE RELIEF OF CERTAIN ENLARGEMENTS OF THE TURBINATED BODIES.

By D. BRYSON DELAVAN, M. D.

True hypertrophy of the turbinated tissues is a condition for the relief of which it is considered necessary to remove bodily an amount of the affected soft parts sufficient to overcome the occlusion of which they are the cause. For this purpose we use the snare, or resort to the application of caustics or of the galvanocautery. In all such operative work more or less of the mucous membrane is destroyed and, as often happens, without the desired effect upon the deeper tissues having been accomplished.

In some cases of a subacute or chronic nature in which the turbinated bodies have become abnormally enlarged the swelling is due not to a general hypertrophy but simply to an unnatural engorgement of the plexus of blood-vessels or "turbinated corpora cavernosa" which underlies the nasal mucous membrane. This condition is common in various vasomotor disturbances of the nasal circulation which are not infrequently met with. Their results are often distressing to the patient, as, for instance, in hay fever and in some of the forms of chronic coryza, producing general as well as local irritation far out of proportion to the apparent seriousness of the cause. In the treatment of these cases the first thing to be done is to so reduce the volume of the congested bodies that the patient can breathe through his nose, and that the symptoms due to contact of the turbinated bodies with the sæptum can be relieved. In many instances, let it be understood, the nasal congestion is due to general causes, and should therefore be treated with reference to them and by general means. In a few cases, however, it seems necessary to resort to local means competent to overcome the troublesome swelling. For the attainment of this end,

the use of the cautery is irritating, destructive to the mucous membrane, and often unsuccessful. The desired end, if accomplished at all, is only attained at the expense of much unnecessary injury to the useful and important superficial parts, while the congested turbinated vessels, which are the real seat of the difficulty, remain as turgid as ever.

Some time ago it occurred to the writer to abandon in these cases the use of superficial destructive agents and to endeavor to relieve the condition by a method of subcutaneous incision, the idea being to divide a certain number of the blood-vessels, permanently obliterating them, and thus lessening the volume of the whole mass. For this purpose a lance-pointed needle or one of the minute knives used in some departments of ophthalmic surgery should be employed.

In performing this little operation the site of the proposed puncture or punctures should first be determined, and this should be done while the parts are in a condition of maximum turgidity. Cocaine having been applied, a spot anterior to the proposed incision should be selected and the point of the needle should be introduced obliquely through the mucous membrane, carried backward beneath the membrane as far as necessary and parallel with its surface, and with a slight sweep, the extent of which should depend upon the amount of hypertrophy present, should be brought out again through the original opening. The external wound—namely, that through the mucous membrane—should be as small as it is possible to make it, a width of one thirty-second of an inch being amply sufficient.

The intention of the operation is not necessarily to destroy a large number of vessels, but only as many as may be required to sufficiently reduce the swelling. It is much better to repeat the performance at a subsequent sitting than to overdo it. Two punctures are as many as should be attempted at any one time. In withdrawing the knife care should be taken not to enlarge the opening through the mucous membrane. The procedure causes little pain, and that of a transient charac-

ter. Bleeding is also slight and easily checked by the application to the site of the puncture of some good astringent, although it is better to encourage a slight flow than to stop it immediately. Healing takes place promptly, and thus far in the experience of the writer without accident. Where the turgescence is excessive it is possible to secure a more pronounced effect from the operation by reapplying the cocaine and packing the parts with cotton so that returgescence can not take place for a few hours.

This method is offered as a possible substitute for the measures heretofore employed in the treatment of the particular condition mentioned. Its advantages are:

1. Ease of application.
2. Freedom from irritating effects.
3. The absolute preservation in its normal condition of the mucous membrane.
4. Practical adaptability to the end desired.

The immediate results of the operation are beneficial, in that the congestion of the enlarged portion of the turbinated is relieved and the obstruction to nasal respiration is thereby removed. In many cases this relief is permanent. Should the symptoms of congestion return at some future time, however, the cessation of the difficulty for over a somewhat limited period will compensate for the slight inconvenience of the operation. Whether or not the subjecting of the turbinated bodies to such treatment will result in ultimate harm remains to be seen. It does not seem probable that its careful and conservative application in suitable cases could prove injurious.

*Discussion.*

Dr. CASSELBERRY: What is the extent of the sweep of the knife after it has been introduced, so that the minimum amount of injury with the maximum amount of good results would follow?

Dr. DELAVAN: That would be in accordance with the amount of hypertrophy. The knife makes an external wound of only about an eighth of an inch.

Dr. SWAIN: How many punctures do you make?

Dr. DELAVAN: I generally carry the knife once or twice under the enlarged anterior extremity of the turbinated body, where it is most voluminous, and after making a very slight sweep draw it out again.

Dr. NEWCOMB: How long have the cases been under observation? In the course of a few weeks does not the condition reproduce itself?

Dr. DELAVAN: I am very glad to have this question asked, as it is the reason why I first devised the operation; it is more efficient than any other method. In a young lady, twenty years of age, I had exhausted all resources, local and general; I then performed this operation, partly in the hope that the mental effect might have a beneficial influence, and partly for the idea that for a time it would relieve the congestion and thickening so as to enable her nervous system to build up, as she had been able to get but a little sleep for several nights. She was at once relieved by the operation, and the condition did not recur.

Dr. WRIGHT: When this method of treating hypertrophies was first mentioned to me yesterday by Dr. Delavan, I did not think much of it; but on hearing him read his paper, I have come to the conclusion that it is a very good suggestion. The results are probably due to breaking up of the coats of the vessels and making a clot, and it seems like a very rational procedure. As to how long its effects would remain it is hard to say, but we know that cauterization of the surface only produces a good effect for a comparatively short time. It has occurred to me, as to others, that no matter how deep you cauterize, the condition for which it is done will sometimes return. If you do not correct the systemic disturbances on which it often depends the hypertrophy will return after any method of operating.

Dr. CASSELBERRY: In reference to the little operation upon the turbinated body, I should consider it at least a valuable temporary procedure, and its effects might be lasting where the hypertrophy is chiefly anterior or median. Even with posterior turgescence of the turbinated bodies a reduction is often afforded by division of the vessels of the front and median parts. I do not mean to say that firm hypertrophies of the posterior ends would be relieved, as by a removal of a portion of the tissue, but mere congestion and erection at the rear end is often reduced by cauterization from in front, which does not reach to its exact site, and the same would be expected from Dr. Delavan's method.

The case of simulated sarcoma carries an excellent lesson. I would suggest that the clinician should insist upon complete harmony between the clinical aspects of the case and the report of the pathologist, and I should be very suspicious of the report of a pathologist which did not correspond with the clinical appearance, especially when based upon a very small piece of the growth.

Dr. CLARK: I think that most of us have seen cases of growths in the nose or throat of which the histological character has been for a time in doubt. A case of this sort came to my clinic recently. The patient, a woman of about fifty, had had a sore throat for several months. The right tonsil was considerably enlarged, spreading out in an irregular way over the anterior and posterior pillars of the fauces and having a superficial slough on its surface. The patient's general appearance was good, with no evidence of cachexia. No enlarged cervical glands could be felt. I made up my mind that the growth was probably malignant, but in order to rule out syphilis I put the patient on the use of iodide of potassium. The portion of the growth projecting over the anterior pillar, removed at this time for microscopic examination, was reported by the pathologist to be simple hypertrophy. Not satisfied with this diagnosis, I removed the portion projecting over the posterior pillar, and this was reported to be adeno-sarcoma. Since then, although the tonsil has remained indurated, it has not increased in size, and if I saw it now for the first time I might hesitate to diagnosticate a malignant growth. But as several competent pathologists fully agree as to its malignant character I do not now hesitate to recommend a radical operation. The induration and enlargement of the tonsil have not been affected by the internal administration of iodide of potassium, so that syphilis can be ruled out.

Dr. WRIGHT: We were so interested in Dr. Delavan's last communication that we forgot to discuss the first one. I think that Dr. Delavan was very fortunate in his pathologist. Dr. Hodenpyl knows more about the pathology of the lymphoid tissue in the throat than any other pathologist in this country. It was his wide experience with this variety of cellular proliferation which led him to be so very cautious. The trouble with the pathologists frequently is not that there is any very great difficulty in making a distinction between benign and malignant round-celled growths, but that they have no opportunity of examining the whole growth, when,

with a great deal of care, they would usually make the proper diagnosis. The trouble is that they are required to make a diagnosis from small pieces. Since the difficulty of recognizing the character of the growth under the circumstances is so great, I think that the clinical history, especially in these cases, should be very fully given to the pathologist when the fragment is sent to him for examination. A very little knowledge of the clinical history often makes a great difference. It is not fair to the pathologist in any case to give him only a little piece of tissue, without any clinical data, from which to make a diagnosis. I know that it is considered a good "grind" to give a pathologist a little piece of tissue from a growth without any clinical history and ask him to make a diagnosis, but it is not the scientific spirit. The more help given by the clinician to the pathologist, the freer from error his work will be.

Dr. DELAVAN: The history which I reported illustrates the value of giving iodide of potassium in all doubtful cases of this kind, and also the importance of sending as large a portion of the growth as possible to the pathologist; and, as stated by Dr. Wright, of giving him as complete a clinical history as possible. This was done in my case, and Dr. Hodenpyl gave his decision against operation, in spite of the fact that the diagnosis of sarcoma had been made by several expert authorities, and that operation had been strongly advised. But for his report the patient would have been operated upon. The effect of the administration of the iodide of potassium speedily supported his opinion.

With regard to the mucous membrane of the nose and operations upon it, I have seen children and adults injured for life by the indiscriminate removal of mucous membrane. By the use of this little knife, destruction of the mucous membrane is done away with. It causes the smallest amount of injury of any possible operation. Where the patient is hyperæsthetic and afraid of being hurt, the knife can be wrapped with cotton except near the point, the patient hardly being able to distinguish it from a probe, and allowing its use without objection. I hope that this plan of treatment will be tried in some of these difficult cases and that its actual value may be fairly tested.

*Paper.*

## A CASE OF ANGEIOMA OF THE TONSIL, WITH RECURRENCE OF THE SAME THREE YEARS AFTER REMOVAL.

By J. H. HARTMAN, M. D.

In presenting the following case to your consideration I thought it might be of sufficient interest, if for no other reason but for the fact of the comparative rarity of this form of growth in the upper respiratory tract. Angeioma varicosa, limited and confined to the tonsil, must be seldom met with; I have been able to find only two such recorded cases. One was reported at the meeting of the British Laryngological and Rhinological Association, April 13, 1894, by Mr. Wyatt Wingrave, where sections of the growth which he had removed from the surface of the left tonsil were exhibited which upon microscopic examination proved to be an angeio-fibroma. The other case was one reported by Stork at the meeting of the Wiener laryngologische Gesellschaft, April 4, 1895. In November, 1888, I saw a case of angeioma of the right tonsil in a woman twenty-eight years of age, the growth occupying the lower two thirds of the tonsil and complicated with an external tumor, the nature of which was uncertain. The patient was seen by Dr. J. Solis-Cohen, in Philadelphia, and Dr. Tiffany, in Baltimore. The case was under my observation for a lengthened period. She declined surgical interference, and finally, after being again seen by Dr. Cohen and being assured that nothing but an operation would be of benefit, passed from my care without any public record being made of the case.

In March, 1893, Mr. W. S., of Accomack County, Virginia, thirty-two years of age, was brought to me by his physician, Dr. Shaw. Upon examination I found the entire surface of the left tonsil occupied with a large mass of angeiomatous outgrowth, nodular and irregular in outline, of a dark purplish color, and of about the size of a pecan nut. The patient was unable to give any definite history as to how long this condition

had existed, but had complained of some slight aching on that side of his throat for the past year.

Immediate removal of the tumor was decided upon, which was performed very slowly with a wire *écraseur*, the fear of severe hæmorrhage being kept in view. The operation lasted nearly an hour, and very little bleeding took place at the time; but on the following day, some twenty-four hours after the operation, a most profuse hæmorrhage came on, which, after the use of ice, styptics, and pressure failing to control, was checked by the direct application of the galvano-cautery.

Upon microscopic examination of the growth it was found to present the usual appearance of angeioma, being made up largely of capillary blood-vessels, with either thin or thickened walls imbedded in a more or less abundant connective-tissue stroma.

The patient left my care within a week, with no vestige of the growth remaining. Nothing further was heard of the case until April, 1896, when he presented himself again. A recurrence of the growth had taken place, but only to a limited extent, occupying the lower third of the tonsil. The patient thought that this new formation had taken place within the last six months, with a perceptible increase in size in the last two months. This new growth was removed with the galvano-cautery snare, without any hæmorrhage. No microscopic examination could be made of the specimen on account of the destruction by the hot wire of the snare. The patient was seen again last June, and there was no appearance indicating a further return of the growth.

*Paper.*

## A CASE OF SUBGLOTTIC FIBROMA: REMOVAL BY TRACHEOTOMY AND CURETTING.

By JOHN W. FARLOW, M. D.

Mrs. P., thirty-seven years of age, married, consulted me in January, 1897, for difficulty in breathing. About four years previous she had noticed that her respiration was impeded and that the nasal passages were getting smaller. This led her to think that the nasal obstruction might be the real, underlying cause of her trouble, and about a year later—that is, three years ago—she consulted Dr. H. W. Loeb, of St. Louis. He found considerable cartilaginous projections on each

side of the nasal sæptum, which he removed in part, affording her relief from mouth breathing. On examining the larynx he found what he was disposed to think were two subglottic growths, one on each side, somewhat as represented in Fig. 1.

Dr. Bernays, of St. Louis, saw her then in consultation, and was led to operate by the most distressing symptoms of dyspnœa. The trachea was laid open for about an inch and a quarter, and upon its posterior wall—that is, upon the sæptum separating the trachea from the œsophagus, extending up to the cricoid cartilage—he found a tumor an inch and a half in length and three eighths of an inch broad, about the thickness of a lead pencil, brown in color, of a soft texture, making the mucosa of the posterior wall of the trachea

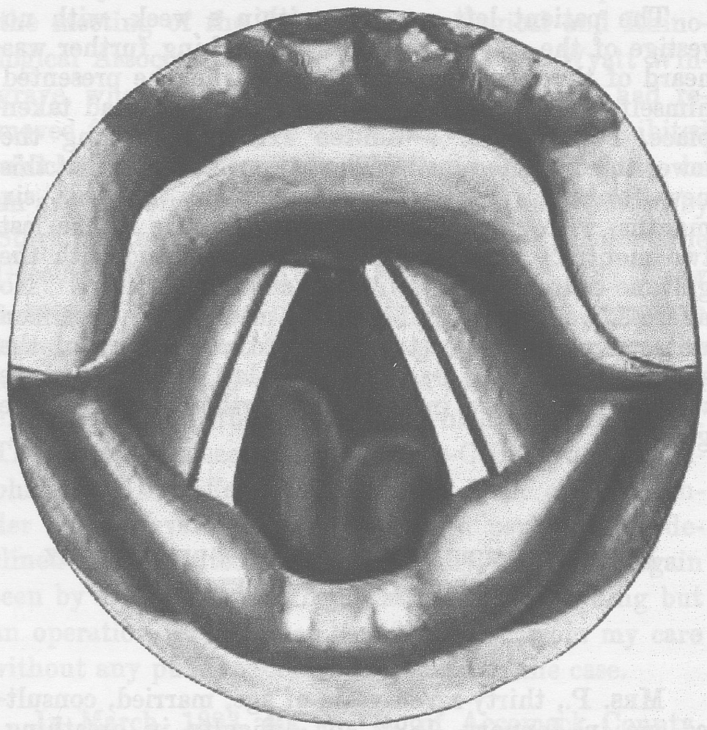

FIG. 1.

bulge into the lumen, and seemingly also causing a similar projection into the œsophagus. He could not bring himself up to the point of attempting the extirpation, because the growth could not, as he thought, be removed without making a permanent tracheo-

œsophageal fistula, a very unmanageable affair, because it is almost impossible to prevent food or liquids from getting into the air-passages.

Dr. Bernays and Dr. Loeb were of the opinion that the growth was not malignant at that time. They considered the case a very interesting as well as a very curious one. "After the tracheal operation the dyspnœa was greatly relieved, and for some time she remained comparatively free from great disturbance in breathing."

There was no history of syphilis, and antisyphilitic remedies in large doses had no beneficial effect.

The improvement in her condition was only temporary and she grew gradually worse, at times feeling almost suffocated, especially at night and when she took cold, and again having periods of some relief. When I saw her the dyspnœa was very marked and there was much wheezing. Talking was interrupted by the necessity of taking a longer breath after every few words. She was very thin and had lost some thirty pounds, weighing only about ninety pounds at that time. There was no pain of any kind, and no difficulty in swallowing. The nose seemed to be of but little service in respiration, but the intense dyspnœa would have required mouth breathing, even if the nose had been sufficiently free.

The nasal bones, especially at their lower ends, were much thickened, as were also the lateral cartilages. The anterior part of the sæptum was much increased in thickness on both sides, so that the entrance of the nostrils was much narrowed and but a small current of air passed through.

There was nothing abnormal in the mouth, fauces, postnasal space, epiglottis, or larynx. The voice was not hoarse, and there was nothing unusual felt in the neck externally.

Below the freely moving white cords the lumen of the trachea was almost completely filled by smooth, regular, rounded swellings, two on the right and one on the left, seemingly arising from the posterior part of the trachea, and leaving only a narrow chink anteriorly for the air (Fig. 2). I was not able to touch the mass with a probe, because the air space left was so small that the probe was enough to shut off what little air she had. The facts that the cords moved so freely and that her voice was clear seemed conclusive that the growth did not involve the cricoid. From the appearance of the cartilages of the nose, from the situa-

tion of the tumor near the tracheal cartilage, from the long continuance of the disease, from the smooth, rounded, non-ulcerative mass, and from the freedom of the larynx, absence of pain, and difficulty in swallowing, I was inclined to consider it a case of enchondroma of the posterior wall of the upper part of the trachea. She

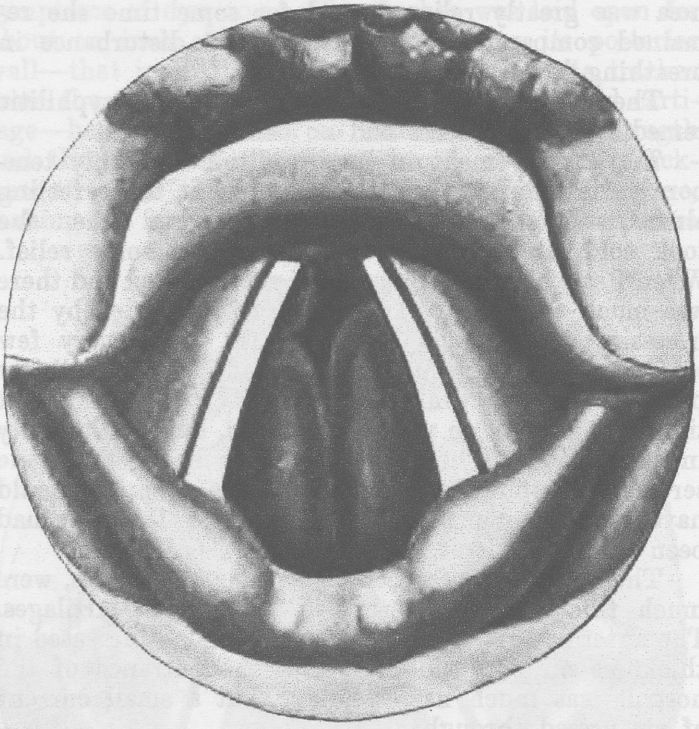

FIG. 2.

was losing ground and was in great need of air, and tracheotomy might have to be done at any moment.

I asked Dr. M. H. Richardson to see the case with me. He thought it probably an enchondroma, but at any rate non-malignant, and that tracheotomy should be done, and, if possible, enough of the growth removed to free the lumen of the trachea. An endolaryngeal operation was impossible.

On February 9, 1897, Dr. Richardson did a low tracheotomy under cocaine anæsthesia, and inserted a tube. Chloroform was then administered through the tube, but the patient's condition became so bad that ether was substituted, and there was no further trouble with the anæsthesia. The trachea was then opened

above the tube nearly to the cricoid cartilage, gauze was packed around the tube to prevent the blood from getting into the trachea, and the edges of the wound were held apart by the fingers or retractors.

The growth was seen to begin below the cricoid cartilage, and to extend down on the posterior tracheal wall an inch and a half or more. It was one mass and not several. One finger passed through the mouth into the larynx, and the other through the tracheal wound, felt a large, firm mass between them, extending backward toward the œsophagus as well as into the trachea. The problem seemed to be to remove what had caused the dyspnœa, without attempting the extirpation of the whole mass.

With the sharp curette, the firm, dense tissue was gradually removed, with but little hæmorrhage, and the finger could then be passed from below, right

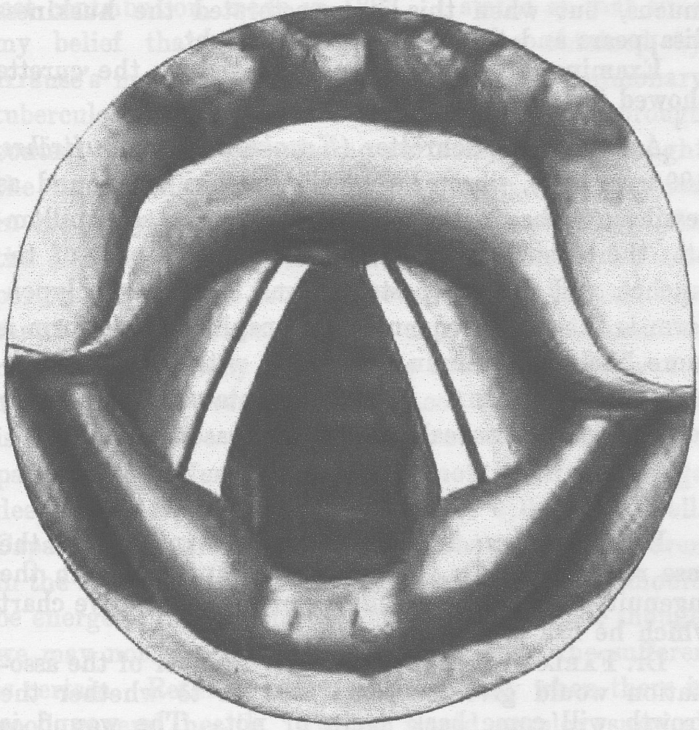

Fig. 3.

through, over the now smooth tracheal wall, up between the vocal cords. I passed one finger into the larynx from above, and the other from below, and it

seemed to me that the trachea was practically free from any encroachment on its calibre.

The skin was drawn tight over the trachea and sutured, but the tracheal rings were not sutured. The tube was left in, and a small piece of gauze just above it. At the end of five days the tube was removed, and the skin wound above had healed by first intention. The opening for the tube was soon closed over by granulation. I examined the larynx on February 19th, ten days after the operation, and found the left cord rather red, but both cords moving well. The trachea was quite free, except a little irregular tissue seen under the posterior end of each cord in deep inspiration (Fig. 3).

A letter received from her a month later says that she is much better and is gaining in flesh. The voice is much better than when I last saw her. If she has a little cold she is somewhat hoarse and there is some mucus, but when this is expectorated the huskiness disappears and the breathing is all right.

Examination of the tissue removed by the curette showed it to be a fibroma.

According to Schrötter (*Krankheiten der Luftröhre*, 1896, p. 147), fibromata of the trachea are found as sessile growths, in the shape of polypi, or as papillomata, their usual situation is in the upper part of the trachea and on the posterior wall, and the polypoid form is the most frequent. The papillomatous form is more likely to occur in connection with the same condition in the larynx. Enchondromata seem to be very rare, as Schrötter speaks of only two cases on record.

*Discussion.*

Dr. DELAVAN: In addition to the interest of the case reported by Dr. Farlow I am impressed with the ingenuity and artistic excellence of the illustrative chart which he has presented with it.

Dr. FARLOW: I hoped that some member of the association would give me some clew as to whether the growth will come back again or not. The wound is cicatrizing very well. It is possible that the growth may reproduce itself, but I would prefer that it should take some other direction than into the trachea. There is still a good deal of tumor left, and it is probable that in time it may give trouble.

Dr. RICE: Was the growth very vascular?

Dr. FARLOW: No, it was not a vascular growth; it felt very much like fibrocartilage. There was very little hæmorrhage during the operation.

*Paper.*

## A CONTRIBUTION TO THE STUDY OF THE TREATMENT OF LARYNGEAL PHTHISIS.

BY T. MORRIS MURRAY, M. D.

THE object of the present article, gentlemen, is to give, as far as is possible, a report of the progress made in the treatment of laryngeal phthisis, together with the results of my own limited experience, since my last contribution, made in 1893. I stated at that time my belief that good results could be obtained by Krause's method even in the last stages of pulmonary tuberculosis, if lactic acid was brought in thorough contact with the granulating surfaces; that I thought the limitations placed by Krause upon his operation in his essay published in 1886 were unnecessary. In the discussion which followed this view found no supporters. Two years later, however, Krause himself says that he can not consent to the extreme carefulness demanded from many sides in the selection of cases for operation; that even in far-advanced cases, where there is high fever, we can give ease, instead of leaving the patients to suffer. One should not be afraid to go deeply into the tissue, as the patient will bear it well. Capart thinks the operation should be undertaken even in the last stage of the tubercular larynx; that it should be energetic in order to be efficacious, and that, though we may not always effect a cure, relief to the sufferer is certain. Rethi advises operations only when there is good general health. Castex would employ surgical treatment first, when medical treatment is insufficient, also when not contraindicated by general conditions. He thinks laryngotomy worthy of more frequent consideration, but only when lungs are sound and other

measures have failed. Laryngectomy, he believes, should never be practised.

Laryngo-fissure is the subject of a monograph by Ernest Crapon; this is a review of fifteen published cases, from which he concludes that the operation never does harm and is occasionally of service. One of these cases is worthy of mention: that of a clergyman, whose voice eleven years after the operation was clear and strong.

Opinions differ as to the conditions which forbid surgical interference in laryngeal phthisis, but with the evidence before us we can not deny its inestimable value. Heryng, in reporting more than two hundred successful cases, supports his advocacy of this method of treatment, and suggests the following conditions as clearly indicating the necessity for surgical interference: First, in tuberculous tumors of the epiglottis; second, in circumscribed, chronic tumorlike infiltrations of the posterior wall of the larnyx which show little inclination to break down; third, in chronic tumors resting on an inflamed base surrounded with proliferating products which resist all other methods of treatment; fourth, in partial disease of larynx, even when the epiglottis, false cords, and lateral ligaments are affected. He advises against operation: First, in advanced phthisis of the lungs with hectic and wasting; second, in diffuse miliary tubercle of larynx and pharynx; third, in all cachectic conditions; fourth, in severe stenosis of the larynx caused by inflammatory swelling of the affected parts. In these cases he recommends tracheotomy as soon as possible.

Gleitsmann advises curetting: First, in primary tubercular disease without lung complications; second, in cases in which concomitant lung disease is either incipient or has stopped short of softening; third, especially in circumscribed ulcerations and infiltrations; fourth, in dense, hard swelling of the arytænoid region, ventricular band, and posterior wall; in tubercular tumors and affections of the epiglottis; fifth, in advanced stages of lung disease, with distress and dysphagia from arytæ-

noid infiltrations. The cases in which he considers it ill-advised are: (1) in advanced pulmonary disease, with hectic; (2) in disseminated tuberculous disease of the larynx, in which there is little or no area of healthy tissue; (3) in extensive infiltrations producing severe stenosis (when he considers tracheotomy indicated). He has reported twelve cases, in each of which pulmonary complications existed, with four recoveries, without relapse in periods varying from six to ten months.

In the discussion upon this subject at the international congress which met in Rome, Ruault, Schmidt, B. Fränkel, Gougenheim, Massuci, Chiari, Glizinski, Hoppman, Flatau, and Sajous argued in favor of the curette. Egidi, Messei, and Garel advocated tracheotomy. Sokolowski, Schmidt, and Hoppman thought even the graver operation of laryngotomy permissible under certain conditions, practically when all other methods have failed.

The value of the curette is, I think, generally conceded. Lenox Browne does not consider it a *sine qua non* in the treatment of laryngeal phthisis, but admits its utility in insuring the effectiveness of the lactic-acid applications. He considers it chiefly useful for the removal of hyperplasias and to clear away necrotic matter. Among those who have reported cases successfully treated in this manner are Hajek, Levy, Caster, Semon, and Symonds, who mentions a patient well two years after operation; a case is reported by Harris in which a good result was obtained by the application of pure ichthyol after curetting in which the lactic-acid applications had failed. Lambert Lack has used successfully in one case pure chromic acid after curetting.

In infiltrations of the epiglottis and arytænoid region, Gleitsmann recommends the galvano-cautery, which he follows with lactic acid. Heryng, in an article upon the use of electrolysis in throat and nose trouble, advises it in some cases of tubercular laryngitis. Srebony is an advocate of this method of treatment.

The successful treatment of laryngeal phthisis without the aid of the curette is undoubtedly possible in

many cases, by topical applications, internal medication, and proper climatic surroundings. Among the former nothing as yet known can rank in efficiency with lactic acid. Good results from its application are reported by Garel, Beale, Heryng, Langmaid, Castex, and Capart. Cadier, however, considers creosote and vaseline of greater service. Shurley thinks well of the use of formates of ammonium and sodium; the latter he uses by insufflation, equal parts of starch and formate of sodium; as a spray, five to ten per cent. of ammonium or sodium formate. Langmaid reports good results from a twenty-per-cent. solution of menthol and oil from iodoform. Newman recommends iodoform, alcohol, and ether in concentrated solution. The employment of parachlorphenol is recommended by Spengler, of St. Petersburg; he states that it has decided germicidal properties, and that its soothing action is more prolonged than even that of cocaine. Hedderich says of this remedy that it is most valuable in relieving dysphagia, and reports two cases of apparent cure. Zinn also uses parachlorphenol in ten to twenty per cent. of glycerin solution, and states that tuberculous ulcerations can be made to heal with this application alone after several weeks' treatment only. Ruault reports remarkable success from the application of sulphorcinate of phenol (a solution of phenol in sulphorcinate of sodium). Making daily application of a fifty-per-cent. solution, he treated five hundred cases, and states that the infiltrations undergo sclerosis and heal within from four to six weeks without cicatrix. Heryng reports favorable results from the use of this application, denying, however, its efficacy unless preceded by surgical treatment. He uses a two-per-cent. solution of pyoctanin to the curetted surface, and the sulphorcinate of sodium on the eighth or tenth day. The phenol preparations, he thinks, stimulate absorption and the elimination of tuberculous infiltrations and products and rapidly relieve the dysphagia. S. Solis-Cohen, speaking of the new remedies for the treatment of tuberculous ulceration of the larynx, alludes to the local application of bromoform,

formaldehyde, guaiacol, and protonuclein. Schadewaldt reports a case of tuberculous ulceration of the vocal cord cured by the rubbing in of creolin. Comparad has reported a case of advanced tuberculous disease of the larynx in which the patient was cured by the application of testicular serum. Chappell suggests the submucous injection of creosote, preceded by the application of a ten-per-cent. solution of cocaine, giving preference to the oily or alcoholic solutions. (Pure creosote is used when there is extensive tissue necrosis, the injection being made as superficially as possible, one drop at a time, repeated at intervals of five or six days.) He alleges for this method: First, that it relieves dysphagia, dysphonia, and cough in the primary stages; second, that infiltrations and hypertrophies in the larynx disappear in some cases after persistent treatment; third, if pulmonary disease is not very active, early treatment may arrest subsequent ulceration; fourth, single tuberculous ulceration may be healed, if not too deep; fifth, in more active stages the treatment stimulates granulation, arrests ulceration, prevents profuse discharge and unpleasant odor, and relieves laryngeal symptoms. Hubbard has also had good results from creosote injections. In his cases tincture of gentian was given internally at the same time.

Spontaneous healing of tuberculous ulcerations of the larynx is reported by Whistler, Grayson, and Solly, in which sedative and antiseptic solutions alone were used. Heryng has seen fourteen such cases out of three thousand observed.

Tracheal injections of creosote are recommended by Botey. Very large doses are tolerated in this way, and derangement of the stomach avoided. John A. Thompson, in an article read at the recent meeting in this city of the Laryngological, Rhinological, and Otological Society, advocated this method of administering creosote, saying that where tracheal injections were tolerated the antiseptic action of the remedy would be very speedily shown by the subsidence of the cough, change in character of the expectoration, and decline of fever.

The internal administration of creosote has, and, I think, justly, many advocates. Semon and Conway have reported good results from using large doses. Professor Stoerk, than whom there are few for whose opinion I have greater regard, considers the free use of creosote dangerous in cases of laryngeal or pulmonary phthisis. He thinks that the power of nutrition is often lessened by its employment. Personally I regard it as essential in the treatment of tuberculosis in this climate. I have never seen creosote do harm. Some of my patients have taken twenty-five drops three times a day with only beneficial effect. My rule in administering it is to begin with one minim, adding one minim to each dose every day, with directions that if gastric disturbance is produced they shall go back to the dose which was tolerated without discomfort.

Of the many remedies suggested in the treatment of laryngeal phthisis, the curette and lactic acid must be accorded the first place. Next, I should place the phenol preparations advocated by Spengler, of St. Petersburg, Hedderich, Heryng, Zinn, and Ruault. Laryngotomy, laryngo-fissure, and laryngectomy, it is safe to say, should only be resorted to under most exceptional circumstances. Tracheotomy doubtless has its value, as employed by Gleitsmann and Heryng, for without a free supply of good air nothing can be expected in the treatment either of pulmonary or laryngeal phthisis. In my last paper I reported five cases of laryngeal phthisis successfully treated, one of which is alive and well to-day, six years after the last operation. Since then, though many of my patients have been benefited, in but one have I been able to secure complete cicatrization. I am, however, able to offer one suggestion which I think is new in the treatment of these cases. I have found in enzymol a most valuable auxiliary to the curette and lactic acid. It is non-irritating, and possesses in a high degree the quality of digesting necrosed tissue. I applied it recently to a large ulcer upon the ventricular band; in twenty-four hours the detritus with which the ulceration was cov-

ered had entirely disappeared, leaving a perfectly clean surface, upon the face of which were two nodular projections, apparently tuberculous deposits which had not yet undergone the process of ulceration. My experience with enzymol is too limited to warrant the expression of a positive opinion as to the extent of its value. It has been used most successfully in tuberculous joints, and I shall not be surprised to find that it limits and prevents ulcerations in the larynx when applied by hypodermic injection to the tuberculous deposits. To my assistant, Dr. A. W. Wells, I am indebted for valuable aid in obtaining abstracts of the papers referred to in this article.

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*Discussion.*

Dr. NEWCOMB: With regard to the amount of creosote which may be tolerated by the human system, I will simply say that I have had a patient taking thirty-six drops three times a day. At first I gave it in a mixture with infusion of gentian and mucilage of acacia, making an emulsified preparation; of late I have given up all forms of fluid preparations and use only the pills, and find that they do as much good.

Dr. LANGMAID asked that a correction be made in the quotation. It should be a twenty-per-cent. solution and not a two-per-cent. that he used.

Dr. INGALS: With regard to the administration of creosote, as a rule it is not very well tolerated, whereas the carbonate of creosote may be taken without discomfort after eating, three times a day, even in doses as large as a drachm.

*Paper.*

## PRIMARY LUPUS OF THE LARYNX.

BY EMIL MAYER, M. D.,
NEW YORK.

THE following cases are deemed worthy of presentation, because of the difficulties in reaching a diagnosis in this affection, its very rare occurrence, and also because in one of the cases I am enabled, after sixteen years, to corroborate the original diagnosis:

CASE I.—Louis F., aged thirty-one years, came under my observation on July 18, 1896. He gave the following history: He was born in Russia, and is sixteen years in the United States. His father died at the age of forty of a heart affection. His mother died at the age of fifty of some disease the nature of which is absolutely unknown to him. He has a brother, aged forty-one, and two sisters, aged thirty-eight and twenty-five respectively, all in good health. One sister died at the age of thirty-one on the second day after confinement of a puerperal complication.

He has been married five years, and is the father of two children who are in good health. A third child died at the age of eighteen weeks of cholera infantum. His wife had no miscarriages, and has been in good physical health.

Except an attack of malarial fever seven years ago, he was entirely well up to one year ago. At that time, while sitting quietly, he gave a short cough and brought up a wineglassful of blood. There were no further signs of hæmorrhage until July 10th of this year. It has always been his custom to get out of bed every night for years, smoke a cigar, and then retire. On the night in question he arose and began to smoke, when a slight hacking cough occurred and he brought up a half cupful of blood.

*July 11th.*—Another attack of hæmorrhage at 6 P. M.

Daily attacks until the 18th, when he had two

hæmorrhages—one at 2 P. M. and one at 6 P. M.—each time bringing up nearly a cupful of blood.

On the 20th, another hæmorrhage; 21st, none; 22d, one; 23d, four attacks during the day. These were the last hæmorrhages he had.

From the 10th to the 17th he had been under the care of his family physician. There was no cough, no pain in deglutition, no elevation of temperature, no hoarseness. His physician, finding no evidences of pul monary disease, referred him to me for examination.

Patient is undersized and slightly built; looks very pale and presents no further symptoms. His anterior nares are free from any disease; mouth and pharynx normal. There is a large ulcer in the centre of the epiglottis extending over the entire laryngeal face. The edges of the ulcer are granular, covered with a grayish-white deposit, many small nodules existing on the free edge, the whole presenting a gnawed appearance. The width of the ulcer at the upper border is about eight millimetres. In the deepest portion of the ulcerated surface there is an eroded spot presenting the appearance of the open mouth of a vessel. There is a tumefaction of the mucous membrane on the upper border of the epiglottis on each side of the ulcer. The arytænoids as well as the interior of the larynx are normal. Careful examination and investigation show no evidence of syphilis. Sputum examined shows no tubercle bacilli. There is a slight consolidation at the apex of the right lung.

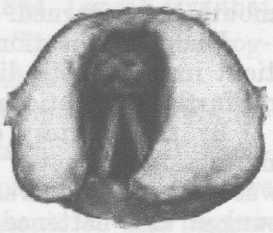
*Diagnosis.*—Primary lupus.

Applications of lactic acid, fifty per cent., alternating with twenty-five-per cent. menthol in olive oil, were made, and creosote was given internally. The hæmorrhage ceased, as noted, and never returned. His weight increased and he resumed his daily vocation, passing from observation on August 5, 1896.

*April 16, 1897.*—Patient present at my urgent request. States that he has been entirely well these eight months past, has gained steadily in weight, and, excepting a slight cough of a few days' standing, has no complaints. His voice is clear and strong, appetite good; has no elevation of temperature and no pain or difficulty in deglutition.

*Examination.*—The epiglottis is thickened in every diameter; a piece is excavated out of its central portion extending to within an eighth of an inch of its free border. The portion of the epiglottis that is vis-

ible in this excavation is nodulated in appearance, a fresh nodule being visible on the site of the old cicatrix. The mucous membrane of the epiglottis adjacent to the ulcer is puffy and very œdematous. These œdematous folds form pouches hanging over the arytænoids and tend to obstruct the view of the larynx. No abnormity can be detected in the larynx.



*Examination of the Lungs.*—Besides a slight bronchial catarrh and the consolidation at the apex of the right lung, which is *in statu quo,* there is no other pulmonary affection.

Case II.—The second case is one of primary lupus of the larynx and pharynx. It has already been reported and presented to this association in the year 1881 by Dr. Morris J. Asch. The history then given was as follows: "Nora H., aged eighteen years, came to me in February, 1879, complaining of sore throat and hoarseness. For four years she had suffered with it during the winters. During the past winter she had been much worse, deglutition becoming difficult, fluids passing out through her nose on her attempting to swallow them. There was a pricking sensation in the parts.

*Examination.*—The uvula was destroyed. The free border of the velum and the posterior pillars were ulcerated. The anterior pillar of the right side, the right tonsil, and the roof of the mouth were thickened and covered with small fleshy tubercles and nodular masses. The anterior pillar of the left side was thickened, while the whole diseased surface presented a deeper tint than normal. On the posterior wall of the pharynx was a large radiated cicatrix of the origin of which the patient could give no history. Patient is dysphonic; hearing is diminished.

The epiglottis is thickened, with ulceration on the left side and with its cushion much infiltrated.

The aryepiglottic folds and the ventricular bands are covered with small tubercles and thickened so as to prevent a view of the vocal cords. There is also a large papillated mass at the base of the tongue on the right side.

Under cod-liver oil, iron, and applications of nitrate of silver, patient improved until October of that year, when she complained of a choking sensation in damp weather. There was pain in the throat. The growth

had increased, and there was an appearance of ulceration on the right side of the larynx. There was a white spot on the right posterior pillar, and the granulations which had almost disappeared from the roof of the mouth had returned.

Under applications of perchloride of iron the patient improved steadily, and in May, 1881, there were no further indications of active disease."

By the courtesy of Dr. Asch she has been under my observation ever since. Two years after the case was described it was found that the epiglottis was sunken and flattened; this was believed to be due to subsequent cicatrization.

About five years ago a new nodule appeared, extending from the centre of her distorted epiglottis and directly upon a cicatrized spot. This remains and protrudes like a spur.

Before this an attack of pneumonia, and later an attack of pleurisy occurred, from which recovery was complete. No other throat affections save those noted have presented in all these years. Her life history has been that she had been twice married. Her first husband died of endocarditis. She has been pregnant twelve times and aborted seven. These latter were due to causes referable to the uterus. The children that came to term were normal in every respect. Her skin and body were carefully examined from time to time. Her teeth are singularly perfect, nor has there appeared any diseased state of the eyes, ears, or scalp. There is a distinct lupous eruption on the right temple at times, being very red and again very pale. No mercurials or iodides have ever been given or required.

On December 31, 1896, she gave birth, under the care of Dr. David Franklin, to a full-termed child, stillborn, due to prolapse of the funis. Two months after she began to cough and fail rapidly. Tubercle bacilli were found in large numbers, and examination revealed a cavity at the right apex of large area and one at the left apex of smaller area.

Laryngoscopic examination shows velum gone; the posterior pharyngeal wall is the seat of many radiating cicatricial bands, but nowhere any adhesions to the adjacent parts.

Only a stub of the epiglottis is left, a knotty condition presents, and the spur mentioned is seen. The larynx is otherwise normal. All the parts are intensely anæmic. Under creosote and rest she improved suffi-

ciently to go to Sullivan County, New York, on April 15, 1897.

While most writers credit Türck with having first mentioned lupus of the larynx in 1864, Langie says that it was known to exist in 1829 by Travers, who recognized it as existing in the mouth and larynx.

It is not so infrequent when lesions of the skin exist, and credit is given to Lefferts for originally suggesting a laryngoscopic examination in all cases where lupus presents anywhere. As a result of this suggestion many cases of secondary lupus have been discovered.

Regarding primary lupus, Lefferts stated before this association in 1881, and is quoted by Lenox Browne as saying, that he would not accept the diagnosis of lupus of the larynx or pharynx unless accompanied by lupus of the face. Browne reports the case of Orwin's which would have been set down as syphilis, but lupus of the nose occurred six years after.

Mackenzie says: When the laryngeal malady constitutes the only local manifestation of the disease, a careful investigation of the history and general condition of the patient must be made before arriving at a conclusion.

Rubenstein has collected fourteen cases of primary lupus, including one of his own, up to 1895. These cases are reported by von Ziemssen, Haslund, Obertuschen, Orwin, Martin, Garre, Langie, Garel, Moritz, Simonin, Isambert, von Breda, and Beausoliel.

Langie says: "If secondary lupus is rare, primary lupus belongs to the rarest of diseases."

Hunt says: "Lupus may originate by a primary deposit in the mucous membrane without any external disease whatever. This is now established beyond all doubt."

Primary lupus occurs in the young, usually about the age of puberty, more often in the female than in the male, and may have as predisposing causes poverty, bad hygienic conditions, and that tendency that has been termed scrofulous.

Kaposi and Vidal doubt the tubercular nature of this affection. Besnier and Doyon, the French translators of Kaposi, say: "The tuberculous nature of lupus, which the author continually doubts, is to-day so fully demonstrated that it is no longer necessary to renew a debate on the subject."

So Rubenstein states: "Tubercle and lupus are identical ætiologically."

Kafeman begins the subject in a very recent brochure, 1897, thus: "Before we consider the question of lupus of the upper air-passages we must lay stress on the statement that it is due solely to the presence of the tubercle bacillus, which was first found by Demme, and after him by many others.

"We can not answer the question why the two diseases should present such different characteristics, although due to the same cause. We can only suggest that it is due to important differences in the forms of life of that bacillus. The different forms are not accidental, but they are necessarily consequent upon the unknown biological characteristics of the bacillus."

Langie says: "To-day we can accept lupus as a form of tuberculosis, for we can show at times small numbers of tubercle bacilli, and these small numbers are accepted as a characteristic feature of lupus." He quotes Marty's definition: "Lupus of the larynx is a form of tubercle of the larynx with few bacilli."

Many sections must be made before the bacilli can be found, Koch finding them after twenty-seven sections had been made and once in the forty-eighth section. The persistent nature of the search that is requisite is the reason why it has not been found by some.

Inoculations prove the question. Eighteen white rabbits so inoculated in the eye became tubercular.

Neisser says: "Lupus is always tuberculosis of the skin, but tuberculosis of the skin has other forms than that of lupus. This same may be applied to the larynx, for lupus of the larynx is always tuberculosis of the larynx. but tuberculosis of the larynx has other forms than lupus."

Lupus of the larynx attacks the epiglottis by preference. The pathological changes noted (Breda) are: "The epiglottis is thickened and irregular at its free border, with slightly raised pale or grayish-red eminences. These we may observe to become white at their apices, a slough forming, which, on separating, leaves a small ulcer with sloping edges and grayish-yellow base, but without any surrounding hyperæmia or infiltration of its margin. These ulcers are slow of healing, and as one cicatrizes another nodule breaks down or is absorbed without ulcerating. In this way a worm-eaten appearance is given to the edge of the epiglottis, which is very characteristic of the disease. As the process goes on, the epiglottis becomes paler, till it comes to have a dead-white color and to the probe is stiff, fibrous, and resistant. Stenosis of the larynx only rarely results from lupus and may be due to blocking of the larynx by lupoid tissue, to fixation of the vocal cords, or contractions resulting from cicatrization. It is remarkable how seldom tracheotomy is required in lupus." Brondgeest has reached the same conclusions in a recent article, having observed the progress of a case of secondary lupus of the larynx *ab initio*. Chiari and Riehl lay particular stress on the statement that the nodules of the mucous membrane are the primary appearance and the infiltration of the mucous membrane second, and not *vice versa*.

Regarding its analogy to affections of the skin, Rubenstein says: "The analogy may not be denied, and we find it in lupus exfoliativus and lupus exulcerans. The primary papillary excrescences, which gradually exfoliate and become diminutive, represent the exfoliative form, while the larger infiltrations with ulcerations and cicatrices resemble the exulcerative form."

"The early forms of lupus are easy to diagnosticate," says Rubenstein, "the later ones more difficult, because in the latter the hypertrophy, ulceration, and cicatrization resemble other diseased states."

Primary lupus produces no symptoms for a long time; often occasions no inconvenience, no fever; only

after a time, and frequently after a long time, the voice becomes husky, and sometimes dyspnœa may occur, and these bring the patients under observation. Hence Marty truthfully said that lupus of the larynx must often be divined.

The glands may or may not be involved. Clinically speaking, the primary disease resembles the secondary in appearance. There are four processes to this affection: The mucous membrane is pale, it is œdematous, there is ulceration, and cicatrices form. These may all be present at the same time.

The course of the disease is chronic, without fever; a cure may be spontaneous, and often the disease reappears in the scar. The course of the disease may be rapid. Death ensues from complications, rarely from œdema of the glottis.

Lupus of the larynx must be differentiated from tuberculosis, syphilis, carcinoma, and leprosy.

Both Lefferts and Garre found the greatest resemblance between lupus and tuberculosis, while Chiari and Riehl, Rubenstein, Kafeman, and others find the greatest resemblance between syphilis and lupus, more especially in the nodular syphilide. The differential diagnosis between tuberculosis and lupus is here presented.

| | In tuberculosis (clinically). | In lupus (clinically). |
|---|---|---|
| Voice | Husky. | Not affected. |
| Pain | Present, often severe. | None. |
| Cough | Always. | None. |
| Expectoration | Profuse. | None. |
| Bacilli | In quantities. | Very few. |

| | In tuberculosis (laryngoscopically). | In lupus (laryngoscopically). |
|---|---|---|
| Hyperæmia | Intense. | Slight. |
| Œdema | Great and soft. | Present. |
| Ulcers | Enlarge rapidly. | Enlarge slowly. |
| | Not sharply defined. | Sharply defined. |
| | Never cicatrize. | Cicatrize. |

In syphilis the localization may be the same and there may be no pain, although it is present in most

instances. The ulcers are deeper, rounded, and have raised edges; there are cicatrices and often adhesions, the latter not occurring in lupus. The course is more rapid; the disease may be found in some other part of the body or the history elucidate the fact.

Lupus does not attack the osseous tissue as does syphilis, and finally the treatment may help to differentiate, lupus being apt to become worse under mercury and the iodides.

Carcinoma, either epithelial or medullary, is characterized by exuberant growth, is usually one-sided, and there is great pain of a radiating character. There are often hæmorrhage and dysphagia. Cachexia is not so prominent in carcinoma of the larynx. Age is of value in the differentiation.

Lepra does not occur spontaneously in this country.

Inoculation tests may become necessary to differentiate.

Lupus may have as complications pulmonary tuberculosis, perichondritis, œdema glottidis, catarrh of the mucous membrane of the larynx, and tubercular meningitis.

The prognosis is good so far as temporary recovery is concerned, and because surgical procedures may be instituted for the extirpation of the diseased mass resulting in a cessation of activity or a complete cure. It must always be borne in mind that the patient is threatened with pulmonary or miliary tuberculosis.

*Treatment.*—Local applications of lactic acid, nitrate of silver, chloride of zinc, iodine, menthol, and the galvano-cautery. Creosote, cod-liver oil, and iodine internally. Surgical procedures have been successful. Langie's patient was operated upon, the entire larynx being removed, before the diagnosis of lupus was made. He questions whether his patient profited by this complete extirpation, in that the recurrence is avoided, and advises median incision, extirpation of the diseased parts, and galvano-cautery.

Garre's patient was operated upon. After tracheoto-

my and the introduction of a Trendelenburg cannula, subhyoid pharyngotomy was performed. The epiglottis was extirpated and the diseased aryepiglottic folds removed with the Wrisberg's cartilages. The patient learned to swallow food well, and was discharged cured.

The most important question in the cases here presented is that of diagnosis.

In the first case here reported the entire absence of a single symptom of throat affection and hence its accidental discovery; the clinical picture of a gnawed or worm-eaten epiglottis, with nodules in the ulcer; the absence of tubercle bacilli in large numbers without fever or cough—all of which would assuredly have been present in tuberculosis—and finally the absence of every single evidence of syphilis, led to the diagnosis of primary lupus.

This conclusion has been borne out by the subsequent cicatrization, by the formation of a nodule in the cicatrix, and by the cessation of all activity of the destructive process.

The second case has been extensively quoted. It is mentioned in Lenox Browne's *Diseases of the Nose and Throat.* Garre speaks of it, as do several other writers.

At the time of its original presentation to this association the diagnosis was doubted by Lefferts, who declared it to be due to syphilis.

Careful observation for sixteen years fails to show any evidence of syphilis in herself or her progeny. She has been absolutely free from any affection of bone, skin, eyes, or scalp, presenting no manifestations whatever of syphilis.

It will be remembered that in spite of the fact that extensive cicatricial bands are present on the posterior pharyngeal wall, showing that an active ulcerative process once existed, there are no bands of adhesions reaching over to and involving the adjacent parts. Had this condition been syphilitic there would have been more or less complete adhesion resulting between the soft palate and the posterior pharyngeal wall.

The appearance of a large nodule directly on the site of the old cicatrix absolutely excludes syphilis. With the development of tuberculosis and the late eruption on the face, it seems, further, that the original diagnosis of lupus has been amply verified.

From the observation of these cases and a *résumé* of the very exhaustive literature on this subject we may conclude:

1. That primary lupus of the larynx does exist.
2. That it is a painless affection and may go on for years unnoticed.
3. That tubercle bacilli are present in small numbers, although difficult to find.
4. That its similarity to syphilis in appearance is greater than to that of tuberculosis.
5. That the absence of adhesive bands is characteristic of lupus, while they are always present in late syphilis.
6. That the prognosis as to life is reasonably good.

NOTE.—There has been no further development of the laryngeal disease in Case I, and the patient has remained free from any symptoms of disease for an entire year. In October, 1897, a cough supervened, and an examination revealed consolidation at both apices; tubercle bacilli in abundance were found. This occurrence amply verifies the original diagnosis of primary lupus.

CASE II.—This patient died of tuberculosis in October, 1897.

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*Discussion.*

Dr. SWAIN: I recall a case that I had under observation some years ago, of healed lupus of the larynx, being of interest in that its existence had not been known until discerned by tuberculin. It was at the time when Koch's lymph first made its appearance and attracted so much attention. There were a number of persons who applied for treatment: among others, a young woman who had had lupus for nine years, with ulceration of one wing of the nose and some infiltration extending on to the cheek, where there were also some scars. There were striated cicatrices in the hard palate, but there were absolutely no adhesions of the soft palate to the pharynx. There was also a large scar on the left side of the tongue at its base, extending down and involving the epiglottis, the latter having been nearly half destroyed. The arytænoids and vocal bands

were not involved. Left false cord showed, however, a long scar. The patient had a very good contralto voice. It was strange that this, in its acute stage, could have existed without symptoms, except, perhaps, for a short period. The testimony of herself and her mother was to the effect that she never had any prolonged sore throat in her life, unless when a child. The diagnosis of lupus of the face was made by Dr. Fox, of New York, after microscopical examination. This view was afterward borne out by the use of tuberculin. The first effect noticed was that the infiltration became more voluminous and all the lesions in the face turned to a bright-red color. During the period of reaction from the injection the scar tissue in the throat reacted, taking on a very bright-red hue. After one injection hæmorrhagic spots appeared on the epiglottis. The treatment had absolutely no effect upon the progress of the lupus. Since that time the patient has been treated by Dr. Fox with the hot iron. The reaction which I just referred to after using tuberculin passed off in a few hours, and brands the old scars as unquestionably tubercular in origin.

Dr. HUBBARD: The differential diagnosis between lupus and tuberculosis of the epiglottis is possible only where there is a considerable period for observation. In fact, the rapidity of progress of the destructive process may in some cases be said to determine the diagnosis.

I have recently reported a case in which the epiglottis had been destroyed. There was little or no cicatricial tissue formation. The appearance would have suggested lupus, but the history of prolonged exposure to tuberculous infection and the general condition of the patient determined me to call it tuberculosis, and, although there were no indications of pulmonary involvement, yet I think that it will develop.

Dr. WRIGHT: We can not draw any more hard-and-fast line between tuberculosis and lupus of the larynx clinically than we can microscopically. While I am familiar with cases which present the characteristic appearances of lupus and of tuberculosis, as described in the books, I also recall a larger number of cases which were on the border line, with very little deposit in the lungs. So that one is often at a loss to say positively whether a given case is tuberculosis or lupus. I was very much struck by the appearance of the larynx in a recent case of a young girl, eighteen years old, who

came into my clinic. She had a sore throat without any cough. Two years before she had begun to get a little hoarse. This had steadily increased. There had been no loss of weight. For a few months she had noticed dyspnœa upon slight exertion. She had no history of syphilis. I could get no family history, as she did not know anything about her parents; she was an inmate of an orphan asylum. The examination of her throat showed very great infiltration of the larynx, and the mucous surface had a dusty look. Those who have seen much of lupus will remember the dusty granular appearance of the surface as distinguished from the smooth surface of tuberculous infiltration. This infiltrated mucous membrane with the dusty look stretched across the laryngeal image, involving two thirds of the laryngeal aperture. There seemed some danger of suffocation. There was slight infiltration of the lung at the left apex. I was inclined to look upon the case as one of lupus, but as we did not think of making a diagnosis of lupus without bearing in mind the possibility of its being syphilis, I sent her into the hospital and put her upon large doses of iodide. When she first entered the hospital the sputum was not examined. To my surprise, under the iodides the larynx cleared up, and I said to myself, Here is the old story of unsuspected syphilis. Although the tumor had disappeared, her sputum, when examined, was found to contain tubercle bacilli. A slight cough is now present, and the course of the disease in the lungs is progressing in the ordinary way of phthisis. When the patient first came under observation all the appearances were those of laryngeal lupus. It might be said that this is a case of mixed infection, but I am not much in favor of mixed infection. The line of demarcation between tuberculosis and lupus can not be drawn with any great accuracy. I have seen one case of primary lupus of the soft palate in which the treatment by tuberculin was used seven years ago, and he is now practically in the same condition that he was at the time when the case was reported.

Dr. MAYER: I regret that Dr. Simpson was unable to remain for this discussion, as he had the opportunity of examining both the cases here reported, and I would have been glad to hear the expression of his opinion upon them. With regard to the case reported by Dr. Swain, I would ask if the eruption in the throat was recent or of long standing?

Dr. SWAIN: The lupus of the nose had existed for nine years, and there is no precise date of any sore throat, certainly nothing more than any child might have.

Dr. MAYER: The facts brought out by Dr. Swain in his case show how severe destruction may exist in this affection and no symptoms present themselves, and how, stated in my paper, the discovery of lupus of the throat is nearly always accidental, hence the greater need for laryngoscopic examination.

As to the question of calling all these cases of lupus merely tuberculous, there is this to be said against it: As we understand these manifestations we must agree that a patient presenting such destruction as here depicted would, within six months or a year at the latest, have been gathered to his fathers, if it were true tuberculosis. Lupus patients live on for many years; hence, if it were only because of the prognosis, the distinction must be maintained. In this contention I am sustained by such eminent authorities as von Ziemssen, von Breda, Rubinstein, and many others. There are too distinct clinical differences between the two.

I should, perhaps, modify a statement in my paper which declared that tuberculosis never cicatrizes. It should be made to read that tuberculosis never cicatrizes of itself, but may do so after operative procedures.

A remarkable feature of the first case presented is, that with such extensive lesion in the larynx the voice remains unimpaired; his voice is as clear as that of any body in this room.

As regards the second case, it is unusual to be able to report on a case which has been under observation for sixteen years, and to present the history before the same association to which it was first presented.

*Paper.*

## SARCOMA OF THE NASAL PASSAGES.

BY JAMES E. H. NICHOLS, M. D.

CASE I.—W. H. S., aged thirty-nine years, by occupation a barber, presented himself October 7, 1893. Family history good; no hereditary disease, but mother died of ovarian tumor. Had inflammatory rheumatism at the age of eleven; no illness since then until one year

ago, when he first noticed some obstruction in the right nostril, accompanied by some pain in the right orbit. Two months ago a small spur was removed from right side of nasal sæptum. Since then there has been much progressive loss of flesh and strength, with greatly increased pain in the orbit and with supraorbital and occipital headache. Pain in the nose is not increased. At the time the spur was removed he noticed some bulging of the right eye, but has had no difficulty of vision. Patient denies syphilis, and shows no evidences of having had it.

*Examination of Nose.*—Right naris clear, but about opposite the end of the middle turbinated body a reddish growth is seen, hard in character, pressed against the sæptum and the turbinate and preventing the introduction of a probe. It does not bleed very readily, is quite dense, and fills the entire cavity except the vestibule. Turbinate anterior normal. On the left side the sæptum is deviated to the left, with an exostosis low down. Turbinates boggy and pale. Lower meatus filled with apparent occlusion by posterior growth. Middle meatus occluded with a growth similar to that of right nares.

Inspection of nasopharynx reveals the presence of a tumor, dense, smooth, red, and firm, filling the entire left choana and most of the right. The base is broad and attached to the vault and sphenoid body. No pedicle. Not friable, but somewhat painful. Patient complains of vertigo. Pain is especially great in the pharyngeal region and in the frontal region on blowing the nose. It is not lancinating, but rather a dull ache. Has occasional epistaxis from the right side, and has twice a day a discharge of pus from the right side, after which he feels relieved. Has anosmia. Complains especially of pain in the occiput on gagging and on moving the head backward and forward.

A letter received from his physician is as follows:

"In regard to W. H. S., he came here January 22, 1893, complaining of what appeared to be polypi, also of pain at times about the ears, which was relieved by irrigating with warm water, cocaine eight per cent., and blisters to the mastoid. About June began to complain of pain in and about right eye. Vision was $\frac{20}{120}$. Disc ill defined and red. Veins enlarged in both. (Prescription: Hydrarg. chlor. corrosiv., gr. $\frac{1}{40}$ t. i. d.) With 62, C. D., 180°, could read No. 1 Jäger. Since then pain has been constant. Right eye more prominent, and it

seems as if right antrum was involved, as there was complete stenosis of the nostril. On June 4th I scraped off lower portion of polyp and broke off a small piece of lower turbinated bone, with some slight relief for a time. Every appearance of occlusion of the right nostril, etc. I think it no common case. Suspect sarcoma. Have been using cleanliness and antiseptics."

*August 4th.* — Attempted to remove portion of growth by cold-wire loop, but failed to catch any.

*10th.*—Electrolysis with copper needle in right growth; twenty milliampères for two minutes, positive to needle, negative to sponge on back of neck. Thinks he has less pain and that the eye is better.

*21st.*—Same treatment continued. Much less pain and bulging of eye. General condition much improved. Growth smaller, and that portion in the right nostril more tense. The needle penetrates left portion with much difficulty; it seems to be very fibrous.

*23d.*—To-day a portion of the middle tumor removed with scissors for examination. Slight hæmorrhage.

*25th.*—Has had some pain since in occiput. Exophthalmia much less marked.

*27th.*—Examination shows growth to be sarcoma, round- and giant-celled.

*28th.*—Growth removed. First attempt by galvanocautery snare, one end of wire being brought forward through either nostril by means of Bellocq's sound; ends then drawn through long cannulæ, one in either side, the object being to embrace as much of the growth in the nostril as possible at the same time that the fingers in the nasopharynx pushed up the loop posteriorly. The loop was engaged and the current turned on. After burning through partially, the loop broke and the cannulæ came out. No hæmorrhage, and no part of the tumor removed. Then Seiler's gouge chisel was introduced through the left nostril flatwise to sæptum, and when the anterior edge of the tumor was reached the chisel was turned and pushed hard into the tumor at the junction of the nares and the nasopharynx. The chisel was resisted at first, but a little pressure forced it into a cavity. There was a discharge of colloid matter. The chisel was then worked around until a considerable portion of the anterior wall of the tumor was broken down. Same on right side. A large-sized adenoid forceps was then introduced into the nasopharynx, and as much of the tumor as could be grasped was

evulsed. Hæmorrhage was slight. The evulsed portion consisted of the anterior wall of the sphenoidal cell from the body of the sphenoid, mucous membrane hypertrophied and thickened, and a fungous mass from the cavity. The entire bony wall of the cavity was carious and the cavity filled with fungoid mass. It was thoroughly scraped out with sharp spoon postnasally and through the anterior nares, the cavity washed out with bichloride solution (1 to 5,000), and packed with iodoform gauze.

*31st.*—Slight rise of temperature last night. Today very comfortable. Pharynx sore and with abrasions of mucous membrane. Breathes easily through the nose. No pain in occiput.

*September 12th.*—Patient has been irrigated with boric-acid solution twice daily, and gradually the nares have opened; he can now breathe through both nostrils. The slight uvular lesion from instrumentation has healed. Only one slight piece has sloughed away. Examination of the right middle turbinate shows it pale, enlarged, and pushed forward against the sæptum. Behind and below the pale turbinate another mass pushes forward and against the sæptum. This mass bleeds easily. On the left, the middle turbinate fills all of the lower meatus posteriorly. Behind, from the superior posterior pharynx, two small club-end projections push forward, but do not reach the sæptum.

*16th.*—Patient discharged from the hospital very much improved, but obliged to leave for business reasons.

*October 27th.*—Patient returned to the hospital very much improved in general health; has gained eighteen pounds in the interval; good color and strength. Has some nasal bleeding from the right; none from the left; no pain whatever; discharge slight. The right eye has retreated very much. Reports seeing better. Vision: O. D., $\frac{2}{200}$; O. S., $\frac{20}{15}$.

*Ophthalmoscopic Examination.*—One half of disc somewhat swollen. Edges hazy and indistinct. Neuritis has subsided very markedly since last examination.

*Nasal Examination* shows growth in right nostril cavity about the same size as before the previous operation, but much less angry-looking, which pushes the middle turbinated forward. Probe can easily be passed between it and the sæptum. The left chamber is pretty well closed, although by less dense tissue than formerly.

No angry prolongations anteriorly. Posteriorly not seen by mirror. All the fungoid growth found to be in the centre of the vault and less dense—rather a smooth surface. The growth in the right choana is small. Can feel edges of the necrosed bone from the former operation, apparently the pterygoid process of the sphenoid. Sæptum felt very far forward, indicating that a portion of the vomer had been destroyed. In the left choana a mass rather smaller than formerly fills the upper portion completely.

*Operation.*—To-day, after the administration of one fourth of a grain of morphine hypodermically, the patient was etherized, the cavities were thoroughly irrigated with bichloride (1 to 3,000), and the nose was split in the median line down to the tip; the incision was carried into the cavity to the right of the sæptum and between the cartilages, the alæ being drawn away; then with the Seiler chisel the right nasal bone was separated from its fellow, then broken from its maxillary attachment with Adams's forceps, and held back on its periosteal and cutaneous flaps. Bleeding was controlled by forceps. The posterior nares were tamponed with sponges. The mass in the right chamber was then broken into by a gouge chisel and large portions removed. A large, sharp Volkmann spoon was then introduced with the finger in the posterior nares, and vigorous curetting brought away large masses of friable tissue. The ethmoidal cells were broken into and found invaded by the growth. The cells were curetted as thoroughly as possible. The same procedure was done on the left side, with profuse hæmorrhage. The sphenoidal sinuses were also curetted until the roof of the sinuses was plainly felt. In all a mass considerably larger than an egg was removed. The parts were then irrigated with bichloride and peroxide of hydrogen, the nasal bone replaced, and the incision closed by silk sutures. An iodoform dressing was applied.

*October 28th.*—Passed a comfortable night.

*November 3d.*—Parts kept clean by irrigation of hydrogen peroxide and boric acid. He complained of pain in the right side and occiput. Nose healed by first intention. Can breathe and blow through both nostrils. Has some bad odor and foul discharge. Inspection shows sæptum margin on the right side considerably torn and swollen; turbinated bodies not injured. The traumatism of the palate has subsided. Posterior nasal examination shows a large cavity with coagulated blood

and shreds of tissue and complete occlusion. Complains of considerable pain. Shows no evidence of acute otitis. Ordered arsenious acid, a thirtieth of a grain, three times a day.

*6th.*—Stitches removed to-day. Healing perfect. Slight swelling over the nasal bones, but no pain.

*8th.*—Traumatic tumefaction has subsided. Breathes freely on the right side, less so on the left. Snare used on the left growth.

*19th.*—Patient sent home to-day. General health much improved. Exophthalmia has subsided. Breathes freely on right side. No return of the growth in sphenoidal region, and the nasal growth is less vascular. Ordered injections of methyl blue, ten per cent., in alcohol, ten minims every other day; tablets of iron, arsenic, and strychnine.

*May, 1894.*—Returned to hospital with large recurrence of the growth, especially on the right side. The eyeball protrudes very much. Complains of soreness in the roof of the mouth, where there is a large swelling visible. The right nostril is totally occluded, and left almost entirely so, about the centre of the passage.

*Operation.*—Patient was etherized and Dieffenbach's incision was made, exposing the right superior maxilla. The anterior surface was found carious and a large mass projected through the opening. The bone was separated from its fellow and also from its posterior attachments and broken downward with a large bone forceps. The entire cavity of the bone was necrosed, the orbital surface being entirely gone. The tumor extended into the orbit. The eye was removed, and the tumor found to extend through the superior orbital plate. Hæmorrhage was slight, considering the severity of the operation. All accessible portions of the mass were curetted away, exposing the dura through the upper orbital plate, and the parts were thoroughly cleared. They were irrigated and the wound packed tightly with iodoform gauze. The patient made a rapid recovery and gained in strength; and in three weeks returned to his home and continued his business.

*January 16, 1895.*—Patient has been fairly well since the last operation up to within six weeks, when the growth began to take on a rapid increase. Examination shows the cavity of the excised maxilla filled with a recurrence. The cheek is bulged out, the orbital cavity filled, and the process extends into the external auditory canal and behind the angle of the jaw. Pa-

tient has been kept under the influence of morphine on account of the extreme pain. He was put on the use of Coley's toxines of erysipelas and *Bacillus prodigiosus*, one minim hypodermically daily. Further operation was refused on account of the extreme virulence of the growth and its extensive ramifications. No reaction resulted from the antitoxines. They were carried up to seven minims without obtaining the expected reaction.

*31st.*—A new solution of antitoxine was obtained, and two minims were injected into the mass in the roof of the mouth, followed by severe reaction twenty minutes later—nausea, vomiting, pain in the head, chill, and a temperature of 103.2°.

*February 1st.*—Temperature and pulse normal. Patient rather weak. Mass in the mouth looks smaller and more contracted.

*2d.*—Antitoxine repeated, followed by nausea and vomiting and severe pain in the head. No rise of temperature.

*3d.*—Patient's courage gave out, and he left the hospital without the surgeon's consent.

The subsequent history of this case is as follows: After the patient's return home there was a gradual increase of the growth until the entire pharynx was filled with a mass as far down as the level of the epiglottis, which pressed on the larynx and very much hindered his respiration and deglutition. The mass extended outward far beyond the angle of the jaw, making a large protuberance on the side of the neck, and prolongations extended up into the zygoma fossa; a cauliflower mass projected from the orbit, and the man presented a terrible appearance. Death occurred about four months after he left the hospital, from asphyxia. No autopsy was obtained.

This case justified operative interference, which enabled the patient to pursue his vocation and support his family for many months, which he would have been unable to do without it. The prognosis was bad from the start, but the patient showed remarkable recuperative power and courage until the action of the toxines. It can not be said that the toxines had any effect upon the growth. It is probable that they were employed too late in the disease.

Case II.—N. C., aged twenty-seven years. Came to the hospital November 20, 1895. About one year

ago had a polyp removed from the left nares. Twelve weeks ago the left side of her face began to swell and she had a toothache in the upper jaw. One week later had had tooth extracted. Pain not relieved. One month later had second operation performed for polyp on left nostril, and at the same time noticed an exophthalmia of the left eye. Two weeks later a third operation for polyp was performed on the left nostril. The eye was more prominent and she had a great deal of pain in it.

*Present Condition.*—Exophthalmia quite marked. Left side of face throughout its whole extent much swollen. The lids of the eye are partly closed. Fundus normal. Field approximately normal; no accurate field could be taken. Vision, $\frac{20}{30}$.

*Treatment.*—Douched the nose with boric solution. Morphine twice a day to relieve pain.

Examination of the nares revealed the presence of a large mass in the region of the middle turbinate, with a large amount of purulent discharge flowing from the nose. The face near the nose was much swollen and tense and seemed to be the seat of an abscess.

Diagnosis of sarcoma was made and proved correct on histological examination.

*November 22d.*—Operation was made for the removal of the mass of tissue and caseous material from the left nostril by means of snare and sharp spoon.

*23d.*—Some decrease of pain and swelling.

*24th.*—Condition poor. Still a large amount of swelling in the nose. Solution does not run through.

*26th, Operation.*—Patient etherized. Incision made downward and posterior from the inner canthus to the left of the median line from the cartilage of the tip of the nose to the nasal bone. Incision corresponded to a line drawn from the lower part of the nose to the seat of and below the eye. The outer wall of the antrum was removed and the antrum curetted, passing well back into the sphenoidal cells and under the orbit. A large quantity of the mass removed, friable and very vascular. Hæmorrhage severe at first; controlled by pressure. The cavity was thoroughly curetted and painted with a solution of ortho-chloro-phenol and then packed with iodoform gauze.

*28th.*—Packing removed from the cavity. Considerable swelling and pain. Douching was practised for the next few days, 1-to-3,000 bichloride.

*30th.*—Erysipelas set in, which was controlled in

two days by the use of solution of acetotartrate of aluminum.

*December 3d.*—No improvement. Stitches were removed from the incision, which had not healed well and exuded considerable pus. The irrigating fluid passed through the antrum and out of the nostrils. Temperature normal, or only slightly above normal.

*10th.*—Several days marked swelling of the lower lid, which is gradually increasing. Incision made this P. M., and a quantity of foul-smelling pus evacuated. Cavity packed with iodoform gauze. Irrigated twice daily through the opening in the nose, fluid passing out through the opening in the cheek.

*11th.*—Temperature, 102.5°. Restless and complaining of great weakness.

*12th.*—Temperature, 102°. Slightly delirious during the night. Is having hypodermics of morphine regularly; parts douched and orbital abscess packed.

*14th.*—Discharge this morning from the right ear. Douched with hot water. Temperature, 101°.

*15th.*—Temperature, 100.5°. Feeling somewhat stronger.

*16th.*—Temperature, 100.3°. Sits up a good portion of the day.

*20th.*—There has been no material change since the 17th. This evening discharge from the left ear.

*22d.*—Discharge from both ears. Temperature normal.

*24th.*—For the past twenty-four hours discharge is more profuse from the antrum and orbit. Erysipelas antitoxine injected, one minim.

*26th.*—Marked increase in the swelling of the orbit and discharge. Temperature, 102°.

*28th.*—No special change. Drainage-tube introduced well back into orbit. Increased antitoxine to two minims.

*31st.*—Less swelling of the orbit. Antitoxine increased to three minims. Slight reaction.

*January 1, 1896.*—No change in treatment or condition.

*3d.*—Temperature the same. Profuse discharge continues.

*10th.*—Temperature, 103°.

Up to January 15th the administration of antitoxine was continued daily with continuous temperature of about 101°, with an occasional drop to 99°, the patient getting weaker every day. Discharge from the

orbit and antrum and both ears recurred. The antrum filled with recurrence of the growth very rapidly until the eye was markedly extruded; intense pain supervened in the orbit, in the occiput, and in the aural region of the right side. I refused to make further operation, and she was discharged on the 15th as hopelessly incurable.

On February 26th she died. No autopsy was obtained, but the cause of death given in the certificate is cancer of the face.

Both the primary erysipelas and toxines from cultures failed to make any impression.

CASE III.—C. W., aged sixteen years. January 31, 1896. A year and a half ago an abscess appeared on the left temple near the eye and discharged for a long time. The right eye appears to be pushed forward, but is otherwise normal. After the abscess subsided there was left a swelling in the region of the antrum, protruding the cheek and pressing down into the mouth, which has never been smaller than at present. Abscess entirely healed six months ago; since then no change in the swelling in the face. There was an odor in the right nostril apparent to the patient and to others. Some discharge from the right nostril. No pain in swelling, but there has been intense pain in the temple for the last three weeks; before that, no pain except during the progress of the abscess. Examination shows right nostril entirely occluded by a mass, dense, red, not easily bleeding, which pushes the sæptum over to the left, so as to occlude the left nostril also. Swelling in the roof of the mouth destroys the symmetry of the arch. The right eye is much protruded and the right cheek far beyond the normal contour. A portion of the growth from the nostril was removed and found, on examination, to be a round-celled sarcoma. Operation was refused by the parents. Subsequently the case was lost sight of and the history can not be given.

CASE IV.—N. W., a girl, aged seventeen years, came to me in February, 1893, complaining that her nose was stopped up on the left side and had been for some months. She had some pain in the frontal region on that side and over the bridge of the nose. There was considerable discharge from the left nostril, without odor. Her family history was good, and her personal history was negative.

On examination, I found the sæptum pushed over to the right side, somewhat obstructing the passage.

On the left side a dense tumor was seen, which filled the entire cavity and even the vestibule. It was firm and unyielding, showed no ulcerated surface, and did not bleed readily. Posteriorly the mass could be seen extending backward nearly to the posterior edge of the vomer. By means of a stiff wire snare a large mass was removed, with profuse but easily controlled hæmorrhage, so that the nostril was opened up. Examination by microscope showed the growth to be a myxosarcoma. On successive occasions other portions were removed by snare and large sharp spoon until the cavity was clean. It was then found that the external bony wall of the nose had been destroyed by pressure, and that the antrum was exposed entire. The new growth extended into the ethmoidal cells. These were thoroughly curetted. For six months the patient did well, was free from all unpleasant symptoms, and there did not appear to be a recurrence of the tumor. She was in excellent condition and returned to her work, that of a box-maker. For six months she was very well, and there was no reappearance. The parts looked healthy and firm. Then (November, 1893) she returned to the clinic complaining of pain in the neck and some post-nasal obstruction, which had begun to trouble her within three weeks. On examination the growth was found to have recurred in the region of the sphenoid and to fill the nasopharynx on the left side and the entire nasal cavity.

Ether was given, an incision was made in the median line of the nose, and the left side, including the nasal bone, was laid over on the left cheek. The tumor was then rapidly and thoroughly excavated by means of the large sharp scoop until no portion remained. This process involved the merging into one large cavity of all the sinuses except the frontal and the curetting of the external walls of those sinuses. Hæmorrhage was free but short, and ceased when the cavity was packed. The patient recovered rapidly and in ten days returned home. She remained in good condition for a year. During the last three or four months of that time she returned to her work in a damp, unwholesome cellar, and ran down rapidly in health. Suddenly there was a recurrence of the growth, which this time took on a frightful rapidity, and when I saw her again it had grown to a large size, extending into the orbit, pushing out the eye on the left side, and invading the right orbit also, the sæptum having been entirely absorbed. Nothing could

be done for her except to relieve her sufferings with morphine, and she died a little less than two years after the first operation, of asphyxia from a prolongation of the tumor into the pharynx. No autopsy was obtained.

*Paper.*

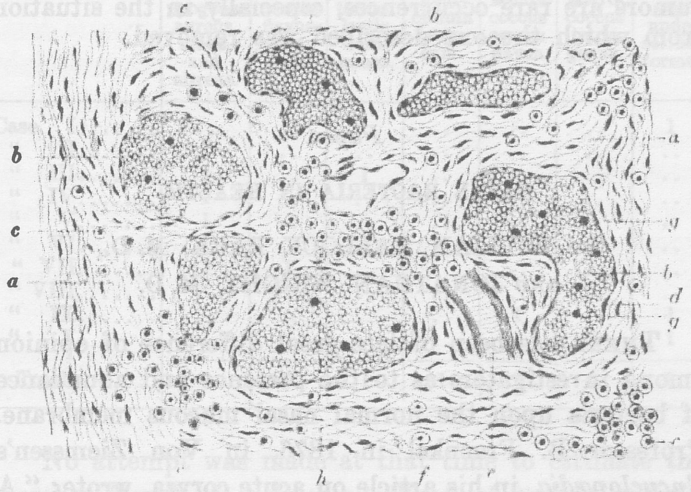
## ANGEIOMA OF THE NOSE.

By WILLIAM C. GLASGOW, M. D.

ANGEIOMATA of the nose are very rare, if we can believe the recorded literature on the subject. In a paper read before this society in 1885 Roe has given an extended review of these tumors, and the subject has been treated by Bosworth and Seiler in their text-books. In the greater number of books on the nose no mention is made of them. Roe gives a record of thirteen published cases, but the critics have cut this number to ten. I can only add the case which is the subject of this report, and this is the only case of this kind which has come under my observation in a throat practice of twenty-seven years:

Miss I. H., aged twenty-two years, a stenographer, consulted me for an obstruction of the nose in July, 1896. On examination, a rounded reddish tumor the size of a hazelnut could be seen largely blocking the left nostril. The surface was smooth and more glazed than normal membrane. It was attached to the lower border of the cartilaginous sæptum at its anterior extremity. The tumor was quickly removed by the cold-wire snare, the wire being down as close as possible to the sæptum. The amount of hæmorrhage was trifling —scarcely half a drachm in all. The patient was told to return the next day to have the base cauterized. I did not see her, however, for five months. She then returned, complaining of some interference with breathing. On examination a recurrence of the tumor was evident, as it had grown to almost its original size. It was again removed with the wire snare and the base cauterized with chloracetic acid. Since then there has been no recurrence. Interesting points about the case are the slight loss of blood following the quick removal of the tumor and its recurrence five months later.

The accompanying drawing and description of the microscopical appearance of the tumor have been kindly made for me by Dr. C. Fisch.



*a*, fibrous connective tissue; *b*, angeiomatous vessels (blood sinuses); *c*, small round-cell infiltration; *d*, endothelial lining of blood sinus; *e*, arteriole; *f*, plasma cells; *g*, leucocytes; *h*, red blood-corpuscles.

The framework of the tumor consists of fibrous connective tissue of the ordinary type with numerous interspersed connective-tissue corpuscles and a few plasma cells. The meshes of this framework are filled out with larger and smaller dilated blood-vessels, which in some places are so abundant and predominant as to reduce the fibrous tissue to merely separating septa. The wall of these blood sinuses is very thin and lined with a very distinct layer of endothelial cells; now and then a communication between two or more of these dilated sinuses can be demonstrated, while the texture of the arterial system is throughout normal. Only in very small areas an œdematous condition obtains, the single fibres of the connective tissue being separated by mucoid material; here an approach to a myxomatous type can be noticed.

The whole tumor is thickly infiltrated with small round cells (leucocytes), which very often cluster together in quite considerable masses, but no proliferative products of the connective-tissue cells could be seen; thereby this infiltration proves to be of the simple inflammatory type.

From these data it appears that the tumor belongs

to the so-called angeio-fibromata; angeio-myxo-fibroma would be an adequate designation. From its structure it is closely related to that group established by Rindfleisch under the name of cavernous angeioma. These tumors are rare occurrences, especially in the situation from which the one described was removed.

*Paper.*

## NASAL BACTERIA IN HEALTH.

By WILLIAM HALLOCK PARK, M. D.,
and JONATHAN WRIGHT, M. D.

There has been of late great difference of opinion among investigators as to the presence and abundance of bacteria upon the normal nasal mucous membrane. Professor B. Fraenkel in 1876, in Von Ziemssen's *Encyclopædia,* in his article on acute coryza, wrote: "A large number of those little structures, recently so much spoken of, and called micrococci, may generally be seen also covering the cells." He refers to Hueter (1) as maintaining these bodies to be the source of irritation in coryza. Herzog (2), in 1881, found many bacilli and cocci in normal and abnormal nasal secretions. Eugen Fraenkel (3), on the other hand, in 1882, stated that he could find no bacteria in the normal nose. B. Fraenkel (4), in 1886, found in the normal pharynx the *Staphylococcus pyogenes* and another micrococcus, the latter being apparently the same as found by Hack and Strauch (5) in the retropharynx. Löwenberg (6) and Hajek (7) failed to find micro-organisms at all constant or abundant in normal nasal secretions. Löwenberg (quoted by Thomson and Hewlett) has lately reiterated his observations in regard to the infrequency of bacteria in the nasal mucus. Reimann (8), in 1887, described two forms as nearly always found.

Having become interested in the subject, one of us, in 1888 (Dr. Wright), examined the secretions of ten healthy noses, and found a number of various forms which were differentiated by the bacterial culture meth-

ods then in use. The following is the table of a summary taken from the paper published at that time:

| | Staphylococcus pyogenes aureus, albus, and citreus. | Micrococcus flavus desidens. | Bacterium lactis aerogenes. | Penicillium glaucum. | Micrococcus cereus flavus. | Micrococcus tetragenus. | Different undescribed forms. |
|---|---|---|---|---|---|---|---|
| Case I..... | .. | .. | .. | .. | .. | .. | 1 |
| " II..... | 1 | .. | .. | .. | .. | .. | .. |
| " III..... | 1 | .. | 1 | .. | .. | .. | .. |
| " IV..... | 1 | .. | .. | .. | .. | .. | .. |
| " V..... | 1 | .. | .. | .. | .. | .. | .. |
| " VI..... | .. | .. | .. | 1 | .. | .. | .. |
| " VII..... | 1 | 1 | .. | .. | .. | .. | .. |
| " VIII..... | .. | 1 | .. | .. | .. | .. | .. |
| " IX..... | .. | .. | .. | .. | 1 | .. | 1 |
| " X..... | 1 | 1 | .. | .. | .. | 1 | 1 |
| Total..... | 6 | 3 | 1 | 1 | 1 | 1 | 3 |

No attempt was made at that time to estimate the number found in each case. That, of course, will always depend largely upon the amount of secretion obtained for each culture, and there was no accurate method of estimating that. The cultures were all taken from well beyond the vestibule. It is impossible for us to state positively that all chance of contamination while the platinum loop was passing through the vestibule was avoided, but the work was performed by one of us who was thoroughly familiar with both bacteriological and rhinological technique, and the general results are considered to have been correct. It will be seen that the *Staphylococcus pyogenes* was the bacterium most frequently found. These results conformed closely with those arrived at by von Besser (9) about the same time.

Besides many non-pathogenic forms, he found the *Diplococcus pneumoniæ*, the streptococcus, and *Staphylococcus pyogenes*. From the large numbers of the different varieties, he concluded that they must have multiplied in the nose. His investigations were made by means both of cover-glass preparations and of culture plates of agar-agar. The cultures were obtained from

platinum loops introduced into the nose at a depth of three or four centimetres. He examined normal noses in thirty laboratory workers, twenty-seven persons convalescent from various diseases (not nasal), and twenty-three soldiers, servants, etc., making altogether a total of eighty cases. Plate cultures in one case showed eight colonies, in five cases fewer than twenty colonies, in five cases between twenty and thirty colonies, and in seven cases between thirty and a hundred colonies. In all the other cases cultures showed from a hundred to countless colonies. By double staining with fuchsine and methyl blue, Thost (11) found Friedländer's pneumococcus in his own and other normal noses.

Schubert (12), in 1889, reported the case of a person in whose nasal chambers there was an abundant growth of a mycelium.

Deletti (13), in 1891, examined three cases with normal nasal passages, and found, by culture methods, micrococci, tetracocci, staphylococci, and streptococci, besides aerial and other undetermined forms.

Weibel (14), in 1887, said: "On microscopic examination of the nasal mucus I frequently noticed the occurrence of crooked bacteria" in the back part of the nose.

Paulsen (15), in the physiological congress at Kiel, in 1890, asserted that he also, simultaneously with Von Besser, had found numerous bacteria in the healthy nose beyond the vestibule apparently, but of different non-pathogenic varieties. He also examined the nasal secretions in coryza, but did not find any micro-organisms which could be regarded as ætiological.

Strauss (16) has lately declared that he has proved that the tubercle bacillus is at least the occasional inhabitant of the nasal fossæ.

It will be seen by the references above quoted how contradictory the testimony is in regard to the presence of bacteria in the healthy nose. It is a common observation of the laryngologist and rhinologist that nasal and pharyngeal operation wounds, when they do not extend deeply into the tissues underlying the mucosa, rarely

present any evidences of local sepsis, and symptoms of systemic infection are exceedingly rare.

Würtz and Lermoyez (17), in 1893, performed a series of experiments which, if accepted as free from error, lead to the conclusion that the nasal mucus in normal noses possesses a bactericidal power which would account for the usual non-septic course of operation wounds in the nose, but, both before and since these experiments, Lermoyez (18) has stated that occasionally bacteria, sometimes pathogenic, are found in the nose, and that precautions must be taken to prevent the occurrence of sepsis both before and after nasal operations.

These authors obtained mucus from the nose by placing in it little tampons of sterilized cotton, and allowing them to remain there until they became saturated with the nasal secretion. This colorless fluid was then squeezed into test tubes with aseptic precautions, and used for the experiments. We quote a passage from their paper which, translated, reads as follows: "We have used the mucus thus obtained, sometimes in its natural state, sometimes after having been sterilized by the procedure of Tyndall. Tyndallization in no way changes its characters; at the most, it only renders it a little more fluid and slightly more alkaline. The results obtained by us with the natural mucus and the tyndallized mucus were almost exactly identical. In fact, if one takes care to reject the first drops which come away from the nose, the nasal mucus which one obtains by excitation of the healthy pituitary membrane *does not generally contain any microbes.* We have many times verified this fact, which is in flagrant contrast with the idea which ordinarily obtains of the richness of the bacterial flora of the nasal chambers." They tested the bactericidal power of the nasal mucus upon anthrax bacilli, and sum up the results thus: "It follows, therefore, from these experiments that the human nasal mucus possesses, as concerns the *Bacillus anthracis,* considerable bactericidal power." This conclusion they arrived at by inoculating tubes containing the nasal mucus with virulent bouillon cultures of anthrax, and

placing them in the thermostat for periods varying from two hours and forty-five minutes to three weeks. Gelatin plates made from these tubes showed no colonies of anthrax. Guinea-pigs inoculated from them remained healthy. All these experiments were controlled in the way usual to bacteriological technique.

They further say: "In a series of analogous experiences we have studied the bactericidal power of the nasal mucus upon other microbes—*Staphylococcus aureus, Streptococcus pyogenes, Bacillus coli,* etc.—we intend to return to these another time. At present we may say that the action of the nasal mucus is exerted very unequally upon different pathogenic agents; it does not seem to have upon several of them bactericidal power as energetic as upon the anthrax bacillus; nevertheless, upon all, or nearly all, its action is of a similar kind; the intensity only of its effects varies."

Thomson and Hewlett (19), in a carefully prepared paper, record the results of their examinations of the secretions in normal noses—seventy-six cultures in all from beyond the vestibule; of these, sixty-four remained sterile. Twenty-seven examinations were made of the vestibule, and of these cultures not one remained sterile. They say: "We submit as a summary of our experiments:

"1. That in all bacterioscopic examinations of the nasal fossæ, in all researches as to the action of the nasal mucus, etc., a clear distinction is to be made between the vestibule of the nose and the proper mucous cavity. The former is lined with skin and is furnished with hairs and with sudoriferous and sebaceous glands; it is not part of the nose cavity proper, but only leads to it.

"2. The neglect of this distinction may account for the discrepancies in previous observations on the subject. Contamination with the lining of the vestibule is difficult to avoid, even when this source of error has been realized.

"3. In the dust and crusts of mucus and *débris* deposited among the vibrissæ of healthy subjects micro-

organisms are never absent. They are rarely scanty in number; as a rule, they are abundant.

"4. On the Schneiderian membrane the reverse is the case. We do not assert that micro-organisms are completely absent; obviously some must occasionally occur, but under normal conditions they are never plentiful; they are rarely even numerous, and in more than eighty per cent. of our observations we have failed to find any, and the mucus was completely sterile. These observations were limited to the anterior part of the nose, and, as not more than a fourth of the cavity is accessible to inspection and examination, it is reasonable to conclude that germs would be found still more infrequently in the deeper portions of the fossæ.

"5. The occurrence of pathogenic organisms must be so infrequent that their presence in the pituitary membrane can only be regarded as quite exceptional."

Subsequent observers who have written on the subject are Fermi and Brettschneider (20), who found a large number of micro-organisms in the nose, by far the most numerous of which was the *Sarcina alba*. Pathogenic forms were occasionally found, their number greatly increasing during a coryza. Piaget (21), on the other hand, a student of Lermoyez, has lately confirmed the observations of Thomson and Hewlett, as well as those of Würtz and Lermoyez.

Since the completion of much of our work we note, in a report of a meeting of the South German Laryngologists, at Heidelberg, taken from the *Münchener medicinische Wochenschrift*, that Klemperer (22) directly criticises the results both of Thomson and Hewlett and of Würtz and Lermoyez, and states that the interior of the nose always contains some germs. We have not had an opportunity of examining Klemperer's paper in the original. Apparently he adopted some of the precautions of technique which we have employed. He also failed to confirm the statements of Würtz and Lermoyez in regard to the bactericidal power of the nasal mucus.

The paper of Malato (*Archivio italiano di otologia*,

vol. v, fasc. 4, 1897) comes to hand too late for careful perusal, but he appears to have found various bacterial forms in the cases he examined, and among them several pathogenic varieties are to be noted.

The criticism of Thomson and Hewlett seemed to point to a possible source of error in the work of Dr. Wright. It is a matter of the greatest difficulty in extracting mucus from the interior of the nose to be sure that a hair in the vestibule has not contaminated it. Recognizing this, and admitting the possibility of this source of error in the former investigations, we determined to go over the ground again. Dr. Wright selected a number of normal noses, carefully trimmed away the vibrissæ in the vestibule with sterile scissors, then wiped out carefully the vestibule and the external integument with a 1-to-2,000 solution of mercuric chloride, and made cultures from the nasal mucosa as far back in the nasal chambers as possible along the inferior and middle turbinated bodies and the sæptum. At first this was done with a platinum loop, but this was soon discarded for a slender steel rod wrapped at the end with absorbent cotton, and sterilized, a number at a time, in a glass cotton-stoppered tube. Just before using, the cotton at the end of the rod was passed rapidly through a flame, so as to burn off all little projecting fibres and singe the surface of the cotton slightly. The greatest care was taken that on withdrawal from the nose the mucus-soaked cotton did not come in contact with the vestibule or with a solid-bladed speculum, sterilized with carbolic acid (1 to 20). Any suspicion of failure in this regard caused a rejection of the rod, and a fresh one was used for a second trial. These swabs were then used to inoculate gelatin and serum tubes and agar and serum plates. These were turned over to Dr. Park for bacteriological examination. In some instances Dr. Park assisted at the clinical work; in some cases he did it alone; in others, Dr. Wright did it alone. Every effort was made to avoid all possible sources of error.

*Results of Experimental Work.*—The secretion from

the normal or nearly normal nasal mucosa of thirty-six individuals was subjected to bacteriological examination. The amount of mucus was, as a rule, very small, and was usually taken from the lower middle portion of the middle turbinated bones.

The cultures were made upon agar, and sometimes also upon gelatin-blood-serum and blood-serum-agar.

The following are the results of the examinations in the thirty-six specimens: No bacteria developed in the cultures in six cases; less than fifty colonies developed in eight cases; more than fifty and less than a hundred in eight cases; more than a hundred colonies developed in fourteen cases; total, thirty-six cases. Apparently sterile, six cases; not sterile, thirty cases. Of these six sterile cases, in five the mucus was removed with a small platinum wire loop, and the amount of mucus was so small as to form a partial explanation of the negative results.

Two rabbits were killed. The calvaria and brain were rapidly removed, and access was gained through the floor of the skull, with antiseptic precautions, to the nasal cavities. The mucus thus obtained in both cases was found by cultures to contain abundant bacteria.

As was to be expected, the number and varieties of bacteria appearing in the cultures varied according to the media upon which they were planted. As a rule, the serum or serum-agar cultures showed the greatest number of colonies.

No attempts to identify the various forms of cocci and bacilli obtained from the mucus were made, except to search for streptococci. These were not found in any case. This was in marked contrast to the results obtained from bacterial cultures of the nasal mucus from a number of children living in an asylum. In sixty per cent. of these streptococci were found. The nasal mucous membrane in none of these was quite normal.

Bearing somewhat upon the bactericidal effect of the nasal mucus is the frequent long persistence of diphtheria and pseudo-diphtheria bacilli in the nostrils

of those convalescent from mild forms of nasal diphtheria. Three of the specimens of the thirty-six tabulated above (medical students in attendance on diphtheria patients) contained these bacilli. An experiment which had for its object to test the bactericidal effect of the nasal mucus of a rabbit upon a variety of bacteria accustomed to grow in a rabbit's blood serum led to interesting results. It was as follows:

A tiny drop of a serum-bouillon culture of a streptococcus, which had been rendered extremely virulent for rabbits by its passage through a large number of them, was dropped into the nostrils of two rabbits. One died on the second and one on the third day of general septicæmia. In these cases the streptococci either penetrated through the nasal mucous membrane or remained alive and passed back into the pharynx, and there produced disease. In neither case would it seem was the mucus sufficiently bactericidal to destroy the bacteria.

If, as our experiments hitherto detailed tend to show, there is more or less constantly to be found within the normal nasal cavities a growth of bacteria, the contention that any marked bactericidal action is inherent in the nasal mucus falls to the ground. Nevertheless, a few experiments were made directly as to this point.

The nasal mucus from one case, after being sterilized at 55° C. for an hour on two successive days, proved to be without apparent bactericidal effect upon diphtheria bacilli, pseudo-diphtheria bacilli, staphylococci, streptococci, and a coccus obtained from the normal mucus.

From two cases the nasal mucus obtained on sterile cotton by allowing it to remain for a time in the nasal chambers and then squeezing it out, proved to have no bactericidal power within twenty-four hours upon the same organisms, but the effect of both the sterilized and the unsterilized mucus on anthrax bacilli was quite marked. Sterile sheep serum was found to have the same power.

While, therefore, our investigations do not bear out the statements either of Thomson and Hewlett or of Würtz and Lermoyez, it is doubtless true that the mucus from the healthy nose is not so full of germs as might at first thought be supposed. This comparative scantiness is probably due—

1. To the action of gravity. Clear serum draining down from regions in the nose to which the inspired air does not have free access washes away the bacteria deposited by the tidal air.

2. To the action of the cilia supplementing that of gravity.

3. To the fact that the nasal mucus, while possessing little or no bactericidal power for most bacteria, is not a good medium for most bacteria to grow in.

4. To the filtering action of the vibrissæ when they exist. (It will be remembered that children have none and women very few.)

5. To the fact that ordinarily the inspired air contains very few pathogenic germs, or, in other words, those germs accustomed to grow in body fluids.

We may conclude, therefore, that for bacteria which have developed in the blood or secretions of other individuals the bactericidal power of the nasal mucus is little or nothing, and can not be depended upon to prevent an infection from virulent bacteria if they are carried into the nose by our instruments.

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*Paper.*

## SUPPLEMENTARY NOTE ON A CASE OF MARTIN'S BRIDGE FOR DEPRESSED NOSE.

By CHARLES H. KNIGHT, M. D.

Since the publication of my paper on the Sequelæ of Nasal Syphilis in vol. xviii of our *Transactions,* the patient whose case was therein described has returned to my clinic with an unhappy story. Everything went smoothly with him until well on in the summer, when nasal breathing began to be impeded by cicatricial contraction of the anterior nares. His condition became so uncomfortable that it was necessary, during my absence, to cut away some of the cicatricial tissue and insert a

vulcanite tube. In his eagerness to keep the nostrils open the patient was in the habit of removing, cleansing, and replacing the tube several times a day, sometimes using a good deal of force. Only a few weeks of this daily disturbance of the bridge, by violent reinsertion of the tube, were needed to accomplish erosion of the skin over the dorsum of the nose. When he reappeared at my clinic the upper end of the artificial bridge could be plainly seen through a perforation in the skin. It now remains to remove the bridge altogether and be content with keeping the nostrils open, or to try to retain the bridge, and cover the skin lesion by some sort of plastic operation. In the former case the original deformity, or worse, will be established. In the latter case it may be advisable to sacrifice the patency of the nostrils, for a time at least, rather than take the risk of disarranging the bridge by putting in a nasal tube. In spite of its failure in this case, and at the risk of seeming to champion a lost cause, I still maintain my confidence in the artificial bridge in suitable cases, and would merely reiterate the conclusions of my paper, especially emphasizing the importance of removing all possibility of tension and friction at the upper end of the bridge by molding it closely to the nasal bones and by making a free dissection of the soft parts. The unusual tendency to cicatricial formations in the foregoing case may be attributed to the repeated cuttings to which the patient was subjected, combined with a persistence of the syphilitic dyscrasia, and enforces the necessity of postponing surgical interference in specific cases as long as possible, or until the disease may have been thoroughly eliminated by treatment.

*Presentation of Instruments.*

## ELECTRODES FOR INTRANASAL ELECTROLYSIS.

By Dr. D. BRYSON DELAVAN.

Dr. D. Bryson Delavan presented some electrolytic needles for the application of electrolysis to the soft tissues of the nose and the upper air-passages in general. The needles themselves were made of platinum, and were particularly delicately and neatly made. They were of two varieties—namely, bipolar and unipolar. Together with the needles he presented a new coupler. This consisted in a small plate of hard rubber, about half an inch square, less than a quarter of an inch thick, to which was attached a pair of very fine conducting wires, and into which the needles could be fastened. The superiority of the apparatus consisted in its lightness, delicacy, and elegance of finish.

## PHARYNXTONSILLOTOME, OR GUILLOTINE FOR REMOVAL OF THE PHARYNGEAL TONSIL.

By Dr. J. W. FARLOW.

Dr. J. W. Farlow: I should like to show to the society the instrument known as Schütz's pharynxtonsillotome (Figs. 1, 2, 3, and 4). It is passed behind the soft palate and the anterior end pushed forward to the vomer. The thin knife blade, which should be sharp, is then drawn backward and downward by the fingers in the rings, and the adenoid growth is either brought away with the instrument or else drops into the throat and is expectorated. The time of the operation and the amount of pain are reduced to a minimum, and I have thought the hæmorrhage less than with the Gottstein curette. In the latter instrument there is no counterpressure to the cutting blade and there is more pulling and tearing, and several cuts are necessary. The guillotine is particularly useful in cases of central, pendulous adenoids, but is not so well adapted where the growths are spread out over a considerable surface. I have used it generally with young adults and without anæsthesia. It is not suitable for all cases, but seems to me a very valuable addition to the forceps, curette, etc., and to

have a decided advantage of its own in properly selected cases.

Dr. MAYER: Does it bring out the growth with it when the instrument is withdrawn?

Dr. FARLOW: Not always. The patient gives a slight cough and brings it out.

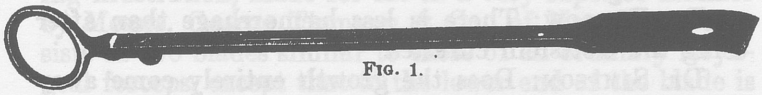


FIG. 1.

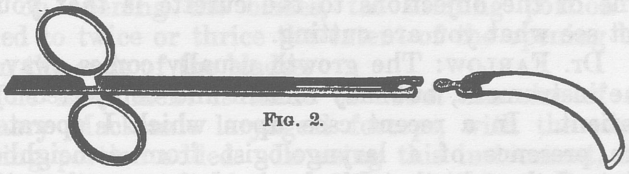
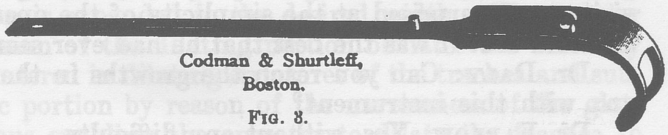
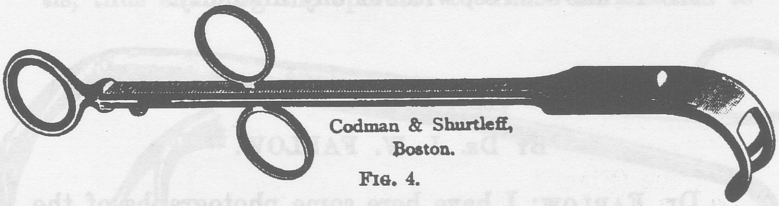


FIG. 2.



Codman & Shurtleff,
Boston.

FIG. 3.



Codman & Shurtleff,
Boston.

FIG. 4.

**Fig. 1 represents back part of instrument.**
**Fig. 2 represents knife blade detached and shaft with ring handles which operate blade. The manner of articulation is readily seen in cut.**
**Fig. 3 represents front of instrument with groove in which the blade slides.**
**Fig. 4 represents the instrument complete with knife blade partly drawn.**

Dr. DALY: Does it not leave the growth partly cut and partly uncut, and hanging in the pharynx?

Dr. FARLOW: No. If the knife is sharp it cuts directly through the base of the growth.

Dr. COOLIDGE: I have used it in a number of cases and found that it removes the growth more completely and with much less discomfort and without more bleeding than the Gottstein curette.

Dr. LANGMAID: Are there several sizes?

Dr. FARLOW: Yes; there are two sizes.

Dr. DALY: What is the price of the instrument, and who are the makers?

Dr. FARLOW: I think that the price is ten dollars. It is made by Codman & Shurtleff, of Boston. It is important that the knife should work smoothly; and be sure to get the blade all the way to the front end of the frame before forcing the instrument over the growth.

Dr. MACKENZIE: What is your experience as regards hæmorrhage?

Dr. FARLOW: There is less hæmorrhage than after using the Gottstein curettes.

Dr. SIMPSON: Does the growth entirely come away with this instrument? I can see one advantage in it. One of the objections to the curette is that you can not see what you are cutting.

Dr. FARLOW: The growth usually comes away with the instrument, but may remain and be ejected by the patient. In a recent case upon which I operated in the presence of a laryngologist from a neighboring State, I thought that I had missed the growth until the patient brought out a large mass by a slight cough. The visitor was surprised at the simplicity of the operation, and said that it was the best that he had ever seen.

Dr. DALY: Can you reach the growths in the pharynx with this instrument?

Dr. FARLOW: Yes, without any difficulty.

## PHOTOGRAPHS AND PLASTIC MODELS.

BY DR. J. W. FARLOW.

Dr. FARLOW: I have here some photographs of the nose and throat made by Dr. Arthur Hennig, of Königsberg, Prussia, who sent them to me. They are photographs made from original drawings, and are considered very excellent.

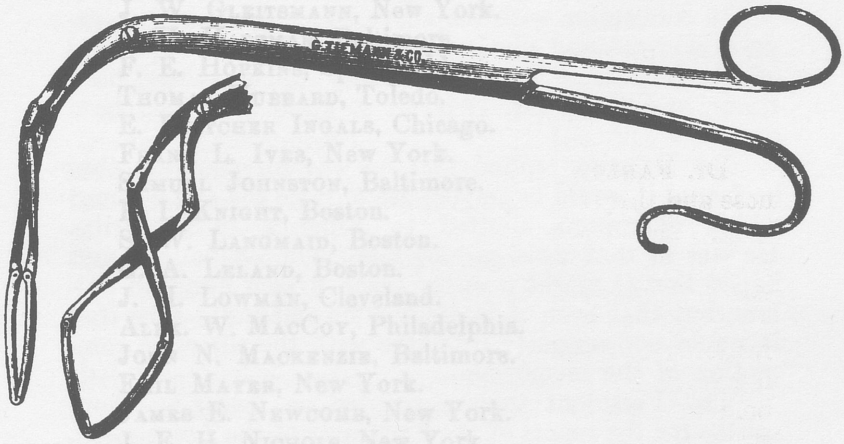
I also exhibit some models for class demonstration made by Otto Betz, of Heilbronn, Germany, representing vertical sections of the head, showing the turbinated bones and all the sinuses. They are useful not only for students and doctors, but also for physicians to have in their offices in order to explain operations to patients, who are not acquainted with the appearance of the inside of the nose.

## AN INSTRUMENT FOR DILATING STRICTURES OF THE TRACHEA.

By Dr. JOHN O. ROE.

This instrument, which is shown in the accompanying illustration, made for me in a very superior manner by Messrs. George Tiemann & Co., of New York, consists of two blades similar to those of an ordinary laryngeal forceps, except that to the lower end of the blade is attached a double-jointed dilating portion so arranged that, on opening the blades, the dilating portion is opened to twice or thrice the extent of the opening between the ends of the blades.

The instrument is made of about the size of an ordinary Mackenzie laryngeal forceps, with the extra dilating portion added. In using this instrument, the dilating portion, closed, is readily passed down through the larynx, when, by opening the blades, the dilating portion is expanded to the desired width. The greater expansion of the dilating portion obviates the difficulty encountered in dilating strictures of the trachea and subglottic portion by reason of the narrowness of the glottis, thus enabling the operator to dilate the trachea to



the fullest extent required, at the same time requiring but a slight amount of motion of the blades of the instrument as it passes through the glottis.

The instrument is so constructed that the dilating portion is expanded on opening the handles so as to avoid any danger of rupturing the trachea, which there might be if the dilator was expanded on closing the

handles. In the latter case the operator might accidentally use more pressure than he intended and thereby seriously injure the trachea.

The corners and joints are made rounding, so as to avoid the danger of lacerating the tissues, and so slender as to pass through a very small stricture. If desired, the blades may be covered with a thin soft-rubber hood to still further avoid irritation of the trachea.

I have found it to be an exceedingly serviceable instrument for dilating subglottic constrictions and tracheal strictures, and have reported a case of fibrous stricture of the upper part of the trachea (*Journal of the American Medical Association*, vol. xxvii, 1896, page 727) in which its use had been attended with complete success.

## BUSINESS MEETINGS.

THE Nineteenth Annual Congress of the American Laryngological Association convened in Washington on the 4th of May, 1897, in the assembly room of the Cosmos Club. The Association was called to order at 10 A. M. by the President, Dr. Charles H. Knight. There were present during the sessions the following Fellows:

CHARLES H. KNIGHT, New York, President.
T. MORRIS MURRAY, Washington, First Vice-President.
D. N. RANKIN, Allegheny, Second Vice-President.
HENRY L. SWAIN, New Haven, Secretary.
J. H. BRYAN, Washington, Librarian.
D. BRYSON DELAVAN, New York, Member of Council.
JOHN O. ROE, Rochester, Member of Council.
W. H. DALY, Pittsburgh, Member of Council.
C. E. BEAN, St. Paul.
H. S. BIRKETT, Montreal.
J. E. BOYLAN, Cincinnati.
W. E. CASSELBERRY, Chicago.
W. F. CHAPPELL, New York.
J. SOLIS-COHEN, Philadelphia.
A. COOLIDGE, JR., Boston.
J. W. FARLOW, Boston.
J. W. GLEITSMANN, New York.
J. H. HARTMAN, Baltimore.
F. E. HOPKINS, Springfield.
THOMAS HUBBARD, Toledo.
E. FLETCHER INGALS, Chicago.
FRANK L. IVES, New York.
SAMUEL JOHNSTON, Baltimore.
F. I. KNIGHT, Boston.
S. W. LANGMAID, Boston.
G. A. LELAND, Boston.
J. H. LOWMAN, Cleveland.
ALEX. W. MACCOY, Philadelphia.
JOHN N. MACKENZIE, Baltimore.
EMIL MAYER, New York.
JAMES E. NEWCOMB, New York.
J. E. H. NICHOLS, New York.
C. C. RICE, New York.
BEVERLEY ROBINSON, New York.
W. K. SIMPSON, New York.
S. O. VAN DER POEL, New York.
M. R. WARD, Pittsburgh.
JONATHAN WRIGHT, Brooklyn.
J. E. LOGAN, Kansas City.
J. P. CLARKE, Boston.

After calling the roll, the formal proceedings of the Association were opened by the address of the President.

After listening to the papers of the morning the Association went into executive session. By formal and unanimous ballot the following candidates, having been duly proposed by the Council, were elected to fellowship in the Association: J. Payson Clark, M. D., Boston, Massachusetts, proposed by Dr. Coolidge and Dr. Knight. Thesis—Nasal Polypi. J. Edwin Rhodes, M. D., Chicago, Illinois, proposed by Dr. Ingals and Dr. Brown. Thesis—Atrophic Rhinitis. Richard Frothingham, M. D., New York city, proposed by Dr. Delavan and Dr. Swain. Thesis—Benign Retropharyngeal Tumors, with a report of cases. James A. Logan, M. D., Kansas City, Missouri, proposed by Dr. Knight and Dr. Swain. Thesis—Laryngitis Rheumatica, with a report of cases. To corresponding fellowship: H. Luc, M. D., Paris, France, proposed by Dr. Delavan and Dr. Roe.

At the request of Dr. Delavan, the Chairman of the Meyer Memorial Fund Committee, the President appointed Dr. James E. Newcomb and Dr. M. R. Ward to serve as a committee to audit Dr. Delavan's accounts and report at the business meeting of the last day.

In connection with the above Dr. Daly desired to express his profound admiration for Dr. Delavan's splendid efforts in raising so much money during these hard times, and asked Dr. Delavan to state what had been done.

Dr. Delavan replied that he was sorry to say that he feared it would be impossible to raise the full amount which had been allotted to America to subscribe. He was at that time sure of one thousand dollars, and hoped that it might possibly reach fifteen hundred dollars, but that even if it did not he felt quite sure that it would not seriously interfere with the ultimate completion of the memorial.

The President then appointed as Auditing Committee for the report of the Treasurer of the Association, Dr. D. B. Delavan and Dr. A. Coolidge, Jr.

The election of a Nominating Committee resulted in the choice of the following: Dr. W. H. Daly, Dr. C. E. Bean, Dr. D. B. Delavan, Dr. S. W. Langmaid, and Dr. Samuel Johnston.

At the business meeting of the second day the following reports were read and approved:

*Secretary's Report.*

Your Secretary takes pleasure in following our usual custom in presenting as a part of his report the last volume of the *Transactions*. You will have observed that it is the largest in the history of the Association.

The active and corresponding Fellows elected at the last meeting have all accepted and duly qualified. During the year we have lost by resignation one member, Dr. Clinton Wagner, and one by death, Dr. Charles M. Shields, of Richmond, Virginia. With the newly elected members we now number sixty-nine. There have been two meetings of the Council, the minutes of which will now be read.*

*Treasurer's Report, 1896–'97.*

| | | |
|---|---|---|
| *Receipts.* | | |
| Balance from 1896 account | $322 49 | |
| Dinners (Pittsburgh) | 190 00 | |
| Dues, 1896 | 10 00 | |
| Extra assessment, 1896 | 300 00 | |
| Dues, 1897 | 285 00 | |
| *Transactions*, 1879–'93 | 35 00 | |
| *Transactions*, 1895 | 5 00 | |
| *Transactions*, 1896 | 17 00 | |
| | | $1,164 49 |
| *Disbursements.* | | |
| Postage | $4 50 | |
| Dinners (Pittsburgh) | 190 00 | |
| Stenographer, 1896 | 90 50 | |
| D. Appleton & Co., *Transactions*, 1895 | 439 30 | |
| Printing stamped envelopes and postals | 18 15 | |
| D. Appleton & Co., *Transactions*, 1896 | 204 55 | |
| Printing programmes, circulars, envelopes, etc. | 48 25 | |
| Postage on programmes | 6 00 | |
| | | $1,001 25 |
| | $1,164 49 | |
| | 1,001 25 | |
| Balance to credit | $163 24 | |

D. B. DELAVAN,
A. COOLIDGE, JR., } *Auditing Committee.*

* As this report went to press the sad news came of the sudden death of Dr. Harrison Allen.

*Librarian's Report.*

The Librarian has to report that during the past year four bound books and 127 pamphlets have been added to the library, making the total number of volumes 1,153. Several years ago a resolution was adopted by the Association requesting the Fellows to donate to the Association instruments devised by them, and making the Librarian their custodian.

Provision has been made by which such instruments could be placed on exhibition in the Army Medical Museum. Your Librarian regrets to report, however, that only two small instruments have been donated, and he does not feel that he can request a special case for the safe-keeping of such a small collection of instruments. Respectfully submitted.

J. H. BRYAN, *Librarian.*

The Committee on Nominations reported the following names for officers for 1897–'98:

*President.*—THOMAS R. FRENCH, Brooklyn.

*First Vice-President.*—ALEXANDER W. MACCOY, Philadelphia.

*Second Vice-President.*—HERBERT S. BIRKETT, Montreal.

*Secretary and Treasurer.*—HENRY L. SWAIN, New Haven.

*Librarian.*—J. H. BRYAN, Washington.

*Member of Council.*—CHARLES H. KNIGHT, New York.

The Secretary having read a communication from the British Medical Association, it was voted on motion by Dr. F. I. Knight that the President of the Association, Dr. Charles H. Knight, be requested to attend the meeting of the British Medical Association at Montreal, as the representative of the American Laryngological Association.

A letter from the British Laryngological Association, thanking the American Association for their kind invitation to meet in Washington, was referred to the Council.

It was voted to subscribe the sum of twenty-five dollars from the Association's funds and forward the same to the Pasteur Memorial Committee.

The Committee on Legislation against Vivisection reported progress and were continued.

Dr. Casselberry called attention to the action of the Association at a former meeting which required

members exhibiting instruments to present a duplicate thereof for preservation in a special case to be provided in the Army Medical Museum, and reported that only a few of the Fellows had complied with this rule. As some of the models were expensive the rule might be onerous to some of those who exhibited their instruments, and might prevent some new inventions from being shown. He moved a reconsideration of the rule.

Dr. Bryan hoped that the resolution would not prevail, as it is very desirable that such a collection of instruments should be made, as they would do credit to the Association as well as to the individual Fellows.

The President decided that the rule of the Association was not obligatory in its requirements.

Dr. Casselberry said that as his motion was based upon the idea that the contribution of instruments was obligatory he would therefore withdraw it.

Dr. Delavan called attention to the fact that the next session would be the twentieth annual meeting, and he considered it a good time to make a collection of the pictures of all the members of the Association. The last time he had collected them was in 1888, just ten years ago. He hoped that every one of the Fellows would send him one of his best-looking photographs, cabinet size, and send it promptly, as it takes some time to group the pictures and arrange them for the artist.

The President then read letters and telegrams of greeting from absent members, as also letters of regret from several of our invited guests and Corresponding Fellows. It was voted that the Secretary acknowledge the greetings from absent members, expressing the regret of the Fellows on account of their absence.

The Nominating Committee reported further that they recommend that the place of meeting be left to the Council to decide.

In executive session, on the third day, Dr. Newcomb reported for his committee that they had audited the accounts of Dr. Delavan as Treasurer of the Wilhelm Meyer Memorial Fund and had found them correct.

Dr. Daly moved a vote of thanks to Dr. Delavan for his faithful and very able services, which was unanimously carried.

Dr. Delavan, after acknowledging the courtesy of the Association, begged them to continue their interest in the matter until the final accounts were handed in and subscriptions closed.

Dr. Mayer moved that the Secretary be instructed to extend to our fellow-member, Dr. A. W. de Roaldes, the assurance of our sincere sympathy with him in his trouble and our regrets that he could not be present with us. The motion was heartily carried.

Taking up as the next item of business the election of officers for the ensuing year, the Secretary was instructed to cast the ballot of the Association for the officers as named in the list proposed by the Nominating Committee.

The Secretary read a telegram from Dr. French thanking the Association for the honor conferred upon him, and inviting the Association to hold the next meeting in Brooklyn.

Dr. Wright having heartily seconded the invitation, the Association reconsidered its action in referring the matter to the Council and voted to hold the coming meeting in Brooklyn.

The President appointed Dr. Roe and Dr. Delavan to escort the First-Vice-President, Dr. MacCoy, to the chair.

After a brief speech by Dr. MacCoy, a vote of thanks was extended to the individual officers for the admirable way in which provision had been made for a most successful meeting, and this was followed by a similar motion expressing to the Board of Managers of the Cosmos Club the sincere thanks of the Association for the use of the extremely comfortable and accessible rooms in which the meetings had been held, and suggesting the hope that the Association had so deported itself as to appear deserving of the same courtesy on future occasions.

The votes of thanks were further extended so as to include the Washington members in the hearty consideration of the Association, for they had contributed so very greatly to the personal comfort and enjoyment of the members.

Dr. MacCoy then declared the Nineteenth Congress of the Association adjourned.

## OBITUARY.

### CHARLES M. SHIELDS, M. D.

Dr. Charles M. Shields died at his home in Richmond, Va., April 16, 1897. He was born in Richmond, January 1, 1856, and obtained his early education in the schools of that city. His college course was divided between Roanoke College, Virginia, and Richmond College, and while at the latter he directed his studies so as to best fit him for the profession of pharmacist. After some years in pursuit of the latter calling, he began his real life-work by studying medicine, and graduated in 1879. A hospital course followed the acquisition of his diploma, and later he was associated with Dr. Joseph A. White, of Richmond, with whom he commenced his specialization in medical work. His choice of the line into which to direct his best efforts proved to have been eminently wise, for, as he later launched out for himself, he soon won the just recognition which his earnest and able efforts deserved. Not only did he succeed in winning a large practice, but his scholarly abilities placed him high in the regard of his fellows, and, as a result, he was chosen first as lecturer on diseases of the eye, ear, and throat in the medical college of Virginia, and later, in 1893, he became professor in these same branches. In the same year he was elected Fellow in the American Laryngological Association. He was zealous in all good works in his profession and contributed his goodly share toward the literary work of the various associations with which he had become identified, thus leaving behind him many evidences of his patient study and careful investigation. While thus active and productive he became the victim of that dread disease, acute miliary tuberculosis, contracted, perhaps, while assiduously attending some tubercular case, and he shortly succumbed to the fatal inroads of the malady. A widow and four children survive him.

His connection with our Association had been but brief, and yet he had won the respect and esteem of all who had personally come in contact with him, while his contributions to the *Transactions* were of such an order as to add greatly to the value of the latter and to our regard for their author. It was therefore a great shock to one and all of us, as we thought to meet him at our last gathering, to learn of his having so

suddenly died, and we all were saddened by having lost one who was a faithful colleague, a hearty, able, and scholarly co-worker, a genial and accomplished gentleman and friend, and our hearts can but go out in deepest sympathy to his bereaved and afflicted family.

H. L. S.

## HARRISON ALLEN, M. D.

On the evening of the 14th of November, while at dinner, Dr. Harrison Allen complained of not feeling well. He was assisted from the table to his room, and in the course of the evening, despite every effort in his behalf, died of angina pectoris. His death seemed all the more sudden because of his having been looking and feeling unusually well all this autumn, so that his nearest friends could scarcely believe that the final summons had come and that his life-work was finished.

Dr. Allen was born in 1841, in Philadelphia, and, after completing a course at the Hancock Grammar School, entered the Central High School, graduating in 1856. Entering the Medical Department of the University of Pennsylvania, he graduated in 1861, spent a year as resident physician at Blockley, and at the outbreak of the civil war entered the regular army. From 1862 to 1865 he was assistant surgeon, and was stationed at Washington, ranking as brevet major in 1865. He was in charge of the Fairfax Seminary and Mount Pleasant Seminary from 1863 to 1865.

In 1865 George A. Wood established the auxiliary department of Medicine in the University, and Dr. Allen, then only twenty-four years old, was called to the chair of comparative anatomy and zoology, his work in the Smithsonian Institution having favorably impressed Mr. Wood. Dr. Allen, not liking army service in time of peace, accepted the chair, which he held until 1878. In that year he was offered the professorship of physiology in the medical department, teaching there until 1883. Dr. Allen's practice had gradually grown to such a degree that he felt compelled to resign, being made emeritus professor of physiology, which he retained until 1892.

Upon the death of Dr. Joseph Leidy, in 1891, two chairs in the medical and auxiliary departments were left vacant. Dr. Allen voluntarily tendered his services and offered to furnish original research to graduate students in anatomy. He felt that there was no opportunity for students to acquire a knowledge of

anatomy except in connection with medicine. He considered anatomy a branch of science as pure as mathematics or astronomy, and through his efforts opportunity was consequently furnished graduate students for deeper research. He did not deliver any lecture in course nor instruct undergraduates. During this period of three years Dr. Allen made a rigid study of animal locomotion, the results of which have been published.

General Isaac J. Wister was then thinking of establishing an institute of anatomy, and Dr. Allen accepted the directorship. After holding the position one year he found it was too great an undertaking for a busy physician and resigned in June, 1894.

Dr. Allen was also visiting surgeon of the Philadelphia Hospital from 1874 to 1878, and was assistant surgeon of Wills Eye Hospital, 1868–'70, and St. Joseph's Hospital, 1870–'78. He was professor of anatomy at the Philadelphia Dental College, 1866–'78.

At the Columbian Exposition Dr. Allen was one of the judges on anthropology. He was a member of the Academy of Natural Science; Natural History Society of Boston; Pathological Society of Philadelphia; Biological Society of Washington; Philadelphia County Medical Society; American Laryngological Association; Neurological Society of Philadelphia; Historical Society of Texas; and the American Association of Anatomists. He was also the correspondent of the Society of Natural Sciences, of Chili, and was corresponding secretary of the Academy of Natural Sciences in 1868; vice-president of Pathological Society, 1877; president of the American Laryngological Association, 1886; president of the American Association of Anatomy from 1891–'93. He visited Europe in 1878 and 1890 as delegate to the International Medical Congress at Berlin.

Dr. Allen's genius was of no mean order, but was built on broad lines, which led him to show his versatility and learning by numerous books and monographs. His name as a comparative anatomist had made him famous, and in this and in human anatomy his careful habit of exact observation furnished him with the knowledge on which he so largely drew and from which he could make the broad deductions in writing his later articles in the realm of laryngology, rendering these latter of the greatest interest and of rare value. His was an extremely rare combination

of the painstaking scientist and the alert clinician. Consequently, his clinical papers were rich in the suggestions of the anatomist as well as most replete with the happy adaptation of remedy to diseased conditions.

To give a list of all his works would be neither desirable nor feasible, and especially as those in our own line of work are so familiar to us all. Some of his best writings are to be found by referring to our own *Transactions,* to which he was a most generous contributor. Among his more strictly anatomical works might be mentioned the following: *A Monograph on the North American Bats, Outlines of Lectures on Comparative Anatomy, Studies in the Facial Region, On the Life Form in Art, A System of Human Anatomy, The Stage of Development of the Bat, Anatomy of the Nasal Chambers,* and *A Clinical Study of the Skull.* He was among the earlier writers on the question of headache as associated with diseased conditions in the nose, and contributed important articles on almost every subject connected with rhinology, seeming rather to be attracted by the anatomical possibilities of the nose and its accessory sinuses than by those of the larynx.

While his life had thus been replete with so much of honest, faithful work and patient, careful, scientific, clinical deduction, and he had become famous for all of this, both at home and abroad, he was by no means an old man. Fifty-six years of age found him at the zenith of his powers, and we had every reason to expect many years more of labor and research, which would have added much to our knowledge and helped to make our work in our chosen specialty the more exact and hence the more helpful. To be thus cut off, suddenly in the midst of life's best endeavors, causes the place occupied by Dr. Allen in the scientific world to seem the more empty, while to us of the Association who knew him as associate, comrade, and friend the gap seems so great as hardly to be filled again. Our Association has lost one of its older, most respected, and most learned Fellows, as well as the kindly influence of a broad, genial, cultivated mind, whose absence from our deliberations will be irreparably missed. But amid our undisguised sorrow comes the lesson that we too may "make our lives sublime," and that it remains to us to see to it that such a lifework as his, honored as his has been, does not die out with him, but that the spirit of it at least be perpetuated in our own lives and work.

H. L. S.

## ACTIVE FELLOWS.

ELECTED.

1879. Asch, Morris J., 5 West Thirtieth Street, New York.
1880. Bean, C. E., Germania Life Building, St. Paul, Minn.
1893. Birkett, Herbert S., 123 Stanley Street, Montreal.
1893. Bliss, Arthur Ames, 117 South Twentieth Street, Philadelphia, Pa.
1878. Bosworth, Francke H., 26 West Forty-sixth Street, New York.
1895. Boylan, J. E., 319 Broadway, Cincinnati, O.
1892. Brown, M. R., 34 Washington Street, Chicago, Ill.
1891. Bryan, J. H., 818 Seventeenth Street, Washington, D. C.
1889. Casselberry, William E., 34 Washington Street, Chicago, Ill.
1882. Chapman, S. H., 193 Church Street, New Haven, Conn.
1896. Chappell, W. F., 7 East Fifty-fifth Street, New York.
1897. Clark, J. Payson, 76 Marlborough Street, Boston, Mass.
1878. Cohen, J. Solis-, 1431 Walnut Street, Philadelphia, Pa.
1884. Cohen, S. Solis-, 219 South Seventeenth Street, Philadelphia, Pa.
1893. Coolidge, A., Jr., 1 Exeter Street, Boston, Mass.
1880. Daly, William H., 516 Market Street, Pittsburgh, Pa.
1882. DeBlois, T. Amory, 372 Marlborough Street, Boston, Mass.
1881. Delavan, D. Bryson, 1 East Thirty-third Street, New York.
1892. Farlow, J. W., 234 Clarendon Street, Boston, Mass.
1879. French, Thomas R., 150 Joralemon Street, Brooklyn, N. Y.
1897. Frothingham, Richard, 19 East Thirty-eighth Street, New York.

ELECTED.

1878. Glasgow, William C., 2847 Washington Avenue, St. Louis, Mo.

1880. Gleitsmann, J. W., 46 East Twenty-fifth Street, New York.

1896. Hardie, T. Melville, 34 Washington Street, Chicago, Ill.

1878. Hartman, J. H., 5 West Franklin Street, Baltimore, Md.

1888. Hinkel, F. Whitehill, 274 Delaware Avenue, Buffalo, N. Y.

1881. Hitchcock, Urban G., 51 West Twenty-ninth Street, New York.

1893. Hope, George B., 34 West Fifty-first Street, New York.

1895. Hopkins, F. E., 43 Northampton Street, Springfield, Mass.

1895. Hubbard, Thomas, 205 Ontario Street, Toledo, O.

1878. Ingals, E. Fletcher, 36 Washington Street, Chicago, Ill.

1882. Ives, Frank L., 117 East Thirtieth Street, New York.

1878. Johnston, Samuel, 204 West Monument Street, Baltimore, Md.

1885. Knight, Charles H., 147 West Fifty-seventh Street, New York.

1878. Knight, Frederick I., 195 Beacon Street, Boston, Mass.

1880. Langmaid, Samuel W., 373 Boylston Street, Boston, Mass.

1878. Lefferts, George Morewood, 6 West Thirty-third Street, New York.

1894. Leland, George A., 669 Boylston Street, Boston, Mass.

1878. Lincoln, Rufus P., 22 West Thirty-first Street, New York.

1897. Logan, James E., 1208 Wyandotte Street, Kansas City, Mo.

1888. Lowman, John H., 441 Prospect Street, Cleveland, O.

1886. MacCoy, Alexander W., 1338 Walnut Street, Philadelphia, Pa.

1883. Mackenzie, John N., 605 North Charles Street, Baltimore, Md.

1896. Mayer, Emil, 25 East Seventy-seventh Street, New York.

1886. Mulhall, J. C., 3609 Lindell Avenue, St. Louis, Mo.

1892. Murray, T. Morris, Seventeenth and H Streets, Washington, D. C.

1893. Newcomb, James E., 118 West Sixty-ninth Street, New York.

ELECTED.

1895. Nichols, J. E. H., 4 East Forty-third Street, New York.
1894. Park, W. H., 128 West Eleventh Street, New York.
1892. Porcher, W. Peyre, 4 George Street, Charleston, S. C.
1878. Porter, William, 3886 Washington Avenue, St. Louis, Mo.
1882. Rankin, D. N., 273 Western Avenue, Allegheny, Pa.
1897. Rhodes, J. Edwin, 36 Washington Street, Chicago, Ill.
1884. Rice, Clarence C., 123 East Nineteenth Street, New York.
1893. Roaldes, A. W. de, 136 Gravier Street, New Orleans, La.
1878. Robinson, Beverley, 37 West Thirty-fifth Street, New York.
1879. Roe, John O., 28 North Clinton Street, Rochester, N. Y.
1879. Seiler, Carl, Saranac Lake, N. Y.
1878. Shurly, E. L., 32 Adams Avenue, W., Detroit, Mich.
1892. Simpson, W. K., 952 Lexington Avenue, New York.
1889. Swain, H. L., 232 York Street, New Haven, Conn.
1892. Thrasher, A. B., 296 Walnut Street, Cincinnati, O.
1888. Van der Poel, S. Oakley, 47 East Twenty-fifth Street, New York.
1892. Wagner, Henry L., 506 Sutter Street, San Francisco, Cal.
1892. Watson, A. W., 126 South Eighteenth Street, Philadelphia, Pa.
1896. Ward, M. R., 303 Collins Avenue, Pittsburgh, Pa.
1896. Woolen, G. V., 20 West Ohio Street, Indianapolis, Ind.
1890. Wright, Jonathan, 73 Remsen Street, Brooklyn, N. Y.

## HONORARY FELLOW.

1880. Garcia, Manuel, 1 Bentinck Street, Mancheste Square, London, England.

## CORRESPONDING FELLOWS.

1892. Browne, Lennox, 36 Weymouth Street, London, England.
1880. Bruns, Paul, Tübingen, Wurtemburg, Germany.
1896. Chiari, Ottokar, Ballariastrasse 12, Vienna, Austria.
1890. De La Sota y Lastra, R., 7 Calle de Torqueros, Seville, Spain.

## LIST OF OFFICERS.

### *Presidents.*

1879. Louis Elsberg.
1880. J. Solis-Cohen.
1881. F. I. Knight.
1882. G. M. Lefferts.
1883. F. H. Bosworth.
1884. E. L. Shurly.
1885. Harrison Allen.
1886. E. Fletcher Ingals.
1887. R. P. Lincoln.
1888. E. C. Morgan.
1889. J. N. Mackenzie.
1890. W. C. Glasgow.
1891. S. W. Langmaid.
1892. M. J. Asch.
1893. D. B. Delavan.
1894. John O. Roe.
1895. W. H. Daly.
1896. C. H. Knight.
1897. T. R. French.

### *Vice-Presidents.*

1879. F. H. Davis.
1880. W. C. Glasgow, J. O. Roe.
1881. E. L. Shurly, W. Porter.
1882. C. Seiler, E. F. Ingals.
1883. S. W. Langmaid, S. Johnston.
1884. J. H. Hartman, W. H. Daly.
1885. H. A. Johnson, G. W. Major.
1886. E. C. Morgan, J. N. Mackenzie.
1887. J. N. Mackenzie, S. W. Langmaid.
1888. W. C. Glasgow, C. E. Sajous.
1889. I. E. Holden, C. E. Bean.
1890. J. O. Roe, J. H. Hartman.
1891. M. J. Asch, S. Johnston.
1892. S. Johnston, J. C. Mulhall.
1893. J. C. Mulhall, W. E. Casselberry.
1894. C. C. Rice, S. H. Chapman.
1895. J. Wright, A. W. de Roaldes.
1896. T. M. Murray, D. N. Rankin.
1897. A. W. MacCoy, H. S. Birkett.

### *Secretaries and Treasurers.*

1879. G. M. Lefferts.
1882. D. B. Delavan.
1889. C. H. Knight.
1895. H. L. Swain.

### *Librarians.*

1879. F. H. Bosworth.
1883. T. R. French.
1893. J. H. Bryan.

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