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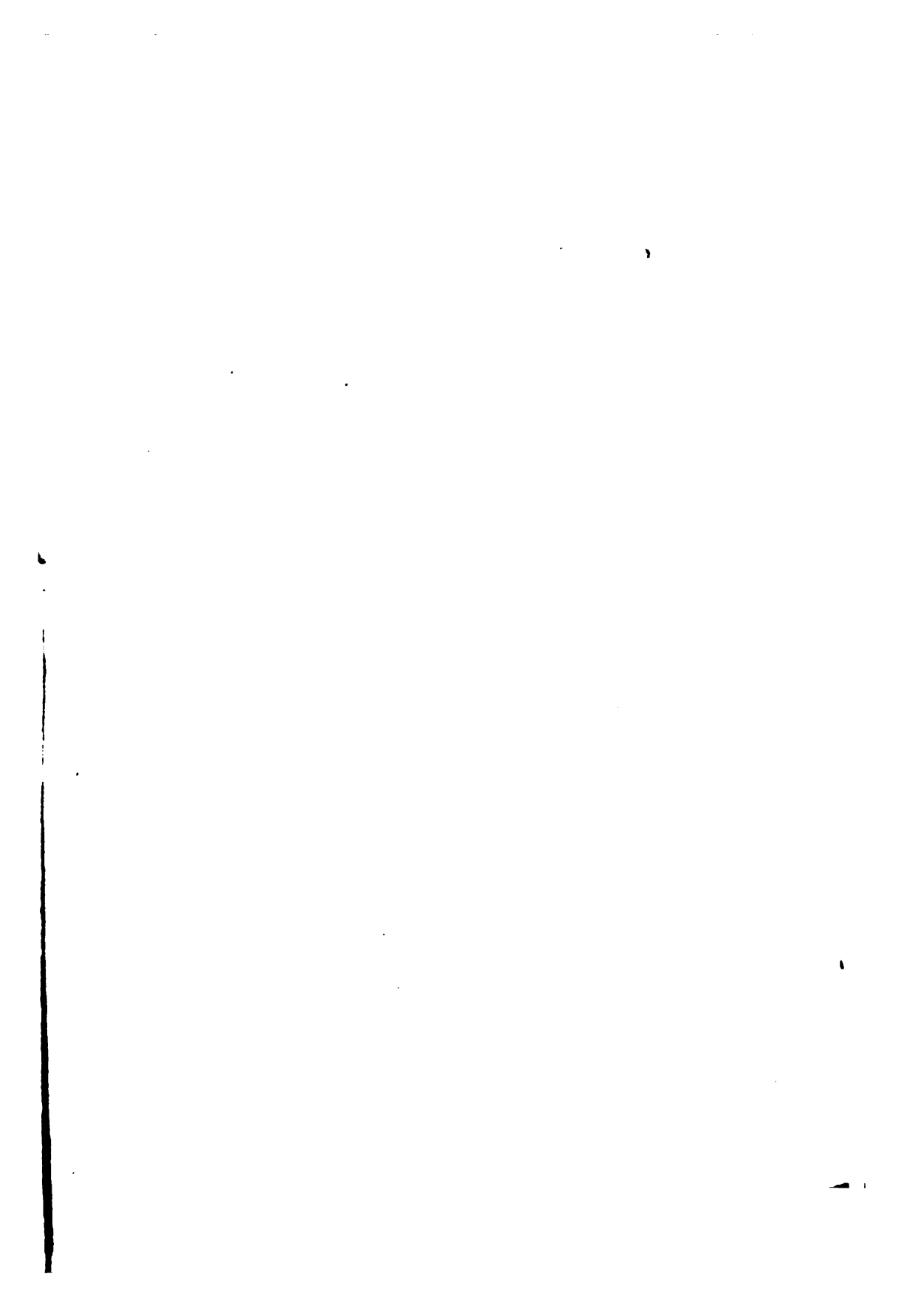
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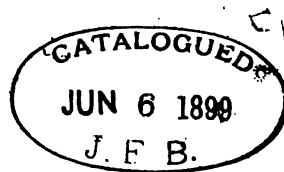
TRANSACTIONS  
OF THE  
TWENTIETH ANNUAL MEETING  
OF THE  
AMERICAN LARYNGOLOGICAL ASSOCIATION  
HELD IN THE CITY OF BROOKLYN, N. Y.  
MAY 16, 17, AND 18  
1898

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NEW YORK  
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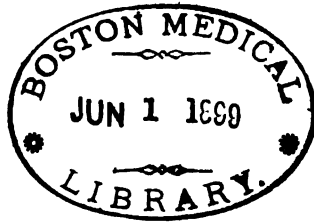


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TRANSACTIONS OF THE TWENTIETH ANNUAL  
MEETING OF THE AMERICAN LARYN-  
GOLOGICAL ASSOCIATION,

HELD IN THE CITY OF BROOKLYN, N. Y.,  
MAY 16, 17, AND 18, 1898.

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THE PRESIDENT'S ADDRESS.

By THOMAS R. FRENCH, M. D.

FELLOWS OF THE AMERICAN LARYNGOLOGICAL ASSO-  
CIATION: In the name of Brooklyn, on behalf of its  
medical profession and personally as your presiding offi-  
cer, I extend to you a most cordial welcome, and at the  
same time I congratulate you on the opening of this the  
twentieth annual meeting of the association.

As I was not permitted to be present at our last  
meeting, I desire now to express to you my deep appre-  
ciation of the high honor you paid me at that time,  
in selecting me to administer the affairs of the associa-  
tion for the year which has passed. Feeling as I do  
that there is no honor which can be conferred upon  
a laryngologist in America higher than to be made the  
chief executive officer of this body, my appreciation of  
your having selected me to act as your president must  
be understood.

The fact that we have met to-day to celebrate the  
twentieth annual meeting of this society gives us food  
for thought, and calls to mind a long retrospect of  
achievements and successes which have placed this body

on the highest plane of scientific activity. Though I was not a member at the time of the organization of this association, I am aware that some of those participating in it were of the opinion that the establishment of such a society was something of the nature of an experiment, and consequently especially earnest work was done in its early years, which placed it squarely on its feet, determined its standard, and thus enabled it to continue through these twenty years in uninterrupted success. With the advance of years has come an advance in knowledge, and the association is as active and successful to-day as it has been at any stage in its existence.

Our association was born at the daybreak of modern medicine. Though the part played by micro-organisms in disease was known in the laboratories to some extent several years before that time, the revelation of the new light to the profession at large was only just beginning to be made known through medical literature. Mainly as the result of the immortal work of Pasteur, Lister, and Koch, a new pathology has been made. The foundation of a medical education to-day is normal histology and pathology; but at the time that this association was formed, such knowledge was not easily obtained, and but comparatively few sought it, as it was only beginning to be required in the curricula of our best medical colleges. Since then the searchlights of biological and bacteriological research have revealed fields for study which are only now beginning to be fully cultivated, and in the twentieth century many of the truths which are being so ardently sought after will doubtless be disclosed.

We are living in an age in which great advances are being made, and no earnest seeker after a field for fruitful effort need fail to find one. From biological researches must come the enlargement of our knowledge of the causes of disease, and from the further study of the life histories of bacteria must come a better understanding of the means by which the destructive varieties may be controlled. While our dependence upon the microscope in diagnosing disease is growing with

each year, a proper conservatism in regard to its findings must be observed, for the useless loss of important structures may result from the not infrequent simulation of elements of simple inflammatory tissue for those of conditions requiring thorough eradication. We have all seen instances in which the diagnostic instinct acquired from clinical study outweighed the supposed revelations of the microscope. While a large physiologico-pathological groundwork is essential for the attainment of the best results in the treatment of disease, it must not be forgotten that an acuteness of observation, derived from diligent study in clinical work, is of equal value.

The history of the association, which corresponds to the largest part of the history of laryngology and almost all of rhinology, was presented in a masterly and exhaustive address by Dr. Delavan, the presiding officer, in 1894, to which it would seem that nothing particularly new could be added at this time. The thoughts that I would, therefore, express to you to-day are mainly in regard to specialism and the progress of laryngology and rhinology in the past twenty years.

The mind becomes confused in taking a retrospective glance through the past two decades, because of the improved conditions and the number of discoveries and distinct advances made in general medicine and surgery. It would seem almost as if in these years, to use a figure of fancy, the earnest seekers after the truth had bridled and seated themselves firmly upon the back of their Pegasus, and from such vantage ground had dealt and were dealing more effective strokes upon the dragon of disease than in any corresponding number of years in history. Is it that we of this generation are endowed with a greater degree of intellectual activity than those who came before us? Emerson, in his essay on *Circles* pictures intellectual progress as rhythmic. At a given moment knowledge is surrounded by a barrier which marks its limit. It gradually gathers clearness and strength until some thinker of exceptional power bursts the barrier and wins a wider circle within which thought

once more intrenches itself. But the internal force again accumulates, the new barrier is in turn broken, and a wider horizon is presented. Tyndall, in one of his lectures on Light, says: "People sometimes speak as if steam had not been studied before James Watt, or electricity before Wheatstone and Morse; whereas, in point of fact, Watt and Wheatstone and Morse, with all their practicality, were the mere outcome of antecedent forces which acted without reference to practical ends." It is clearly manifest that we are to-day simply reaping the harvest which others have sown.

During the past twenty years the means of communication have grown prodigiously. The electric wire and the steel rail have belted the globe. The time of transit by land and by sea has been greatly reduced. Books have multiplied. Magazines and journals have increased to such an extent that nearly every department of life, as well as medicine, has its exponent in the printed page. By these means the world has, in a sense, grown smaller. Cities have grown larger, while the population of most countries has not increased. If there have been fewer great men, compensation can be found in the fact that there have been more able men. If there have been fewer great orators there have been more speakers. Associations and societies have been greatly increased in numbers and men to be known must give expression to their thoughts and produce their results. In the days of our forefathers it took years to gather the same amount of information which can now be acquired in a corresponding number of days in one of the large, well-organized libraries. The genius of invention has simplified living. We are in close touch with the whole of the civilized world and are benefiting by the work of others to a greater extent than has ever before been possible. It is not alone that we have easier access to the work and the workshops of the scientists of the world, but the improved methods of promulgating knowledge bring a larger acquaintance with matters of detail, which are essential in order to put the facts to use.

Science has expanded like the branches of a tree,

and each branch is covered with its ever-increasing number of workers who, centring their thoughts upon one particular branch, develop it until new shoots burst from its side, which are nurtured and still further developed by those who stand ready to cultivate them. Three classes of workers we know are needed in scientific work. The first is the original investigator who seeks the truth for the truth's own sake. The second is the teacher who diffuses the knowledge acquired by the original investigator, and the third is the applier of such knowledge to practical ends. Pasteur says: "We have science and the application of science, which are united as the tree and its fruits." We may not all be able to win victories over reticent Nature, but we can, at least, apply as well as promulgate the knowledge of the truths discovered by others.

In reflecting upon the great strides made in scientific medicine in this country during the past twenty years, it may be of interest to note the words of De Tocqueville, written nearly fifty years ago: "It must be confessed that among the civilized peoples of our age there are few in which the highest sciences have made so little progress as in the United States. . . . The future will prove whether the passion for profound knowledge, so rare and so fruitful, can be born and developed as readily in democratic societies as in aristocracies. As for me, I can hardly believe it." Tyn-dall, in an address delivered in New York twenty-five years ago, said that in no other country would science in its highest forms exert a more benign and elevating influence than in ours. The willingness of American citizens to throw their fortunes into the cause of education was, he said, without a parallel in his experience, but hitherto their efforts had been directed to the practical side of science. While his appeal for science on higher grounds is not as applicable to-day as when made a quarter of a century ago, it still suggests large possibilities for scientific research in this country, for the dependence of practice upon principles is as true to-day as it was then.

Since this association was founded a great change has been wrought in the character of medical practice. Though specialism was recognized and largely practised in Europe, it was comparatively new in this country, and those who confined their work to one department were relatively few. Now their number is legion, and the tendency toward the selection of a special field for practice is growing stronger each year. The widening of the field for study in every department of medicine has brought about this change. In no department, however, have the workers increased so rapidly as in ours. When we consider the intimacy of the relationship which diseases of the nose and throat bear to diseases in remote portions of the body, and how many diseases of other organs, or symptoms referred to other organs, may be caused by diseases of the upper air-tract, it is hardly to be wondered at that so many workers have been attracted to this field of study. The laryngoscope and the rhinoscope are only twice the age of our association, but the pioneers in this department have made such good use of the instruments, and laid so strong and broad a foundation for the study of the diseases of the parts which they reveal, that it is now relatively easy to acquire the manipulative skill necessary to become a specialist in rhinology. Years of practice, together with a natural aptitude, are absolutely necessary in order to acquire skill in the surgical treatment of diseases of the larynx; but much less practice is required to permit intranasal surgical work to be done, and this fact is unquestionably accountable for the large amount of indifferent or mischievous surgery which is yearly growing more noticeable. The ability to adapt many of the modern appliances to the treatment of disease requires only such training as will make a man a skilled mechanic, but to apply such measures with the best results and adapt them with intelligence requires a knowledge of the fundamental laws which are known to govern the human body. Pathology is the foundation of scientific medicine, but a knowledge of general pathology and the diseases which affect the whole economy can



not be sufficiently acquired in a college and hospital course of study; and yet the disposition to consider such a training sufficient to permit a man to devote himself exclusively to the practice of a special department of medicine is growing to an alarming degree, and is bringing into the various fields a large number of men who can hardly be regarded as competent. The advice given by Sir Morell Mackenzie ten years ago, and indorsed by Dr. Asch in his presidential address before this body five years ago, that medical men should practise general medicine and surgery during the first ten years of their professional careers, should be considered of greater value to-day than ever before; and in view of the rapidly increasing number of men who are flocking into the various special departments immediately after graduation, those of us who have the opportunity to speak to medical students should not fail to make it clear to them that success by honest efforts in these days can only be attained by those who have acquired a comprehensive knowledge of disease by years of general practice. It would, perhaps, be wise to remind them of the advice given by Dr. William Osler to the young medical graduate that "as he values his future life let him not get early entangled in the meshes of specialism." That specialism should continue and increase is, however, inevitable and desirable. Is it not because men have made special branches their life work that so much of value has been learned in the past fifteen or twenty years? Earnest workers, devoting most, if not all, of their time to one branch of medicine, have evolved many of the scientific truths on which the practice of to-day is based.

The charge is made that the workers in the various departments of medicine are becoming too narrow in their studies, devoting themselves to the acquisition of knowledge of a limited field at the expense of general medical and surgical information. To a certain extent that, no doubt, is true, but as it has already become at least difficult to digest the rapidly increasing literature in any one department of the healing art, which is neces-

sary in order to keep the methods of treatment abreast of the times, this condition is scarcely to be wondered at. As knowledge increases there will, of course, be less opportunity for general studies, and therefore the need of a higher school and college education as a foundation for the practice of medicine is becoming more apparent. When the means of acquiring information were not as large as they are to-day, great earnestness as well as ability were needed to overcome the difficulties in the path of the student, and are we not facing the danger that, as the acquisition of knowledge is made easier, the information will be accepted passively rather than actively? When, some years before the origin of this association, Dr. Barnard said, "Now we have made the task so easy, we have built so many royal roads to learning, in all its departments, that it may well be doubted if the young men of our day, with all their helps, acquire as much as those of the earlier period acquired without them," did not his words imply the truth that conquest means a spirit of augmented strength, and should we not, therefore, elevate the standard of requirement in proportion as the opportunities to meet it are increased? Another potent reason for the belief that the specialist is occupied with too limited a sphere of thought and action, and is disposed to magnify the ailments in the department of the body to which he confines his practice, is an outcome of the opposition which he has met in extending his field of study. Many of his critics have shown the greatest unwillingness to his having investigations made of other portions of the body than that with which he is identified; and yet the growth of knowledge has made it clear that the correlation of the various parts of the body is so intimate that it is impossible to determine the cause of many of the affections of a given part without a knowledge of the conditions which may exist elsewhere. The feeling is still strong that the specialist must limit his observations to his own field. To do so, the symptoms which he is asked to relieve would in some cases continue in spite of his best-directed efforts, while a happy outcome might be obtained

if the physician who has the case in charge would heartily cooperate with him. To a large extent the absence of cooperation is to blame for not only many unsatisfactory results, but for hedging in the specialist to a limited sphere of action.

The charge is also made that specialism is doing great harm because of the charlatans who live and thrive under its cloak. While the profession of medicine has never been without its charlatans, it is probably a fact that there are fewer of them to-day than ever before, and let this condition, therefore, be set down to its proper account—to the weakness or, if you will, the selfishness of man, but not to specialism. In proportion as the standard of medicine is raised and the people are educated, so will the pretender and those members of the medical profession who are “over the border” of reputable practice be discounted. So long as there is a demand for such men they will be supplied. It is unquestionably true that there are too many men in the special fields who have an eye alone for the main chance; but it is equally true that the earnest, upright specialist has as strong a desire to elevate the standard of medicine, and has as great a power as any to do so.

Despite the evils which are growing out of specialism, the fact that men are centring their thoughts upon special lines of work more than ever will ultimately result in the largest good to mankind, for we are beginning to learn that concentration is the price we must pay for efficiency. The advance of civilization is, in a large degree, dependent upon a subdivision of labor. The advance in the knowledge of the human body in health and disease will depend upon an even greater subdivision of labor than now. The evils resulting from such subdivision of work and practice must be met and controlled as best they may, but the hope that has been recently expressed, that specialism will soon wane, is, in the nature of things, not likely ever to be realized. It therefore behooves us, individually and collectively, to think well on these things, that we may the sooner deter-

mine how best to secure for specialism the minimum amount of harm and the maximum amount of good.

The particular achievements which have been made during the life of this association, which have enabled laryngology and rhinology to occupy such conspicuous places among the specialties in medicine, have been many. The dawn of the most brilliant era in these departments began when Koller made known the local anæsthetic properties of cocaine fourteen years ago. The vast strides made in our knowledge of the pathology and treatment of diseases of the nasal passages and nasopharynx would not have been possible without the assistance of this agent. The ease with which diseases of the upper air-passages can be revealed, the presence of instruments tolerated, and the destruction and eradication of diseased tissue permitted by the application of this drug has revolutionized our knowledge and practice.

While the discovery of lymphoid growths in the pharyngeal vault antedates the foundation of this association by seven years, it is nevertheless true that the importance and frequency of occurrence of these growths were not fully appreciated in this country, at least, until 1884. To our deeply lamented and talented fellow, Dr. Hooper, must be given the credit for first awakening a lively interest in this affection in America. Countless thousands of lives during all the ages were rendered feeble and shortened by this heretofore unrecognized cause. To-day the operation for removal of these growths is performed by surgeons in every part of the civilized world. To have bestowed a boon of such magnitude upon posterity has made the distinguished discoverer of "adenoid vegetations," the late Professor Wilhelm Meyer, the greatest possible benefactor to mankind.

Antitoxine therapy, serum therapy, and organo-therapy are methods of treatment which have arisen since the inception of this association. If antitoxine had accomplished no more than the diminution in the number of cases of laryngeal invasion in diphtheria, it would have been a priceless boon; but, according to Richet, the lives

of about fifty thousand infants are now saved annually by this agent alone.

O'Dwyer began his experiments with intubation of the larynx two years after this association was organized, but it is unnecessary for me to dwell upon the vast value of this distinctly American contribution to the relief of suffering humanity. It has to a very large extent driven tracheotomy from the field, but when a better adjustment of these two operations for the relief of laryngeal stenosis shall have been found the percentage of cures will doubtless be increased. There have been but few greater monuments reared in the science of medicine than that which will perpetuate the fame and the name of Dr. Joseph O'Dwyer.

We are probably standing to-day at the threshold of our knowledge of tuberculosis. Koch found the bacillus sixteen years ago, and how best to destroy it in the living tissues is a problem to the solution of which many scientists in this country and Europe are devoting the best parts of their lives. While the methods of treatment for laryngeal tuberculosis employed to-day give better results than heretofore, we can scarcely look for signal success in dealing with this disease until the nature of tuberculosis is better understood. Whether highly beneficial results from the use of the Krause-Heryng method are to be obtained in this country or not is yet to be demonstrated. The outlook is, however, encouraging.

While but little knowledge has been acquired during the past twenty years in regard to the nature, causes, and medicinal treatment of cancer, we are certainly in a better position to contend successfully with the disease in its early stages than heretofore. The noteworthy operative work in cases of cancer of the larynx of one of our corresponding fellows, Sir Felix Semon, and of Professor B. Fränkel, brings the encouragement that even better results may be expected when the means of making early diagnoses with greater ease and certainty shall have been acquired. Semon reported in 1894 fifty-eight per cent. of cures of selected cases

in his private practice, after removing the diseased parts through an opening made by dividing the thyroid cartilage. Further reports of cases operated upon by him since then, and presented in the *Archiv für Laryngologie*, do not materially change the percentage of cures. The gratifying statement made by Semon is that in only one of his cases had recurrence possibly taken place. In a letter to me dated December 29, 1897, Semon stated that all of the patients who had recovered from the operations were doing well. Surely such results can not but encourage us to believe that even this dire disease, if dealt with in its early stages, may be permanently eradicated in a much larger percentage of cases than has heretofore been believed to be susceptible of cure, and that, too, with a minimum amount of disfigurement or loss of function.

Almost all of our knowledge of diseases of the accessory sinuses has been acquired in the past twenty years. Prior to the eighties the sinuses were opened only to relieve the symptoms occasioned by acute suppuration. Now, thanks largely to the brilliant original work done by a number of the fellows of this association, we are in a position not only to relieve the symptoms produced by acute suppuration but, in a measure, to prevent its occurrence, and also to remove by rational means the conditions resulting from long-standing disease.

In the early years of this society the study of vasomotor reflex phenomena from structural diseases in the nose was begun by members of this body, and has been actively continued until the present time. While, perhaps, more was hoped from it than has been realized, nevertheless brilliant results have been obtained, and the investigators who have elucidated the subject have contributed facts of the utmost importance to rhinology.

Mainly through the researches of a number of the corresponding and active fellows of this association, a large addition to our knowledge of the innervation of the larynx has been acquired.

The discovery of the X rays in 1895 will perhaps mark an epoch of the utmost importance in medicine and surgery. Through the application of the rays to the portions of the body in which we are especially interested, excellent results have been obtained by our corresponding fellow in Glasgow, Dr. John Mackintyre. He has been experimenting with the cinematograph in conjunction with the X rays, and has been so far successful that he was able to show, at the Royal Society of Edinburgh last June, the movements of the bones in the legs of a frog on the screen. In our special department future developments will depend upon how far it will be possible to photograph the soft tissues. By placing a fluoroscope in the mouth Dr. Mackintyre has succeeded in obtaining an image of the septum, the roots of the teeth, and other hard structures in that neighborhood. He has also been able to demonstrate the process of ossification in the thyroid cartilage. In a letter to me dated January 6, 1898, Dr. Mackintyre, in writing of the X rays, says, in substance, that it is possible to get shadows of the larynx, but that their definition is not as sharp as those obtained in photographs of hard structures or foreign bodies. Nevertheless, he has great hopes for the future, as the subject of skiagraphy is but two years old.

If Lister's work has been of less value in our field of practice than in others, it has, at least, taught us the value of cleanliness. It has taught us the necessity of subjecting our instruments, whether used for examination or for operative or non-operative treatment, to the germ-destroying action of heat. If we can not make very free use of antiseptics, we can, at least, give our patients the benefit of thorough asepsis. This brings with it the comforting assurance that if we are not always successful in contributing the largest amount of good, we have rendered it impossible to do harm by the conveyance of infectious germs. Through asepsis, antisepsis, and local and general anæsthesia, the fear of the knife is being rapidly banished, and, while this carries with it a certain degree of danger at the hands

of the overzealous operator, it makes possible the eradication of disease to a degree never before known in history.

Although Valsalva demonstrated nearly two centuries ago that deafness was often due to the closure of the Eustachian tubes, the conditions in the nasal passages and nasopharyngeal cavity which are now known to be frequently accountable for the imperfect ventilation or closure of the Eustachian tubes were not fully appreciated until within the past fifteen years. In one of the standard American treatises on diseases of the ear published less than fifteen years ago, the author states that very few otologists made much use of the rhinoscope, as it was only in exceptional cases that it was found that the revelations compensated for the time employed. There is surely much yet to learn of the relation of diseases of the ear to diseases of the throat and nose, but the degree in which diseases of the ear may be prevented, or, when they exist, may be successfully controlled through the care of the nose and throat, is yearly growing greater. The most successful otologists to-day are necessarily competent rhinologists, and it is quite certain that the most successful textbooks on diseases of the ear, which will be written in the future, will be those in which a large part of the contents will be devoted to the consideration of catarrhal affections of the upper air-passages.

By comparison with the treatment of catarrhal affections by applications of alterative and astringent remedies, which were employed almost exclusively in the early years of this association, how brilliant seems the surgical work now performed for the radical relief of catarrh of the upper air-passages! The recognition of the physiology of the nasal passages, the recognition of the pathological importance of hypertrophied turbinated tissue, sæptal spurs, and deflected nasal sæpta, indeed, the recognition of nasal diseases themselves—virtually the inception of rhinology—are a part of the history of our special department of medicine since the association first saw the light. Much of the work which



has revolutionized our methods of treatment has been done in this country, much of it in this association, and to-day we can claim distinctive places for American laryngology and rhinology which could not have been accorded to them twenty years ago.

The utilization of the incandescent electric-light current, which can usually be found wherever specialists are in demand, for galvanism, faradaism, electrolysis, galvano-cautery, and small-lamp work for transillumination, has greatly facilitated special work and saves much time. In the early days of the association these aids could only be obtained from cumbersome apparatuses.

It is my sad duty to chronicle the death of our lamented ex-president, Dr. Harrison Allen. By his personal charms he endeared himself to every member of the association, as well as to all those who had the privilege of an acquaintance with him. He represented the best type of the dualist in medical studies, dividing most of his time, in pursuit of knowledge, between comparative anatomy and laryngology. To a very large extent he filled the place left by the late Dr. Joseph Leidy, but at present it is felt that there is no one to take the place of Dr. Allen, in that particular field of study, in the city of his birth. He was the author of a large number of contributions to the study of anatomy and laryngology, but his superb *System of Human Anatomy* will live as his greatest memorial. We will miss his presence at our annual gatherings, but we will feel the inspiration of his character and work and be prompted by the lesson of his life to do the utmost that is in us for the betterment of mankind.

In the selection of a subject to be brought before a scientific body many, no doubt, are often deterred from reading at all because they are unable to find an original field for discussion, or some novelty which will interest. But I take it that such is far from the meaning of the annual gatherings of this society when we meet, partly to discuss again subjects which, by judicious pruning, may crystallize our knowledge in regard to

them. Such discussions also assist in preventing us from forming habits of work or fixed beliefs in regard to subjects about which men hold different opinions. Let us remember that in scientific medicine the ideal is the truth, and the actual but that part of the truth which has been attained. As we are ever striving for the ideal and have but one desire, to know the truth, and thus but one fear, to believe an untruth, free and friendly discussion, entailing, as it does, the discipline of suspending judgment, is, I take it, one of the means of converting the actual into the ideal. It is for these reasons that I feel that a large part of the value of our meetings is derived from the discussions of papers. If the fellows could be made acquainted beforehand with the manner in which the subjects to be presented were to be treated, they would come better prepared to discuss them. If epitomes of papers to be read at each meeting could be sent to a committee whose duty it would be to print them and mail a copy to each member of the association two weeks before the meeting, discussions of a most fruitful character would be the natural result. Such a course of proceeding would probably also result in the saving of time, as under those conditions the discussions would tend toward crispness and brevity.

To provide the best material for the growth of our association, in the future selection of applicants for fellowship we should take pains to acquire the largest possible knowledge of their mental habits and ideals, as well as their scientific attainments. In this age of rapid advance and sharp competition, the physician who is not a good student can not be a candidate for the honors which will be awarded in the future of modern medicine. But there are things better even than science. Character is higher than intellect, and the highest mark in human nature is reached when high intellect and upright character are found combined. We are all striving for the highest attainments in the work of the association, and we wish to feel assured that the coming men will be thoroughly competent and filled with enthusiasm in their work. We want young spirit, vigorous spirit, and

particularly men who are interested in, and in touch with, the advancing knowledge of biology, bacteriology, and pathology, for it is through these departments that medicine is being rapidly converted from an art into a science.

At its last meeting the council thought it wise to call attention to article 14 of the by-laws of the association, which reads as follows: "Any fellow who shall have failed to furnish a paper for three successive meetings, or who shall have absented himself from three successive meetings, may, on vote of the council, be dropped from the association." At the same time the council recommended that the by-law should be amended by excluding fellows of twenty-years' standing from its provisions—an amendment upon which you will be asked to vote at this meeting. The by-law is one which should be enforced in order to maintain the highest efficiency in the proceedings of the association. The average attendance at the nineteen meetings of the society has been fifty-six per cent. of the total membership. Even though the fellows reside in all parts of the country, from Massachusetts to California, and from Canada to Louisiana, the members of the council are hopeful that the attendance at the meetings in the future will be even greater than heretofore. A dearth of enthusiasm can not be complained of; but it seems desirable at this, the beginning of the third decade in the life of the association, to call attention to such measures as have been provided to insure an increase, or prevent a decline, in interest in the meetings of the association.

Since Elsberg first presided in this place there have been printed in the archives of the association four hundred and eleven papers, many of them masterpieces, carved with infinite pains and great labor in enduring bronze, upon the contents of which much of our practice of to-day is based, and which will, perhaps, be utilized to an equal extent by posterity. The wide range of subjects which have been discussed has, among other things, demonstrated very conclusively the intimate relationship which diseases of the throat and nose bear to

internal medicine. Many of the founders of the association are among our most enthusiastic workers to-day and still continue to contribute material of a character which has made the association famous. The inspiration of the work done for us by Elsberg and Hooper, who sought the truth in its wholeness, not diluting it or masking it, is still with us, and will remain with us as long as the association exists. The heritage of the scientific spirit of Allen will add material strength to the foundation upon which we are to build in the future.

The attendance of the members of the association's council at its annual midwinter meetings during the past twenty years has been sixty-five per cent. of the total membership. No better demonstration could be had of the responsibility felt by that body in conducting the affairs of the association, for, in order to attend those meetings, it required, in some instances, the devotion of the largest part of two days to travel and, in many instances, the absence of at least two days from home.

In order to maintain the high order of excellence in the work of the association and the lofty standard which has resulted from its proceedings thus far, it is necessary to put forth extra efforts in the future so that the scientific spirit of the association may be seen to be growing ever finer, and as from the beginning reflecting the highest credit upon the department of medicine to which we are devoting our lives. The words of Elsberg, written when the laryngoscope was but five years old, that "the realization of a glorious future for laryngology needs but resolution, labor, and perseverance," are as applicable to-day as when written thirty-five years ago, and the high obligations imposed upon us by those who founded this association can only be met when we remember that "men walk as prophecies of the next age." Though great advances have been made, greater advances are yet to be made, and with "resolution, labor, and perseverance" we may lift laryngology to a still higher plane of usefulness, and thus contribute to the elevation of scientific medicine.

Again, gentlemen, I extend to you a cordial welcome

to the borough of Brooklyn in the city of New York, and offer you my best wishes for a highly successful and most enjoyable meeting at this the twentieth annual congress of the American Laryngological Association.

*Paper.*

A NOTE ON THE SURGICAL TREATMENT OF LUPUS AND TUBERCULOSIS OF THE LARYNX IN CONNECTION WITH TRACHEOTOMY.

By E. L. SHURLY, M. D.

THE recent adoption of curettement and other surgical endolaryngeal methods for the relief of tuberculosis of the larynx, which have been so zealously advocated and so successfully followed by Krause, Heryng, Gleitsmann, and others, have necessarily led the profession to a practical consideration of the advantages and limitations of such proceedings. The limitations may depend either upon the extent or inaccessibility of the laryngeal lesions, rendering approach by the mouth either ineffectual or dangerous, or upon the liability (either from constitutional disease or extreme swelling of the parts) to death, by interference with the respiratory function; indeed, the non-adaptability of curettement, excision, or escharotic topical applications in cases of tuberculosis and lupus of the larynx has been experienced so often that many practitioners have come to abandon all thought of such manipulation in the treatment of the majority of cases. Such observations have led the writer to adopt the plan of making tracheotomy previous to any attempt at the destruction of the diseased tissue of the larynx. This practice in some instances has shown marked advantages. Of course, in the case of a slight lesion situated upon the epiglottis, especially, or about the vestibule of the larynx, tracheotomy would be rarely indicated excepting for the relief of a tumescence sufficient to offer a dangerous impediment to respiration; but in cases of

more extended tuberculosis or lupus, which from the character and extent of the lesions would seem amenable to surgical treatment, the previous introduction of a tracheotomy tube will be found of great advantage; for in this way the operator may take all the time necessary for proper manipulation without incurring the dangers arising from laryngeal spasm, laryngeal hæmorrhage, or subsequent laryngeal swelling.

Chloroform anæsthesia may be adopted if desired for each manipulation—although cocaine anæsthesia is usually sufficient.

To compensate for the loss of dilatation of the larynx by the ordinary respiratory movements after tracheotomy, a broad retractor, similar to the old-fashioned palate retractor, may be introduced into the larynx and held by an assistant during the performance of curettage or excision. By this means a considerable amount of diseased tissue can be removed at one sitting, and sometimes the full amount desired may be removed at once. The dressing of the wound with iodoform and boric acid is also facilitated, inasmuch as no attention need be paid to the respiration. In one instance, in a case of lupus of the epiglottis and aryepiglottic fold, the writer met with sharp hæmorrhage which, without the tracheotomy tube, would have been troublesome to check and possibly dangerous to life. In this instance there was no difficulty whatever in checking hæmorrhage by the application of styptics; indeed, by making a previous tracheotomy, the operator may remove with comparative comfort and unconcern the diseased tissue, whereas without the tracheotomy, as we all know, such manipulations are fraught with difficulty and misgiving and are peculiarly unsuccessful. The removal of laryngeal tumors may also be accomplished with much more ease after having inserted a tracheotomy tube.

When there is more or less extensive pulmonary disease, such as caseation of the lungs or a great amount of bronchitis, tracheotomy is contraindicated. The tracheotomy tube seems to interfere with expectoration, and in many instances will lead to additional septic

infection. In two cases of this sort, as well as in several cases of laryngeal and pulmonary tuberculosis, more or less advanced, under the writer's care, the insertion of the tracheotomy tube speedily brought about an aggravation of the pulmonary disease, and thus led to an earlier death. This effect is probably brought about mainly by the interference with the free expectoration of the products of pulmonary caseation. Another objection which might be urged against the use of the tracheotomy tube in these as in all other chronic laryngeal diseases is the danger of destroying the natural resiliency of the trachea by the presence of the tracheotomy tube for a long time. This objection, however, is hardly applicable to the cases of adults. In children it is true that the wearing of a tracheotomy tube for a long time may lead to subsequent difficulty from collapse of the tracheal wall, as well as by the formation of adventitious folds or inequalities of its mucous membrane; but as this event so rarely occurs in adults, excepting in cases of diphtheria or tracheal syphilis, it ought not to be considered as a serious objection. Another objection which has developed in the experience of the writer is based upon the fact of the recurrence of the lupoid or tuberculous disease after the tracheotomy tube has been removed, thus creating an indication for a second tracheotomy. Such cases will occur in practice, and perhaps are not exceptional. Of course, it is unnecessary to say that a repetition of the tracheotomy will be inadvisable in the majority of instances. From this fact it therefore behooves the operator to allow the tracheotomy tube to remain, if possible, until the diseased tissue has been quite thoroughly and finally removed. Yet, notwithstanding the exercise of such precaution, there may be a recurrence of the disease.

I have made these suggestions for the purpose of bringing forth discussion upon this phase of the subject, and have purposely refrained from reviewing the merits and demerits of the surgical treatment of laryngeal tuberculosis and lupus, because of your familiarity with the subject.

*Paper.***LARYNGEAL TUBERCULOSIS AT THE LOOMIS SANITARIUM****By WALTER F. CHAPPELL, M. D., M. R. C. S. Eng.**

THE object of this paper is to present to this society a report on cases of laryngeal tuberculosis which have received climatic, systemic, and local treatment under most favorable conditions. No favor has been given to any special remedy or method of treatment, and the report is a simple statement of facts as taken from the notes of the sanitarium.

The climatic conditions and the general surroundings were, of course, the same in all cases, but the internal medications and local applications differed, the selections being made according to what in the experience of the writer and others seemed best for such cases.

Before proceeding to the histories of the patients, I think it would be interesting to the society to know something about the sanitarium and climate.

*Sanitarium.*—The Loomis Sanitarium, situated at Liberty in this State, admits only persons in the primary stage of pulmonary and laryngeal tuberculosis, and keeps them as long as there is a possibility of arresting the disease. I may also state, in this connection, that the sanitarium has a department which will appeal strongly to the members, and that is a hospital for incurables, situated in this city, where homeless and poor incurable tuberculous patients can receive every care and the special treatment so necessary for their comfort.

The sanitarium enjoys an altitude of twenty-three hundred feet above sea level, and is one of the highest accessible points between the Atlantic and the great Canadian lakes. The surrounding country consists of short hills and undulating ground. The watershed converges from this point, giving natural drainage. There is little or no forest land, and, with the exception of a few rivulets, there are no large sheets of water.

The sanitarium is built on the cottage plan and con-



sists of administration building, cottages, and infirmary. Its capacity is for ninety patients.

The throat department is specially arranged so that patients can receive the same treatment they would at any dispensary in the city. This, in the opinion of the writer, is a great advance, as in his experience throat treatment of tuberculous patients in charitable institutions in the country is somewhat neglected.

*Climate.*—In winter the temperature ranges about zero, and the days are generally bright. In summer the temperature ranges from 70° to 85° F., with cooler nights. The prevailing winds, winter and summer, are northwest and southwest. The altitude and absence of forests and lakes contribute largely to the little humidity found in this region. There are also comparatively no morning and evening fogs, so common in many mountainous districts.

*Local Treatment.*—Special attention is given to the condition of the upper respiratory tract in all the sanitarium patients, whether suffering from tuberculous throat manifestations or not. This attention, it is believed, assists largely in the general good results obtained. The applications for tuberculous laryngitis consisted of such well-recognized remedies as creosote, lactic acid, ichthyol, iodoform, nitrate of silver, etc.

*General Systemic Treatment.*—This embraced suitable clothing, food, exercise, and the administration of medicinal remedies reputed to influence the pulmonary and general conditions, and indirectly the laryngeal lesions. The most important of these were beechwood creosote, creosotal, guaiacol valerianate, ichthyol, benzozal, arsenic, and tonics, also the hypodermic injection of horse serum. The latter was the antitubercle serum prepared at the Biochemic Laboratory, Washington, D. C., for the United States Government.

It was administered on alternate days, beginning with a dose of ten minims, gradually working up to a maximum dose of twenty minims. In case of high fever or irritation of the skin, the dose is diminished, and then again gradually increased. The mouth of the bot-

tle should always be sterilized with heat before and after use. The serum is drawn out of the bottle by the sterilized barrel of the syringe; residual serum in the syringe should never be returned to the bottle.

The serum injections do not produce any immediate changes in the throat lesion, but that they do have a part in the ultimate results seems very possible. Dr. Stubbert says in his report to the medical board: "By referring to the table I shall read to you it will be seen that during the past few months the results of serum treatment upon temperature, cough, expectoration, weight, and tubercle bacilli are far in advance of those of any agent we have used. I, for one, am not ready to pin my faith to serotherapy in tuberculosis; but in the face of such facts as are and have been lately presenting themselves before me daily, both in and out of the sanitarium, I find it necessary to cultivate a conservative spirit, lest I believe too quickly. With a common ground of climate, hygiene, food, etc., placing side by side patients treated with serum and other remedies, we are forced to acknowledge in incipient cases, with or without bacilli, that the percentage of good results in every way has been lately in favor of the former. Numerous cases, more advanced, that have not prospered under other treatment, have gained weight and reduced temperature under the serum."

The observations on the following cases extended over a period of from three to nine months, and were made by myself on the dates mentioned in the history of each case. The local treatment was carried out at my suggestion by Dr. Stubbert and his assistant at the sanitarium, Dr. Stephen Wells. I am also indebted to Dr. Stubbert for the notes of the pulmonary condition of the laryngeal cases, and his method of administering the antitubercle serum.

CASE I.—Miss A. D. Examined first, December 20, 1897. Left vocal cord thickened, right cord ulcerated; grayish patch on mucous membrane in the interarytænoid space; voice hoarse; considerable laryngeal tickling and cough. Pulmonary trouble, incipient in the right apex

with tubercle bacilli. Treatment: Dobell's solution, followed by peroxide of hydrogen daily, and the local application of No. 2 creosote solution three times a week.

*February 8, 1898.*—Thickening of left cord very slight; ulceration on right cord healed; no longer hoarse.

*April 10th.*—Grayish interarytænoid patch disappeared, leaving some thickening; no ulcerations. Cough much better; voice normal. Condition of apex of right lung much improved. No bacilli; increased in weight sixteen pounds. General condition excellent.

CASE II.—W. S., October 30, 1897. Mucous membrane covering both arytaenoids and interarytænoid space much thickened; several papillomata and a moderate-sized ulcer at the base of left arytaenoid cartilage; voice hoarse; general condition poor. Consolidation of upper lobe of right lung, with evidence of a disseminated process in other parts of right lung. Infiltration in region of left nipple. Treatment: Dobell's solution and peroxide of hydrogen daily. Twenty-five-per-cent. solution of orthochlorophenol in glycerin twice a week to the ulcer.

*December 7th.*—Laryngeal thickening the same; ulcer smaller; voice and cough the same. Orthochlorophenol produced some irritation, and was reduced to four per cent. solution.

*March 6, 1898.*—Laryngeal thickening the same; ulcer quite small; cough better; voice more certain; general condition improved. Orthochlorophenol stopped. Twenty-grain solution of nitrate of silver ordered twice a week.

*April 10th.*—Laryngeal thickening much less; ulcer healed; voice better; tones more sustained; cough greatly improved; general condition good; weight increased nine pounds; left lung has cleared up; on the right side has now only some consolidations of right upper lobe.

CASE III.—Mr. P., October 30, 1897. Two points of ulceration on right margin of epiglottis; hoarse at times; slight laryngeal cough; has advanced trouble in right lung extending downward on a line with the nipple, and incipient trouble in left apex. Treatment: Dobell's solution daily, No. 2 creosote solution twice a week.

*December 7th.*—Ulceration healed; cough slight; no longer hoarse; general condition improved.

*March 6, 1898.*—Same as last notes.

*April 10th.*—Right arytaenoid cartilage slightly red;

general condition excellent; gain in weight ten pounds; left apex cleared up, and infiltration on right side extends only to second rib.

CASE IV.—Miss H., October 30, 1897. Interarytænoid space thickened and red; no ulceration; slightly hoarse at times; has advanced trouble in right apex, incipient in left apex. Treatment: Dobell's solution daily.

*March 6, 1898.*—Thickening in interarytænoid space less.

*April 10th.*—Larynx healthy in appearance; voice natural; gained three pounds since last note. Trouble on left apex disappeared, right apex improved.

CASE V.—Mr. F., October 30, 1897. Thickening in interarytænoid space; ulceration on both ventricular bands; voice very hoarse; considerable pain on swallowing; had advanced trouble on both upper lobes and signs of softening on left side. Treatment: Dobell's solution daily, No. 2 creosote solution three times a week.

*December 7th.*—Ulcerations healed; voice and cough improved; dysphagia less.

*March 6th.*—Condition about same as at last note. No pain on swallowing.

*April 10, 1898.*—Very slight interarytænoid thickening; voice improving steadily. Pain, which had continued over fifteen months, entirely disappeared. Pulmonary signs no longer active; general condition much improved; has gained fifteen pounds since admission.

CASE VI.—Mr. E., October 30, 1897. Arytænoid cartilage and vocal cords red; voice hoarse; advanced trouble in upper left lobe and incipient in right upper lobe. Treatment: Dobell's solution and No. 2 creosote solution.

*December 7th.*—Cords red and thick, and present minute ulcerations along their margins; hoarseness very great, and considerable pain on swallowing.

*March 6, 1898.*—Both vocal cords present a worm-eaten appearance; cough, hoarseness, and pain much worse. Ordered twenty-five-per-cent. solutions of lactic acid twice a week.

*April 18th.*—Cords thick; ulcerations much improved; considerable granulation tissue in larynx; hoarseness continues; cough and pain improved. Pulmonary conditions improved, also general condition.

CASE VII.—Miss M., December 7, 1897. Thickness and redness of interarytænoid space; occasional hoarseness; infiltration in right apex; tubercle bacilli. Treatment: Nitrate of silver, twenty grains to ounce.

*March 6, 1898.*—Thickening and redness in larynx less.

*April 10, 1898.*—Larynx normal in appearance; pulmonary conditions improved; no bacilli.

CASE VIII.—Mr. H., October 30, 1897. Cords slightly thickened and red; intermittent hoarseness; infiltration in right apex with bacilli. Treatment: Dobell's solution and ten-grains-to-the-ounce solutions of nitrate of silver.

*December 7th.*—Cords normal; voice natural.

*March 6th.*—No laryngeal symptoms.

*April 10th.*—No laryngeal symptoms and no bacilli.

CASE IX.—Mr. J., January 22, 1898. Several papillary growths in interarytænoid space and grayish patch on its mucous membrane. Consolidation on left side to nipple, infiltration in right apex. Treatment: Twenty-grain solution of nitrate of silver to interarytænoid space.

*April 10th.*—Papillary growths less in size; grayish patch about the same; pulmonary and general appearance improving; weight increasing.

CASE X.—Miss D., December 20, 1897. Interarytænoid thickening; very hoarse at times; had infiltration in right and left apices. Treatment: Solution nitrate of silver to interarytænoid space and spray with Dobell's solution.

*April 10, 1898.*—Larynx much improved; hoarseness better.

CASE XI.—Miss R., December 12, 1897. Arytænoids and both cords thickened and red; voice hoarse. First stage of phthisis in upper lobes of both lungs. Treatment: Dobell's solution and No. 2 creosote solution.

*March 6, 1898.*—Laryngeal infiltration increasing; speaks with a hoarse whisper, and when discharged, April 1st, there were signs of breaking down under the right clavicle, and larynx was unimproved.

CASE XII.—Mr. F., December 7, 1897. Left arytænoid considerably swollen, also posterior pharyngeal wall; advanced trouble in right lung apex to base, incipient on the left side. Treatment: No. 2 creosote solution. This patient passed from under our observation, but we ascertained that the disease spread rapidly in the throat and lungs until his death, April 1st.

CASE XIII.—Mrs. P., August 20, 1897. Thickening in posterior commissure and several small spots of ulceration. Small ulcer on posterior end of right cord, also on the anterior wall of trachea just below the cords; tips of

arytæmoid cartilages red and slightly swollen. Quite hoarse, and considerable laryngeal cough, owing to accumulation of mucus on upper part of trachea and the posterior commissure. Both apices infiltrated and passing to the advanced stage of pulmonary tuberculosis. Treatment: Locally, Dobell's solution, followed by peroxide of hydrogen and No. 2 creosote solution.

*October 30th.*—Little interarytæmoid thickening and several granulations; no ulceration in the larynx or trachea; occasionally hoarse; gained fourteen pounds.

*December 7th.*—Larynx looks healthy, and all active symptoms have subsided.

*March 6th.*—Recently had a slight attack of influenza, followed by return of temperature and signs of renewed trouble in right apex and a small ulcer in the interarytæmoid space.

*May 1st.*—The pulmonary and laryngeal activity has entirely ceased, and the patient seems perfectly well, having gained ten pounds since the first note was made.

CASE XIV.—Mr. W., December 30, 1897. Ventricular bands swollen and œdematous; large ulcer on left cord; voice hoarse, and considerable pain on swallowing and talking; advanced trouble in upper right lobe and incipient in left lobe. Treatment: Dobell's solution and No. 2 creosote solution.

*February 22, 1898.*—Ulceration covering both ventricular bands, all symptoms worse; ordered lactic acid to be applied instead of the creosote.

*March 6th.*—Arytæmoid cartilages, epiglottis, in fact, the mucous lining of the larynx appeared to be entirely dotted with fine point ulcerations; general and local symptoms all worse, and pulmonary trouble increasing. Died early in April of advanced laryngeal and pulmonary tuberculosis.

CASE XV.—Miss R., October 30, 1897. Vocal cords and bands thickened; large superficial ulceration covering both bands, especially the left; also two ulcers on interarytæmoid space; is very hoarse, and has considerable pain and difficulty on swallowing; has increased vocal resonance and prolonged expiration, with dullness over apex of right lung. Treatment: Apply No. 2 creosote solution twice a week.

*December 7th.*—Laryngeal ulcerations much lessened and covered with abundant granulative tissue; voice and laryngeal pain much improved; was discharged early in January, 1898, much improved.

CASE XVI.—Mr. S., October 30th. Interarytænoid space thickened; superficial ulcerations on posterior margins of both cords and on the anterior wall of the trachea; hoarse, especially at night; had advanced tuberculosis on upper lobes of both lungs. Treatment: Cleanse throat and apply No. 2 creosote solution twice a week.

*December 7th.*—Laryngeal ulcerations healed; voice natural. Died January 10, 1898, of pulmonary œdema and angina pectoris.

CASE XVII.—Miss L., December 9, 1897. Mucous membrane in interarytænoid space red and swollen, and presenting several small superficial ulcers; voice hoarse at times; had advanced trouble in both apices. Treatment: Apply creosote twice a week.

*March 6th.*—Ulceration healed; voice improved.

CASE XVIII.—Mr. D., March 6th. Right arytænoid very much thickened, left moderately so; both cords red and thick; mucous membrane in upper part of trachea very red; incessant laryngeal cough. Ordered solution of nitrate of silver, twenty grains to ounce, to be applied every other day to the larynx. The laryngeal symptoms improved very much, and he was discharged four weeks later, having gained fourteen pounds in three months.

CASE XIX.—Mr. C., October 30, 1897. Arytænoid cartilages swollen; edge of right cord ulcerated; epiglottis congested; voice harsh, and some difficulty in swallowing; has infiltration of both upper lobes of lungs. Treatment: Dobell's solution, nitrate of silver, and No. 2 creosote solution.

*April 10th.*—Ulceration in larynx less, and a good deal of granulation tissue present; general condition improved.

A brief *résumé* of the interesting points of these histories shows the following results: Laryngeal ulcerations healed, eight cases; laryngeal ulcerations improved, two cases; laryngeal ulcerations unimproved, two cases; laryngeal thickenings improved, seven cases.

The subjective symptoms also show marked improvement, the voice returning to its normal tone in several instances, and the laryngeal cough and irritation entirely subsiding. Relief of pain was also marked, especially in one case, when it had been very severe for fifteen

months. In every case of laryngeal improvement the pulmonary involvement also showed equal gain, and the generally improved condition was marked by a universal gain in weight. A more critical examination between the laryngeal and pulmonary conditions will show their great dependence one upon the other, ulcerations occurring only when the pulmonary disease is active or in the advanced stage, and the location of the laryngeal ulcerations corresponding in nearly every instance with the lung which is most affected.

In conclusion, I wish to state that, although the patients for this report were specially selected for admittance to the sanitarium, the results have been most encouraging as showing what may really be attained. I have always felt that most of the reports by throat specialists did not represent all that might be done, as their observations have usually been made in large cities, and often in climates very unsuitable for such cases.

From my observations I am led to believe that if special attention is given to the upper respiratory tract in every tuberculous patient that the frequency of laryngeal tuberculosis will be diminished. Furthermore, that when patients with tubercular laryngitis can secure competent throat treatment early, with suitable climate, excellent results may be expected.

#### *Discussion.*

Dr. MAYER: Only a short time ago I presented a paper on tuberculosis of the upper air-passages before one of the medical societies, and which appears in the current number of the *Medical News*, wherein I stated that a properly equipped sanitarium should have every appliance for systematic throat treatment. We very frequently keep our patients under our control because of the absence of opportunity for such treatment as Dr. Chappell now informs us may be had at the Loomis Sanitarium.

I wish particularly to approve of the suggestion made by Dr. Swain a few moments ago that patients sent to sanatoria should remain there much longer than they are accustomed to at present.

With regard to the illustrations here presented, it



strikes me that these cottages are much too ornate in their construction. I think that the object could be attained in a better manner if a different plan were adopted, similar to that in one southern resort where small cabins are obtainable. These are occupied by a single individual and are used for sleeping purposes only, the patient spending the greater part of the time out of doors. They have the advantage of being inexpensive and may be destroyed after being used.

I presume that the applications of creosote mentioned are intratracheal as also subcutaneous. Parachlorphenol has been valueless in my hands.

Dr. NEWCOMB: I have been much interested in the paper of Dr. Chappell, and especially with the treatment of patients in the Loomis Sanitarium which he has brought before us. One signal advantage which these institutions have should be mentioned. I think that we must acknowledge that until within very recent times the treatment of cases of tuberculosis in the hospitals of this country has been shamefully lax. The cases were kept as short a time as possible, received very little attention, and were passed on. But in these sanatoria patients receive special attention, and they become impressed very soon with the idea that tuberculosis is an infectious disease, and they become thoroughly satisfied and accustomed to the idea of the danger of infection of others. When they return to their homes after cure they are agents of instruction for the rest of the community, and continue their precautions with regard to disinfection of sputa, etc.

I have some personal knowledge of the sanitarium at Santa Clara in the Adirondacks, which is an institution especially for the treatment of shop girls from large stores, and I have been pleased to notice that after these girls return to their homes they continue to carry out the strict plan with regard to the use of spit cups that they were taught in the sanatoria, thus conveying to the other members of the family and their friends a knowledge of the necessity of the precautions against the spread of the disease. And I have also observed that they live upon a much higher sanitary plane.

The PRESIDENT: I am glad that this subject has been brought before the association, and quite agree with Dr. Mayer's suggestion of the importance of building cabins with but one or two rooms. I think that the governors of the various sanatoria are fully impressed with the importance of such small structures, and that

the question is only one of expense. That Dr. Trudeau believes in the necessity of using small buildings is proved by the structures put up at the sanitarium at Saranac Lake. Most of them in that large and superb institution have but two rooms, and only one has, I think, more than four rooms. The excellent results obtained at that sanitarium are, no doubt, to a considerable degree, dependent upon the use of cottages which accommodate from two to four patients.

Dr. CHAPPELL: As regards the question of the mode of application of lactic acid and creosote, we use them both locally and by submucous injection. With reference to the cabin plan, I would say that most of the cottages at the Loomis Sanitarium have only two rooms. One or two have four rooms. Our object is to have only two rooms in future cottages. Of course, the expense is very great, as in our climate the cottages have to be built so as to be warm in winter. I think that the cabin plan for one or two patients is the plan for the future.

With regard to the remark of Dr. Newcomb about the importance of local treatment and its neglect in many institutions, I may say that I have noticed that where the patients in a sanitarium receive the proper attention for their throats, they progress more favorably in every other respect.

#### *Paper.*

#### FOREIGN BODY IN THE LARYNX, AND A MODIFICATION OF KIRSTEIN'S AUTOSCOPY.

By E. FLETCHER INGALS, M. D.

J. M., a boy, three years of age, was brought to Dr. Rhodes and myself on the 7th of January, 1898, with the history of having drawn a shoe fastener into the larynx four weeks previously, since which time he had been aphonic, even when attempting to cry; but there had been only a moderate amount of dyspnoea, although the child had considerable difficulty in sleeping on account of the choking. An effort made, at the time of the accident, to dislodge the foreign body had been followed by some bleeding. There was no history of any previous disease, and the appetite and digestion remained good. I attempted to inspect the parts by means of the laryngoscope, the tongue being drawn well forward by a special depressor; but I was unable to see

anything below the epiglottis on account of the free secretion and the difficulty in restraining the patient. Upon passing my finger behind the epiglottis I could feel the foreign body in the vestibule of the larynx. As there had been no material change in the symptoms during the preceding four weeks, I directed the parents to bring the child to my clinic a few days later, but to apply to me immediately if any difficulty in respiration occurred in the meantime.

On the 12th of January the child was brought to my clinic, at Rush Medical College, and completely anesthetized with chloroform. The patient was placed upon his back with his head hanging over the end of the table; I took a seat on a low stool at his head, and by means of an ordinary light and the laryngoscopic reflector endeavored to examine the larynx with the aid of a vaginal retractor about four inches long, used in a manner similar to that tried by J. Solis-Cohen in lieu of Kirstein's autoscope. I had had the retractor cut off and the end bent slightly backward to adapt it for this purpose, but I found that it was too short, and the end was so much bent that I could not get it behind the epiglottis, which rested against the pharynx; therefore I was unable to see the lower portion of the larynx, though I had a perfect view of the parts as low as the retractor would reach. Failing in this, I attempted, by passing my finger down to the larynx (as in doing intubation), to direct a forceps so that I could catch the foreign body; but in this I also failed. I then did a laryngo-tracheotomy, dividing the cricoid cartilage and two of the upper rings of the trachea. Through the opening I introduced a Trousseau bent tracheal forceps, and with the finger of my left hand in the mouth, touching the upper portion of the larynx, crowded the foreign body upward until I was able to work it out with the finger. The body proved to be a shoe eyelet hook (Fig. 1).



FIG. 1.

In performing the tracheotomy, following the course that I usually pursue in such operations, I introduced through each side of the cut in the trachea a strong silk ligature, the ends of which were tied together, forming loops by which the edges of the opening could be pulled apart. I allowed these loops to remain, so that if swelling should occur in the larynx by them the interne, after cutting a couple of stitches, could easily draw the two sides of the opening apart and introduce

a tracheal tube if necessary. I then closed the wound in the neck, the loops being brought out between the cut edges at the centre of the wound. The child was placed in a warm room at the Presbyterian Hospital and went on without unfavorable symptoms for three days, when slight subcutaneous emphysema was noticed. I therefore directed that the external wound be partly opened to prevent greater accumulation of air in the cellular tissue. The loops had in the meantime been removed. The next day a temperature of 103° was observed, and I found that pneumonia had developed in the lower lobe of the right lung. This ran a favorable course, and at the end of two weeks the child was discharged perfectly well.

I have since had the retractor modified, as shown in accompanying cut, Fig. 2.

Since I wrote this paper, two communications from Kirstein have appeared in the *Berliner klinische Wochenschrift*, 1898, pages 158 and 255. The first was the report of a demonstration of his new tongue depressor. He stated that the complicated instrument which he first invented, known as the autoscope, is now obsolete, and that the laryngoscopic tongue depressor takes its place. In making the examinations he uses an ordinary reflector, or electric headlight. For demonstrations he attaches an electric spatula lamp to the tongue depressor.

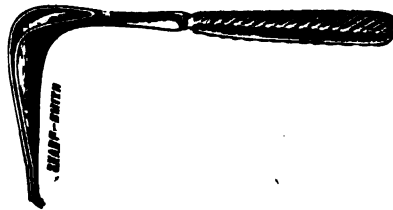


FIG. 2.

The second communication was an article in which he minutely describes his new laryngoscopic tongue depressor, the most important features of which are a down curve to the last five centimetres of the spatula, the total drop being one centimetre, and a notch in the end of the spatula designed to give place for the liga-

mentum glosso-epiglotticum medium. Kirstein says that these apparently insignificant details are the results of many experiments. He recommends that the handle be made short as practicable, and he deprecates a glistening metallic surface as the reflections appear to obscure the autoscopic image. After reading his articles, I had my instrument again altered, giving it the curve and the notch in the end recommended by Kirstein, but I retain the flanges near the angle designed to prevent the patient's mouth from closing to obscure the field of vision. I am satisfied that this is an important point. I have used this modified instrument on children under chloroform, and obtained excellent illumination of the larynx, the patient being placed in the position already described. From a drawing in Kirstein's article, it is shown that he places the end of the laryngoscopic tongue depressor upon the central glosso-epiglottic ligament and crowds it downward and forward so that the epiglottis lies flat against the posterior surface of the tongue depressor. In attempting to use the instrument on a physician, who wished it tried in his throat, I placed the end on the laryngeal surface of the epiglottis and crowded it forward; but I was unable to get a satisfactory view of the larynx, because it caused a severe spasm of the glottis with much pain, which lasted for some time afterward. Kirstein also recommends his autoscope or laryngeal tongue depressor as an aid in introducing the œsophagoscope. He does not use an anæsthetic, but I am confident that the majority of patients that come under my care would not tolerate the use of this instrument without either local or general anæsthesia.

The instrument appears to me destined to be of great value in examining the throats of young children, and it appears probable that it will often enable us to remove foreign bodies or laryngeal tumors through the natural passages that would otherwise demand tracheotomy or thyreotomy.

In a recent case of extensive laryngeal papilloma, I was able to get a good view of the parts by the aid of this instrument, but on account of broad attachments of

the tumor and the great dyspnoea I did not think it expedient to take the time necessary for treatment in this way, therefore resorted to thyreotomy.

*Paper.*

THE USE OF THE BERNAYS ASEPTIC SPONGE IN THE NOSE AND NASOPHARYNX, WITH SPECIAL REFERENCE TO ITS USE AS A PRESSURE HÆMOSTATIC.

By W. K. SIMPSON, M. D.

THE Bernays aseptic sponge, so named after Dr. A. C. Bernays, of St. Louis, its originator, is an artificial product composed of properly prepared cotton fibre, subjected to many hundred pounds' pressure, cut in a circular form with a die, and presented for our use in the shape of compressed circular discs about a sixteenth of an inch in thickness, and of two sizes: the small, an inch and a quarter in diameter, and the large, an inch and a half in diameter.

"The absorbing power of these sponges is much higher than that of gauze, cotton, or sea sponge." \*

"A Bernays sponge, an inch in diameter, when dropped in water, absorbs the liquid and extends to more than fifteen times its size, absorbing twelve times its weight of fluid." †

"The sponges are made absolutely aseptic by compression and subjection to disinfecting vapors." ‡

The efficacy of their use in general surgery depends on their great absorptive power, thus enabling them to be used as ordinary sponges in the cleansing and sponging of wounds during operation, and in the subsequent packing and drying of wound cavities. After their use, they are thrown away, avoiding the necessity of fresh sponge preparation.

As their power of absorption continues they become very much increased in size, thus being able to exert great pressure, limited only by the opposing sides of the

\* *Asepsis.* Johnson & Johnson.

† *Ibid.*

‡ *Ibid.*

cavity in which they may be placed. When brought to my attention in a general way about two years ago, it at once occurred to me that they could be utilized with excellent effect as a pressure hæmostatic in controlling intranasal and postnasal hæmorrhage, from whatever cause. I have used them during this time for that purpose in a great number and variety of cases, and can confidently say that as a means of controlling hæmorrhage, both in the convenience of application and positiveness of result, they have proved, in my hands, superior to any of the usual methods at our disposal.

The advantage of the use of the Bernays sponge as a tampon is very marked in comparison with the usual method of packing the anterior or posterior nares with absorbent cotton or long strips of gauze, which we know is often a matter of great tediousness of accomplishment and uncertainty of result, frequently necessitating numerous repetitions, and perhaps abandonment of the method, before a complete cessation of the bleeding is secured. These inconveniences are almost entirely if not completely overcome by the simplicity of application and the great pressure caused by the rapid absorption and enlargement of the artificial sponge now under consideration.

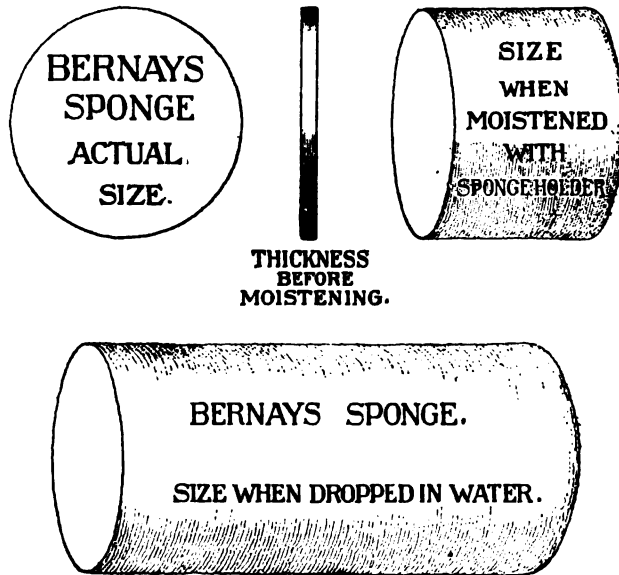
This can be fully appreciated in treating severe forms of epistaxis or secondary hæmorrhage remotely following operations, and also in the security it affords us in controlling immediate hæmorrhage at the time of operation, or during the time the patient is sent away with the nose tamponed. The slow absorptive power and ease of supersaturation of absorbent cotton and gauze do not guarantee us against recurring hæmorrhage.

*Mode of Application in the Nose.*—The circular shape of the sponges being unsuitable for intranasal application, they should be cut in a semicircular form of the desired size, and then, with the nostril well dilated and illuminated, inserted with the convexity upward parallel with the sæptum, either with forceps or the hand. The thinness of the sponge allows it to be adjusted with ease to any remote point within the nasal

cavity, when at once it will begin to absorb and increase in size.

They are removed with the forceps, or, if it has been necessary to place them very high up, or if the patient has been directed to remove them, a small hole may be made in the proximal end, to which a ligature may be fastened.

The pressure of these sponges within the nose is often very great, causing a proportionate amount of inconven-



ience. This may be overcome by splitting the sponge according to the size which we may deem sufficient. The patient may be furnished with a properly shaped sponge for self-introduction in case of anticipated anterior hæmorrhage. In shaping them, it is necessary to use a very strong and sharp scalpel or strong sharp scissors so as to prevent tearing the edges. For tamponing the posterior nares, the smallest size disc may be used, in some cases without any shaping; but if too large, a small piece may be cut from either side of the disc, and, after a hole is made in either end for the reception of the strings,



the plugging may be proceeded with in the usual manner. In fastening the string in the sponge for posterior tamponing, it is well to leave sufficient loop so as to give the sponge a full space for enlarging.

*Other Uses.*—Although I have principally used them as a pressure hæmostatic, there are other purposes for which they may be used, some of which I have employed, and others which suggest themselves.

I have found them to serve as an excellent *splint* in the later stage of the Asch operation for deflected *sæpta*; notably in one case where the hollow tube could not be well adjusted, and where there was an overcorrection of the deformity to the convex side. The Bernays sponge acted perfectly as a splint in this instance, bringing about a complete correction. This suggests their use wherever an intranasal splint is required, especially in fractures.

They are extremely useful in preventing adhesion of apposing surfaces after operation in narrow portions within the nares, and may be covered with very thin rubber tissue so as to prevent too rapid swelling.

As an intranasal dressing, they serve an excellent purpose by absorbing the discharge, leaving the wound extremely clean; the wound itself or the sponge may be dusted with an antiseptic powder.

The sponge also may be used for conveying medication to various portions within the nose; for producing irritation and moisture in cases of atrophic rhinitis, and for the application of cocaine prior to operation. For the latter purpose it is best to split the sponge before using.

Sometimes before using it may be advisable to moisten them very slightly, in order to hasten their absorptive properties. As with all nasal tampons, hæmorrhage may be reestablished on their removal; this may be somewhat overcome by previously applying an aseptic ointment to the sponge, which will facilitate its removal.

It was my intention to present with this communication a series of properly shaped sponges for intranasal and postnasal use, and negotiations were under way, but

had to be discontinued by the manufacturers on account of the heavy demand for hospital supplies incident to the present war.

When ready, I think the nasal-shaped sponges will be an added advantage.

In presenting this device to the association, I think we will find it a most valuable addition for the uses indicated. The sponges are prepared by Johnson & Johnson, and can be procured at all dealers in surgical dressings.

*Discussion.*

Dr. MAYER: Dr. Simpson was kind enough to come to my clinic at the New York Eye and Ear Infirmary a few days ago, and to demonstrate the utility of the Bernays sponge in checking hæmorrhage after operations on the nose.

The cases selected were three in number. All of them had enchondroses of the septum, which were removed by means of the electro-trephine. Instead of packing with iodoform gauze, as is my custom, the Bernays sponge was used and the hæmorrhage was promptly checked.

Twenty-four hours later the sponge was removed and not replaced. There was some complaint of pressure, and this is perhaps the only objection, if any, that may be made.

I think this is a valuable aid to us in intranasal operations, as it has shown its efficacy in cases other than these here mentioned in which I have used it.

Dr. MACKENZIE: I want to ask the author whether the power of sudden expansion in this substance, when used as a packing for the nose, would not give rise to considerable pain. Also whether this latter would not outweigh its advantage in other directions.

Dr. SWAIN: I would ask the author if, where it has been long under pressure, the sponge may become again contracted or reduced in size, so that it may be readily withdrawn. I would also ask whether withdrawing it causes a return of the bleeding, for it would seem almost impossible to avoid this latter contingency if there is no loss of the resilience of the sponge.

Dr. CASSELBERRY: I would ask how long this sponge will remain aseptic after it is placed in the nose. We know that with iodoform gauze, when used for the same purpose, the packing may be allowed to remain for a

couple of days. Would Dr. Simpson feel as secure with the Bernays sponge after an operation as if he had used iodoform gauze?

Dr. SIMPSON: In reply to the question as to the amount of pain caused by the Bernays sponge, I would say that I have not met with this objection. The expansion is limited by the walls of the nasal chamber where the pressure is made sufficient to check the hæmorrhage. The sponge, as it absorbs moisture, soon expands and meets the sides of the nose.

As regards the questions of Dr. Swain, I would say that the sponge does not again contract. Of course, in removing the sponge the hæmorrhage is likely to recur if we disturb the clot, and this will happen with iodoform gauze and absorbent cotton as well as with the sponge. Its recurrence must sometimes be expected. The danger of hæmorrhage when removing may be reduced by applying some form of antiseptic ointment to the sponge before introducing it into the nose.

How long the sponge would remain aseptic, of course I can not say, nor can I speak as to its relative safety in this respect when compared with iodoform gauze. Iodoform, if desired, could be dusted on the sponge before introducing it into the nose, or it might be incorporated with the sponge in its manufacture. I do not see why this could not be done if thought desirable.

As an illustration of the convenience and value of this expedient for checking epistaxis, I might quote a case of typhoid fever in which there was hæmophilia, with hæmorrhages from various mucous membranes, but excessive bleeding from the nose. Several kinds of packing were resorted to and soon became saturated without checking the hæmorrhage, but on inserting a piece of Bernays compressed sponge the hæmorrhage was thoroughly controlled.

*Paper.*

ENLARGEMENT OF THE LINGUAL TONSIL AS A CAUSE OF  
COUGH.

By BEVERLEY ROBINSON, M. D.

For many years past it has been recognized by most laryngologists that chronic enlargement (hypertrophy) of the lingual tonsil is a cause of cough. I do not be-

lieve, however, that many of us have appreciated the frequency of this condition in a greater or less degree, because it does not invariably occasion annoying symptoms. This statement is essentially true when the lingual tonsil has increased slowly in size and in individuals of a somewhat sluggish or lymphatic temperament. Even in these instances a time will come when constriction of the throat, the sensation of a foreign body in the region of or above the larynx, and a dry, irritative, more or less continuous cough is the source of great distress.

Formerly, I thought these cases were almost exclusively found in individuals who had passed the age of puberty. Rarely did I find lingual hypertrophy in young men; quite frequently I noticed it among young, unmarried women. Chloro-anæmia, accompanied with obstinate constipation and adjoined to improper food and undue taxation of the physical and mental forces, appeared to account for many of these instances. With women at middle life—or over forty years—gout and rheumatism played evidently an important rôle in causation. With adults of the male sex this ætiology was also efficient, but never in an equal number of cases. Among small children, I was surprised that this tonsil did not hypertrophy frequently, and I did not, I do not understand it, when I consider how often we meet with marked hypertrophy of the faucial and pharyngeal tonsils in childhood. Why should similar changes not occur in the lingual tonsil at this age? The anatomical structure is apparently almost similar; whence the difference? Why is there in this locality less tendency to disease? Perhaps it is simply because cold inspired air does not strike this tonsil so soon or so constantly. Perhaps the infectious microbes or carriers of disease can not lodge and take root in this tonsil so readily. So far as digestive disturbances are concerned, we might fairly presume from the site of the tonsil at the base of the tongue that it, of all the lymphatic tissues of the throat, would be most rapidly affected, or very markedly sensitive.

While it is recognized that hypertrophy of the tonsil may follow sooner or later some previous attack of febrile infectious disorder, yet it is also affirmed that its beginning is often very insidious and goes, as it were, without challenge or remark. Now, according to my later observation, this should not be. The previous recurring attacks of amygdalitis of the lingual tonsil do occur frequently; but they are not correctly diagnosed. This is true of young adults particularly; it is also true even of small children or those of a larger growth.

The reason of this erroneous or unsatisfactory diagnosis is sometimes ignorance, sometimes lack of skill or attention. If a cough has lasted only a few hours or days, the general practitioner does not even suspect congestion of the lingual tonsil as being the cause. Usually he examines the chest immediately, and, if no trouble is found there, he examines the throat with a tongue spatula to note whether the palate is elongated or the faucial tonsils are enlarged. This examination being negative, he thinks of stomach cough, or cough produced in a reflex manner from some remote organ, provided always there is no pronounced hoarseness with or without slight expectoration. Under the latter circumstances he may think of inflammation of the *larynx* as a cause of cough, and direct his therapeutic means accordingly. At the end of his efforts he is apt to say nervous cough in a male or child—hysterical, perhaps, in a woman.

Even the laryngologist seems to have ignored acute congestion or catarrhal inflammation with tumefaction of the tonsil as a cause of cough. If the vocal cords, epiglottis, and arytenoids are seemingly normal, he is often in a quandary as to the cause of cough. It must be said, however, in his justification that, as a rule, he, the laryngologist, does not see these cases. As a matter of routine they ordinarily fall into the hands of the general practitioner. This affirmation is true not only of adults but also of children.

In adults, of course, we can in very many instances

demonstrate the enlarged lingual tonsil by inspection with the mirror, and we can further corroborate our belief as to causation of cough by rational interpretation of symptoms told us by the patient. With a small child it is different. Laryngeal examinations, as we all know, are often difficult and unsatisfactory; sometimes almost impossible. As to a small child telling you just what it feels, analyzing carefully its symptoms, that, of course, it can not do. Even in children of larger growth it is too much to expect in the majority of cases. Take a child, however, of two or three years of age; let it have an irritable spasmodic cough for several days, a week or more, without obvious cause, and you will find, in my judgment, that the most satisfactory way to explain it is by holding the opinion that it is due to pressure from the enlarged lingual tonsil. Treat it merely as a nervous cough, and it may last a long while and even to the end keep the practitioner in a state of nearly continual worry. Recognize what the cough proceeds from, and we shall soon get satisfactory results from judicious treatment. The cases I have the greatest difficulty in distinguishing in small children are those in which the frequent irritative cough is nothing more than the initial stage of whooping-cough. Are cases of whooping-cough accompanied with swelling of lingual tonsil? Are the frequent spasmodic attacks of pertussis greatly aggravated at times by this tonsillar condition? As yet I can not answer these questions, but I consider them of great interest, and would be glad to hear from my colleagues on the subject. What I can say is this—viz., many times I have taken care of obstinate, irritative coughs in children in whom, after the closest investigation of every condition and circumstance, I could make no accurate and satisfactory diagnosis as to the cause. Again I have said this is either whooping-cough in its initial stage, or it is a nervous cough, the origin and cause of which I can not determine. Occasionally, whooping-cough declares itself unquestionably a week or two later. Frequently there was no whooping-cough, and sooner or later the cough

disappeared or stopped, and I could not say precisely why.

As to causes of congestion or catarrhal inflammation of the lingual tonsil, I can not but say that in general they are similar to those giving rise to faucial congestion or inflammation. Why in some instances this particular gland is affected rather than the faucial or pharyngeal tonsil, I can not always reply satisfactorily even to myself. An impaired condition of general health, such as that produced by a previous acute contagious disease, or the continuance of catarrhal relaxation of the mucous membrane of the upper air and digestive tracts, are unquestionably predisposing causes of great importance and must, if possible, be got rid of. Anæmia, constipation, and badly regulated habits as regards food and rest, are frequently responsible for the presence of a tumefied lingual tonsil. In children and adults renal inadequacy is often an accompanying condition of considerable importance, and unless we consider it we shall not obtain our best curative results. The lithæmic state in a child which results from overfeeding and too abundant indulgence in candy and cake, or sweets of any kind, will often cause, as I believe, congestion of the lingual tonsil, just as we know it will a similar condition of the faucial tonsils. The rheumatic and especially the gouty dyscrasias are too evident and frequent in adults for me to ignore their essential and great importance as causative factors, which must be *attended* to, and properly attended to, if the obstinate, irritative cough is made to disappear in any brief period.

What are the symptoms of acute congestion of the lingual tonsil? Mainly an irritative, frequent cough. Accompanying this cough in the beginning there is little or no expectoration. In a day or two there is some frothy expectoration after each paroxysm of cough. Later there is usually a small amount of tough, thick, mucopurulent expectoration, and not infrequently a slight, moderate expectoration of blood, which seemingly comes from the inflamed lingual tonsil. The cough is worse, as a rule, when the patient lies down at night,

and sometimes interferes with anything like quiet and restful sleep. Sometimes the patient will go to bed and after a while go to sleep for one or several hours, and then awake with a cough which is harassing in the extreme, and which usual doses of anodynes or sedatives fail to relieve, except for a short time.

There is often a feeling of stricture around the throat. When one side of the tonsil is alone much swollen, it is on that side of the larynx that a sensation of pressure or weight or foreign body is felt. Still, deglutition is not notably interfered with; there is no fever, little or no soreness, as a rule, and, save for the cough and the fatigue and annoyance resulting therefrom, the patient calls himself well. When we examine the larynx with the mirror, we find the lingual tonsil more or less *red* and *swollen*. Sometimes the swelling is general; usually it is one-sided, at least in great part. In my observation the left side of the tonsil is more frequently enlarged than the right. Frequently the glosso-epiglottic fossæ are only in part filled by the swollen lingual tonsil. Again, we find the fossæ completely filled by the swollen gland, which even overlaps the free border of the epiglottis.

I believe that acute swelling of the lingual tonsil occurs oftener in the female than in the male sex. Why, I have not been able to determine.

When this acute or subacute swelling of the lingual tonsil occurs, it is ordinarily from a week to two weeks before it disappears in great part, even under the influence of appropriate medication. How should we treat these cases? First of all, we should endeavor to determine, if possible, if any underlying constitutional dyscrasia is present, and, if so, treat it as rationally and effectively as we can. Unquestionably gout and rheumatism should always be considered, because they are often in line, and their presence and action should be duly considered and attended to. Many a condition of swollen lingual tonsil will be unaffected by any of the ordinary cough mixtures, which will be rapidly benefited by salicylate of sodium or ammonium, colchicine, guai-



cum, etc., given internally in suitable doses. Still, we should not rely always upon the efficacy of this internal medication, as it will oftentimes be of no real or apparent value. Sprays are of slight value. Local applications by means of brush or sponge are far more effective, as a rule. Among these I know of none so useful as compound tincture of iodine with an equal amount of glycerin and water. Applied once or twice every day, or every other day, directly to the enlarged tonsil, it often rapidly reduces its size, and hence lessens pressure upon the larynx and the consequent cough proceeding from it. These applications can be readily made, after the physician has reached an accurate diagnosis with the laryngeal mirror by some one in the home of the patient, and by means of a properly curved brush. The brush I recommend now for these applications is only a slight modification of one purchased for ten or fifteen cents in almost any drug store. The camel's-hair brush is mounted upon a stiff wooden handle and the brush is prevented from becoming detached either from the handle, or the quill connected to it, by a round *groove* in the quill itself, which may be cemented inside, for additional security against falling in the larynx. Sometimes intrathroat applications are not nearly so effective as repeated external counterirritation to the point of redness, or blistering, with compound tincture of iodine, or other local irritant and resolvent. With small children I am also inclined to attach great importance to the frequent inhalation of warm antiseptic vapors of creosote or cresolene by means of a suitable croup kettle or other suitable inhaler. Whenever the tonsil continues to be swollen and the cough very obstinate and distressing, despite our active intervention with the means previously mentioned, a change of air for a few days, a week or more, is clearly indicated, and will at times be markedly beneficial. An interior locality like Lakewood or Morristown is preferable to Atlantic City or other seaside resort. Still, *change of air* is the essential thing, and even going to another city, as Philadelphia or Boston, will occasionally stop or greatly ameliorate

rate a cough otherwise very rebellious. If there is marked evidence of renal inadequacy, nothing is superior to spirit of Mindererus. Whenever a malarial infection is evident and a constipated habit prevails, give Warburg's extract in cachets or capsules for a while. To correct the evils of bad drainage and furnace air, the only treatment is to go where neither of these are effective causes, at least of the aggravation of the morbid condition present.

Whenever the lingual tonsil becomes chronically enlarged or hypertrophied, three methods of treatment remain: (1) the electro-cautery, (2) the snare, (3) ablation with a properly constructed amygdalotome. The first method is the one I approve and have personally employed. The second is especially supported by the approval of Dr. Bosworth. The third has in its favor the testimony of several good observers, and yet it still seems to be a measure somewhat too bold and hazardous.

#### *Discussion.*

Dr. NEWCOMB: In the class of cases to which attention has been called in the very practical communication of Dr. Robinson, there are two remedies especially which have been of much service to me. One is the local application of the glycerite of boroglycerin, combined with the internal administration of oxalate of cerium in doses of ten grains every half hour until the patient has taken a drachm. This acts as a sedative to the cough.

Dr. RICE: I am sure it is of benefit to the association to have its attention called to enlargement of the lingual tonsil in children as a cause of irritative cough. Dr. Robinson has expressed surprise that we do not find more trouble from this condition in young children than we do. I think it is because of the fact that the epiglottis is placed so far back in young children that it is less likely to be irritated by the lingual tonsil. In adults, I have frequently seen, as the result of such pressure by these growths, much local irritation and even enlargement of the epiglottis, but in children this does not often occur, because, as I have said, there is rarely contact, and we must remember the lingual tonsil is not often greatly enlarged in children. Personally, I have found that many of these cases of irritative cough

are due to postnasal adenoid growths and enlargement of the faucial tonsils. I do not remember having seen cases of enlargement of the lingual tonsil in children without enlargement also of the faucial tonsils, and often adenoid enlargement too, and I have always felt that the latter conditions were more potent in producing cough than enlargement of the lingual tonsil.

Dr. FARLOW: There is a practical point to which I would like to call attention in examining patients for the presence of enlarged lingual tonsil. In the ordinary method of introducing the laryngoscopic mirror this region is often overlooked. If the mirror is held more nearly horizontal and just in front of the base of the uvula, the glosso-epiglottic fossa is easily seen, and it is always well to introduce the mirror slowly, looking at the dorsum and base of the tongue before examining the larynx.

Symptoms similar to those described by Dr. Robinson may be caused by enlargement and prolongation downward of folds or projections from the *faucial* tonsils, which press against the sides of the epiglottis and tongue even when there is no enlargement of the lingual tonsil.

Dr. SWAIN: I think that I have been interested in the lingual tonsil and its diseases perhaps as long as any member present. It was in 1885 that I reported a series of sixty-eight cases from the clinic of Professor Hagen, in Leipsic, at which time I was his assistant. I was much interested in Dr. Robinson's remarks concerning his observations on children. We are all aware that at birth no adenoid tissue is found on the base of the tongue; it is only after the third or fourth year of the life of the child that adenoid tissue appears there. It is from this period on that the child becomes subject to various exanthematous diseases, during the occurrence of which all the adenoid tissue of the nasopharynx and throat undergoes enlargement. I was at one time of the opinion that the lingual tonsil was not the subject of disease prior to the period named, and that it rarely was found until after puberty. I no longer hold the opinion that enlargement of the lingual tonsil does not exist in young children, and I am glad to add a mite to what has been said by Dr. Robinson on that point. At the same time, acute enlargements of the tonsil are not common.

I also wish to confirm the remark about the method of introducing the mirror mentioned by the last speaker.

It is very easy to overlook the glands at the base of the tongue unless they are especially sought for.

I might also emphasize what I said at Pittsburgh, that frequently the cough is the result of the enlargement of the lower part of the faucial tonsil. Cough is not only produced by friction between the glandular tissue of the tongue and the epiglottis, but also by the contact of the lower part of the faucial tonsil, or the enlarged nodes below it, with the lingual hypertrophy. The inflammation of these lingual structures is to be treated on the same general principles as are useful in other tonsillar affections, both acute and chronic.

Dr. ROE: When Lennox Brown, who was the first to call the attention of the profession to this subject, pointed out the relations which many disturbances of the throat sustain to diseases of the glandular structures at the base of the tongue, he gave a clew to the explanation of a great many affections of the throat, the cause of which had been previously overlooked. But even at the present time, as Dr. Farlow has just said, diseased lingual tonsils are often overlooked in an ordinary examination of the throat.

When the lingual and faucial tonsils are diseased, it is quite common to find a diseased condition of the lingual tonsil also, for the reason that the chain of glands surrounding the fauces are composed of the same kind of tissue, and the influences that cause an enlargement and disease of one collection of glands will at the same time affect the others. In a great many cases the persistent coughs in children, and also in adults, are caused by an enlargement or diseased condition of the lingual tonsils coming in contact with the epiglottis, which, by keeping up a persistent tickling, excites a hacking cough with a constant inclination to clear the throat. In many cases, as Dr. Robinson has pointed out, this persistent cough in children will continue, notwithstanding all forms of medication which are not directed to this region, and sooner or later it is ascribed to some unknown reflex cause located in some other part of the body.

With reference to the removal of the lingual tonsil, I would say that several years ago I invented a lingual tonsillotome for this purpose which operates on the principle of Mackenzie's amygdalotome, but curved so as to pass over the base of the tongue. In many cases where this tonsil is a rounded projecting mass, it can be most easily and satisfactorily removed with this instru-

ment. In those cases, however, in which the tonsil is lobulated and so flat that the mass can not readily be engaged in the fenestra of the instrument, I have found the use of a snare having a curved stem most satisfactory. The wire should be so stiff that, with a little pressure, the loop can be imbedded in or around the mass of tissue to be removed. In these cases it is often necessary to remove a piece at a time, but with a little patience, care, and dexterity, the entire mass can be completely removed. A smooth surface is then left which quickly heals, and the operation is almost entirely free from pain and not followed by the soreness that results from the removal of this tissue with the galvanic cautery. The use of the galvanic cautery, however, is extremely serviceable in the obliteration of the enlarged or varicose vessels of this region, where the enlargement of the tonsil is due to an increased vascularity instead of a true hypertrophy.

Dr. GLEITSMANN: I was very much interested in Dr. Robinson's paper, as I read a paper before the Laryngological Section of the Academy of Medicine of New York, about eleven years ago, upon hypertrophy of the lingual tonsil, in which I discussed both the pathology and treatment. I reported several cases in that paper in which cough was the principal symptom, and have had others since. One was in a young lady, twenty-eight years of age, who had a constant dry cough, which, in the minds of her relations, was a sign of beginning consumption. In that case I removed a mass of lingual tonsil, and entirely relieved the cough. I read a paper in Brooklyn a year later, and reported that the same patient had come back to me and stated that her cough had returned. If I had not recognized the patient as the one who had previously suffered with cough from hypertrophy of the lingual tonsil, I would not have known where to look for the cause, but on careful examination I found an enlargement of a small mass of glandular tissue in the glosso-epiglottic fossa, which I removed and thereby relieved the cough permanently.

I have not had much experience with this condition in young children, and feel obliged to Dr. Robinson for expressing his views.

In adults, the galvano-cautery and lingual tonsil-lotome are what I have generally used in the removal of hypertrophied masses from the base of the tongue.

Dr. LANGMAID: I am constrained to range myself by the side of Dr. Rice in the discussion of this subject.

Since hearing Dr. Swain's paper on the lingual tonsil, I have been on the lookout for the cough from enlargement of that structure. I regret to say that I have failed to find any evidence either of cough or other disturbance of this reflex character. I have seen large growths in this situation, but they were unattended by any such result. I have not met with a case such as Dr. Gleitsmann has referred to. I have also looked for it as a cause of cough—as Dr. Robinson has so graphically described—in children, but thus far I have not been able to find it acting as a cause.

My reasons are these, and I think, without comparing myself with others, I have found myself reasonably successful in the treatment of these cases: There is no reason, in the first place, why such a result should follow enlargement of the lingual tonsil. Where a cough is present in such cases, I have always found in addition enlargement of the tissues in the vault of the pharynx. Now we know that there are very few reflexes which start directly from the base of the tongue. In fact, there is no comparison between the frequency of the reflexes starting from the pharynx and those from the base of the tongue. At the same time, I am much obliged to Dr. Robinson for calling attention to this as a possible cause of cough and I shall continue to look for cases of this character.

Dr. ROBINSON: I am, of course, perfectly familiar with the very important work done by other members of this association with regard to disturbances resulting from enlargement of the lingual tonsil, but from my knowledge of the work of this association I did not believe that the attention of the fellows had been called directly to the possibility of acute congestion and enlargement of the lingual tonsil as a cause of cough in children.

I know that cases have been sent to general practitioners by specialists in this line because cough had persisted after removal of the faucial tonsils; but I must say that it is only since my attention was called to enlargement from acute congestion of the lingual tonsil in children that I have been able to understand these cases of irritative cough.

The local treatment which I have used consisted in the application, directly to the glands, of the compound tincture of iodine twice daily. All other local treatment I have stopped, as it gave me no result whatever. The relief to the symptoms was very marked, showing

that the cause of the cough had been removed. Previous to my knowledge of this, I could arrive at no satisfactory explanation of this class of cases. Although you may not have met with these cases, yet I must express my strong personal conviction that when you come in contact with general practitioners you will find that they admit enlargement of the lingual tonsil in children as a cause of persistent irritative cough.

*Paper.*

SUBMUCOUS OPERATIONS ON THE NASAL SEPTUM, WITH  
ATTEMPTS AT MEMBRANE GRAFTING.

By THOMAS AMORY DEBLOIS, M.D.

PERHAPS, as a prelude to the short communication which I shall make, I might state what led up to this slight departure from the ordinary manner of removing some of the convexities which so frequently are found on the nasal septum. In the month of October, 1897, a young woman came to the Boston City Hospital Throat Clinic with a history of persistent epistaxis from the right nostril. She gave a story of having been operated upon by some gentleman from Albany (whose name I did not care to learn) for a spur on the septum. On examination, I found the mucous membrane completely removed from the cartilaginous septum for a space of about the size and shape of a ten-cent piece. The centre of this cartilage might have been cut through, but it appeared to me as if it were only very thin. Treatment was commenced around the borders of the mucous membrane, where the bleeding points appeared to be, with ordinary astringents and also by touching these points lightly with the galvano-cautery. The treatment appeared to be beneficial, but one day she came to the hospital with a small perforation through the very centre of the denuded cartilage. This perforation became larger and larger, and there seemed to be no way of arresting the destruction. It then occurred to me that as skin grafting had proved so beneficial in the healing of deep burns, it might prove useful to graft mucous membrane on the periphery of this denuded surface. As I remembered skin grafting, it consisted in anchoring a number of pinhead-sized particles of skin on the granulating surface. So I removed pieces

of mucous membrane from a pharyngeal tonsil which I had just cut, adjusted them on to the denuded surface of the *sæptum*, and covered the whole with elastic collodion. In twenty-four hours the grafts had disappeared. In talking the matter over with a gentleman who had done a good deal of plastic work, he advised using much larger pieces of mucous membrane. My next attempt on this same case was a day or so afterward, and here I was able to take large grafts from the mucous covering of a uvula which I had just removed. This time I placed three grafts covered with collodion, and did not see the case for two days. Two of the grafts had disappeared, but the remaining one, though shrunk, had adhered on one edge. This tedious and difficult process of placing grafts was gone through with many times, and it seemed as if the drying mucus formed under the edges of the grafts, and, acting as a wedge, forced them away from the denuded surface. I succeeded at last in covering part of the surface with healthy though assorted mucous membrane, taken from whatever healthy patients had just at that moment been operated on. The mucous membrane certainly can be transferred, and might frequently be used to prevent the spreading of ulceration.

But the other side to my story was that this denuded *sæptum* had sloughed through on account of want of nourishment from the lost membrane. This brought me to think that the usual operation for removal of spurs and ridges—*i. e.*, by sawing directly through mucous membrane and cartilage or bone together—was faulty, particularly when large surfaces were exposed.

Obtaining some old-fashioned dental instruments with long handles (principally those used for removing tartar from the teeth), I had them bent and refashioned and ground, thus making a set of knives and gouges of such various shapes that I have always found some one of them applicable to the particular spur which I wished to strip.

The saw which I have used is necessarily very thin and provided with a probe point. I commence at the base of the spur, make a short vertical incision, and then with one of the flat instruments separate as well as I can the membrane from the bone or cartilage, work-



ing from below upward; sometimes I cut out, but this merely gives me more room for the play of the saw. Frequently the spur is of such a shape that I am obliged to make my primary incision at the bottom, and then peeling upward it leaves a flap hanging. After the membrane is well stripped away, I saw the spur off from below upward, being careful not to cut my flap through. Very often I am obliged to finish cutting with forceps; this will also remove the piece of cartilage or bone. After cleansing well, I plaster the flap down with collodion. Healing, of course, is much quicker than where the surface is left to granulate.

One of the disadvantages of this form of operation is that it is extremely difficult to leave the upper part of the cut, or where the saw comes out, smooth. There is almost always a little "knob" of septum left sticking up; if you try too hard to obviate this, one is very apt to cut through the flap, and all your trouble is for naught.

I can speak of half a dozen cases which resulted well, and of which I am proud. I also know of others, where I either cut off the flaps, or they sloughed, or something unfortunate happened—and these I would rather not speak of.

My first case was that of a medical student, where the spur was on the right side, well down on the floor. After attempting to strip back from in front, which I found impossible, I had to cut through from below and strip upward. Three times, on account of hæmorrhage, I had to desist and plug with cocaine for ten or fifteen minutes. After separating well, I removed the spur with the electric engine and side-cutting burr. The result was excellent.

The second case was that of a woman with a longitudinal ridge well back on the bony septum. I sawed off and got a good result, although the hæmorrhage was sufficiently troublesome to make the operation tedious. In the case of another woman, I lost half of the flap by not seeing where I was going on account of the blood. When

there is too much blood I always have to stop and plug with cocaine until I can see.

In my fourth case, I cut entirely through the cartilage, but as my flap was good it healed down and I avoided a perforation.

Upon the whole, I think that submucous cutting is worth the trouble: first, as it almost obviates the danger of making a perforation; second, it heals much quicker; and, third, you do not have the scar on the membrane where crusts of dried mucus are so apt to lodge.

#### *Paper.*

##### EARLY DIAGNOSIS IN WHOOPING-COUGH.

By HENRY LEWIS WAGNER, M. D., PH. D.

AN early diagnosis in whooping-cough is important, as we can in many cases shorten the duration and prevent its spreading by using early proper prophylactic measures. This is not only of interest for the general practitioner, but especially for the rhinologist, who may be consulted first for the obstinate rhinitis acutissima serosa, or later for the incessant cough; and for the ophthalmologist, for the concomitant conjunctivitis hyperæsthetica.

The diagnosis can be made at once by a *bacteriological examination of the nasal secretions* ("primary place of infection"). The secretions of the *normal* mucous membranes of the nose contain very few bacteria, while in *whooping-cough* we find a large mass of bacteria of one kind—a natural pure culture of "polbacteria" (Czaplewski and Hensel). This bacterium, when full grown, is two to three times as long as broad, is rounded and somewhat thickened at its ends, and is divided in the middle. Nearly all of them are surrounded by a more or less pronounced capsule, not unlike the Friedlaender's pneumococcus. This capsule originates in the animal body by imbibition of the external layers of the cell membrane (by plasmolysis), and is lost by artificial cultivation (perhaps by peptonization). The morpho-

logical properties of this pertussis bacterium have been studied by several authors with varying results, as they have had to encounter the difficulties of not only isolating this one bacterium from a large number of others, which are found in the secretion of the pharynx and lower respiratory organs, but also in observing somewhat different forms of this (whooping-cough) bacterium when using different methods of staining.

This may be due to chemical reactions of the protoplasm of the capsule which surrounds this bacterium.

The Czaplewski method of staining this bacterium consists (a) in the action of one-per-cent. acetic acid solution, (b) by staining with a heated ten-per-cent. carbolic-acid-glycerin-fuchsine solution.

This latter solution consists of one part of fuchsine, five parts of liquefied carbolic acid, fifty parts of glycerin, and a hundred parts of water.

Formerly other investigators and I used the plain aniline colors, which failed to give such a true picture.

Of late I am using, with excellent results, the Knaak's contrast stain, which I have somewhat modified, enabling me to examine quickly the entire field. The bacteria are stained blue and the cells and their nuclei red.

This method consists in staining with methylene blue in a weak alkaline solution. This stain is then decolorized by two-per-cent. freshly prepared argonin solution, which reduces the methylene blue in the cells and their nuclei quicker than in the bacteria. To prevent a reoxidation of the leukomethylene blue by atmospheric oxygen, we wash off the specimen with a concentrated solution of cream of tartar. As contrast stain we can use a very diluted fuchsine solution (one part concentrated alcoholic solution to forty parts of water).

In the case of Czaplewski, who was taken ill with whooping-cough during the study of the disease, the examination of his nasal and pharyngeal secretions showed the same bacterium as he was studying, verifying this bacterium as the cause of the disease.

The treatment should certainly be principally a local one, which Michael long ago advocated, and which has lately been revived by Moizart.

*Discussion.*

Dr. SWAIN: I should like to inquire of Dr. Wagner if he is successful in finding the pol-bacteria in every case of whooping-cough.

Dr. WAGNER: Yes, in every case. I have been making these examinations for the last eight years, but it is only since Czaplewski introduced his new method of staining that I have been able to arrive at more positive conclusions. The use of this new stain shows that former observations were incorrect, because we misinterpreted the morphological structure of the bacterium, which we thought was a diplococcus. Now, we know that it is not a diplococcus, but a pol-bacterium. In many cases it is possible to make the diagnosis of whooping-cough in the early state before the cough has set in and while there is only a rhinitis acutissima serosa. In all cases of prolonged illness also, its presence in the nose and throat will enable us to make a correct diagnosis where we otherwise should be in doubt.

Dr. SWAIN: How early in the disease before the occurrence of the whooping-cough would you be able to make the diagnosis?

Dr. WAGNER: I consider the appearance of these bacteria in the discharge from the nose as a primary manifestation. Their occurrence in the nose will produce the first symptoms. These bacteria can be found even several days before the reflex symptoms of the eyes occur, which generally are considered the earliest manifestations of the disease.

Dr. FARLOW: In 1890 I read a paper before the Boston Society for Medical Improvement (see *Boston Medical and Surgical Journal*, February 27, 1890) on the Use of Resorcin in Whooping-cough. This was based on my successful treatment of a number of cases by means of sprays and inhalations. Dr. Moncorvo, of Rio de Janeiro, had previously reported similar results in a paper entitled *De la Coqueluche et de son traitement par la résorcine*.

Dr. Affanassieff (in Baumgarten's *Lehrbuch der pathologischen Mykologie*, 1888, p. 734) professed to have found a bacillus of pertussis which could be cultivated, and Dr. Smetchenko had also found this microbe,

which was killed in cultivation when the medium (jelly) contained corrosive sublimate 1 to 60,000, or resorcin or phenol 1 to 1,200. Dr. Moncorvo located the microbes at the entrance to the larynx and made direct applications with a laryngeal swab. I sprayed the nose as well as the throat and larynx. In view of these observations, I should like to ask Dr. Wagner what treatment was employed in his cases.

Dr. WAGNER: In reply to Dr. Farlow's question, I desire to say that as to treatment I have changed my views somewhat. Some clinicians have used resorcin in the form of a powder combined with some inert substance; but I have found that it is not borne well by children. If you use fluid petroleum with menthol or eucalyptol or aqueous solutions of resorcin (three to five per cent.), the result is certainly more satisfactory than that from any dry powder. I must repeat, that I have been making these bacteriological observations for the last eight years and have reached similar conclusions as Czaplewski and Hensel, only with different interpretation of the structure of these bacteria. They do not say that these bacteria that I have just described are to be met with only in the nose, but they have found them especially in the throat and pharynx; though I have argued that as they were found in the pharynx, they might be first detected in the nose, if this is the primary seat of this disease, and I have succeeded in finding them in this location a few days before their appearance in the pharynx, and therefore consider the nose as the "primary place of infection."

Dr. WRIGHT: I notice that on the programme the title is The Early Diagnosis of Whooping-cough, but I do not understand from Dr. Wagner's remarks whether or not the bacterium that he found is to be considered the cause of the disease or merely a concomitant. If it is the cause, it would be perfectly easy to isolate it and inject it into other patients, and cause the development of the disease in these other persons. Until this has been done in the case of the bacterium described in the paper, we could hardly accept it as a prime aetiological factor of the disease in question. I have not followed the literature of the subject very closely, and can not tell whether or not this test has been made in the case of whooping-cough, but I will say that the mere occurrence of bacteria in the nasal discharge is not necessarily positive proof that they are the cause of the disease.

Another point that I would make is this: Dr. Wagner and several others, in alluding to results detailed in the nasal-bacteria paper read by Dr. Park and myself before this association last year, seemed to be of the opinion that we did not find any bacteria in the healthy nose, whereas the whole purpose of our paper was to refute the assertion of Hewlett and Thomson that they did not find any bacteria in the normal nasal chambers. I will repeat what was stated in our paper, that in thirty cases we found bacteria present, while in six cases we did *not* find them. The cause of error with Hewlett and Thomson in their experiments was, presumably, their faulty technique. They used the ordinary platinum-wire loop, which at best only takes with it from the nose a very small amount of mucus, and that from the surface of the fluid bathing the mucous membrane. Now the mucus flows continually from the upper regions of the nasal chambers, and consequently bacteria deposited and growing in the respiratory region would be washed away from the surface over which the comparatively aseptic fluid flows. Now, by following the method of rubbing the mucous membranes with a pledget of cotton on a probe, as is done in the throat in making a culture for diagnosis of diphtheria, we may have succeeded in obtaining the bacteria which were not present in the superficial parts of the mucus. If it is true that in the nasal chambers there is a bactericidal agent sufficiently powerful to immediately destroy all the bacteria of the inspired air as soon as it is brought in contact with them, I can only say that we should extract it for use in surgery.

Dr. WAGNER: There are two points that I should like to make clear. Let me repeat to Dr. Wright distinctly what I have stated in my paper: First, I did not say that normal mucous membranes were free of bacteria, but I stated that always a few bacteria were found in the secretions of the normal mucous membrane, as Dr. Wright and Dr. Parker have demonstrated, and that also the resistance of the normal mucous membrane was sufficient to prevent the development of bacteria, otherwise the mucous membrane would be covered with bacteria taken in with every breath of air.

Secondly, the last speaker is right in calling attention to the postulate of Koch in establishing the proof that this micro-organism is the cause of this specific disease—that is, to inoculate and to reproduce the characteristic symptoms of the disease. Well, I have not

undertaken this in children, and shall not attempt it. But I have inoculated animals, rabbits, for example, where a reflex action was observed, as others have also found, such as sneezing, but no spasmodic cough. I have mentioned, though, the fact that Czaplewski, working in his laboratory with these germs, was taken ill with typical symptoms of this disease, and these bacteria were then found also in his nasal and pharyngeal secretions.

*Paper.*

**NATURAL IMMUNITY OF THE MUCOUS MEMBRANES OF  
THE RESPIRATORY TRACT.**

BY HENRY LEWIS WAGNER, M. D., PH. D.

(PRELIMINARY REPORT.)

WITHOUT entering into the explanation of immunity and its various theories, with which you all are familiar, I desire to give you to-day a brief report of my research work regarding the natural resistance of the mucous membranes of the respiratory tract against the invasion of bacteria.

The experimental pathology recognizes at present two kinds of immunity: the natural and the acquired. The natural immunity not only exists within our body, but it also shows its activity on the mucous membranes; this is plainly demonstrated by the fact that bacteria are constantly carried to the surface of the upper respiratory organs by inhaling as well as by introducing our food without producing any local or general infection in our healthy body. On the other hand, should we take any of these bacteria from normal mucous membranes and place them in proper culture media, we will observe a rapid multiplication; and if replaced in sufficient quantity on the original mucous membranes, they will produce a certain diseased condition of these tissues.

Various authors have regarded the nasal mucous membranes free of bacteria, which statement, though, has been corrected by the careful investigations of Park and Wright, who also postulate 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."

Hugenschmidt, in the annals of the Pasteur Institute, referring to the saliva of the mouth, claims that it also has no germicidal power, but that wounds in this part of the body are free from infection—due to active phagocytosis, which he claims is induced by the power of saliva to stimulate migration of leucocytes.

My own researches have shown that the comparative scantiness of bacteria in the nose is due only to mechanical (physiological) devices, and I have been convinced that the activity of bacteria, if not too many in number, is checked by a certain "biological" process—induced by chemotaxis.

Several scientists have been investigating the nature of this immunizing process, with the result that a chemical constituent of the mucus, such as mucin, is antagonistic to bacteria, although this theory has of late been contradicted. In my lectures on chemical physiology (as assistant to the chair of physiology at the University of Wurzburg) fourteen years ago, I demonstrated that this cellular product prevents only "mechanically" the invasion of bacteria, as I was able to cultivate bacteria on artificial media containing mucin, obtained from the submaxillary glands of animals. Claude Bernard had already partly advanced a similar statement that the epithelium of these membranes, as well as the secretions, offered a natural protection. To strengthen this argument, we find that the bronchial tubes in the living animal are sterile, while after death they become invaded by a very large number of bacteria; proving also that the immunizing process must depend upon a "protoplasmic activity" in the living body. This natural defense is attributed by Buchner and others to the paraplasmic action of leucocytes, while H. Kossel maintains that the nuclein acid contained in the nuclear substance of the cell may have the germ-destroying power.



The results of my own researches are:

1. The *natural resistance* of the mucous membranes depends principally on the "activity of leucocytes."

2. The *action of these leucocytes on bacteria* does not consist in their "total" destruction—as observed in disinfection either by heat or by a chemical (coagulation)—but it consists in greatly "diminishing their activity" to form poisonous products (toxines, etc.).

This is explained, that leucocytes produce "*enzymes*," which are able to "impair the chemical structure of the bacterium body." These enzymes have apparently no effect on albumin or albuminoid substances, but they are able at blood temperature to convert cane-sugar into glucose and to influence fluid starch and cellulose.

Therefore the cytoplasmatic defense of mucous membranes consists in disabling the foreign cell in its activity, either to form poisonous products or to enter their tissues. In other words, the bacteria are "slumbering" on the mucous membranes, just as we meet such "latent life" in the vegetable kingdom, and in this "inactive state" the bacteria are carried away from our mucous membranes by the secretions and excretions.

*Discussion.*

Dr. WRIGHT: I wish to take the present occasion to withdraw my charge of not having read the paper written by Dr. Park and myself, which I made yesterday, so far as it applies to Dr. Wagner.

There is one very interesting point to which he calls attention in this communication: it is as regards infection of the upper air-passages. It is very well known, in the case of children, that tubercle bacilli reach the lungs through the lymph channels in the throat. It is almost impossible to find tubercle bacilli in the tonsils or adenoid tissue, but they may frequently be demonstrated in the cervical lymph glands. Undoubtedly it seems possible that the tonsils and adenoid tissue are points of entrance of tubercle bacilli into the organism, and that they must pass through it into the general system and reach the glands in the neck.

I want to call attention to the paper presented by

Dr. Goodale in a recent issue of Fränkel's *Archiv*. I regard it as the most valuable paper presented by an American observer on a laryngological subject during the past year. His observation of the carmin granules absorbed by the adenoid tissue is especially important. Dr. Hodenpyl's experiments many years ago tended to show that the tonsils had no power of absorption, but it is proved in this paper by Dr. Goodale that they have an absorptive power at least for inorganic matter, but he has never been able to find tubercle bacilli in the tonsils.

*Paper.*

LEPROUS ULCER OF THE LIP.

By HENRY LEWIS WAGNER, M. D., PH. D.

At the International Leprosy Conference in Berlin the opinion was generally formed that the primary seat of this contagious disease was the mucous membrane of the upper respiratory organs.

Glück stated that he found on these mucous membranes lepra tuberosa as well as the mixed form, lepra tuberosa anæsthetica, and pointed out that it also made its appearance on the lip, which before that had been considered very rare. Sticker referred to the nose, especially the cartilaginous part of the sæptum, as the place of primary infection, saying it might be mistaken for fœtid atrophic rhinitis, and in an advanced state for necrosis of the sæptum. The nasal secretions under these conditions contain a large number of bacilli, and the disease can be communicated to the healthy by contact inoculation.

The case I report to you to-day is that of a middle-aged man, a smoker, who had lived for some years in China, and consulted me for a peculiar dark-brownish ulcer with some small nodules on his lower lip, which had existed for a few months with little pain, and which I suspected to be syphilitic. The patient's nose and throat showed nothing abnormal, and I scraped away some of the bad-smelling detritus mass for microscopical



DR. WAGNER'S PAPER ON LEPROUS ULCER OF THE LIP.

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examination and asked the patient to return the next day. The microscopical examinations revealed, to my astonishment, quite a large number of lepra bacilli and innumerable suppuration cocci; the bacilli were located partly in the cells and partly outside of them. Unfortunately, the patient never returned, and I was therefore unable to make a more extensive study of his disease. This case undoubtedly showed the lepra tuberosa form, and demonstrates the channel through which this disease can be communicated to others.

*Paper.*

ON THE USE OF SCHLEICH'S MIXTURES FOR ANÆSTHESIA  
IN OPERATIONS ON THE NOSE AND THROAT.

By EMIL MAYER, M. D.

IN 1895 Schleich, of Berlin, presented the results of his experiments with a new mixture for general anæsthesia. In the *Medical News* of November 27, 1897, M. L. Maduro, of New York, called attention to these mixtures, which he had seen used by Schleich, and which were numbered 1, 2, and 3. These mixtures are composed of ether, chloroform, and petrolic ether (benzine) of a boiling point of from 60° to 65° C. in the following proportions:

*Mixture No. 1.*—Boiling point, 100.4° F. Chloroform, 45 c. c.; petrolic ether, 15 c. c.; sulphuric ether, 180 c. c.

*Mixture No. 2.*—Boiling point, 104° F. Chloroform, 45 c. c.; petrolic ether, 15 c. c.; sulphuric ether, 150 c. c.

*Mixture No. 3.*—Boiling point, 107.6° F. Chloroform, 30 c. c.; petrolic ether, 15 c. c.; sulphuric ether, 80 c. c.

These measurements are by volume and not by weight. He continued by saying that Schleich's argument is that the boiling point of ether (15° C.) and that of chloroform (65° C.) must act in different ways upon an organism whose temperature was 38° C. He therefore

promulgated the theory that the ideal anæsthetic should have a boiling point nearly or altogether equal to the temperature of the human body. The nearest approach to the body temperature as regards its boiling point is the bromide of ethyl, but the presence of bromine makes it too dangerous. After experimentation with various mixtures Schleich concludes that "it is possible to change the boiling point to the desired degree, and that the mixture will continue to boil without decomposition so long as its temperature is not considerably higher than its determined boiling point. Mixtures of ethers the boiling point of which closely approaches the temperature of the body, absorbed during respiration, will boil when expired with the air of the lungs. It is possible to mix ethers having different boiling points in various portions and then obtain a desired boiling point, and further regulate it according to the proportion of each used."

In accordance with Schleich's suggestion, mixture No. 1 being the most evanescent, the patient would more readily awaken, and hence it was to be used in minor operations, while mixtures No. 2 and No. 3 produced a more lasting anæsthesia and were to be used in prolonged operations. On December 27, 1897, Dr. Willy Meyer read a paper before the Medical Society of the County of New York upon the use of these mixtures in general surgery. He had made use of them with no untoward symptoms whatever in upward of one hundred cases in his hospital and private practice since October, 1897. He stated that he was delighted with the improvement in general anæsthesia by means of this method, administered in the following manner: An ordinary chloroform mask is covered with gauze, then with flannel, and finally with oiled muslin, in the centre of which latter a hole fifteen millimetres in diameter is cut. A small quantity of the anæsthetic required was poured upon the inner surface of this mask and placed directly over the nose and mouth. The mixture is rapidly dropped upon the opening in the oiled muslin. Maduro uses a paper and towel cone open at both ends, with

some loose gauze placed midway and half across, upon which he places one drachm at first and then drops the mixture upon it from time to time.

In Meyer's paper, as also in the discussion which followed, there was a unanimity of opinion that anæsthesia by this method was remarkably rapid; there was a notable absence of the stage of excitement and of cyanosis; the disagreeable accumulations of mucus in the trachea were avoided; bronchitis and broncho-pneumonia did not occur; it was frequently given where valvular disease of the heart existed without untoward effect; it was rarely associated with vomiting, and, finally, the patients became thoroughly conscious, with faculties intact, in an incredibly short space of time.

These considerations seemed sufficient to me to warrant an investigation of the use of these mixtures for such operations on the nose and throat as require anæsthesia. The point that appeared to be of the greatest import was the rapid return to consciousness, for a great element of danger in our operations, as regards post-operative hæmorrhage, is that it may occur while the patient is slumbering from the effects of the anæsthetic; a patient fully awake would feel the blood trickling down the pharynx.

Anæsthesia in operations upon the upper air-passages is quite another thing than anæsthesia in operations upon other parts of the body. After our patients are fully narcotized, we must cease administering the anæsthetic and proceed as rapidly and as dexterously as we can. Our inability to operate slowly and tie or clamp each vessel as we go along, the copious hæmorrhage which usually follows, and the possibility of having the blood enter the larynx, do not detract from the dangers of the anæsthesia. If, then, a patient could be thoroughly anæsthetized and remain so long enough for our operations and would become quickly conscious, and if such anæsthetic were free from danger, a great stride toward absolute safety in our operative work would have been made.

I have used these mixtures in twenty-three cases.

In accordance with the suggestions made that the anæsthesia of the No. 1 mixture would be too evanescent, it was not used in the first twenty-one cases. Maduro uses the No. 1 mixture exclusively for prolonged operations, and does not agree that it is too evanescent for our purposes. In the last two cases the No. 1 mixture was used, Dr. Maduro kindly administering it according to his method. Its action was not different from the other's, save that it took a little more time to anæsthetize the patient; hence its use is not contraindicated, as I had been led to believe, and all my cases will in future receive the No. 1 mixture, as it is the least concentrated of all the mixtures and therefore safer.

The tables here presented were compiled from the notes made in each instance by Dr. F. M. Stephens, assistant house surgeon to the Throat and Ear Departments of the New York Eye and Ear Infirmary. Each case was carefully watched, and in none was there a single untoward symptom. The anæsthesia was ideal. There was no stage of excitement, with its usual garrulity, excepting perhaps a slight flexion of the forearm, which a child could have resisted. The tension of the pulse was markedly increased, the breathing was quiet and natural, and unconsciousness was first indicated by the absence of conjunctival reflex. This generally occurred in four minutes, and in from three to five minutes thereafter the patient was fully restored to consciousness. The average amount used was six drachms, and the average time for complete anæsthesia was four and a half minutes.

The first case in which this mixture was used by me was that of a boy of thirteen, who had a deflected sæptum. It required half an ounce (16.0) to anæsthetize him in four minutes. The operation was completed in three minutes, when he became fully conscious. Ten minutes later an adult was *etherized* with the usual struggle and stertorous breathing. His deflected sæptum was operated upon. For a couple of hours afterward he was noisily abusive and belligerent, requiring constant watching on the part of two stalwart men to frustrate



## Report on the Use of Schleich Mixtures for Anesthesia in Nose and Throat Cases.

No.	Date (1888).	Sex.	Age.	Operated on for	Time required.	No. of Solution.	Amount used.	Operator.	Eases.	Remarks.
1	February 15th.	M.	13	Deflected septum.	4 minutes.	Three.	4 drachms.	Mayer.	None.	
2	February 16th.	M.	21	Deflected septum.	5 "	Three.	4½ "	Mayer.	None.	
3	February 19th.	F.	17	Deflected septum.	4½ "	Three.	5 "	Mayer.	None.	
4	February 26th.	M.	10	Adenoids.	3 "	Three.	4 "	Mayer.	None.	
5	March 4th.	F.	4½	Adenoids.	4 "	Two.	4 "	Mayer.	None.	
6	March 9th.	M.	29	Adenoids.	4 "	Two.	6 "	Asch.	None.	
7	March 9th.	M.	32	Deflected septum.	4½ "	Three.	6 "	Simpson.	None.	
8	March 12th.	F.	5	Adenoids.	2 "	Two.	4 "	Asch.	Yes.	Vomited eight times during night.
9	March 19th.	M.	8	Deflected septum.	4 "	Two.	4 "	Mayer.	None.	
10	March 23d.	M.	18	Deflected septum.	4 "	Two.	4 "	Asch.	None.	
11	March 26th.	F.	10	Adenoids.	4 "	Two.	4 "	Mayer.	None.	
12	March 26th.	M.	6	Adenoids.	3½ "	Two.	4 "	Mayer.	Yes.	Vomited twice.
13	March 26th.	M.	47	Deflected septum.	9 "	Three.	12 "	Mayer.	Yes.	Vomited twice.
14	April 2d.	M.	2	Hypertrophied tonsils and adenoids.	1½ "	Two.	4 "	Asch.	None.	
15	April 2d.	F.	27	Deflected septum.	6½ "	Two.	12 "	Asch.	None.	
16	April 4th.	F.	27	Ethmoiditis.	7 "	Two.	16 "	Mayer.	Yes.	Ether substituted, owing to the long duration of operation.
17	April 6th.	F.	13	Adenoids.	4 "	Three.	4 "	Mayer.	None.	
18	April 7th.	M.	15	Deflected septum.	4½ "	Three.	5 "	Leonard.	Yes.	Vomited several times.
19	April 11th.	M.	6	Adenoids and hypertrophied tonsils.	2½ "	Three.	4 "	Simpson.	Yes.	Blood vomited immediately after operation.
20	April 27th.	M.	13	Adenoids.	4½ "	Two.	6 "	Mayer.	None.	
21	April 27th.	M.	15	Adenoids.	3½ "	Three.	8 "	Mayer.	None.	
22	May 7th.	M.	12	Adenoids and deflected septum.	7 "	One.	6½ "	Mayer.	None.	
23	May 7th.	F.	11	Adenoids.	7½ "	One.	6½ "	Mayer.	None.	

his eager desire to "clean out" the place. The first patient was meanwhile lying quietly on the bed next to this one and was an amused observer of his neighbor's actions, the latter being usually very mild-mannered and not an alcoholic.

Case VII was one of Dr. W. K. Simpson's, in which he operated in my presence for a deflected septum. There was barely any struggle; he was not strapped to the table nor held; six drachms of the No. 3 mixture were used, and in four minutes and a half he was ready for operation. He was conscious before he left the operating room, within five minutes after completion of the operation, and on going to his room ten minutes later Dr. Mandeville, who was present, remarked that he had never seen so rapid a restoration to consciousness after anæsthesia.

The youngest patient, who was operated upon for double amygdalotomy and the removal of adenoids, was two years old. Four drachms of the No. 2 mixture were used, and he was ready for operation in a minute and a half. The oldest patient was forty-seven years old. Of the twenty-three cases, vomiting occurred six times.

Case XVI began with No. 2 mixture. It required two ounces to narcotize her and took seven minutes' time. She had had an operation performed upon her antrum some months previously. This I curetted and syringed; the patient showing signs of returning consciousness, I changed to ether. As I wished to remove a diseased turbinate and curette the ethmoid cells, I feared that she might not remain unconscious long enough, and hence the change. This patient has had ether several times and always took it badly, the stage of excitement being prolonged and violent and the subsequent reaction from operations being very great. There was no excitement whatever this time, and, although she vomited freely afterward, as she always did from ether, there was no reaction at all after the operation. The other cases require no special note.

Dr. Stillman and Dr. Greeley (*Medical Record*, April 2, 1898) report forty-four cases anæsthetized by this method at the New York Infirmary for Women, upon whom some operation of a prolonged nature was performed during the months of January and February, 1898. The average quantity used was three ounces and two thirds. Seven eighths of an ounce was

needed to produce anæsthesia in ten minutes and a half. Consciousness was recovered in fourteen minutes. Eighteen patients were nauseated. Three needed stimuli. In one, ether was substituted because of a weak pulse. Three had valvular lesions of the heart. Nearly all received morphine and atropine hypodermically beforehand.

There are some objectors to this method who claim to have had alarming asphyxia occur while using the Schleich mixtures. These facts have been imparted to me by several surgeons. Dr. S. W. Wilcox (*Medical Record*, April 2, 1898) gives an unfavorable report in one case. His experience had been favorable up to that time.

"During the first period the patient was very hilarious; then he breathed badly, and the assistant said afterward that his pulse was variable. Nothing was thought of this. Attention being directed to the patient's breathing, he thought he was dead. The pupils were dilated, breathing had stopped, the pulse could not be felt. His jaw dropped and his face was cyanosed. Stimulation, artificial respiration, and moving the tongue outward and inward, the functions of life slowly returned. The trouble is," says Wilcox, "one never knows exactly what he is giving. The differing densities of the various component parts cause them to separate, and one can never be sure whether he is giving a larger proportion of one or another."

The *New York Polyclinic* states editorially (March 15, 1898): "Schleich's general anæsthetic mixtures do not appear to have met with the success that was hoped for them. His method of local anæsthesia has gained such general approval that equally fortunate results were expected from his method of general anæsthesia." No facts are given for these deductions.

Some explanation of these statements may be made when we note the report of Dr. Willy Meyer of the chemical analysis of these mixtures as made by Dr. H. F. Weidig: "These mixtures contain from 36.96 to 53.76 per cent. in volume of free ether. This explains

the possibility of asphyxia during narcosis, and particularly when it was not administered by the rapid drop method. It also explains how cyanosis and bronchopneumonia could have occurred" (*Medical Record*, March 5, 1898).

In a subsequent letter Willy Meyer (*Medical Record*, April 23, 1898) quotes Schleich as stating that "with the air that leaves the alveoli during expiration, the sulphuric ether is evacuated in chemical combination with the chloroform and petrolic ether. This combination is exactly the same as takes place within the test tube. None of the three ethereal substances is evacuated at its partial boiling point. Continually the same amounts of sulphuric ether, of chloroform, and of petrolic ether are evacuated during expiration as had been absorbed during inspiration. These ethereal substances, mixed with each other, do not evaporate separately; they represent a real chemical combination."

Chemical and physiological examinations lead Meyer to doubt this statement of Schleich. Chemical examination showed the mixture to contain a fixed molecular solution of chloroform and ether (which he calls M. S.) plus thirty-six to fifty-three per cent. free ether, plus petrolic ether. It does not contain, however, a drop of free chloroform. As these various fluids are not in combination in the shape of a solution, it stands to reason that the lighter ones evaporate first, and hence in a prolonged anæsthesia the free ether and the petrolic ether evaporate first, leaving the molecular solution behind, with which the narcosis continues. Hence, in these cases the anæsthetic mixtures are adapted to the temperature of the body in the beginning of the narcosis only. Meyer has discarded these mixtures for the present and uses M. S.

Schleich states that the petrolic ether is an indifferent carbohydrate. Experiments on animals by Meltzer and Weidig disprove this; their statement is that it is a violent poison. The small amount of petrolic ether used, however, is probably insufficient to have a toxic effect on human beings.

In a paper read before the Surgical Section of the College of Physicians of Philadelphia, Maduro states: "To seek a cause for the bad results noted is a difficult task. To blame it on the methods of administration and say that individual skill will bring about a change is vanity that is intolerable to some; yet there is truth in the fact that we can trace a bad result to improper administration.

"Again, in a good many bad results reported, it may often happen that just those cases would have fared the same with any other anæsthetic. I have had an opportunity to prove this on one occasion where, because of a stoppage of respiration, I continued with ether after the patient was resuscitated; a while after the same accident happened again.

"There is danger in the administration of all general anæsthetics, but to my mind that danger is lessened with the Schleich anæsthetics."

The only reported case of dangerous asphyxia, that of Wilcox, would indicate that more should have been thought of the hilarity of the patient and bad state of the pulse, for those familiar with Schleich mixtures will all agree that quiet respiration without hilarity and a marked increase of the tension of the pulse always exist, and the absence of these should excite serious attention.

Schleich has used his mixtures without a complication a thousand times. Willy Meyer and Maduro each report successes in one hundred cases.

The possibility of anæsthesia without violent excitement and a rapid return to consciousness must be especially alluring to us. If, then, in addition, we may have the knowledge of a great degree of safety if not an absolute one, the ideal anæsthetic will have been found. All are not yet agreed that this latter has been attained by the use of these mixtures, but a great stride toward it has been made.

From the investigations made I believe that we can make the following deductions:

1. That Schleich's theory of the adaptability of the

boiling point of the anæsthetic to the temperature of the body is amply proved.

2. These mixtures, properly administered, are comparatively safe, especially in short operations.

3. There is no stage of excitement.

4. The tension of the pulse is increased.

5. The patient becomes rapidly conscious.

This latter fact insures, in my opinion, an additional safeguard against post-operative hæmorrhage in operations on the nose and throat, for which reason alone the Schleich mixtures should demand a more general and thorough investigation on our part.

NOTE.—Since the presentation of this paper, Schleich's mixture No. 1 has been used in forty-seven operations, making a total of seventy. The results in these additional cases have been as gratifying as those embodied in this report.

#### *Discussion.*

DR. DELAVAN: While the method of Schleich has gained some strong advocates here and abroad, the opinions among our surgeons regarding it are not universally favorable. Indeed, in several of the leading hospitals in New York it has been tried and objected to. Mr. Bennett, of London, has lately introduced here the method of beginning the process of anæsthetization with nitrous-oxide gas. Within three minutes the patient can be thoroughly anæsthetized and made ready for operation.

DR. SIMPSON: I think that Schleich's method may be especially adapted for nose and throat operations, which, as a rule, do not require long anæsthesia; but as regards the asserted advantage of the absence of vomiting during the administration of the anæsthetic, or subsequently, this is not always observed. One of the resident physicians in a hospital in which it had been used has mentioned vomiting as one of the objections to its use. In a number of cases coming under my observation in the New York Eye and Ear Infirmary, the patient took it well, and the rapidity of coming out from its effects was certainly a very great advantage.

DR. MAYER: Dr. Simpson has anticipated what I wished to say in part. I have not enough experience in the use of the Schleich mixtures for anæsthesia in prolonged operations to warrant the expression of a decided

opinion as to their absolute safety. In operations of short duration, where only a few drachms are used, it seems to act in an ideal manner.

The liability to hæmorrhage after operations in the pharynx and nasopharynx should never be lost sight of, and it seems to me that the somnolency that follows other anæsthetics does not detract from the danger. It may happen that blood trickles down the pharynx while our patient is still unconscious, and we become aware of it only by the alarming pallor that ensues some time after.

The rapidity of a return of consciousness is then the chief merit of these solutions, for the patient will expectorate and be aware of the hæmorrhage very promptly.

I do not say that the ideal anæsthetic has been found, but it seems to me that we are starting in the right way toward it. If an anæsthetic is absolutely safe, is free from danger, or nearly so, and consciousness is promptly restored, the greatest danger subsequent to operations in the nose and nasopharynx will be decidedly diminished.

*Paper.*

REPORT OF A CASE OF FIBRO-LIPOMA OF THE LARYNX.

By FRANK WHITEHILL HINKEL, A. M., M. D.

MRS. F., aged fifty-five years, consulted me March 22, 1895. She gave a history of excellent general health. During the winter of 1883 she became conscious of a tumor of some kind at the back of the tongue. She consulted Dr. Roswell Park, of Buffalo, who removed a long, slender, cylindrical tumor which, as preserved in alcohol by the patient, was about an inch and three quarters in length by a third of an inch in diameter. She reported that it had been removed with scissors, and had been cut with ease and without pain. After some years there was a gradual return of symptoms, and ten years later, in February, 1893, Dr. Park removed in the same manner a somewhat spherical mass about a third of an inch in diameter. In August, 1894, Dr. Park again removed a tumor of shape and appearance similar to that removed in 1893. The symptoms returned speedily. There was not, when she consulted me in 1895, nor has there been since, any pain, cough, or expectoration.

There was no difficulty in swallowing. Speech was normal, but there was impairment of the singing voice. At no time then nor since have there been other symptoms than a sensation of some foreign body in the throat.

Her father had died of "cancer of the face, beginning as a mole under the left eye."

She presented an appearance of good health. There was nothing abnormal about the nose or upper pharynx. From the upper left margin of the epiglottis a pinkish-white tumor of flabby appearance depended into the left pyriform sinus, resting upon and concealing the ary-epiglottic fold and arytaenoid. It was soft and doughy under the probe. There was some varicosity of the root of the tongue. The tumor was readily engaged in the loop of a light snare. To my surprise, despite the soft appearance and feeling of the tumor, I was unable to draw the loop home. Using the snare to drag the tumor within reach, I removed it in three pieces with curved scissors. It cut dense and hard without much pain or bleeding. There remained after healing some fullness of the left half of the glosso-epiglottic fossa, involving slightly the left perpendicular edge of the epiglottis and extending on to the anterior wall of the pyriform sinus. The color of the parts was quite normal.

On March 9, 1898, Mrs. F. again consulted me, reporting that during the past winter she had had some slight discomfort about her throat. Examination revealed a pinkish-white, smooth, elongated tumor broadly attached to the free margin of the epiglottis and depending to the right, producing an appearance as though the right side of the epiglottis were turbaned or folded upon itself vertically. The left ary-epiglottic fold was much thickened, concealing the left arytaenoid and a part of the left vocal band, encroaching upon the lumen of the vestibule of the larynx, and partly filling the left pyriform sinus. Color and motility of the vocal bands were normal, and there was no involvement of the ventricular bands. The patient was able to bring a small portion of the epiglottic tumor into view on the back of the tongue, where it presented an appearance much like a polyp. With forceps and scissors it was readily removed. It presented two digitations, and was about three quarters of an inch in length. With a heavy snare and curved cannula I twice engaged the flabby and dependent laryngeal face of the left ary-epiglottic fold. The wire broke each time, showing great density of structure. The epiglottis after the operation presented a curious appearance. The entire glosso-epiglottic fossa was filled al-



most to the level of the tip of the epiglottis with tissue, presumably similar to the tumor removed. The consequent optical effect was as though the epiglottis had been amputated near the point of its attachment, when, in fact, it was of normal size and appearance on its laryngeal face.

As Mrs. F. suffers from no unpleasant symptoms at present, no further attempt was made to remove the redundancy of the left ary-epiglottic fold.

The persistent recurrence of this tumor, and its peculiar and unfamiliar appearance, led me to send the specimens presented herewith to Dr. Jonathan Wright for examination. With his usual kindness and keen interest in all things pertaining to pathology, Dr. Wright has given these specimens careful study and has prepared the exhibits that are the chief value of this report.

From the macroscopic appearance he at once suspected the tumor to be lipoma of the larynx. Later, microscopic examination confirmed this opinion.

The following is his report:

"No. 644. Various specimens received at different times from Dr. Hinkel, from the larynx of the same case, show a tendency to take the form of long, fingerlike projections. The one removed in 1883, after remaining fifteen years in alcohol, is forty-five millimetres long and about eight millimetres wide at the broadest point. Other growths are more or less of the same shape, some being tuberous, while some are more sessile. Their shape seems to differ somewhat according to their structure. The following are their microscopic and general characteristics, according to the dates of their removal:

"1883. Is made up principally of fat cells, especially at its distal part, having more fibrous tissue at its base.

"1893 and 1894. These growths, being more sessile, are largely made up of curling elastic fibrous tissue, but here and there some fat cells may be seen.

"1895. A long, tuberous-shaped growth shows a large predominance of fat tissue.

"1898. A more sessile growth is almost exclusively made up of the curling elastic fibres. There are one or two circumscribed areas of round-celled infiltration.

"The surface of all these growths is covered by stratified flat epithelial cells."

In 1895 Dr. Farlow presented before this association the report of a case of lipoma of the larynx removed by Dr. W. F. Knowles, of Boston. According to Gerhard<sup>t</sup>,\* but ten cases of lipoma of the larynx have been reported up to 1896.

My case is interesting not only on account of its rarity, but also on account of the persistent recurrence of the growth and the gradual infiltration of the adjacent tissues. In addition there is an interesting transformation in the character of the growths that have



FIG. 1.

recurred after the removal of the lipomatous tumors. This is well shown by drawings from sections made by Dr. Wright.

Fig. 1 represents a section of the first tumor removed

\* Nothnagel's *Pathologie und Therapie*.

by me in 1895. This tumor was found by Dr. Wright to be entirely analogous in structure to the original growth removed by Dr. Park in 1883. They both present well-marked lipomatous structure.



FIG. 2.

Fig. 2 is from the recurrent tumor removed this year, and shows it to be largely fibrous in structure.

For the subjoined references to reports of cases of lipoma of the larynx I am indebted to Dr. Wright.

Farlow. *Transactions of the American Laryngological Association*, 1895, p. 65.

Hohlbeck. Ref. *Centralblatt für Laryng.*, 1892-'93, p. 300.

Aplavin. Ref. *Centralblatt für Laryng.*, 1891-'92, p. 289.

McBride. *Edinburgh Medical Journal*, February, 1889.

Moritz Schmidt. *Die Krankheiten der oberen Luftwege*, edition 1894, p. 504.

Schrötter. *Vorlesungen über die Krankheiten des Kehlkopfes.*

Wagner, Tobold, and von Bruns have made reports of cases.

*Discussion.*

Dr. FARLOW: Dr. Hinkel has referred to a case which I reported in 1895. It was a very curious case. The patient came into my office with his hand to his mouth, holding something in his fingers which I supposed to be a toothpick. He told me that he had a growth which was attached to the back of his mouth, and that he had to hold it to keep it from slipping down his throat. This tumor was pedunculated and had an excursion of several inches from below the vocal cords to externally beyond the lips. When removed with the scissors it reappeared several months later, but after removal with the galvanic cautery there was no recurrence.

Dr. MACCOY: In 1892, in a paper read at the meeting of this society, held in Boston, on Rare Laryngeal Growths, I reported a case of lipoma of the larynx. The growth sprang from the margin of the laryngeal sac. It was removed by forceps and was about the size of a bean.

*Paper.*

REPORT OF A DEATH FOLLOWING IMMEDIATELY AN OPERATION FOR NASOPHARYNGEAL ADENOIDS UNDER CHLOROFORM, WITH REMARKS ON CHLOROFORM ANÆSTHESIA IN THIS OPERATION.

By FRANK WHITEHILL HINKEL, A. M., M. D.

THE operation for the removal of nasopharyngeal adenoids has received in recent years widespread recognition and acceptance as a surgical procedure of high therapeutic and prophylactic value. Its application has been stimulated in England and this country in the past ten years, since its performance under general anæsthesia has been found feasible and satisfactory, and the operation is now performed with great and increasing frequency. Chloroform has been, and for most operators among us still is, the favorite anæsthetic. The ease with which it is taken by children, its quick action,

the smallness of the dose required, and its comparative freedom from unpleasant sequences make it apparently admirably adapted to the purpose. There is, besides, a widespread belief, in which I confess I shared until recently, that chloroform, admittedly the most dangerous of the anæsthetics, is relatively safe for children. A rude awakening from this fancied security, and the results of a consequent investigation of the question of anæsthetics in the adenoid operation, lead me to believe that its discussion here may not be without interest and profit. I beg, therefore, to present to this association a report of a death following immediately an adenoid operation performed under chloroform, with some remarks suggested thereby.

The patient, a boy, aged six years, was first examined by me June 12, 1895. He had suffered from recurring earache and deafness since two years of age, but had never had purulent otitis; he had occasional attacks of hacking cough; was not a mouth breather or snorer, and had not the usual expression or voice of a sufferer from nasopharyngeal adenoids. There was a moderate amount of lymphoid tissue in the vault of the pharynx.

This patient had several attacks of deafness in the two years following my first examination, and there was a gradual increase in the amount of lymphoid tissue. In November, 1896, when he was about eight years of age, it was decided, after a severe catarrhal otitis, to perform the operation for nasopharyngeal adenoids. On December 2d, at 11.45 A. M., chloroform was administered by my friend Dr. Sherman, an anæsthetist of experience, who has made a particular study of children's diseases. Dr. Sherman had frequently administered chloroform for me and was familiar with the difficulties attending the administration of an anæsthetic in these cases. He was accustomed to apply the mask dry and then administer the chloroform a few drops at a time; in this way a very small amount usually sufficed. When the child was brought on the table under the anæsthetic Dr. Sherman reported that he had found a very slight cardiac systolic murmur, loudest at the base, with the apex beat in normal position. This, in view of the normal size and position of the heart, he regarded as very

probably not due to organic lesion, its presence being not uncommon in debilitated children. We were much delayed by vomiting of undigested food that had been taken at a light breakfast nearly five hours before. Respiration was interrupted a number of times by spasm of the glottis, partial recovery from anaesthesia occurred, and quite a length of time elapsed before the patient was sufficiently relaxed for the operation. On account of the vomiting and incidental delays about one fluid ounce of chloroform was administered in all. The lymphoid tissue was found to be quite firm and bled freely on curettement. Wishing to clear the fossæ of Rosenmüller carefully, I tied the palate forward, and, after a renewed administration of chloroform, with finger nail and small forceps I entered the nasopharynx several times. Careful watch had been kept on pulse and respiration by Dr. Sherman, and on removal of the chloroform to make way for the operation he, as is his custom, noted the temporal pulse. It was good. I declared the operation completed and turned for my scissors to cut the tape that retracted the palate, when suddenly the boy gave a few hurried shallow gasps and respiration ceased. The pulse had disappeared and no cardiac impulse could be felt or heard; the pupils were dilated. Hypodermics of digitalis and strychnine, which lay prepared, were immediately injected; the patient was inverted and artificial respiration begun. Further hypodermic injections of ether, atropine, digitalis, and strychnine were given; the sphincters were dilated; hot water injections and cold affusions were used; the body was kept warm by hot blankets and water bags. Artificial respiration was kept up unceasingly for two hours, but was never rewarded by a sign of life. No post-mortem was obtained.

You will note that the total amount of chloroform administered was about a fluid ounce, that the chloroform had been removed for two or three minutes at least before the fatal collapse, and that death occurred without warning and with almost simultaneous failure of pulse and respiration. It has been suggested to me that death occurred from the formation of heart clot, which may have begun to form during the glottic spasm and vomiting; but, as no evidence of serious circulatory disturbance was observed before the final collapse, I incline to the view that death occurred from central nerv-

ous disturbance. Dr. Lauder Brunton,\* in commenting upon the reports of the Hyderabad and *Lancet* commissions, assigns "neuro-paralysis" as the cause of death in many cases under chloroform. He says: "In [this] class of cases not only respiration and circulation, but all the functions of the nervous system, fail together; the breathing stops, the pulse stops, and the person dies instantaneously and quite quietly without convulsions." Professor H. C. Wood † says: "All observers, clinical and experimental, are in accord in acknowledging that when chloroform paralyzes the respiration it does so by a direct action upon the respiratory centre." However, as no post-mortem was held, this question remains a matter of conjecture.

In 1893 several brief communications appeared in the medical press of Great Britain calling attention to an alarming mortality in the adenoid operation and tonsillotomy performed under chloroform. These communications have received surprisingly little notice. In 1896 Dr. W. G. Holloway, ‡ registrar of the Central London Throat and Ear Hospital, tabulated fourteen deaths under chloroform in nose and throat operations that had been reported in England up to April, 1895. Of these fourteen deaths under chloroform eleven were in operations on the tonsils and nasopharyngeal adenoids reported since 1892. At the meeting of the British Laryngological Association in 1897, in a discussion on the operation for postnasal adenoids, Wyatt Wingrave \* and Dundas Grant deprecated the general use of chloroform in this operation, and alluded to the high mortality under its use. Their position was not strongly supported, however, in the discussion. The subject has received very little consideration in Germany. This is in part accounted for by the infrequent use there of general anæsthesia in this operation.

I have supplemented the available records of deaths

\* *Lancet*, July 6, 1895.

† Dennis's *System of Surgery*, vol. i, p. 648.

‡ *Medical Magazine*, London, 1896, vol. v, p. 598.

\* *Journal of Laryngology*, June, 1897.

during or after the adenoid operation under general anæsthesia by letters of inquiry to a number of throat surgeons in this country and abroad. For the kindness of many of them in replying promptly and fully I beg now to express my thanks.

Including my own case, I am able to record eighteen cases of death following the administration of chloroform for the removal of nasopharyngeal adenoids, hypertrophied tonsils, or both. Eleven of these are found in Holloway's tabulated report already mentioned.\* I have verified almost all of his references. He includes in his list the only case contained in the *Lancet* commission's report. Six of the operations were for adenoids alone, three for adenoids and hypertrophied tonsils, two for hypertrophied tonsils alone. In two cases, both of adenoids alone, death occurred before the operation was begun. To this list of eleven fatalities I append the following:

12. Reported to me by Dr. W. E. Casselberry in a personal communication. Child, age unknown, died an hour after an adenoid operation, having failed to revive wholly from chloroform anæsthesia. This case occurred about five years ago in the practice of Dr. Dunn, of Chicago. Owing to the death of Dr. Dunn I have been unable to obtain more complete details.

13. *Archives of Pædiatrics*, March, 1895. Edmund Owen mentions the death under chloroform "of a girl of seven years who was being operated on for postnasal growths."

14. *British Medical Journal*, 1895, vol. i, p. 949. Boy, aged ten years, operated on for adenoids under chloroform, April 16, 1895, at the Fulham Infirmary, England. Chloroform taken well; before operation was begun respiration suddenly ceased.

15. *Lancet*, January 4, 1896. At Grey's (Inn Road?) Hospital, London, woman, aged twenty, operated on for hypertrophied tonsils; death early in operation.

16. *British Medical Journal*, February 27, 1897. Boy, aged nine, operated on for hypertrophied tonsils; considerable delay caused by vomiting, and there was

\* *Loc. cit.*



partial return to consciousness; sudden death before the operation was begun.

17. *British Medical Journal*, July 10, 1897. Operation for adenoids at St. Thomas's Hospital, April 22, 1897. Boy, aged sixteen, tall and rather pale; member of a troupe of gymnasts and of more than average muscular development; some vomiting during the administration of the chloroform. In ten minutes operation was begun; completed in a few moments; no administration of chloroform after operation was begun. A few minutes after completion pulse became feeble and rapid, respiratory acts shallow and irregular. In spite of all efforts at resuscitation, cardiac and respiratory movements ceased. Seven or eight minutes elapsed between the cessation of chloroform and the onset of dangerous symptoms. Post-mortem showed heart good, and, "in fact, nothing to account for the sudden collapse." This accident has so many points of resemblance to my own that I have extracted the report in some detail.

18. My own case already reported *in extenso*.

In four of these eighteen cases death occurred before the operation was begun; in three, from a few moments to an hour after the operation was completed.

We have here an alarming mortality in this operation from the administration of chloroform. The proportion of deaths from chloroform in operations of all kinds has been placed at about one in four thousand.\* If there is no special susceptibility in the subjects of adenoid operations, this death roll of eighteen would imply that seventy-two thousand of these operations had been performed under chloroform since 1892—a preposterous conclusion. When it is remembered that a large majority of the reported deaths have occurred in England alone, this conclusion is still more untenable; and the inference is plain that the risks from chloroform anæsthesia in these cases are for some reason particularly great. We are fully justified in inferring also that not all deaths under chloroform in this operation have been reported, and that the proportion of fatalities from this cause is greater than the statistics show.

Some observations have been made in recent years

\* Dennis's *System of Surgery*, vol. i, p. 646.

in Vienna by Paltauf,\* Kolisko,† and others that throw some light upon the causes of the extraordinary mortality under chloroform in this operation. It has been found post mortem in a number of cases of sudden death from slight causes that there was present hypertrophy of the lymphoid tissue throughout the body, including the tonsils, the lymphoid structures at the root of the tongue, and the nasopharyngeal adenoids for which we so frequently operate. The thymus gland was persistent and often very large, and the intestinal follicles were markedly hypertrophied. In addition there were frequently present a dilated heart, not dependent on valvular lesions, and at times a narrowing of the aorta with small size of the peripheral vessels. This condition, which has been called *habitus lymphaticus*, was found among others in a number of cases of death during chloroform administration. People so constituted seem to have little power of resistance to comparatively slight shocks. Nevertheless, they may be of robust physique, though usually there are evidences of developmental retardation.

Continuing these observations, Picqué ‡ has reported the death under chloroform of a child eleven years of age during a blepharoplastic operation by Professor Bayer, of Prague, in 1894. In his comments Picqué cites a number of cases of sudden death in young children in which this enlargement of the thymus and other lymphoid structures was present. In all these cases the death was very sudden. According to A. Paltauf, as quoted by Picqué, the cause of death should be sought in a constitutional dystrophy. The exaggerated development of the thymus, or its abnormal persistence, constitutes a concomitant symptom, as does also the hypertrophy of the lymphatic ganglions or tonsils. In 1894 R. Paltauf reported a number of deaths under anæsthesia where the thymus and other lymphoid structures were found enlarged. He concludes that a result

\* *Medical News*, August 7, 1897.

† *Foster's Therapeutics*, vol. i, p. 398.

‡ *Bull. et mém. de la Société de chir. de Paris*, N. S., vol. xxi, 1895.

of this condition is an increased vulnerability of the individual and a particular predisposition to cardiac syncope.

Without entering into the theoretical explanations made by Paltauf and others, we have here assigned as a cause of death under chloroform narcosis the very constitutional condition one of whose manifestations is the hypertrophied nasopharyngeal lymphoid tissue for which we so frequently operate. That the cases which have suggested the conclusions of the Vienna pathologists do not include any deaths during the adenoid operation is explained by the infrequency with which this operation is done in Germany under general anæsthesia.

There are other causes besides possible constitutional tendency to heart failure that add unusual elements of danger to chloroform anæsthesia in adenoid cases. We have all observed the frequency with which spasm of the glottis and temporary cessation of respiration occur in the administration of an anæsthetic for this operation. This will occur with careful and proper administration. Lauder Brunton \* points out that spasm of the glottis is occasionally a cause of death in chloroform narcosis and mentions cases in point. The glottic spasm may, perhaps, act by reflex inhibition of the heart. In my own case these spasms were quite severe and prolonged. Again, with adenoids, as in other operations on the upper air tract, if for any cause the operation is prolonged, the anæsthesia must be interrupted and partial recovery from it occur. This rising and falling of the depth of anæsthesia is well recognized as adding to the dangers of chloroform.

The thesis that chloroform anæsthesia presents unusual dangers in the adenoid operation receives additional confirmation when we consider the very few deaths due to the tonsil and adenoid operation itself in comparison with the number of deaths from chloroform administered for the performance of this operation. I have been able to collect only six authentic

\* *British Medical Journal*, July 13, 1895.

cases of death attributable to the adenoid operation—all from hæmorrhage, usually secondary, and in the greater number occurring in “bleeders.” For the subjoined list I am under obligation to Dr. J. E. Newcomb, who has kindly placed his collected references at my disposal:

1. Hooper. *Transactions of the American Laryngological Association*, 1889, p. 56.
2. Delavan. *Transactions of the American Laryngological Association*, 1892, p. 8.
3. Newcomb. *American Journal of the Medical Sciences*, November, 1893.
4. Barkan. *Occidental Medical Times*, vol. viii, 1894.
5. Schmiegelow. *Monatsschrift für Ohrenheilkunde*, vol. xxxi, 1897.
6. Kenefick's case, reported by Knight. *The Laryngoscope*, April, 1898.

Of deaths following the much longer practised operation of tonsillotomy I have no statistics, but it is well known that such fatalities are of extreme rarity. We have, then, operations whose mortality is insignificant, showing in less than five years eighteen deaths directly attributable to chloroform administered for their performance. Brickner,\* commenting on Koliško's report of the *habitus lymphaticus*, writes: “It would seem therefore, that in anæsthetizing patients of the lymphatic temperament, or in whom lymphatic enlargement or adenoid vegetations exist, *chloroform should be rigidly excluded.*”

Both by statistical data and pathological induction this opinion is confirmed, and the conclusion seems inevitable that chloroform anæsthesia for the removal of hypertrophied pharyngeal and faucial adenoid tissue is attended by grave risks, and that chloroform should be used for this purpose only under peculiar circumstances and after careful consideration.

If general anæsthesia is desired, there is no valid reason to insist upon the use of chloroform, since the in-

\* Foster's *Therapeutics*, vol. i, p. 398.

dications for the brief anæsthesia usually required for the adenoid operation are met in the practice of many surgeons by nitrous oxide or ethyl bromide, and where a longer period of anæsthesia is desired than these minor anæsthetics afford, we can use ether, despite its recognized disadvantages as an anæsthetic in operations upon the mouth or pharynx.

As Professor Wood has well said: "In the selection of an anæsthetic the question of safety is paramount." Ether is known to be a much safer anæsthetic than chloroform, and but one death is recorded from its use in the operation under consideration—a tonsillotomy reported by the *Lancet* commission; no details given. No deaths have been reported in this connection from nitrous oxide or ethyl bromide.

In conclusion, I would submit for your discussion the following affirmations:

1. Statistics show an exceptionally high mortality from chloroform anæsthesia in the operation for the removal of lymphoid hypertrophies of the pharynx.

2. The observations of the Vienna pathologists show that sufferers from "adenoids" frequently belong to an abnormal constitutional type that has been found peculiarly susceptible to chloroform narcosis.

3. In view of the statistical and pathological data presented, the general use of chloroform in the operation for hypertrophied tonsils or nasopharyngeal adenoids is inadmissible.

*Paper.*

THE RECURRENCE OF NASOPHARYNGEAL ADENOIDS  
AFTER OPERATIONS FOR EXCISION.

BY ARTHUR AMES BLISS, A. M., M. D.

WHEN an operation for the removal of hypertrophied lymphoid tissue in the nasopharynx is proposed, it is not unusual for the friends of the patient to inquire regarding the chances of a regrowth of the obstructing mass. The elementary or nonmalignant character of the

tissue leads us to believe that such recurrence is hardly to be expected. Clinical experience is also strongly in favor of nonrecurrence and a favorable prognosis.

Yet, among the great number of children upon whom excision of the nasopharyngeal adenoid has been performed, instances have occurred where a return of the original symptoms is clearly manifested.

During the last few years I have met nine cases where an excision operation had been performed, and yet, after a brief period of relief, the symptoms of obstruction in the nasopharynx had returned. Examination of these cases has shown me that the nasopharyngeal space was partly filled again with an overgrowth of adenoid tissue. These children and young adults had, in most instances, been operated upon by laryngologists whose skill is unquestioned.

Three cases of this apparent recurrence were in patients of my own, seen in one case four years, in another two years, and in the third one year, after the original operation. In two of these instances I did a second operation, removing a very much smaller amount of tissue than at the time of the first operation, and in both cases chiefly from the region about the wings of the vomer.

The structure of the pharyngeal tonsil is very nearly similar to that of the faucial and lingual tonsils, and, indeed, it is now regarded as the upper segment of the lymphoid ring which surrounds the entrance to the digestive and respiratory tracts. This idea is not wholly correct, as the embryology of the pharyngeal tonsil exhibits a development distinct from that of the faucial tonsils and more or less intimately connected with the development of the hypophysis cerebri or pituitary body. Indeed, it is quite probable that this relationship in growth between the nasopharyngeal adenoid tissue and the base of the cerebrum immediately above it may be of much clinical importance in the development of pathological states within these areas. As the elongated diverticulum enlarges to form the developed pituitary body, within what will be, when completed, the sella

turcica of the sphenoid bone, the narrowing pedicle formed by its development, and connecting it with the pharyngeal cavity, is supposed to be obliterated; yet Lanzert has shown that in ten children out of one hundred examined a trace of this passage remained at birth, called by him the *canalis cranio-pharyngeus*. It is quite probable that a larger number of examinations would show a corresponding percentage of cases in which this passage remains open, while the cases may not be very rare in which traces of it may persist in childhood or adult life. The much-discussed bursa pharyngea may be a phase of such persistence in this passage. We know that as the hypophysis cerebri develops, its anterior portion becomes highly vascularized, and it is quite probable that numerous blood channels from this area lead to the adenoid tissue of the pharyngeal vault and to the circulation at the base of the cerebrum. Dr. Harrison Allen, in his *Clinical Study of the Skull*, has demonstrated from a large number of crania of all races that great variation in structure exists in the region of the vault, at the articulation of the vomer with the vaginal process of the sphenoid and sphenoidal processes of the palate bones. These variations are characterized by failure in complete union of the parts named, the open areas between showing evidence of having been filled during life with vascular tissue.

Allen terms these openings and passages *canales basis vomeris*. In many instances the wings of the vomer, he states, are quite free from the sphenoidal and vaginal processes, and are not in close articulation with the body of the sphenoid, numerous free openings leading in between the articulating surfaces.

Is it not possible, considering the close relation during development between the future pharyngeal vault and the hypophysis cerebri, that in the living subject such open areas may not only contain blood-vessels connecting these areas, but even extensions upward of the adenoid tissue in the nasopharynx? These brief reminders of a few anatomical points are merely suggestions that in dealing with an overgrown nasopharyngeal ade-

noid we may have, in some instances, conditions, not only in its histological formation but in the relations of surrounding parts, that will influence the results of operative interference.

A matter of interest also in the subject of possible recurrence of nasopharyngeal "adenoids" is the variations in the character of this lymphoid mass in different individuals. The faucial tonsils show similar variations. There is a very decided difference between the soft, friable variety of lymphoid tissue and that which is infiltrated by fibrous bands shown, macroscopically, by trabeculae which lace through the growth, projecting inward from a more or less completely developed capsule. In such cases the lymphoid structure is thus divided into cell-like groupings, more or less completely cut off from similar and neighboring areas. We frequently meet this condition in the faucial tonsil, and I believe that an analogous state is not uncommon in the nasopharyngeal tonsil. In both lymphoid structures this condition appears to be the result of inflammatory processes.

My series of cases in which an apparent recurrence of "adenoids" was noted may be too small for generalizations; yet certain conditions were found in common in these cases which, in the light of what has been referred to above, may be suggestive.

1. These patients all showed a certain under-development of the entire nasofacial region. The nares were small. The hard palate in the older cases was Gothic-arched. The nasopharyngeal space was very narrow, with, as a rule, a low, flat vault, suggesting the horizontal position of the basilar process of the occipital bone common to early infancy. Indeed, the whole general structure of the nasofacial area was infantile. An exception to this was found in two instances, young adults, where, instead of the horizontal basilar process, the latter ascended sharply in an oblique direction, and appeared to articulate with the sphenoid considerably above the vomero-sphenoidal articulation. In the recess thus formed a large amount of adenoid tissue was packed.



This approach toward acuteness in the basi-cranial angle, although not infantile, is still so abnormal as to be an undoubted phase of irregular or asymmetric development between different parts of the nasofacial tract.

2. Another feature of these cases was the excessive vascularity of the hypertrophied lymphoid tissue.

3. In a few instances where, in guiding the instrument used for extraction, I scraped deeply with my finger nail, I noticed fine, friable spicules of bone about the articulation of the vomerine wings and sphenoid, in the roof of that area which Harrison Allen has termed "the posterula."

4. In each case presented, the whole appearance of the child or young adult has corresponded to the condition termed strumous, an apparent failure in those vital processes which tend to complete development in the body structures and to the maintenance of the integrity of tissue.

Now from this experience, and influenced by the ideas I have briefly suggested, it seems to me probable that these cases of apparent recurrence were not examples of a true regrowth of the adenoid tissue, but, on the contrary, have been the result of an incomplete removal of the growths at the original operations. Under ordinary conditions, such incomplete removal would not have resulted in a return of symptoms. In cases, however, where we may have deep infiltration of the lymphoid tissue into fissures about the vomerosphe-noidal articulation; where we have an abnormally rich vascular supply distributed amid this tissue and through this area; where we have the tissue itself mapped off into cells or small areas distinct from one another, it appears to me that we have possibilities for a recurrence of symptoms after an operation which has failed to remove very completely the whole mass of diseased tissue. Such return of symptoms is not due to a recurrence of the original growth, but may be caused by an inflammatory process arising in, or continuing in, parts which have remained. In course of time, these portions gradually enlarge and cause symptoms of ob-

struction, pressure, or irritation. To avoid such return of these conditions, I would advocate a very complete removal of the hypertrophied adenoid mass in all cases, especially of those portions of it which lie well forward about the vomero-sphenoidal articulation or roof of the posterula, and of those parts which lie in the lateral regions of the nasopharynx, above the upper border of the Eustachian openings and in Rosenmüller's fossa. In the nine cases I have referred to, there was no appearance of regrowth in the posterior and lower wall of the nasopharynx—the posterior basilar portion. Here, where the adenoid mass is very commonly found, it is also most readily and completely removable. The idea has prevailed that even after a partial removal or trimming away of the nasofacial lymphoid tissue, a process of contraction or cicatrization will occur which will result in the further obliteration of these masses. In the fairly normal subject this may be the case, possibly, yet I question if it is wise to trust that Nature will thus complete our operation for us. In the class of subjects to which reference has been made in this paper, I feel convinced that incomplete removal at the time of operation will, as a rule, result in a return of symptoms—not a true recurrence, but suggestive of a recurrence of the original growth.

*Paper.*

PRESENT METHODS FOR THE OPERATIVE TREATMENT OF  
PHARYNGEAL ADENOIDS.

By D. BRYSON DELAVAN, M. D.

Just thirty years ago there appeared in the *Hospitals Tidende* of Denmark that epoch-making contribution to medical science, of which it is safe to say that no thesis relating to the department which we represent has ever been more thoroughly appreciated or more widely known.

Since their original appearance the teachings of Professor Wilhelm Meyer have been adopted throughout

the world, and the literature of the subject has become so abundant and so widely disseminated that even the laity are familiar with it.

As we study the advancement made meanwhile, we must be more and more impressed with the remarkable comprehensiveness and accuracy of Dr. Meyer's work. Even at the present time but few of his statements could be taken exception to, and in its essential features his contribution is complete. It would be strange, however, if in the lapse of nearly the third of a century the labors and observations of the world of medicine should not have resulted in adding something to the excellent knowledge of the subject already acquired.

In the details of the treatment of lymphoid hypertrophy at the vault of the pharynx a vast number of suggestions have been made, methods proposed, and instruments devised. While in other departments of the subject there may remain comparatively little to be said, it is certain that we could not now do better than to enter upon a consideration of the methods by which this condition is at present treated, with special reference to its removal by surgical means. If any apology for such a topic were needed, it would rest upon the facts that at the present time the removal of pharyngeal adenoids is accomplished by a great variety of means; that many operators hold views upon the subject which differ radically from those of other authorities, and that the fundamental principles which should control the simple procedure of the operation seem in danger of being lost sight of or misunderstood.

It is now twenty-one years since my own attention was first called to the condition under discussion. Constant and active association with it during that time has forcibly impressed upon me the truth of what would seem to be a self-evident fact—namely, that two grand principles must be kept constantly in view in dealing with these cases. Without their recognition complete success can not possibly be attained and much actual harm may be done. They may be expressed in two simple words: First, *thoroughness*; secondly, *humanity*.

In other words, in operating for the removal of adenoids, the growths must be extirpated as completely as possible, and this must be accomplished with a minimum of discomfort, shock, and injury to the patient.

In the study of this proposition, let us consider, first, the indications necessary to be met; second, the methods at present in popular use for the removal of adenoids; and third, the means which experience and good judgment would suggest as the best for attaining the desired ends.

The principle of thoroughness indicates the most complete possible removal of the lymphoid tissue. As the necessity for this has occasionally been questioned, it is desirable that the statement should be proved.

It is said by some that a partial removal of an adenoid growth will cause the remnant to atrophy, thus making complete removal unnecessary. No proposition could be more fallacious. Granting that an actual disappearance of the remaining tissue may now and then take place, such cases must in reality be unusual. The tissue left behind is unhealthy tissue, and such it is likely to remain, even although its actual volume may have diminished and its existence have been forgotten. Thus, it may become atrophic and cause lifelong annoyance to the patient and injury to the surrounding parts. On the other hand, during and before early adult life, as much lymphoid tissue as has been left behind at the time of operation is likely to remain, and the chances are almost as much in favor of its increasing as the contrary. Other things being equal, the earlier the age at which the growth has been imperfectly removed the greater the tendency for it to recur. This is particularly the case in the presence of certain inherited diatheses, especially the tuberculous and the specific. In such cases it should be the rule to warn the patient of the possibility that a second operation may be required. In view of this very tendency, however, the argument in favor of thoroughness becomes all the stronger. Half-way measures with these patients are clearly out of

place, and the complete removal of every possible centre of recurrence is demanded.

Not only in children, but in adults, there are other good reasons for painstaking work. The bad effects of even small quantities of adenoid tissue in the pharyngeal vault, whether atrophic or soft, are matters of everyday observation. This is especially true of that part of the lateral aspect of the vault immediately above the Eustachian eminences. Nothing is more common than to find very small and apparently insignificant lymphoid masses in this region, causing serious and progressive otic disease, a fact easily proved by the relief afforded when the above-mentioned tissue has been removed. Some benefit may undoubtedly be derived from the removal of any part of a large adenoid sufficient in amount to allow of less obstructed nasal respiration. The full measure of relief required, however, can not be expected through any plan of operation which by reason of haste or carelessness leaves the result incomplete. The statement that partial removal is justifiable is empirical, and seems generally to have been made without sufficient experience or thought.

It can not be questioned that as an authority upon the subject of lymphoid hypertrophy Dr. Wilhelm Meyer was preeminent. A corresponding position among the specialists of this country may also be claimed for our own brilliant colleague, the late Dr. Franklin H. Hooper. It is significant that both of these men not only advised but strenuously insisted upon the necessity for thorough work. Again and again, in his published articles, in discussions, and in private conversation, Dr. Hooper repeated and emphasized his strong convictions upon this point; while Sir Morell Mackenzie, in his work, quotes Meyer as speaking to the same effect.

Of course, the contention here made must not be carried too far. From the nature and distribution of the lymphoid tissue of the pharynx, it is practically impossible to apply it always in an absolutely literal sense. Again, in very young children, the danger of inflicting

injury upon the surrounding parts may deter us from operating as radically as would be proper in an older patient. Nevertheless, the fact remains that the successful treatment of these cases demands the greatest possible thoroughness.

The second principle in the management of lymphoid hypertrophy is the use of such methods as shall inflict upon the patient the least amount of pain, shock, and injury.

It is a common thing to hear the statement that the removal of adenoids is not painful. Many operators object to the use of general anæsthetics, and insist that anæsthesia by cocaine or other local means will effectually remove sensation from the parts. Still others, ignoring the question of pain altogether, operate without any attempt at relieving it.

Surely those who hold that the operation as commonly performed is painless can not possibly have noticed the expression of the patient during the operation, nor have listened to his testimony afterward. For many years I have carefully questioned every person, old and young, who has come under my notice after such an operation, whether performed by myself or by others. The almost invariable experience is to the effect that the act of removing the growth has been attended with sharp and very severe pain. Difference in age, temperament, physical strength, and courage should lend a certain amount of variety to the statements which such patients will make. But variety has been conspicuously lacking. The same answer has come from one and all. If the word of the patient were not sufficient, we have another sign in the effect of the operation upon his general condition, which for several days is likely to show indications of the shock which he has suffered. Finally, what reasons, anatomical or physiological, are there to suppose that it should not hurt?

From its situation and nerve supply, the ear is capable of inflicting a higher degree of suffering than any other organ of the body. The nasal cavities are certainly not deficient on their part. The upper pharynx

is closely surrounded by the most highly organized sensitive areas in the body, and even if it has the somewhat callous regions of the basilar process above, and of the posterior wall of the pharynx behind, it is in sufficient proximity to the other parts to make it rich in the possibility of pain. Physiologically, there is ample proof of the sensitiveness of this part in the numberless reflex disturbances which are directly traceable to pharyngeal disease.

The use of local anæsthesia is without question of decided advantage. By it the resistance and the sensibility of the parts below the growth can be fairly overcome. Owing to the position of the growth itself, however, anæsthetization of its base is practically impossible by the means generally employed, and while the introduction of the instrument is facilitated, the final act of separation is inflicted upon a fully sensitive part. Of course, in the hands of a highly skillful operator, working by the aid of good illumination of the vault, and with steady hand and clear judgment, local anæsthetics can aid in the accomplishment of brilliant results. The excellent method of submucous injection of cocaine, as advocated by Dr. Boylan, of Cincinnati, is also worthy of consideration. I am speaking, however, of the operation as commonly performed. In general terms, therefore, the surgical removal of lymphoid hypertrophies, with or without local anæsthesia, is a painful operation.

Only second to the infliction of pain is the causing of fright and nervous shock. Even in the well-grown and vigorous patient, shock is generally quite apparent. In the child its effects are more profound and lasting. While in these younger subjects the element of fright is one which can not decently be ignored, children of sturdy constitution and phlegmatic temperament may escape without serious harm. It is one of the commonest characteristics of the lymphoid condition, however, that the opposite temperament is the case, the children being nervous, weak-hearted, and highly sensitive. To seize such a child and hold him by main

force; to display before him an array of surgical instruments; then to pry open his reluctant jaws; to plunge into a remote and highly organized recess, like the upper pharynx, an instrument possibly too large to enter with ease; there to seize and remove "by a tearing and twisting process" large fragments of tissue, with a sensation described by all patients as being exceedingly painful; or to force into it a sharp curette which may or may not adapt itself to the shape of the cavity, and sweep its blade through more or less of the substance of the growth; to repeat this again and again at one sitting, the child meanwhile being half strangled with blood; or, worse still, to continue it at repeated sittings, is a process which can not be too strongly deprecated, and which may naturally result in terrorizing the child, and in imparting a nervous shock in itself by no means devoid of danger.

It is possible that under some circumstances, as, for instance, the necessities of a large clinic which require that the greatest good should be done to the largest number, and therefore that time should be economized; or the racial peculiarities of some patients who live in certain other parts of the world than ours, operations performed without regard to pain or shock may be admissible. I am firmly of the opinion, however, that the coarse methods of dealing with these cases which we have derived from some of the Continental authorities are radically bad, and that if we will be guided by our own better judgment and by the practice of our English colleagues, to whom, headed by Sir Morell Mackenzie, we owe so much in this matter, we shall find ourselves nearer to the right principles of action.

The more painful and startling the operation is to the patient the greater the difficulty in securing the most desirable results. Thus the opportunities of the operator for entering the pharynx are reduced to a minimum. He is unable to conduct the digital examination of the parts to the best purpose, delicacy of manipulation with the instrument is lost, and the limit to which the operation should be carried is difficult to



determine. The complete separation of fragments of tissue is rendered less certain, and the presence of partly detached or still adherent masses is less easy to ascertain.

The danger of separated lymphoid masses falling into the larynx has been alluded to by several writers, and while Gottstein (Heyman's *Handbuch der Laryngologie und Rhinologie*, Lief. 19, p. 529) considers it unworthy of serious thought, it is by no means an impossible risk.

Again, the safety of the surrounding parts is far more likely to be sacrificed when the operation is done hastily upon a struggling child. Thus serious injury has been inflicted upon the posterior edge of the nasal septum, the turbinated bodies, and the lateral walls of the pharynx in the neighborhood of the Eustachian orifices. The more humane the method of operating, the more will the work of the operator be facilitated and the best interests of the patient secured. Unfortunately, the use of local applications for the reduction of adenoids has not yet been a success. The attempt to reduce them also by escharotics has never become popular, as both with the ordinary caustics and with the galvano-cautery much difficulty is experienced in making the application and great danger is incurred of injuring important neighboring structures. Hence some form of surgical operation seems in the present state of our knowledge to be unavoidable.

The relative thoroughness and safety with which an operation can be performed will depend somewhat upon the kind of instrument employed. A short consideration of this department will be necessary to a full development of the general subject.

Beginning with the finger nail and Meyer's ring knife, an almost unlimited number and variety of instruments for the removal of lymphoid hypertrophy have been devised. They may be classified into several groups—namely, those made upon the principle of (a) the curette, (b) the forceps, (c) the wire loop, and (d) the adenomatome.

(a) The curettes may be divided into three kinds: The ring knives of comparatively small size, the sharp spoon, and the Gottstein instrument. To this class may be added the finger nail.

(b) The forceps may be said to include those instruments which are constructed with comparatively blunt edges and which are intended to tear away the tissue rather than to cut through it. Of these, the Loewenberg is the best example. Of the modifications of it, those of Gleitsmann and Hooper are among the best.

(c) The wire snare or loop has been used by some, either in a simple curved cannula or in an instrument especially designed for the purpose. While it has possibilities of usefulness, it appears that they have not yet been realized.

(d) By the name adenomatome is meant an instrument constructed more or less upon the principle of the scissors and intended to make a clean incision through the substance of the growth.

Passing the above in review, we will try to choose from them the best.

Nature's instrument, the finger nail, is undoubtedly useful in completing the work of other implements by the separating of partly detached fragments of tissue and by the removal of it from corners difficult for an instrument to reach. Gottstein's opinion in this connection is interesting. He says: "It is clear that with the finger only a very little can be removed, and, moreover, it must be recognized that from the point of view of asepsis the finger nail is a decidedly undesirable instrument." The artificial finger nail is practically never used.

Of the curettes, the small ring knives are valuable for the removal of small areas of tissue, especially those left after operation with larger instruments. They are also very useful for operations upon the adult, where, under local anæsthesia and with the aid of the mirror, limited quantities of tissue can be removed at a time with comparatively little pain and irritation.

The sharp spoon has been justly condemned because of the amount of bleeding which it causes and the difficulty experienced with it in separating the fragments of tissue from the pharyngeal wall.

Of the instruments of this class, Gottstein's knife and its modifications must claim by far the greatest popularity. It is undoubtedly in more extensive use for the removal of adenoids than any other instrument, and there are several things to be said in its favor.

If we could believe that pain is of no account and speed of more importance than thoroughness, and that he is the most skillful operator who passes the largest number of patients through his hands within a given time, then Gottstein's knife would be ideal. The objections to it, however, are very serious, if we must judge it by the standards which we have assumed, for its use is painful, and it must be seldom indeed that the shape of the instrument is so perfectly conformed to the pharynx, the base of the growth so limited in its extent, and the management of the knife so well directed that the necessary thoroughness can be attained. Time and again, and in the hands of many operators, I have found that the Gottstein knife has simply cut through the lower part of the growth, or has removed a certain amount from one side, leaving the other side full, or has fairly cleared the vault, leaving abundant deposits upon the posterior and lateral pharyngeal walls.

In the forceps, modified to suit the size of the pharynx and the location of the growth, we have an instrument by which the lymphoid masses can be seized and, by proper manipulation, torn away, much larger fragments than the part caught in the grasp of the instrument usually being separated at each attempt. In skilled hands the forceps can be turned in all necessary directions and its blades made to grasp everything in their way. The pharynx can thus be thoroughly cleared, and with the loss of less blood than is common with sharp instruments. The operation, however, is painful.

It would appear that the prime object of the adenom-

atome is to enable the operator to remove the whole or as much as possible of the growth at one introduction of the instrument. Many varieties of them are of large size or of improper shape, and are not fit to be inserted into the nasopharynx, while their great strength places any unfortunate object which they may grasp completely at their mercy. Even in experienced hands they are probably the most dangerous of this class of instruments. As to their thoroughness, one glance at the construction of their blades will show that there must be certain parts of the pharynx which they can not possibly reach, while the risk of cutting too deeply or in wrong directions is evident. Such instruments are better suited to adult cases and can hardly be intended to be used upon the child.

In the present stage of its development the snare need not engage our attention.

Turning now to the means at hand for the saving of pain, we have, of course, the anæsthetics suitable for such cases—namely, for local anæsthesia, cocaine and bromide of ethyl; and for general anæsthesia, ether, chloroform, and nitrous-oxide gas. The use in this country of the bromide of ethyl is neither common nor well understood. A better acquaintance with it would possibly add to its popularity. The advantages of cocaine are that it renders the introduction of the instrument into the upper pharynx much easier and diminishes the pain and local spasm otherwise sure to occur. Its disadvantages are the length of time which it takes to produce its effect, the general toxic symptoms which it often causes, and its failure after all to greatly modify the actual pain of the operation.

Of the three general anæsthetics, nitrous-oxide gas is suitable for short and rapid operations, but it is difficult of administration to a patient who is too young to follow the directions of the anæsthetist, and to those in whom the upper air-passages are seriously obstructed. Chloroform is attractive but unquestionably dangerous, and, on the whole, not superior to ether. In the hands of a skillful anæsthetist and properly administered, ether will, as

a rule, prove most satisfactory. Under deep anæsthesia the pharynx is completely relaxed and ample time is afforded for all the care and thoroughness necessary, the patient meanwhile being free from pain. In suitable cases the patient can be profoundly anæsthetized within three minutes by the administration of nitrous-oxide gas followed by that of ether, according to a method lately introduced from England by Dr. T. L. Bennett. The theoretical objections that ether is dangerous, that the children are apt to be injured by it, and that its action increases the amount of bleeding at the time of the operation, are not true, nor would they be likely to be made by any one who had had practical experience with its use. If more blood flows with anæsthesia than without, it is largely because under the former condition a much greater amount of tissue is removed. I have never had the slightest bad effect from it as applied to children in my own practice, in the course of many hundred operations performed under it, nor have I ever heard of any serious accident from its use under similar conditions in the hands of a competent and experienced operator. Indeed, the importance of its use is well attested by the fact that the most distinguished authorities upon the subject, such as Morell Mackenzie, Greville Macdonald, Felix Semon, Mark Howell, and Watson Williams, of England, Walker Downie, and P. McBride, of Scotland, French, of Brooklyn, Ingals and Casselberry, of Chicago, and Knight, of New York, all agree as to the necessity of anæsthesia in the more difficult cases.

Finally, greater caution than is usually employed should be taken in the after care of the patient. He should not be at once dismissed, but should be put to bed, and kept there for at least twenty-four hours. This precaution lessens the possibility of bleeding, prevents infection, guards the patient against taking cold, and greatly reduces the general depression due to the slight shock of the operation. It has been my custom for many years to insist upon it in private practice and, when possible, at my clinic as well.

Studying carefully the statements which have been made in this paper, it would seem fair to draw the following conclusions:

1. To secure the ideal conditions for operation, the patient should be in a state of complete anæsthesia.

2. To secure the most thorough removal of the growth, the blunt forceps is, on the whole, the most effective instrument at our command.

3. Where, for any reason (age or superior strength of the patient, or special contraindication), general anæsthesia is not desirable, and some form of instrument other than the blunt forceps is to be preferred, the principles which have been insisted upon should, so far as it is possible, be carried out. No better method of operating has ever been devised than that so ably and successfully adopted by Dr. Hooper. Ten years' constant use of it and contrast of it with other methods have more and more convinced me of its absolute superiority. Twenty years' experience with imperfect methods cruelly applied has equally impressed me with their wrongfulness. Most important of all, I believe that the operation for the removal of adenoids is not the simple and easy thing that many suppose it to be, but, on the other hand, that its successful performance requires considerable knowledge, experience, and skill. For work of the best class excellent methods are at hand. It is time that they had been recognized, and that others less worthy should give place to them.

#### *Discussion.*

Dr. GLEITSMANN: In regard to the frequency of recurrence of adenoids, we had a paper read here a few years ago which came to the conclusion, now generally accepted, that we have about three or four per cent. of recurrence of the adenoid tissue after operations thoroughly and skillfully performed. In this connection it might be mentioned that more than one of us has seen a recurrence in like manner of the faucial tonsils after their removal in the usual way. In a patient who consulted me lately there was a return of the faucial tonsil requiring a second operation within ten months after the first removal. The connection between the develop-

ment of adenoid tissue in the vault of the pharynx and diseases of the pituitary body I am not in a condition to discuss at present.

With regard to the anæsthetic to be employed, I must say a few words. It has already been brought to the attention of this association by Dr. Roaldes that ethyl bromide is very useful. Since having been in Europe, where it is used extensively, I have employed it more and more in my practice. In proper cases for its administration, where the time required for the operation is short, and also in cases operated upon in my office, I always give ethyl bromide. Of course, in extensive operations upon adenoids and the faucial tonsils at the same time, I give some other anæsthetic and not ethyl bromide. However, I do not use chloroform. I have had no evidence of my own for stopping the use of chloroform altogether; but I was twice on a coroner's jury where two cases of fatal chloroform anæsthesia came up before us, and I know the trouble to which it gives rise when such accidents occur.

With regard to the proper selection of instruments for operating upon the adenoid tissue of the pharynx, Dr. Delavan has been kind enough to refer to my instruments, and, of course, I use them with predilection. In operating I use the forceps preferably and then clear out the pharynx with the curette. I am glad to be able to state that I have never had an accident in twenty-five years of practice.

Dr. CASSELBERRY: For many years I have been in the habit of using ether if a prolonged operation is necessary. For short operations nitrous oxide can be used. I frequently commence with A. C. E. mixture till the patient is just unconscious, when I continue with ether. The disadvantages that have been alleged against ether are largely fanciful. The best time for operation is early in the day, before the patient has had any breakfast whatever; then the danger of vomiting is lessened. I made up my mind a long time ago that I would not subject myself to the liability to accident which belongs to chloroform anæsthesia in making tonsil and adenoid operations.

Dr. WAGNER: I have had in operations for adenoid vegetations no experience with chloroform, as I have used only bromethyl. My assistants and I have utilized it in many cases with only good results. Compared with chloroform, it is much safer, and compared with ether, it acts more quickly. I combine with it the Rosenberg

method of spraying the nasal passages before the operation with a one-and-a-half-per-cent. solution of cocaine. Referring to the general method of operating on adenoid vegetations, I have not been satisfied with the results obtained, as one is not always able to remove all of the adenoid tissue. I have therefore operated for the last eight or nine months in older cases with the "hanging head"—that is to say, with the head somewhat supported by the assistant. I use a double palate hook for retracting the soft palate, and with an electric light the whole field is directly illuminated. I am enabled then with special instruments to take out all adenoid tissue. There is very often also an enlargement of the posterior extremities of the inferior turbinated bodies, which can be removed at the same time.

I have never observed any hæmorrhage after the application of the suprarenal-capsule preparation combined with cocaine, neither did any pain follow the operation. Therefore this fully answers Dr. Delavan's requirement with regard to thoroughness of operation and humanity to the patient.

DR. THRASHER: My experience, I find, is not entirely in agreement with that of the other gentlemen who have preceded me in this discussion upon the subject of the choice of an anæsthetic. I must say something in defense of my favorite anæsthetic, chloroform. I think that some of the dangers that have been mentioned are due not to the agent itself, but to the method of administering it. This remark might also apply to ether. I have seen cases in which the inflamed condition of the mucous membrane of the nose, throat, and bronchial tubes was the cause of death from ether.

I would say that my method of operating is with the head lower than the body. This position is not only favorable for the safety of the patient during the administration of the anæsthetic, but also for the prevention of the inhalation of blood into the larynx during operation.

As regards the possibility of death from spasm of the glottis during the administration of chloroform, I have my doubts. It is a common observation that where spasm of the glottis occurs it disappears before death, owing to relaxation from carbonic-acid poisoning. It is a question whether this condition might not be confounded with the difficulty of breathing caused by a clot of blood in the larynx.

My operating table permits the head to be below



the level of the body, which favors free discharge of fluids from the air-passages.

It must be remembered that the lumen of the air-passages in children is very small and may be readily obstructed by secretions. A child may die a week after operation and as a direct result of the ether irritation of the bronchial mucous membrane, and yet this result would not be set down as a death due to ether.

I would not compare the bromide of ethyl with chloroform as an anæsthetic in nose and throat operations. I have used the bromide of ethyl in about twenty cases. To me it seems too much like shooting my patients with a gun; they come under the influence too quickly and recover too quickly. Now, the time of operating under chloroform is very short, and I generally operate in the first stage of anæsthesia. As regards instruments, I may state that I use all instruments except the snare.

Dr. LOGAN: What I have to say is in regard to the question of the age of the patient in deciding upon the use of an anæsthetic. General anæsthesia is not the only thing to be considered in adults. It is never my practice to give an anæsthetic, as I prefer to operate with the patient in full control of his faculties. I am inclined to agree with Dr. Thrasher in his statement that the dangers of chloroform anæsthesia are greatly exaggerated, and are due to the want of proper care in its administration. I prefer chloroform to ether for the reason that the irritating qualities of the latter make it very objectionable in operating upon the upper air-passages.

Of course, ether is to be used where any possible heart lesion exists. The instruments used by me are the curette, snare, and forceps. I think it advisable to use the finger nail, properly cleansed, for the removal of growths about the Eustachian orifices; this prevents injury to the tubes, doing away with the unfortunate sequelæ—namely, inflammation of the middle ear. The only way to prevent the return of these growths is to properly remove all portions of them. We are very apt to leave that part which is high up in the vault, expecting it to disappear in the healing process. When these growths have been properly removed, I have never known them to return.

Dr. LELAND: The valuable papers which have been read by Dr. Hinkel, Dr. Bliss, and Dr. Delavan very strongly demonstrate that the subject of "adenoids" is not so threadbare as might be supposed.

I rise to mention one fatal case from hæmorrhage which occurred in the practice of a gentleman with whom I have been more or less intimately associated for a dozen years, and I might add that he is a very competent man. The patient, a child of eleven years, had had performed upon it the usual operation, seemed to have got along well, and by the end of a week had apparently recovered as far as is usual by that time. A copious hæmorrhage came on on the seventh day while the child was walking out of doors, and recurred once or twice, the last attack on the next day being fatal. I mention this case with the permission of the operator simply to add it to the eight cases collated by Dr. Hinkel. Details will soon be published.\*

It seems, therefore, that we who are doing this operation, as it were, by the wholesale, must bear in mind that it is not wholly without danger, but that we must look forward to the possible necessity of meeting some dire contingency.

I am much interested in Dr. Bliss's explanation of hæmorrhage in some cases of this character. As I understand him, this lymphadenoid tissue extends into the clefts and fissures often found between the small laminae of bone which we find at the junction of the vomer with the sphenoid bone at the very top of the nasopharyngeal vault, and perhaps even deeper into the body or cells of the sphenoid bone itself. This would seem to indicate that if the tumor is removed by a sharp cutting edge, as with the Gottstein curette, a thorough scratching of the surface with the finger nail to roughen up and crush what remains adherent to the surface would diminish the tendency to hæmorrhage. This procedure has been found to be efficacious in practice.

One thing which I did not quite understand in Dr. Bliss's communication is the explanation of the cause of the non-establishment of normal relations. I would like to say a few words explanatory of the principle upon which I have worked the last half-dozen years when dealing with this condition of obstructed nasal respiration. It is recognized that forced respiration through a more or less occluded nose is one of the factors in the production of this hyperplastic growth of adenoid tissue. It seems reasonable, therefore, that free nasal respiration should be determined as possible before this

\* Secondary Hæmorrhage following the Removal of Adenoid Vegetations. By Wallace Preble, M. D., Cambridge, Mass. *Boston Medical and Surgical Journal*, May 19, 1898.

operation for the removal of adenoid vegetations is considered. The removal of an obstructive growth in the nasopharynx, as a rule, does not relieve an obstructed nose, and, it has happened in my experience, and perhaps also in that of others, that a thorough removal of this growth has not brought about the result prophesied to the parents, nor the benefit desired for the patient, because of occluding engorgement of the intranasal structures. I have therefore adopted the plan of establishing the possibility of free nasal respiration before interfering with the adenoid growth, and have also been able to determine in cases of recurrence of these growths that the probable reason was, that nasal respiration was not established either by removal of the obstruction in the nose, or by correction of the habit of mouth breathing; and I can not recall at this moment a case of recurrence of the growth since I have worked upon this principle.

I have in mind a patient who was sent to me in the spring some half dozen years ago, it being the case in which was impressed upon me the working of the above-mentioned principle. The patient, a boy of about twelve years of age, had a nasopharyngeal adenoidal tumor which rested upon the velum palati, totally occluding the respiratory space; the nose also was stopped up by great thickening of the membranes. It was evident that if the ordinary operation for adenoids was performed, the obstruction in front of them would be in no way relieved. It seemed wise, therefore, to reduce the turbinated hypertrophy first, after which the usual brilliant result of the adenoid operation might be expected. I accordingly treated the intranasal thickening with acids as usual, and was much surprised to have the nasopharynx become absolutely free and clear without the necessity of further operative interference. This case was an eye opener to me, and I have since been able to do by design what was here done by accident.

The question of anæsthesia has also been brought up by Dr. Hinkel. I have not yet found it necessary to use any other anæsthetic than ether. I saw bromide of ethyl used exclusively in Rosenberg's clinic in Berlin for the induction of anæsthesia for the short operation by the Gottstein curette. There were no evil results. But I have been able to produce primary anæsthesia by the use of ether in what seems to be exactly the same manner, and I have not had occasion to desire to change. Chloroform (or even the A. C. E. mixture) seems sometimes to be more easily taken, but I have thought that the recovery is not so rapid—*i. e.*, that the protective

faucial reflex is not so quickly efficient after the quick operation, and that for this reason ether is much superior to it.

Dr. HOPKINS: The dangers attendant upon the use of chloroform have been forcibly set forth by Dr. Hinkel, and so impressive are the statistics that in spite of its many attractions chloroform must give place to the safer anæsthetic ether. I feel the force of this the more keenly because of a recent personal experience with chloroform, which was administered at the hands of an especially careful anæsthetist. The patient rallied, though for an interval which seemed almost interminable we both thought the child dead.

In reference to the recurrence of adenoids an important point has just been made by Dr. Leland, in insisting upon the necessity of being assured that the nasal passages are themselves free from obstruction. I called attention to this in a paper read before the Section on Laryngology of the New York Academy of Medicine in December, 1894, and further experience has confirmed its importance.

The general condition of the child also calls for attention. The patient is often of bad heredity and under poor hygienic surroundings, and if nothing is done to obviate this, recurrence is the more likely to follow.

As a curiosity, I will mention a case reported in the paper already alluded to. This child I operated upon under ether three times during a period of two years, and, especially after the first operation, effort was made to thoroughly clear the nasopharynx. I have recently been informed by my successor at the Manhattan Hospital that this patient has since been operated upon four times, making seven in all. Repeated microscopical examinations of the tissue removed show it to consist of simple lymphoid hypertrophy.

Dr. MAKUEN: The question of anæsthesia is certainly most important in these cases. Many times we feel called upon to do the operation when the necessity for it is not quite apparent to the patient or to the parents of the patient. The last case I had was that of the beautiful daughter of a physician, and the only symptom directly referable to the adenoid was a post-nasal catarrhal condition, so slight as to give almost no inconvenience whatever; but she was a stammerer, and for this reason more than any other the operation was suggested. The father said it seemed a pity to etherize a child who was so well, and after that it required some

courage to do it. I always look for adenoids in stammerers, and I always remove them when found. One child never stammered after the removal of the growth. Even though there be only a granular condition in the vault of the pharynx, great good often comes from curettement.

I am in the habit of giving a general anæsthetic only to children whose cooperation we can not secure. In adults I adopt the following method of cocainizing the vault of the pharynx. The patient is put on his back with the head hanging so that the vault will form a kind of cup with the adenoid in the lowest part. Then the cocaine is applied in the usual way and it will be thoroughly absorbed by the tumor and the adjacent tissue. If this method is pursued the operation may be done without much pain.

Dr. FARLOW: With regard to the question of recurrence, I do not consider that statistics are of any great value. When a second operation is necessary, there is no doubt of the recurrence; but there are many cases where the rhinoscopic mirror can not be used and no digital examination is made, and the question of recurrence is determined by the reappearance, to a greater or less degree, of some of the former symptoms, which may or may not be due to a return of the growth. The narrow nose and the deflected sæptum, caused by the disease, remain after its removal, and are responsible for effects which are often erroneously attributed to recurrence. While methods of operation are so numerous, physicians differing so greatly in their thoroughness of operating, with subsequent examinations often not complete, and bearing in mind that it is very natural and probable that cases which recur should seek advice from some other physician than the one who has performed the operation, we are justified in saying that very little accuracy can be attributed to our statistics up to the present time.

The paper of Dr. Bliss is very important as showing in what cases, and why, we may expect recurrence, and also in emphasizing the fact that even a very thorough operation is not necessarily a safeguard against a future growth. I am in the habit of telling patients that recurrence is said to take place in three or four per cent. of cases, but that it is impossible to tell whether it will recur or not in any given case.

As regards methods of operating, I have always considered the finger nail as entirely inadequate to a thorough operation. Several years ago I had two brothers

under my care with about equal amounts of adenoid hypertrophy. I operated on one with forceps and curette, and on the other with the finger nail only. The former has not recurred, whereas the latter has required another operation. I took pains to preserve the pieces removed from the two cases and showed the bottles containing them to the Society for Medical Improvement. It was very instructive to see the very large amount removed by instruments, perhaps twenty times as much as by the finger.

Dr. Delavan referred to the adenotomes or instruments which cut with a scissors-like motion, but omitted to speak of the Schütz pharynxtonsillotome, which does not cut like scissors, but is a guillotine, and in my hands has proved of great value in proper cases. It is the instrument which I showed before this society at its meeting in Washington last year.

With regard to the dangers of the operation, I have found it a great safeguard to have my private patients come to a private hospital near my office, where assistants, nurses, and medicines are at hand, where I can operate without hurry or loss of time, and where I can be summoned at a moment's notice in case of need.

Dr. SWAIN: Without wishing to unnecessarily prolong this discussion, which is very interesting, I would like to bring out two points—one anatomical, one in reference to operation. In the first place, I do not see how we can avoid having occasional recurrences. We remove the adenoid tissue, but we do not remove it all. I recall to your mind a section thrown on the screen yesterday by Dr. Wright, where the lymphoid tissue was shown in the deeper structures of the membrane. It is not like the faucial tonsil which, being circumscribed, can be removed completely, as in Dr. Farlow's specimen which he has shown us. Now, in the case of the pharyngeal tonsil, we have also an adenoid infiltration of the mucous membrane down below the vault. While we direct our efforts against the mass in the roof of the pharynx, we easily overlook the tissue of the same character which may run down to and directly behind the palate. In a recent case of a child five years old, I was pleased with the result of an operation in the vault of the pharynx, which was perfectly cleaned out, but I was far from pleased when some months later I found directly behind the palate a portion which is now enlarged to a marked extent. [Diagram on blackboard.] I do not see why this might not happen in many cases.

Another point that I should like to bring out is that we can not give too much attention to thoroughness in getting the adenoid tissue out, and this should be done as early as possible. This is in connection with Dr. Makuen's question as to when to operate.

I see in my native city a number of young men attending our university from all parts of the country, some of whom have been operated upon by members of this association in different sections of the country, and I am constantly called upon to either clean out what has been left by previous operation, or, more probably, what has developed since. This has always seemed to argue to me that I must be most thorough in my work on children, and this leads inevitably to the conclusion that a prolonged anæsthesia will allow of greater thoroughness. Hence I have always used chloroform as my favorite anæsthetic, rarely giving it very profoundly, and if I find, on inserting my finger, that the adenoid tissue is not all out, I put the patient under the anæsthetic again and again until I am satisfied that I have removed everything removable. I hope by this means to accomplish more than I ever could in a brief anæsthesia or with bromide of ethyl.

Dr. BRYAN: There is one word I would say about operating before the patient is under complete anæsthesia. When the patient is only partially anæsthetized cough due to the excited state of the reflex will be an aid to the surgeon by preventing blood and particles of lymphoid tissue being drawn into the larynx and trachea. There is, however, an old theory that operations in the region of the fifth pair of nerves under incomplete anæsthesia are apt to be followed by shock, a theory which in my experience has not been borne out in practice.

Dr. BROWN: I recognize fully the dangers of giving a general anæsthetic. I would ask Dr. Delavan if he considers it humane to put a patient in risk of his life by giving a general anæsthetic for a slight operation when other means will suffice. The statement has been made that chloroform is dangerous. When I am asked by the parents of a child as to the risk, I reply that it sometimes happens that there is a death after the operation, but it occurs very much more infrequently than from the anæsthetic. Nitrous-oxide gas I have used for several years for my operations. It is suitable for older children and those who can be controlled, but not for younger children. The nitrous-oxide gas is readily

administered by a dentist; its effects are soon over, and it is harmless. I looked up the matter some years ago, and found that there had been in all six deaths, and on looking into the subject more closely, I also found that in all of these cases it had been administered by persons who were unaccustomed to giving the gas. The dentists say that there is no danger in experienced hands. Therefore we see that with a careful administrator there is not a particle of danger. It is an advantage where we wish to do rapid work to use gas; we can thoroughly remove the growth in a few minutes, as I can testify from personal experience. Of course if ether is harmless, we shall hail it with delight and the profession generally will be glad to take it up, but with ether it takes longer to get the patient under the influence. My opinion of ether is that we are likely to have more hæmorrhage with it than we are after chloroform, but I have had no experience and can give no statistics on that point.

As to the frequency of recurrence, I can not state positively in any case that it will not recur. In many cases the patient will return and we can make a satisfactory examination. In many others we can not. In some we may think there is a recurrence when there is not a return of the growth, but simply enlargement of the posterior turbinated bodies. In a number of cases that have been brought back to me by parents with the statement that growths have recurred, I have found either the pharynx quite free, or that an acute rhinitis had occurred a short time before the patient came back. This persisted and the swelling of the turbinal bodies had given rise to the obstruction. Therefore the opinion may be expressed that the growth had returned when it had not.

In one instance where I had removed the adenoids, a few winters ago, the patient returned to me the following winter, and the family physician stated that the adenoids had recurred. I gave the child an anæsthetic, and putting my finger into the pharynx, found it to be perfectly free from adenoids. I followed it with the Gottstein curette, and then explored it with forceps at the request of this gentleman, but found it perfectly clear. No doubt if I could have secured an examination with the mirror, I should have found the vault perfectly free, and that the difficulty existed in the nose.

As regards instruments, no one kind of instrument will entirely remove the growths. I am in the habit of



using the Gottstein curette and forceps. I am almost ashamed to confess it, but I have been guilty of modifying the former. I had casts made of the vault of the pharynx in skulls of children, then had a curette adapted to the shape of the vault, and have found it to act perfectly well where I have used it.

Dr. RICE: With regard to the prognosis we should give to the family after operating upon these growths, I would say that we can always place ourselves in a safe position by stating that the child will not at once breathe easily through the nose. There are several reasons why the patient can not breathe immediately through the nose with freedom: First, the operation sometimes produces a catarrhal pharyngitis, and the instruments and ether cause symptoms of a severe cold. In winter time a child may be three or four weeks in recovering after an operation and in securing free nasal respiration.

As regards the results of the operation, one reason why we do not always get good results at once is on account of the narrowing of the width of the spurious maxillary bone, which by its upward pressure causes deflection of the nasal septum. Its abnormal relation to the inferior maxilla makes it difficult for the child to keep the mouth closed even though all postnasal adenoid has been removed.

Dr. HINKEL: I was interested in hearing Dr. Wagner's remarks yesterday as to his experience with the bromide of ethyl from the fact that he found the anæsthesia rather too brief. Dr. Roaldes has written me recently that he has given ethyl bromide in private practice and hospital work some twenty-five hundred times with satisfaction and without any accident. Several of our corresponding fellows, Dr. Gougenheim, Dr. Luc, and Dr. Moure, have written me that they have used it in tonsil and adenoid operations many hundreds of times with safety and satisfaction. But Professor H. C. Wood regards this anæsthetic as quite as dangerous as chloroform. It has, however, a much better record in this class of cases than chloroform, but it should be used with care.

Dundas Grant, who introduced the use of nitrous-oxide gas in adenoid operations, has written to me that in very young children he uses chloroform on account of the difficulty in administering successfully the nitrous oxide. There have been no fatal accidents recorded in nose and throat operations under this anæsthetic, and

it is the only one of which this can be said. Dr. Walter Freeman, of Philadelphia, uses nitrous oxide quite frequently in adenoid and tonsil operations. He has told me that he has difficulty at times in administering it to timid children. If recovery occurs from the anæsthetic before the operation is complete, he does not hesitate to administer it a second time, though this contingency is to be avoided if possible.

I was rather surprised that Dr. Logan and Dr. Thrasher base their preference for chloroform on the grounds of safety. I think it does not admit of argument that chloroform is the most dangerous of the anæsthetics. It was the object of my paper to show that in adenoid operations it has been found to possess peculiar dangers with more fatalities proportionately than in general surgery. I should like to ask Dr. Thrasher what authority he has for stating that there is an increase in the danger from hæmorrhage after adenoid operations done under ether. I do not know of any statistics to this effect. Dr. Brown has referred to the danger of inflammation of the kidneys after the use of ether. Of course the condition of these organs should be ascertained before operating, and, if found diseased, chloroform could be used after a preparatory course of digitalis and strychnine. There was one death from ether reported by the *Lancet* Commission during tonsillotomy. No details were given. When listening to Dr. Swain's remarks on operating under primary anæsthesia, it occurred to my mind that the greater number of deaths from chloroform have occurred during the primary anæsthesia.

I have seen one case recently like that described by Dr. Swain where there was considerable lymphoid thickening low down on the posterior wall of the pharynx. In this case there was a recurrence of symptoms after an operation. They disappeared after a thorough curettement of this part of the pharynx.

Dr. LOGAN: I wish to correct one statement made by Dr. Hinkel—viz., that I said that ether would increase the hæmorrhage. What I did say was that the amount of secretion which followed the ether was an element of danger. I do not hesitate to use ether on account of risk of hæmorrhage.

Dr. DELAVAN: I have listened with great interest to the paper of Dr. Bliss. Instances of recurrence certainly do occur in cases where great care has been exercised in removing all lymphoid tissue from the vault at the

time of operation, and where for some time after operation the vault has seemed to be normal. In my own experience, where recurrence has taken place, the tissue has appeared in the locality which Dr. Bliss has described, and not upon the posterior pharyngeal wall.

Dr. Hinkel's paper is very valuable at this time, for while the dangers of chloroform in the adult are becoming generally appreciated, there are many who still use it in the anæsthetization of children, believing it to be safe.

In speaking of anæsthetics here, I refer to their use with children, not with adults. Ten years ago I used chloroform exclusively, administering it in over two hundred cases. Two accidents, fortunately neither of them fatal, and the appearance of the well-known paper of Professor H. C. Wood, caused me to abandon chloroform and to rely exclusively upon ether.

Properly administered, ether is little more irritating than chloroform. Its effect upon the secretions of the throat will depend largely upon whether its administration is hurried at the beginning or not. Incomplete anæsthesia is not satisfactory. With complete anæsthesia the pharyngeal reflexes can be done away with and the complete clearing out of the pharynx thus perfectly accomplished. The administration of ether may involve some loss of time, both before and after the operation. During the operation, however, the conditions for satisfactory operation are perfect. Improvements in the administration of ether are being much discussed. The best of the recent methods is that lately introduced from England by Dr. Bennett, in which nitrous-oxide gas is first used and its effects followed up by the administration of ether. Dr. Thrasher's statement that the administration of ether is followed by pneumonia and cedema of the lungs is certainly not true so far as we are concerned. I have never heard of a case in which a child to whom ether has been given for the removal of adenoids has been attacked by either of these diseases, nor do I believe that others have. Far from being injured by the ether, children operated upon under it are usually remarkably bright and well within a few days afterward, and they continue to make rapid and steady improvement in many ways. I do not believe that ether causes any marked increase in the bleeding. If more blood flows with anæsthesia than without, it is largely because under the former condition more tissue is removed.

I have called attention to the fact referred to by Dr. Makuen—namely, that the removal of lymphoid hypertrophies has a marked effect in the relief of certain defects of speech, due not only to restoration of the normal space of the pharynx as a resonating cavity, but still more to the relief of catarrhal conditions and of the general relaxation of the parts which accompany them.

Dr. Farlow's recommendation as to the value of operating for the removal of adenoids in a private hospital is excellent, and it is the plan pursued by the best of the London surgeons. By it much loss of time and some risk are saved, and the general care of the patient can be conducted in the best manner. In some of the best infirmaries in New York city it is the custom to operate at the infirmary, and not to allow the patient to go home until the following day.

*Paper.*

INFLUENCE OF LYMPHOID HYPERTROPHY ON EPILEPSY.

By URBAN G. HITCHCOCK, M. D.

IN considering the influence exerted by lymphoid hypertrophy in the pharyngeal vault upon coexistent epilepsy, and at this period in the history of the subject when so much attention is deservedly being given to such growths, it clearly would not serve any useful purpose were the present paper to dwell at length upon the relief to respiration which follows the removal of these obstructing masses, or to make extended allusion to the great amount of good otherwise accomplished by that operation, as, for instance, the benefit so afforded to sufferers from dependent aural affections.

It has long been a matter of definite and wide observation that the area closely adjoining the seat of this lymphoid hypertrophy is very susceptible to irritation, and that it thus determines, in many cases, the production of numerous reflex symptoms in various parts of the human body. This area, defined to be preeminently that of the mucous membrane covering the posterior portions of the lower turbinated bodies and of the *sæptum*, is known, under certain conditions, to excite by its

reflex activity even so grave a nervous manifestation as an epileptic attack in patients possessing the necessary morbid predisposition. No term less vague than this latter—namely, morbid predisposition—appears at present available to indicate the essential nature of epilepsy, the diagnosis of which malady in its idiopathic, as distinguished from its symptomatic, phase has been authoritatively declared to be often clinically impossible. Whether or not the pathogeny of epilepsy will ever be exactly and fully known, it must always remain a matter of high importance in practice to control all those sources of irritation which have been recognized as possible provocatives of the convulsive seizures.

Embarrassed nasal respiration, owing to turbinated hypertrophy, or to polypi, would seem to have received more attention in this especial regard than some other conditions, and notably that of lymphoid growth, which latter, in a case of pronounced epilepsy once seen by the writer, was so manifestly an exciting cause of the convulsions as to furnish a striking illustration of the foregoing statements. This patient was a boy of eleven years, of good mental capacity, and even of remarkable mechanical ingenuity. The hereditary history was negative, and an older sister and a younger brother exhibited no such symptoms as those of their brother, in whom nothing unusual was impressed upon his parents' attention until he was about a year old, when he is described as having become abnormally quiet; and it was, moreover, learned from them, upon inquiry, that he had been a mouth-breather since a few months of age. Epilepsy, in the more violent of its forms, commenced after his recovery from pneumonia at two years, the seizures occurring at intervals of about two to seven weeks. At seven years *petit mal* became superadded, following, as it is said, removal of the tonsils, and kept getting worse until the attacks reached ten a day. When about nine years old he was placed under treatment by a prominent neurologist, who, observing no improvement from the use of the bromides, referred the patient for nasal examination. Marked lymphoid hypertrophy being

thereupon discovered, the operation for its removal was performed under ether, with the result that attacks of all kinds immediately ceased throughout an unbroken period of eighteen months. Just one month after this operation, and under the direction of the family physician, it was found necessary to operate for appendicitis; three months later he passed through a serious attack of pneumonia, but continued, as already stated, and under competent observation, free from both kinds of epileptic attacks for a year and a half after the removal of the growths. In October, 1895, the attacks having begun to recur during the previous August, another operation was done under ether for the removal of remnants of the lymphoid masses; and the epileptic attacks again ceased completely until five months later, when a blow on the head was followed by a reestablishment of the *petit mal*. This, I have recently been informed, has continued in spite of various forms of treatment.

In the instance just narrated, so unmistakable was the causative character of the lymphoid hypertrophy in influencing the underlying nervous affection as to suggest the belief that similar examples might be met with by practitioners of a specialty in which lymphoid hypertrophy forms so large a proportion of the ailments coming under observation. That few cases of this kind, so far as the writer is aware, have been discovered in that way, may, perhaps, be attributed to the circumstance that epilepsy not being especially looked for as a concomitant state, a slight degree of that disease might sometimes be liable to escape detection by the rhinologist; while it is equally manifest that an affection so widely prevalent as lymphoid hypertrophy can not very commonly be an important factor in the production of a disease of such relative infrequency, in this comparison, as epilepsy. But, given the existence of epilepsy in any subject, while allowing for the influence of such other and well-established causes as heredity, drug habits, the accumulation of toxic products in the blood, diathetic conditions, and more particularly in the course of the examination of all the epileptogenic zones, the advan-

tage of including lymphoid hypertrophy among the possible exciting causes of epilepsy is once more exemplified.

*Paper.*

A CASE OF NASAL FIBROMA. A SUPPLEMENTARY REPORT.

By W. E. CASSELBERRY, M. D.

TEN years ago I read before the Section on Laryngology of the Ninth International Medical Congress \* the report of a case of nasal fibroma, and noted the rarity of this neoplasm in the nose proper. Last year, having referred to this case in discussion before the American Laryngological Association, the very existence of nasal fibroma was questioned by some of the fellows. The original report was defective in not containing a detailed description of the microscopic examination, which, through the courtesy of Dr. Jonathan Wright, I desire to remedy. The lapse of time has also furnished additional information and clinical data which justify a supplementary report of the case in an effort to substantiate the original diagnosis to the satisfaction of all.

The following is an abstract of the case: Mrs. R., aged thirty-nine years, came under my observation in 1886, having had a nasal growth of unknown character removed from the left nasal fossa by means of forceps ten years previously. She remained well for five years, and then again noticed gradually increasing obstruction and later a dark, reddish mass presenting at the left anterior nasal aperture. Four years previously she suffered an attempt at removal under chloroform, which was unsuccessful because of severe hæmorrhage. She declined further interference until 1886, when she applied for treatment to my office associates, Dr. Coleman and Dr. Gilmore, incidentally coming under my observation, and a few days thereafter under my exclusive care. The left nostril was much distended, showing evidence of commencing frog-face, and the fossa was filled anteriorly by a firm, elastic tumor which projected slightly

\* *Journal of the American Medical Association*, April 21, 1888.

from the anterior naris. There was no undue prominence over the antrum of Highmore, nor encroachment upon the orbit or nasopharynx. Efforts to include the neoplasm in a galvano-cautery snare failed on account of its size, tight fit, and numerous adhesions; so the lower portion was slit up by the knife electrode, some adhesions separated in like manner, and a large section, perhaps half of the tumor, extracted by means of snare and forceps. A few days subsequently the case was referred to me.

The space left by the part removed now admitted of more extended examination. The left half of the external nose is decidedly more prominent than the right. The left fossa, above the line of the inferior turbinated body, is yet filled by a firm, elastic, irregularly lobulated neoplasm. No middle turbinated body is discernible, its position being occupied by the remaining part of the tumor. The inferior meatus is now free, corresponding to the portion of the growth already extracted. The anterior two thirds of the septum narium have been pressed far over to the right side, enormously increasing the capacity of the left fossa. The nasopharynx is normal, only a faint outline of the tumor located well forward being seen through the left choana. The posterior part of the septum is in the median line.

I removed the remaining part of the growth in repeated sittings by means of the galvano-cautery steel-wire snare, with which more could be accomplished at one time than with the cold snare on account of the better control of the hæmorrhage. Usually it was necessary to make a preliminary incision into the substance of the tumor with a knife electrode in order to prepare a place for the wire, or by the same means to detach an adhesion, that the snare might take hold. The tumor was thus followed up to its primary attachments, which extended along the horizontal plate of the ethmoid bone and included that part of the ethmoid which contains the cells and from which projects the middle turbinated bone, the latter having disappeared by absorption and the cells having opened by the same process into the general nasal cavity. In fact, since the complete removal of the growth the nasal fossa is like a great ovoid cavern with perfectly smooth walls. For some months thereafter it would incrust in the manner of atrophic rhinitis, but this annoyance gradually ceased. Eleven years have now elapsed since the operation, during which time the patient has been under occasional observation for other reasons, affording opportunity for reexami-



nations, and she has remained free from recurrence and devoid of any nasal disease or discomfort whatsoever.

All parts of the growth removed were firm in texture and had the gross appearance of a fibroma, not resembling in the slightest degree the ordinary œdematous nasal polypus. The microscopic examination was made by Dr. Elbert Wing, at that time pathologist to Cook County Hospital, who reported it to be a fibroma, and this was confirmed by my own examination. Recently the tissue has been reexamined by Dr. Jonathan Wright, who has kindly reported as follows: "The sections are largely made up of fibrous connective tissue whose outlines do not show very clearly, owing probably to the long time the specimens have been kept. I presume you are justified in calling the growth a fibroma, although there are a number of œdematous areas in it as well as the evidences more commonly regarded as those of chronic inflammation. The longer I study nasal pathology, the harder I find it to draw the line between inflammatory and true benign tumors, and the more inclined I am to believe that that line is a very arbitrary one and really should have no existence, as benign neoplastic growths are, I believe, all the result of chronic inflammation or analogous metabolic processes."

The interesting question relative to the pathogenesis of benign neoplasms—fibromata, among others—which is raised in the latter part of Dr. Wright's report, I will not follow further at this time, the point which I desire to establish being that, in its clinical course, macroscopic aspect, and microscopic structure, this nasal neoplasm corresponds with our usual conception of a fibroma.

Against the supposition that it might have been an ordinary mucous polypus, perhaps with more fibrous tissue than usual, may be mentioned that the patient has not then or since presented any of the frequent concomitant conditions of mucous polypus, such as hypertrophic rhinitis, polypoid degeneration of the middle turbinated bodies, ethmoiditis, sinusitis, asthma, hyperæsthetic rhinitis, multiple formation, or recurrence.

Very few perfectly authenticated cases of nasal fibroma are recorded. Morell Mackenzie \* reports one

\* Morell Mackenzie. *Diseases of the Throat and Nose*, American edition, vol. ii, p. 376.

of two years' duration in the person of a female aged thirty-five years. A pedunculated solid growth of the size of a pigeon's egg originated from the roof of the nasal fossa, well within the nasal cavity, and projected through the left choana into the nasopharynx. On section it was hard, dense, and pale, with microscopically closely interlaced whitish fibres and a few minute cells. It was removed by evulsion with forceps through the nasopharynx, and no subsequent history is given. The same author cites two other cases, both devoid of microscopic examination, one by Gerdy,\* of one year and a half's duration, in the person of a male aged thirteen years, in whom death resulted from hæmorrhage following an attempt to cut through the base of a growth, demonstrated at the autopsy to have been attached at the posterior part of the vault of the left nasal fossa, and which was firm, elastic, and on section seemed to be of purely fibrous structure; the other by Lichtenberg,† of which the only particulars are that it originated from the cribriform plate and upper turbinated body.

Kempf ‡ and Buchanan,\* cited by Wagner, each report a case of probable fibroma, but in which the diagnosis is not positively established, the first because of the absence of a microscopic examination, and the second because of the presence of round cells supposed to be inflammatory, but in which no subsequent history is given. They both originated from the sæptum, were of large size, and had the gross appearance of fibromata.

Dr. Charles H. Knight || has described a smooth, movable tumor attached to the posterior end of the in-

\* Gerdy. *Des polypes et de leur traitement*, Paris, 1833. Cited by Mackenzie, *loc. cit.*

† Lichtenberg. *Lancet*, 1872, vol. ii, p. 773. Cited by Mackenzie, *loc. cit.*

‡ Kempf. *Louisville Medical News*, 1879, vol. vii, p. 65. Cited by Wagner, *Diseases of the Nose*, 1884, p. 216.

\* Buchanan. *Glasgow Medical Journal*, 1882, xvii, p. 211. Cited by Wagner, *loc. cit.*

|| Charles H. Knight. *Journal of Laryngology, Rhinology, and Otology*, 1895, p. 193.

ferior turbinated body in the person of a male aged twenty-one years which, after easy removal by the cold-wire snare, under the microscope proved to be a pure fibroma.

Horne \* records a case, of traumatic origin, in a woman aged seventy years, attached to the sæptum, in which the mere removal of a fragment for microscopic examination afforded relief to the epistaxis and stenosis. The growth presented the appearance of a fibroma, with no evidence of malignancy.

In Price Brown's † case the very vascular growth originating from the side of the sæptum posteriorly seems to have encroached somewhat upon the nasopharynx, inasmuch as it formed attachment also to the anterior border of the tuber of the Eustachian orifice. Microscopically, it was pronounced a dense, close-grained fibroma, and was removed with difficulty by a combination of electrolysis and the galvano-cautery.

Crighton ‡ reports two cases: One, a male aged eighteen years, who had a dense, resisting, readily bleeding, and slightly movable tumor the size of a pigeon's egg, which was broadly pedunculated and attached to the sæptum at the junction of the middle and posterior thirds of the nasal fossa. It was removed by the galvano-cautery snare, but bled profusely, necessitating packing. Microscopically it was pronounced a pure fibroma. No recurrence after a year and a half. The other case, a male aged nineteen years, had a large, broadly pedunculated, firm, whitish, non-bleeding neoplasm attached apparently to the ethmoid. Fragments only were removed for microscopic examination, from which it was pronounced a true fibroma.

Without pretensions to an exhaustive search, I have thus collected eleven cases from recent literature. Antique reports are omitted as being uncertain in the diagnosis. A few of these are imperfectly recorded, but

\* Jobson Horne. *Journal of Laryngology, Rhinology, and Otology*, 1897, p. 78.

† Price Brown. *The Canadian Practitioner*, reprint.

‡ Crighton. *The Laryngoscope*, May, 1898.

enough remain to indicate that, while rare, the occasional occurrence of genuine fibroma in the nose proper should no longer be questioned.

*Paper.*

THE GENERAL HEALTH AND THE UPPER AIR-PASSAGES.

By J. C. MULHALL, M. D.

WHEN Morell Mackenzie passed through our country he was asked in St. Louis by a newspaper reporter to what causes he attributed the vast prevalence of chronic nasal catarrh in the United States. He answered, "The variability of your climate and the Macadam dust in your atmosphere."

Several years ago I published a paper in the *New York Medical Record* called Diet and Exercise in the Treatment of Simple Chronic Inflammation, in which I took occasion to express the view that the factors mentioned by Mackenzie were minor ones, and that our triad of national diseases—catarrh, dyspepsia, and nervous prostration—were due to our national bad habits.

A factor in the ætiology of chronic nasal catarrh admitted by all authors is anatomical abnormality in the nose, the most common of which is thickened or deviated septum. This is a factor which obtains alike in all nations. I therefore submit that the plus factor which makes this disease so much more common among Americans is the bad hygiene which prevails among us. I make bold to say that, atrophic rhinitis barred, the general health of every child who has chronic rhinitis is at fault, and that in the vast majority of cases this is due to faulty hygiene. Two lines of thought are suggested by the title of this paper: one, that diseases of the upper air-passages may produce disturbances of the general health, and the reverse, and it is to the latter to which I believe we specialists do not pay sufficient attention, and to which, therefore, I address my remarks. L. Duncan Bulkley has lately published his experience

in the cure of acute rhinitis by the administration of bicarbonate of sodium. I can corroborate his successful results, especially in one class of subjects—namely, those the subjects of the uric-acid diathesis. From sixty to a hundred grains of bicarbonate of sodium taken in twenty-four hours in the early stage of a rhinitis in such individuals will completely abort the cold in the head. To go a step further, let me adduce the following case:

Mr. J. M. H., a wealthy manufacturer, a member of the same club as myself, where I had therefore occasion to observe his dietetic habits, after years of procrastination, finally came for the relief of certain symptoms which he desired cured, more because they were offensive to polite ears than that they annoyed him—namely, a constant desire to hawk and spit, and what have been called “posterior explosions”—namely, a sudden explosive effort of air to dislodge tenacious mucus stretching from the sæptum to the posterior end of the inferior turbinate. I found general turgescence of the turbinate tissue in the alternating stage, with here and there a knot of thickening on the sæptum. The mucus was white and, as I have often noted in uric-acid subjects, extremely viscid. He was plethoric, ate meat three times daily with his pint of champagne with dinner, and took no exercise except an hour each day on his horse. He was in a state of hypernutrition, and where would we expect veins to be more readily engorged than in the ill supported vessels of the nasal erectile tissue? I explained the loss of vascular equilibrium to Mr. H.; that the disease was *a tergo*; that he needed no local treatment, but merely a system of diet and exercise, whereby the expenditure of force would dispose of the fuel ingested. He winced when asked to bid adieu to alcohol, to eat meat but once a day, and to spend so much of his valuable time in walking, and was seduced from these hardships very readily by a friend who urged him to come to his doctor, who had sawed away some bone in his nose, burned some other spots in there, and had done him a world of good. I did not see Mr. H. professionally for six months, when he paid me another visit and frankly related his experience. The sæptal knobs had been sawed away, he had undergone a half dozen galvano-cauterizations, any amount of spraying, and now, two months after the last operation, was, if anything, worse than ever. He had returned to me im-

pelled by several motives: to get rid of his nasal symptoms, to satisfy an intelligent curiosity aroused by contemplation of the two different plans of treatment, and by the thought that perhaps the blood-vessels in his brain might be in the same condition, for the words *arterial tension* I had used in our first interview refused to leave his memory. He most faithfully obeyed instructions, even came to take great pleasure in his daily three-mile walk, and was rewarded by an almost complete disappearance of the nasal symptoms.

I mention this case at length, because I believe it to illustrate a very common error in the treatment of chronic inflammatory trouble of the upper air-passages. The specialist in question is a very bright man, has a large *clientèle*, but has never had the advantage of a large experience in general medicine. Even with specialists who have had such training and who keep *au courant* with general medicine by reading several journals devoted to it and by attending medical societies, there is an innate tendency to drift into narrow channels, aided, no doubt, largely by the hurry of a large practice.

A physician this winter brought me his four-year-old boy, saying that no sooner had the child recovered from an acute rhinitis than he was seized with another. He had remarked that these attacks were very violent, both nostrils becoming completely engorged and remaining so several days. The boy was also subject to almost maniacal fits of temper. It was readily demonstrated that these were uric-acid explosions, for not only did he by proper treatment cease taking colds, but it was found that his temper was of average amiability. A good saline purge, the exhibition of alkalies, and an exclusive milk diet soon worked wonders. The father remarked that in his practice he did not lose sight of the uric-acid diathesis, but that it had not occurred to him to think of this in his own child.

A far more common factor with which we have to do in inflammatory diseases of the upper respiratory tract is self-intoxication of gastro-intestinal origin. Therein chiefly lies the secret of the prevalence of nasal catarrh among Americans. There are four candy shops

here to one in any other country, and the abuse of the American stomach begins in childhood. This is the country of ice water, of the midday dinner, after the hurried "eating" of which the American plunges into business. Here the pie is ubiquitous, the chicken is fried, the breakfast is a failure without hot bread; coffee is consumed three times daily; cereals are smothered in cream and sugar, and everything is done in a hurry, except walking, for the American doesn't walk—he has not the time. And so, between his kitchen and the street car, he becomes a dyspeptic. The nation is young; it is absorbed in the accumulation of riches. It has not yet had time to contemplate its health. It is hardly necessary for me to point out the rôle which intestinal ptomaines play in the maintenance and causation of the various diseases of the human body, especially of two, neurasthenia and nasopharyngeal catarrh. The surgeon is careful to sweep out the intestinal tract before he operates, for he knows that there is infection from within as well as from without the body. How unkindly even a simple cut in the integument will heal in one suffering from ptomaine intoxication, and how much more kindly it will heal after a mercurial followed by a saline purge! Let a well-trained vocalist, especially the tenor and soprano, whose upper air tract is in a normal state, become what we commonly call "bilious," and he is at once utterly unable to sing. I have found that they themselves distinguish this from having taken a cold, and treat themselves to starvation and a good purge. All the great opera singers will tell you that they owe the integrity of their voices principally to two things—careful dieting and an abundance of outdoor exercise. If this is true, how careful we should be in these two points in the treatment of those whose upper air organs are not in a state of integrity!

I am not unmindful of the important part played in the ætiology of chronic nasal catarrh by deflected sæpta, spurs, or other obstructions. *Ubi irritatio, ibi fluxus* is a valuable pathological maxim, but, inasmuch as Americans do not suffer this way more than other nations,

and that we do suffer vastly more from nasal catarrh, other ætiological factors must be sought. Even after the correction of these deformities, in countless cases the catarrh is not cured. Moreover, let us bear in mind the following clinical fact: A patient at the age of thirty will tell you that only within the last two or three years has he suffered nasal symptoms. One finds a sæptal spur. Now, this spur has been there many years. Why did it not occasion symptoms years before? Because some other factor has within these last two or three years been added to the sæptal spur, some other factor that has damaged the general health. Mr. P. came to me from Hannibal, Missouri, his anxiety aroused because triweekly treatments for a period of five months had not cured a throat trouble. I found a simple chronic pharyngitis, a simple rhinitis, and a sæptal spur. He was six feet two inches, and weighed two hundred and fifty pounds. His throat symptoms dated back two years. To be brief, I found by dint of leading questions that five years before he had weighed two hundred pounds and had gradually added the fifty pounds. He was now fifty-two years of age, and up to the age of forty-seven had been a carpenter, working vigorously at his trade, earning his bread by the sweat of his brow, and had no occasion to consult a doctor. Some mining shares he had suddenly become very valuable and made him a wealthy man, and he laid down the hammer, saw, and chisel and began to live on the fat of the land. I found other ailments. He had piles, an uncertain stomach, mental irritability, partial insomnia. The one picture was frugal diet and hard manual labor, the other was a luxurious table and no exercise. The lesson is obvious. I touched neither his sæptal spur nor his pharynx. I wrote him out a diet list and prescribed morning and evening a half hour's exercise sawing wood with the old-fashioned sawbuck. He obeyed instructions, so literally that he lost thirty pounds in thirty days. To descend to vulgar detail for a moment, I know nothing that will encourage eliminations better than sawing wood. The position encourages massage of the internal viscera,



compresses the liver, empties the gall bladder, and forces along the contents of the colon. It was not long before vascular equilibrium was restored and all of Mr. P.'s ailments had vanished.

I use this homely illustration with a purpose, and this is, that if you do not prescribe exercise as carefully as you would a drug, if you do not write out in detail the foods to be avoided, your patient, not knowing exactly the kind and amount of exercise to be taken, will diet and exercise at random.

In the paper I mentioned I have related this case, as well as the lesson afforded by pugilists. Most of these, as a consequence of a barroom life, cheap cigars, overeating, vast quantities of alcohol, and inactive life, suffer from chronic nasopharyngeal catarrh. If you will but take occasion to examine one, when he has earnestly trained for a fight, you will find that his nasopharyngeal symptoms have disappeared. He no longer hawks and spits and suffers from stuffy nostrils. It is the same story. He has through training eliminated all obnoxious material from the body and secured perfect vascular equilibrium.

I appreciate the important part which chronic nasal disease plays in hay fever, and yet, in my experience, had I to choose between general treatment and local treatment, I would select the former.

In an article, *The Purulent Catarrh of Adolescents*, written two years ago, I have shown that until these children are taken away from books and piano, allowed to remain in the open air most of the day, dieted carefully, and given iron, no progress whatsoever will be made in the cure of the disease, no matter what local methods are employed. I admit the difficulty of inducing the average American to adopt such habits as would perfect his general health. When you have told him how much time he must devote to exercise each day; that he must have a cold friction each morning; that he must diet in a certain way; that he must cut down his tobacco and alcohol within certain limits, in order to cure an affection which does not threaten life, he very common-

ly prefers the disease. On the other hand, he need not expect a cure of, for example, chronic nasal catarrh, unless he perfects the general health. The responsibility of failure to cure lies with the patient, not with the art of medicine. I regard all treatment short of this, and the surgical treatment and simple cleansing, as superfluous and money-making. Thousands of vaseline sprays are sold every year, and yet short of their palliative effect they contribute nothing in a curative way. I have never yet seen an astringent or an antiseptic of any service in chronic nasal catarrh. How is it possible for them to do good if the pabulum is from within? Were it a local specific affection, like a gonorrhœa, such treatment would be intelligible. Prophylaxis must begin in childhood. Thousands of mothers need to be taught that sleeping in an artificially heated bedroom, above all in the deadly furnace heat, debilitates the respiratory mucous membranes; that the nearer the approach to constant outdoor life the more perfect the health; that physical degeneracy begins when one gets in the house; that the head covering should be one which permits the air to touch the scalp; that the best preventive of sweating feet is an uncovered foot; that heavy woollens next the skin is bad hygiene; that three meals a day are sufficient; that candy should never be permitted except just after a meal; that hot breads are an abomination; that whole wheat flour makes good tissues; that rubber shoes and throat mufflers are mistakes.

Of all the problems concerning the general health of which we should be masters, that of diet is certainly the most important. The beautiful complexion of the British maiden is vastly more due to the simplicity of her diet during childhood than to the mildness and softness of the British atmosphere; and let me say, to use plain language, that whatever improves the outside skin will perform the same duty for the inside skin, the mucous membranes. Notice the satin skin of the pugilist when he has completed his training. He has by exercise eliminated that which was foul, and by rigorous diet introduced nothing that could contaminate.

Let me illustrate this once more. I was called to see a man, aged sixty-eight, a sufferer from myocardial degeneration. There were general anasarca, ascites, great dyspnoea, and frequent attacks of Cheyne-Stokes respiration. He had been sitting day and night in an armchair for three months. There was utter loss of appetite, a foul tongue, and great abdominal pain from flatulence. Four different physicians had failed to relieve him. They had exhausted the virtues of the various heart tonics. Not one had apparently recognized that ptomaine intoxication was the barrier to success in treatment. He was given two tablespoonfuls of sweet buttermilk every hour as exclusive diet; a grain of calomel three times daily, until twelve grains had been taken, both as intestinal antiseptic and diuretic; and every other morning a teaspoonful of compound jalap powder. In a few days the tongue became clean, the bowel symptoms vanished, diuresis was reestablished, and digitalis and strophanthus, which before had failed, now soon brought about cardiac compensation. And so may I say that nasal compensation can not be brought about by local remedies until first ptomaines or other poisons have been swept from the system.

While not strictly germane matter for the contemplation, perhaps, of this association, I can not forbear using the occasion to address the profession at large concerning one system of treating what is embraced, roughly speaking, in a general way under the heading dyspepsia—namely, the Salisbury method, which comprises an exclusive beef diet, the drinking of hot water, and selected exercise. When I first inquired of old practitioners, a dozen years ago, I was answered with a shrug and a sneer and the insinuation that Salisbury was a charlatan. However, when two personal friends, prominent citizens of St. Louis, reduced to emaciation by chronic gastric catarrh and despairing of a cure at home, went to New York and returned home in a few months pictures of health, having been treated by Salisbury, I became a convert. I wish to say that in properly selected cases this method is absolutely curative, and

still the plan is in the hands of almost as few as it was a dozen years ago.

Many of the affections of the upper air-passages are tinctured by neurasthenia.

The same symptom has a vastly different significance in the neurotic and the phlegmatic. Given exactly the same sign of disease in these two, and it may in the one produce all kinds of symptoms and in the other not a symptom, and so must we not forget to address our treatment to the general nervous constitution as well as to the local sign. A *sæptal* spur is a vastly different thing in a neurotic and a phlegmatic. Who would amputate an elongated uvula which created no symptoms?

Dr. Mays, of Philadelphia, has adduced very powerful arguments that pulmonary consumption is a neurosis. If this is true, it is easy to conceive how many minor affections of the upper air-passages have to do with a neurotic element. I do not mean such troubles as the *paræsthesias* of the hysteric, but actual, visible inflammatory troubles.

I do not pose as a monitor to this association. I only take occasion through it to address many of the younger specialists in our department, who are apt to forget the individual as a whole in the treatment of a part.

Away with the spray, long live the general health!

#### *Discussion.*

Dr. MAYER: The paper of Dr. Mulhall is a very valuable one in that he calls attention to the more remote conditions existing as causal factors in affections of the upper respiratory organs.

We see this frequently, as an illustrative case will show. A young girl presented herself a year ago complaining of constant pharyngeal pain, which had been persistent for several years. Her pharynx had been cauterized and sprayed and all manner of applications made before I saw her. There was no evidence of any pathological condition, and a further inquiry revealed the presence of much intestinal disturbance. She had accu-

mulation of gases, irregular condition of bowels, rapid pulse, and general muscular pains.

No applications of any kind were made to her pharynx, but her intestinal trouble was treated and her pharyngeal pains ceased and have not recurred.

In acute conditions there is much for us to do beyond purely local measures. In cases of acute engorgement of the mucous membrane of the turbinates, as in the *grippe* cases, and also in acute inflammation of the upper air tract generally, I have been successful in securing prompt relief, especially when seen early, by the internal administration of the tincture of yellow jasmine.

In these cases the gelsemium is given in five-drop doses once every hour for three doses and then once in three hours. During this time the patient rests in bed for twenty-four hours, the remedy having a diaphoretic effect. At the end of twenty-four hours all congestive conditions have subsided and the patient is well, so that the remedy is discontinued. But a few days ago I saw a gentleman who had an acute coryza and evidence of a beginning bronchitis with a pulse of 120 and a temperature of 100.5° F., whose symptoms all subsided in twelve hours after the beginning of this treatment.

For the more chronic conditions of infiltration of the mucous membrane that exist, I have found much comfort to ensue by following the plan suggested by Dr. Delavan, of puncturing the swollen turbinate with a tenotome, under cocaine.

Dr. DELAVAN: I am very glad indeed that Dr. Mulhall has called attention to a fact which ought to be fundamental with us, that the dietetics and the general hygiene of our patients are an important factor in our therapeutics. I am convinced from observation of patients, both in the city and the country, that the man who is able to teach the American people how to live will be a benefactor of the whole country. Dr. Mulhall is aiming to do this important work.

Dr. WRIGHT: I wish to call attention to how far the pendulum is swinging back from exclusive attention to local conditions to the consideration of the general treatment. A dozen years ago Dr. Mulhall if he had dared to read such a paper would have been almost drummed out of the association.

Dr. LOGAN: I am personally much obliged to Dr. Mulhall for this timely communication. I am convinced that if more attention was given to the general

condition we should have better results. I would merely call attention, or add one remark to what has been said, with reference to the influence of the general health upon conditions of the lymphoid tract—viz., that due attention must be given to the presence of pathological inheritance. We must, as laryngologists, be aware of this and be able to apply the proper line of treatment to such patients.

The PRESIDENT: I feel sure that, if time permitted, you would all be glad to speak to Dr. Mulhall's paper. He has presented a very interesting and important subject which, I think, has been too infrequently brought before the association for discussion.

Dr. MULHALL: I feel very much pleased with the discussion, especially with Dr. Delavan's remarks. I am particularly gratified to see that all the members of this association seem inclined to indorse the principles taught in my paper.

#### *Paper.*

#### COMPARISON OF THE ERECTILE TISSUE IN THE NASAL MUCOUS MEMBRANES OF A BULL AND A BULLOCK.

By JONATHAN WRIGHT, M.D.

MUCH has been written by many observers as to the direct physiological connection between the action of the erectile tissue in the nose and sexual excitement.

The works of McKenzie \* and of Fliess † may be referred to for a full account of the clinical manifestations of this connection. It occurred to me that castration in young animals might be shown to have an influence in the development of the nasal erectile tissue. After the examination of the nasal chambers of many animals of different species by inspection and microscopic section, the details of which work it would be uninteresting to publish here, I take the liberty of drawing your attention to the phenomena to be observed in

\* John N. McKenzie. *American Journal of the Medical Sciences*, July, 1883; *Johns Hopkins Hospital Bulletin*, No. 82, January, 1898; *Journal of Laryngology*, March, 1898, et al.

† Fliess. *Die Beziehung zwischen Nase und weiblichen Geschlechtsorganen*, Leipzig und Wien, 1897.

the bovine race. The erectile tissue in these animals is nearly all situated on the sæptum at its posterior half. The walls of the cavernous sinuses are excessively muscular. I succeeded in procuring the heads of a bull and a bullock of approximately the same age. The difference in the extent and thickness of the erectile tissue in the two individuals is striking. Selecting the thickest portion of the tissue in each instance, after hardening and imbedding in celloidin, I made sections perpendicular to the surface. These were stained, and the photographs here reproduced show the difference in the castrated and the noncastrated animal. The figures rep-

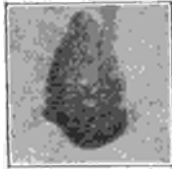


FIG. 1.—Section through the erectile tissue of a bull's nasal mucous membrane at its thickest portion (natural size).

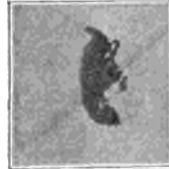


FIG. 2.—Section through the erectile tissue of a bullock's nasal mucous membrane at its thickest portion (natural size).

resent the nonmagnified sections in each case. I do not desire to elaborate the subject at present, or to draw any conclusions, since this observation is only meant to fill a hiatus which, so far as I have been able to observe, has hitherto existed in the numerous works upon the subject.

#### *Paper.*

#### ACUTE INFLAMMATORY CONDITIONS OF THE UPPER AIR-PASSAGES ACCOMPANIED BY LARYNGEAL EDEMA.

By CLARENCE C. RICE, M. D.

IN looking over the *Transactions* of this association I have been surprised to notice how little cedematous conditions of the larynx have engaged your attention. With the exception of articles and reports of cases by

Dr. Glasgow,\* Dr. Langmaid,† Dr. De Blois,‡ and Dr. Swain,\* I find nothing more than casual references. This is not remarkable, however, when we consider how rarely we meet with œdema of the larynx as a prominent symptom. I think all of us perhaps commenced the study of diseases of the larynx with the feeling that laryngeal œdema occurred frequently, and that the laryngeal surgeon was never safe unless he carried with him constantly instruments for doing tracheotomy. How untrue this is we to-day all know.

I wish it to be clearly understood that I shall exclude from consideration all phases of laryngeal diphtheria and that moderate œdema which may accompany malignant growths and tuberculous and syphilitic ulcerations and chronic perichondritis. I have looked through the rather large amount of literature on this subject somewhat, and have been impressed with the careless manner in which cases have been classified as regards ætiological causation. It is almost impossible in many instances to decide from the history given whether the laryngeal œdema is primary or due to some preexisting pharyngeal lesion.

Since the subject embraces only those cases in which œdema of the larynx accompanies *inflammatory* conditions of the upper respiratory tract, I shall not consider those of simple laryngeal œdema, which are one of the manifestations of a general anasarca caused by renal, cardiac, and hepatic disease. In such cases the œdema is non-inflammatory and may properly be termed *passive*. Much confusion has arisen by including such œdemas with those due to inflammatory causes. Bosworth|| deserves credit for strictly separating these two classes of cases. It is not unwise to include all cases of œdema of the larynx due to traumatism, such as external vio-

\* Glasgow. *Transactions of the American Laryngological Association*, 1889, p. 18.

† Langmaid. *Ibid.*, 1889, p. 14.

‡ De Blois. *Ibid.*, 1886, p. 128.

\* Swain. *Ibid.*, 1896, p. 85.

|| Bosworth. *Diseases of the Nose and Throat*, vol. ii, p. 549.



lence, and all internal irritants, as scalds, burns, because these cases are acute and inflammatory.

Von Ziemssen,\* in his chapter on Laryngitis Phlegmonosa, includes œdema arising from almost any and every source, for he mentions as causes diphtheria, erysipelas, burns and scalds, traumatism, foreign bodies, all the infectious diseases, all varieties of nephritis, diseases of the heart and lungs, and compression of the blood-vessels of the neck.

Mackenzie † considers under separate headings, first, œdematous laryngitis or laryngitis phlegmonosa; second, traumatic laryngitis; third, abscess of the larynx, and gives a separate chapter to erysipelas of the pharynx and larynx. He also devotes a chapter to chronic œdema of the larynx, associated with such causes as tuberculosis, cancer, and syphilis. American authors generally have with clearer insight insisted upon the separation of inflammatory and non-inflammatory causes of laryngeal œdema. Semon,‡ of London, has endeavored to simplify the ætiology of phlegmonous inflammations of the upper air tract in an exceedingly interesting attempt to prove that the various forms of acute septic inflammation of the throat, hitherto considered as so many essentially different diseases, are, in reality, pathologically identical; that they merely represent the same infective process, varying in virulence and locality of attack. And to support his views he has classified in order of severity the fourteen cases which he has seen and to which we shall refer later on.

There is grave doubt as to the character of the laryngeal œdema described by such early writers as Morgagni in 1765 and Van Swieten and Bichat\* in 1801. They are very likely to have been largely passive œdemas

\* Von Ziemssen. *Cyclopædia of Special Pathology and Therapy*, 1876, vol. iv, p. 311.

† Mackenzie. *Diseases of the Throat and Nose*, vol. i, p. 275.

‡ Semon. On the Probable Pathological Identity of the Various Forms of Acute Septic Inflammations of the Throat and Neck. *Medico-chirurgical Transactions*, London, vol. lxxviii, p. 181.

\* Bichat. *Anatomie descriptive*, vol. ii, p. 399.

due to cardiac and renal disease. Bayle,\* in 1815, treated the subject exhaustively and scientifically. Almost all later writers have consulted and quoted largely from Sestier,† who in 1852 presented a most exhaustive treatise on the subject of laryngeal œdema in which he tabulated all reported cases. He does not separate the chronic and acute forms of œdema, nor those of inflammatory and non-inflammatory origin, and it is quite possible that ordinary cases of chronic laryngitis accompanied by tissue thickening are included. He uses a nomenclature which is instructive. He calls the case *typical* where it originates in the larynx; *contiguous*, where it proceeds from the pharynx or other parts; and *consecutive*, where it occurs as a sequel to a previous disease of the larynx. Sestier found that in a hundred and ninety acute cases œdema of the larynx was primary thirty-six times, and secondary to some preexisting laryngeal or pharyngeal malady a hundred and twenty-two times. Sestier says that typical œdematous laryngitis is very rare, since an ordinary catarrhal process rarely proceeds to involvement of the submucous structure with accompanying œdema.

One of the more important phases of this subject, and one which may be discussed with profit, is, first, whether there exists a typical primary acute œdematous laryngitis of purely septic origin—a disease *sui generis*; and secondly, whether this infection is identical with that which manifests itself as erysipelas. Semon believes this latter proposition to be true, as I shall quote after a little. Let us consider this part of our subject for a moment. Mackenzie says that in nearly all the instances of so-called “simple inflammation” the disease is due to blood-poisoning, and that he has met with the affection among hospital physicians, medical students, and nurses, and in cases where defective drainage seemed to be its cause. He makes the statement that “in every case that has come under his notice ample opportunity for acquiring septicæmia has been present.”

\* Bayle. *Dictionnaire des sciences médicales*, vol. xviii, p. 505.

† Sestier. *Traité de l'angine laryngée œdémateuse*, Paris, 1852.

This is an interesting phase of this question, and one upon which I am unfortunately able to give but little testimony, as I do not feel positive that I have seen typical cases of pure cedematous laryngitis due to unhealthy sanitary conditions.

Just here it is of interest to refer to the class of cases, as perhaps of a similar type, which has been presented by Dr. Glasgow \* to this association, and called by him "septic cedema of the upper air-passages," in which he describes a form of cedematous laryngitis which occurred epidemically in St. Louis in 1886. I judge from his description that pharyngeal swelling and cedema always preceded that of the larynx. Two of the cases died by reason of the laryngeal cedema. He states after studying these peculiar cases of cedematous disease of the throat he is convinced that we are considering a constitutional disorder rather than a local disease; and he noticed points of resemblance to rheumatic pharyngitis. A condition similar to acute follicular amygdalitis was seen in some of the cases. Localized pneumonia was present in some, as in Semon's cases. In all there seems to have been primary pharyngeal trouble. The discussion which followed Dr. Glasgow's paper seems to have shown that a number of his listeners were not convinced that the cases were not due to diphtheritic infection, though Dr. Glasgow, who certainly was best of all able to judge, was quite certain that they were not in any way akin to diphtheria. Dr. Langmaid's † case of cedema of the larynx accompanying acute multiple adenitis is found in the same volume of *Transactions*.

I have seen a case resembling it in many particulars, which I will allude to. In 1885 Charazac ‡ collected twenty-one cases. He divided cedema laryngis into primary and secondary conditions. The primary condition was separated into serous and phlegmonous. Following

\* Glasgow. *Transactions of the American Laryngological Association*, 1889, p. 18.

† Langmaid. *Ibid.*, 1889, p. 14.

‡ Charazac. *Œdème du larynx*, Paris, 1885.

about the same line of thought, and reaching about the same conclusions, Bayin says:

1. Acute primary oedema laryngis is infectious.
2. These oedemas present two different appearances and conditions.
3. The serous oedema is acutely infectious and erysipelalous, whereas
4. The phlegmonous oedema is due to retrolaryngeal abscess, corresponding to the inflammatory condition of the pharynx accompanying retropharyngeal abscess.

This is a portion of the evidence in favor of the existence of a typical primary oedematous laryngitis, pure and simple, produced sometimes epidemically by septic and by atmospheric influences. We can not be too careful in excluding diphtheritic infection in all such cases. Whenever we find primary disease of the pharynx, of whatever severity, then the mystery as to causation disappears.

The definite causation of acute inflammatory oedematous laryngitis is to us the most important part of the subject. If idiopathic phlegmonous laryngitis does occur epidemically, or at least frequently, and, according to Mackenzie, in people especially exposed to septic influences, then we apparently have a disease which should be easily recognized, and nothing remains but to discover the special germ which causes it.

I have said that Semon has endeavored to make a comprehensive class of such diseases as have hitherto been separately described as acute oedema of the larynx, oedematous laryngitis, erysipelas of the pharynx and larynx, phlegmon of the pharynx and larynx, and Ludwig's angina, believing them all to be the same pathological condition, differing only in localization and severity. His mildest case is simply an acute oedematous inflammation of the palate and pharynx; his second, an isolated oedematous inflammation of the epiglottis; his next case would seem to be an idiopathic oedematous laryngitis; his fourth was similar to that described by Dr. Glasgow, and the inflammation was first noticed in the tonsil and right side of the pharynx. He says in his

fifth case there would probably be doubt in the minds of observers as to whether it was one of septic laryngitis or laryngeal erysipelas; and the same was true of the sixth case; in the seventh and eighth the pharynx was perfectly normal, but there was œdema of the larynx in both, and in both there was double patchy pneumonia. He thinks that most observers would have decided that these cases were instances of erysipelatous inflammation, with subsequent extension to the lungs; and the same is true of the remainder of his fourteen cases. In eight of his fourteen cases the pharynx or the tonsils, or both, were involved. One of his cases occurred in a patient suffering from diabetes; in one there were both albumin and sugar in the urine. In seven of the fourteen cases there was subsequent or accompanying pneumonia or pleurisy, or both. Semon, in his endeavor to prove that all these cases were due to the same septic poison, is not deterred by the fact that fifty per cent. of them were what in our obscure knowledge of that disease are called erysipelas of the larynx.

If it is true that erysipelatous inflammation of the larynx is in no sense a special disease, but only a very virulent form of a catarrhal inflammation resulting from the same bacillus which produces pyæmia, then we need not necessarily look for any accompanying skin lesion or any different or more marked laryngeal manifestations than œdematous inflammation. Massei \* (Primary Erysipelas of the Larynx) maintains that erysipelas of the larynx is frequently nothing else than the process called laryngitis phlegmonosa, and that it may occur in a sporadic as well as epidemic form. On the other hand, Mackenzie † says the majority of cases of erysipelas of the pharynx and larynx occur as an extension of a similar attack on the face. He had seen but four cases, and in none was the diagnosis made until the disease extended to the skin.

Taking fifty per cent. of Semon's cases in which there was involvement of the pharynx and tonsils, with

\* Massei. *Ueber das primär. Erysipel des Kehlkopfs*, 1886.

† Mackenzie. *Diseases of the Throat and Nose*, vol. i, p. 208.

consequent or accompanying laryngeal œdema, we can not see how they differ in any great respect from those cases of brawny cellular and tonsillar inflammation which we all see occasionally, and which are sometimes, but rarely, complicated by laryngeal œdema. It is a matter of the greatest importance to exclude diphtheritic infection in all these cases.

Dr. De Blois \* reports in the year 1886 fourteen cases of laryngeal œdema. This was the year before the collection of my cases was commenced. Dr. De Blois remarks that acute primary œdematous laryngitis is very rare, and that there is almost always a preexisting inflammation of the pharynx in these cases. The summary of his cases is as follows: Three, so-called "catarrhal"; three, tuberculous; one, syphilitic; five, secondary to inflammations of the pharynx; and in four the cause is not given. So that among his cases we do not discover any which are remarkable in the sense of being acute and primary from septic causes. In our *Transactions* of 1888, page 136, Dr. Moure reports a case of subglottic œdema occurring in a diabetic patient, and the doctor believes that the diabetes was undoubtedly the occasion of the laryngeal complication.

Le Fevre reports cases of primary œdematous laryngitis, which he calls "dyscrasic," occurring in convicts, and he also mentions "scorbutic" œdema. I have had tabulated forty-one cases of œdema of the larynx in its acute form. Dr. Edward Preble, who did this work, assures me that these forty-one cases include all that are specifically reported in the journals cited by the *Index Medicus* from the year 1887 to date, exclusive of the fourteen cases given by Semon, to which I have referred. Many valuable articles on œdema of the larynx have appeared since 1887, but the number of cases reported is unusually small, ranging only from four to five annually. The prevalence of *grippe* since 1890 does not seem to have increased the number of reported cases.

In the ætiological column the term "catarrhal" is

\* De Blois. *Transactions of the American Laryngological Association*, 1886, p. 128.

used by the writers with the evident idea that the entire process started in catching cold, or from purely atmospheric influences, without marked exposure to other sources of irritation or infection. Nearly one half the cases come under this heading, the laryngeal œdema being associated with pharyngitis or amygdalitis, or both. To be exact, I find that of the forty-one cases, twenty-one are reported as having no special cause other than that of simple catarrhal inflammation; of these twenty-one so-called catarrhal cases, one was associated with nephritis; of the remaining twenty cases, two occurred in alcoholic subjects; three were caused by the mechanical irritation of a foreign body, and one by swallowing carbolic acid; one in a child of twelve years occurred on the twelfth day of an attack of variola; one is marked venomous, and was thought to be due to a mosquito sting in China; two were in tuberculous subjects; one was Dr. Langmaid's associated with polyadenitis; one is Dr. J. H. Bryan's case reported in 1892, put down as pyæmic, with possible metastatic abscess, in an alcoholic subject (the patient had abscess of the liver); and one other case, reported by J. Tucker, is tabulated as septic (?); one case secondary to retropharyngeal abscess; another to enlarged thyroid, and three were consecutive to syphilitic perichondritis; in one the cause is put down as unknown. How many of these cases can be put down as primary idiopathic œdematous laryngitis it is impossible to tell without careful research. The majority of the cases reported as catarrhal were evidently supposed to be of the type of simple acute laryngitis. I may be pardoned now for briefly stating the cases which I have observed.

I have seen three cases of moderate laryngeal œdema following circumtonsillar cellulitis. In two of these there was suppuration about the tonsil, but in the third, which was attended by the most laryngeal œdema and dyspnoea, the pharyngeal swelling dispersed without suppuration. In the first two cases the œdema was never grave, although they gave us cause for anxiety; in the third it was so extreme that tracheotomy was thought to

NUMBER OF CASE.	Reporter and Journal.	Age, sex, date when first seen.	Origin as near as can be determined; chief etiological factors.	Clinical type; degree of severity.	Situation of edema as shown by laryngoscopy.	Therapy.	Termination.
1	B. J. Baron, <i>Brit. Med. Jour.</i> , 1887, ii, 1328.	Female, 30, May 13, 1886.	Catarrhal.	Acute, severe.	General.	Poultices; steam inhalation (croup tent); nutrient enemata.	Recovery.
2	G. H. Darwin, <i>Brit. Med. Jour.</i> , 1888, i, 80.	Female, 46.	Direct irritation (raw brandy given for fainting).	Acute, severe.	General.	Hot fomentations, ice inwardly, steam inhalation.	Recovery.
3	A. Bandler, <i>Prag. med. Wochens.</i> , 1888, xiii, 178.	Male, 21, December 22, 1887.	Renal (albuminuria and nephritis); also catarrhal.	Moderate degree; little or no impairment of voice and respiration.	General.	Steam inhalation, moist applications, and management of kidney disease.	Recovery.
4	A. Bandler ( <i>supra</i> ).	Male, 42, February 19, 1888.	Mechanical irritation (choked by a piece of bread).	.....	Right side only.	Ice in mouth; ice compresses.	Recovery.
5	A. Bandler ( <i>supra</i> ).	Female, 12, September, 1885.	Varicella (eleventh day).	Acute, severe.	(?)	Ice in mouth and externally; scarification.	Recovery.
6	Du Cazal, <i>Bull. et mém. de la Soc. de chirurgie de Paris</i> , 1888, xiv, 277.	Male, 26, November 20, 1887.	Traumatic? Small wound on one vocal cord (possibly post-mortem lesion).	Acute, suffocative.	(?)	Emesis only.	Death sudden in a paroxysm of suffocation.
7	Yvert (Chauvet), <i>Bull. et mém. de la Soc. de chirurgie de Paris</i> , 1888, xiv, 846.	Male, 21, June 11, 1887.	Venomous? Occurred in China (Tonkin), and thought due to mosquito sting.	Acute, suffocative.	.....	Tracheotomy.	Recovery.
8	Lacroix (Chauvet) ( <i>supra</i> ).	Male, 60.	Catarrhal, followed exposure; alcoholic subject.	Suffocative.	General.	Crico-tracheotomy.	Recovery.



Audet (Chauvet) ( <i>supra</i> ).	Male (young).	Catarrhal; pre-existent laryngitis.	Acute, suffocative.	.....	Death before time for treatment.	Death during paroxysm of suffocation.
10 Chauvet ( <i>supra</i> ).	Male (young), November, 1887.	Catarrhal; tuberculous subject.	Acute, suffocative.	.....	Tracheotomy.	Recovery.
11 F. de H. Hall, <i>Westminster Hosp. Rep.</i> , 1888, iv, 161.	Female, 54, June 12, 1888.	Catarrhal; followed immediately by amygdalitis.	Suffocative.	.....	Ice-bag to neck; ice in mouth; scarification.	Recovery.
12 P. Oulmont, <i>Médecine moderne</i> , 1888-'90, i, 484.	Male, 28, April 19, 1890.	Catarrhal (followed exposure).	Suffocative.	.....	Tracheotomy.	Recovery.
13 S. W. Langmaid <i>Trans. of the Am. Laryng. Assoc.</i> , 1889 (1890), xi, 69.	Female, 40, April 30, 1889.	Phlegmonous, from polyadenitis of neck.	Severe; suffocative at times.	Vestibule only.	Poultices; ended by spontaneous cure from rupture of mass.	Recovery.
14 G. B. Marta, <i>Riv. veneta di sci. med.</i> , 1889, xi, 275.	Male, 30, February 18, 1886.	Catarrhal (followed exposure).	Moderate type, but suffocative at times.	Glottis and epiglottis.	No chance for special treatment.	Death during a suffocative attack.
15 G. B. Marta ( <i>supra</i> ).	Male, 40, March 18, 1886.	"Unsuspected."	Dyspnoea first symptom.	Glottis.	Laryngo-tracheotomy (Trousseau method).	Recovery.
16 Frankel (F. Peltesohn), <i>Berl. klin. Wochsn.</i> , 1889, xxvi, 931.	Male.	Renal (albuminuria) and high degree; contracted kidneys.	Acute, suffocative (whole sickness lasted but an hour).	Epiglottis and aryepiglottic folds.	No opportunity for treatment.	Death during a suffocative attack.
17 J. Garel, <i>Arch. f. klin. Chirurgie</i> , 1891, xlii, 46.	Male, 24, April 11, 1889.	Catarrhal (recent laryngitis).	Dyspnoea absent; dysphagia and partial aphonia.	Lateral cul-de-sac.	Direct application of tincture of iodine after co-cainization.	Recovery.
18 J. Garel ( <i>supra</i> ).	Male, 24, March 18, 1890.	Catarrhal.	Moderate type.	Right arytenoid.	Tincture of iodine as in Case 17.	Recovery.
19 J. H. Bryan, <i>Med. News</i> , 1892, ix, 141.	Male, 30, February 2, 1891.	Pyæmic (metastatic abscess?); alcoholic subject.	Moderately severe.	Epiglottis (high degree).	Scarification.	Death Feb. 8th from rupture of hepatic abscess.

NUMBER OF CASE.	Reporter and Journal.	Age, sex, date when first seen.	Origin as near as can be determined; chief etiological factors.	Clinical type; degree of severity.	Situation of edema as shown by laryngoscopy.	Therapy.	Termination.
20	J. Tucker, <i>Chicago Med. Recorder</i> , 1892, iii, 40.	Male, 30, December 24, 1891.	Septic (general toxemic symptoms).	Severe, suffocative.	Rima glottidis.	Intubation; operative success.	Death from exhaustion Dec. 30th.
21	A. Rhu, <i>Internat. Med. Mag.</i> , 1892, i, 839.	Male, 36, February 12, 1892.	Secondary to retropharyngeal abscess.	Severe, suffocative.	.....	Scarification.	Death during suffocative paroxysm.
22	A. Rhu ( <i>supra</i> ).	Female, 50, February, 1892.	Catarrhal (influenza).	Moderately severe.	.....	Pilocarpine, $\frac{1}{2}$ grain hypodermically.	Recovery.
23	A. Rhu ( <i>supra</i> ).	Female, 20.	Catarrhal.	Acute, suffocative.	.....	Pilocarpine as in Case 22.	Recovery.
24	F. Betz, <i>Memorialien</i> , Heilbrunn, 1891, p. 193.	Male, 55, December 7, 1890.	Probably due in some way to an enlarged thyroid which invested the larynx.	No history; comatose when first seen.	.....	Pilocarpine.	Died without recovering consciousness.
25	J. W. Robertson, <i>N. W. Lancet</i> , St. Paul, 1892, xii, 428.	Male, 7.	Catarrhal (influenza).	Acute, severe.	General.	Crico-thyroid tracheotomy.	Recovery.
26	J. W. Robertson ( <i>supra</i> ).	Male, 6.	Catarrhal.	Acute, suffocative.	.....	Tracheotomy.	Recovery.
27	J. W. Robertson ( <i>supra</i> ).	Male, 5.	Direct irritation; swallowed carbolic acid.	.....	Epiglottis.	Cocaine and emollients.	Recovery.
28	J. W. Robertson ( <i>supra</i> ).	Male, 8 months.	Catarrhal.	Severe, suffocative.	.....	None; "too young for tracheotomy."	Death.
29	E. B. Baylies, <i>Med. Record</i> , 1896, xlviii, 714.	Male, 30, June 4, 1896.	Catarrhal (author thinks malarial).	Moderately severe, with periodic suffocative attacks.	General.	Remarkable improvement from quinine.	Recovery.

30	F. E. Hopkins, <i>Med. Record</i> , 1895, xlviii, 552.	Male (adult), January 24, 1895.	Catarrhal and renal? (influenza); albuminuria coexisted with œdema of legs. Catarrhal.	Severe, suffocative.	suffocative.	General.	Leeches and cold; scarification.	Recovery.
31	H. R. Wharton, <i>Med. News</i> , 1895, lxi, 429.	Male, 25, December 26, 1894.	Consecutive to syphilitic necrosis of arytenoid cartilage; purulent swelling.	Severe, suffocative.	suffocative.	Epiglottis chiefly.	Scarification, followed by tracheotomy.	Recovery.
32	O. B. Douglas, <i>Post-graduate</i> , 1896, xi, 226.	Male, 40.	Catarrhal.	Severe, suffocative.	suffocative.	Left arytenoid body.	Tracheotomy.	Death some days later.
33	L. Bar, <i>Allg. Wien. med. Ztg.</i> , 1896, xii, 359.	Male, 5, November, 1895.	Catarrhal.	Severe, suffocative.	suffocative.	Within larynx.	Cold compresses; derivative measures.	Recovery.
34	L. Bar ( <i>supra</i> ).	34.	.....	Mild.		Within larynx.	Emesis, derivation.	Recovery.
35	L. Bar ( <i>supra</i> ).	Female, 11, February, 1896.	Catarrhal (history of much laryngeal trouble)	Severe, suffocative.	suffocative.	Ary-epiglottic folds.	Cold; tannin insufflations.	Death during relapse from suffocation.
36	L. Egger, <i>Ann. d. mal. de l'oreille</i> , etc., 1896, xii, 2.	Female, 30, December 13, 1895.	Catarrhal.	Severe, suffocative.	suffocative.	General.	Insufflation of morphine.	Recovery.
37	R. Roy, <i>N. Y. Poly-clinic</i> , 1896, viii, 140.	Male, 36, December 4, 1895.	Angio-neurotic œdema? Came and went suddenly and without cause.	Mild.		Interarytenoid space.	Self-limited.	Recovery.
38	P. Lacroix, <i>Arch. internat. de laryngol.</i> , i, 673.	Female, 23.	Syphilitic (associated with confluent mucous patches in pharynx); No KI had been used.	Moderate; dysphagia chief symptom.	dysphagia chief symptom.	Right ary-epiglottic fold.	Immediate improvement under mercury.	Recovery.
39	G. Liras, <i>Rev. hebdom. de laryng.</i> , 1897, xvii, 369.	Male, adult.	Exposure to severe cold preceded, but no catarrhal symptoms.	Moderate severity.	Moderate severity.	General.	Ice internally and externally; scarification.	Recovery.
40	R. Sankowski, <i>Münch. med. Wochens.</i> , 1897, p. 302.	Male, 29, November 11, 1896.	Tuberculous case; tuberculosis of larynx; iodide of potassium exciting cause.	Moderate degree.	Moderate degree.	Unilateral, circumscribed.	Discontinuance of potassium iodide.	Recovery.
41	R. Sankowski ( <i>supra</i> ).	Male, 31, December 31, 1896.	Syphilis of six years' duration; exciting cause, iodide of potassium.	Mild.		Unilateral, circumscribed.	Discontinuance of potassium iodide.	Recovery.

be necessary. I have seen two cases of moderate œdema of the larynx which may be put down as traumatic, in that one followed the use of the galvano-cautery applied to a fibrous growth low down on the lateral wall of the pharynx, below the tonsil, and the other was caused by a piece of wood which was swallowed, and which lodged in the pyriform sinus.

I have also seen two cases where the laryngeal œdema seemed undoubtedly due to *constitutional causes*, since no local condition could be discovered which would account for its presence.

CASE I.—Mr. D., twenty-eight years old; a rather thin young man; bank clerk; perfectly good habits; no specific history; was sent for by his attending physician to see him at his residence. He had been ill for three days. Temperature had varied from 100° in the morning to 101.5° in the evening. Submaxillary glands were swollen in mass, but could not be distinguished separately. There was great tenderness about the base of the tongue when it was pressed upon. The tongue was evidently swollen, and it was felt that the glandular enlargement spoken of was perhaps enlargement of the tongue instead. Nasal tissues normal, as was also the middle pharynx. Tongue was very much coated, but there was no appearance of any exudation about tonsils or pharynx. A good deal of discomfort in swallowing, due to the inflammation at the base of the tongue. I had been sent for because of laryngeal dyspnoea, which had appeared toward the third evening. A laryngeal mirror showed apparently inflammatory œdema about both arytaenoid cartilages, not extreme. Warm inhalations were ordered and cold applied to the outside of the neck. Salicylate of sodium was given internally. The patient improved rapidly. There was nothing about the man's occupation or habits and no exposure which would throw any light upon the cause of his trouble. There was no evidence of any diphtheritic infection, and the case seemed to me to be one of rheumatic glossitis with secondary laryngeal œdema.

A second case, very much like the first, I saw in a young woman of twenty-five years of age, a singer, who possibly has incipient tuberculous trouble, but no manifestations of this disease in either the pharynx or the larynx. She complained of a pain about the pharynx in the region of the tongue. There was no trouble with

the pharynx or tonsils, but great tenderness in the tongue when pressed upon by the depressor. Her tongue was not nearly so coated as was that of the first case, and she had but little if any rise of temperature. I was sent for the second day after I had first seen her at my office because of laryngeal dyspnoea, and I found an oedematous condition of the larynx, involving the arytenoid cartilages and extending forward slightly. There was slight swelling of the submaxillary glands. What the infection in this particular case was I could not determine. The patient recovered quickly.

I must bring this article to a close. There are, it seems to me, several matters of importance which should be considered. An attempt has been made, and perhaps with justice, to establish the existence of an acute primary oedematous laryngitis, bearing no relationship to any other inflammation in this location, but due to some special germ, some septic infection. Does such a disease exist? Can we be positive that we have ever recognized it? It is difficult to answer this question in the affirmative, because it is quite possible that in the cases which have been classified as acute primary disease diphtheritic infection was not satisfactorily excluded. Is it not possible, too, that examinations of the kidneys and heart were not made? I can not see why so small an anatomical tract as the larynx should receive the entire force of an inflammatory process except from extraordinary causes. There would be nothing remarkable about an oedematous laryngitis occurring on account of exposure to cold, provided the vocal organs had been badly maltreated, as in the case of a public speaker or singer. Such irritation will also be greatly increased by the excessive use of alcohol and tobacco. Are we willing also to subscribe to the pathological identity of acute primary oedematous laryngitis and erysipelalous laryngitis? Personally, I am far from sure of the unity of these two conditions. I should be unwilling to call any affection of the pharynx or larynx erysipelalous unless secondary to a similar manifestation of the skin.

It is probably true that there are certain locations of the neck and pharynx, when inflamed, which very

readily give rise to laryngeal œdema by reason of disordered circulation. It would be an interesting study to exactly ascertain what these locations are.

I forgot to say that in some tables of cases the writers have mentioned malarial poisoning as the cause of the laryngeal œdema. I should consider this a very unsatisfactory ætiological factor. I believe that as the cause of this disease is more thoroughly studied, the cases will be exceedingly rare which can not be ascribed to either some preexisting local affection in the pharynx or larynx, or to some constitutional disease or external irritation.

#### *Discussion.*

Dr. DELAVAN: Some years ago I reported a number of cases of acute inflammation of the larynx accompanied with œdema, which were apparently of an erysipelatous nature. I would like to place on record the history of a case in which a lady of advanced years suffered from an attack similar to those referred to by Dr. Rice, the prominent symptom of which was a violent laryngitis accompanied with œdema. She recovered, but two years later had a second attack, in the course of which she died.

Dr. THRASHER: I have had a case of laryngeal œdema complicating pregnancy, coming on without any warning. In a woman's second pregnancy the œdema recurred and the symptoms were alarming, requiring careful local treatment, and they did not subside entirely until after the birth of the child.

Dr. MULHALL: Was there a condition of uræmia in that case?

Dr. THRASHER: The attending physician said there was no albumin in the urine. I do not think that there was uræmia.

*Paper.*FURTHER RESULTS OF OPERATIVE TREATMENT OF  
CHRONIC FRONTAL SINUSITIS.

By J. H. BRYAN, M. D.

THE difficulties that are met with in the treatment of chronic suppurating frontal sinusitis are so great that I feel that any information regarding the progress made in its treatment will have the effect of still further improving our operative methods, and it is with this object in view that I desire to call your attention to some further operative experience in the treatment of this obstinate disease, illustrated with the report of two cases:

*CASE I.—Chronic Suppurating Frontal Sinusitis; Caries of the Fronto-ethmoidal Cells; Orbital Abscess; Fistulous Opening at the Inner Angle of the Orbit.*—I saw this patient, a young man eighteen years of age, for the first time September 10, 1897, in consultation with Dr. Belt, to whom I am indebted for the following history of the case: In the early part of April of the present year the patient suffered from a sharp attack of influenza which was accompanied by severe frontal headaches. May 2d he consulted Dr. Belt for a severe pain in the left eye. At this time the left upper and lower lids were red and swollen, and there was also considerable chemosis of the conjunctiva. The eyeball was immovable, owing to the great swelling of the orbital tissues. The swelling of the upper lid increasing, an incision was made at the inner canthus and a large quantity of pus evacuated; and on introducing a probe into the wound it was found to pass into the frontal sinus through a small opening at the inner angle of the orbit. The wound was cleansed with a two-per-cent. formalin solution and packed with iodoform gauze. Owing to the very anæmic condition of the patient, further operative measures were not deemed advisable until his general health improved. He was accordingly put on a course of tonics, and the wound cleansed daily with hydrogen dioxide and a boric-acid solution.

When I saw the patient, September 10th, there was a small fistulous opening at the inner angle of the left orbit through which pus in considerable quantities was

discharging. There was a slight drooping of the upper lid, but there was no swelling of the skin over the frontal sinus and no pain on pressure.

Examination of the nose showed the left middle turbinate slightly enlarged, but no secretion was observed to pass from either nostril.

September 17th, the patient was admitted to the Episcopal Eye, Ear, and Throat Hospital, when, after shaving the eyebrow and thoroughly cleansing the parts, an incision was made along the eyebrow, commencing at a point just within the supraorbital notch and extending to the nasal boss. After elevating the skin and periosteum a small opening in the orbital plate of the frontal bone, at its inner angle and just under the supraorbital ridge, was found, communicating with the frontal sinus. This opening was enlarged by means of the gouge and rongeur sufficiently to admit of a thorough examination of the cavity, which was found filled with granulation tissue, and it was also the seat of caries at its juncture with the fronto-ethmoid cells. The sinus was thoroughly curetted, removing all granulation and carious tissue, and an attempt was then made to pass a probe through the fronto-nasal duct, but, owing to the complete obliteration of this canal, a passage had to be made by passing a trocar through the sinus into the nose. The cavity was then irrigated with a solution of bichloride of mercury, 1 to 3,000, a self-retaining drainage tube passed into the nose, and the wound closed and hermetically sealed with iodoform and collodion. The subsequent treatment consisted in the daily irrigation of the sinus through the drainage tube with a saturated solution of boric acid. At the end of a week the patient was discharged from the hospital, the external wound having healed, and at the end of ten days, there being no secretions from the frontal sinus, the drainage tube was removed.

This patient made an unusually rapid recovery and has had no further trouble up to the present date, May 10, 1898. The scar from the operation is not visible, being entirely concealed by the hair of the brow, but there remains a small pit just under the inner angle of the orbit, resulting from a contraction of the tissues at the seat of the fistula, caused by the orbital abscess. This is noticeable only on close inspection, and is somewhat annoying to the patient on account of the difficulty in keeping it clean.

*CASE II. Chronic Suppurating Frontal Sinusitis; Caries of the Ethmoid Cells and Middle Turbinate*



*Bone.*—Miss X., aged twenty-one years, an anæmic young woman, came under my observation December 23, 1897, giving the following history: Her health had been excellent up to three years ago, when she contracted a severe head cold which was accompanied by frontal headaches of considerable severity. These headaches have been increasing in intensity until now they are almost unbearable. The nasal secretions have also been increasing in quantity and have recently become foetid. Examination of the left side of the nose shows a profuse purulent secretion in the nasal chamber coming through a cleft in a very much enlarged middle turbinate bone, which is found adherent to the lateral wall of the nose, thus completely obliterating the middle meatus. The probe revealed considerable caries of the middle turbinate, and I was able to pass it some distance through this body into the anterior ethmoid cells, showing them also to be in an advanced stage of caries. The right nasal cavity was found to be normal. There is no swelling of the skin of the frontal region, but slight pressure above and below the left supraorbital ridge is attended with severe pain. The movements of the eye are not interfered with, but she complains of intense pain back of the eyeball. The general condition of the patient was not at all good. She complained of lassitude, indigestion, morning nausea, and she found great difficulty in attending to her household duties.

An external operation was advised as the only means of completely relieving the patient of her serious condition, but she was very much averse to submitting to this method of relief at this time. I therefore contented myself with removing by means of the curette, at various intervals, as much of the carious ethmoid cells and middle turbinate body as could be safely done through the nose. Her condition was not at all improved by these measures, but it grew gradually worse. On March 25th she reported that a profuse purulent secretion, mixed with a large quantity of blood, was blown from the right nostril, thus showing the septum between the sinuses had broken down and the right cavity had become involved. The headaches increasing in severity, the seriousness of her condition was again pointed out to her, and a radical operation insisted upon. To this she acceded, and she was admitted to the Episcopal Eye, Ear, and Throat Hospital, April 10, 1898.

April 11th, after shaving the eyebrow and thoroughly cleansing the field for operation, an incision was made through the eyebrow, commencing at a point just within

the supraorbital notch and continuing over the nasal boss; the flap thus formed, composed of skin and periosteum, was raised to a sufficient extent to admit of the removal of a centimetre of bone by means of a small crown trephine applied just above the supraorbital ridge and about two or three lines from the median line. On exposing the cavity it was found filled with thick, fœtid pus and granulation tissue. After the removal of all secretion and granulations from the sinus its posterior wall was found to be carious in several places, the frontal sœptum broken down, the fronto-ethmoidal and the ethmoidal cells in an advanced state of caries. With a sharp spoon all caries of the walls of the cavity was scraped away, the sœptum was completely removed, as was also all diseased bone between the sinus and the nose, thus leaving a large communication between them. After thoroughly irrigating the parts with a solution of bichloride of mercury, 1 to 3,000, the lining membrane of the sinus was touched with a twenty-per-cent. solution of the chloride of zinc, and the cavity packed with iodoform gauze, the free end of which was brought out through the nose. The periosteum was brought down over the opening and carefully secured with catgut sutures, and then the external wound was closed by means of interrupted sutures and hermetically sealed with iodoform and collodion.

*April 12th.*—The patient has reacted well from the operation; the temperature is normal, and she expresses herself as being free from pain for the first time in three years.

*14th.*—There being some odor from the nose, the gauze was removed, but there was very little secretion following an irrigation with a saturated boric-acid solution.

*17th.*—The cavity has been irrigated daily with a boric-acid solution, and, while the secretions have slightly increased, there has been no pain and no rise of temperature. To-day the stitches in the eyebrow were removed, the wound having healed.

*20th.*—There was a slight breaking down of the wound and a slight discharge of pus from its inner extremity caused by the retention of an overlooked suture. This small fistula was cleansed with a bichloride solution and packed with iodoform gauze. The sinus was irrigated daily with a saturated solution of boric acid through a cannula passed through the nose.

*30th.*—The secretions from the fistula in the eye-

brow and also from the sinus had diminished to such an extent that the patient was discharged from the hospital, to return daily for treatment.

*May 4th.*—The condition of the patient to-day was not so favorable. She suffered during the night with severe headache, slight chilly sensations, and a decided increase in the secretions from the nose. On examination the whole frontal region was observed to be greatly swollen and sensitive to pressure. The temperature at 2 P. M. was 101°. A probe passed into the sinus through the nose showed the opening perfectly free, showing that it was not the cause of any retention of pus; but on passing the probe through the fistulous opening at the inner angle of the orbit it was found to enter readily the opening in the frontal bone, and on its withdrawal considerable pus followed, showing a subperiosteal abscess had formed around the margins of the opening in the bone. After freely evacuating the pus, the wound was cleansed with a bichloride-of-mercury solution and packed with iodoform gauze. 7 P. M., temperature, 100°; the headache was entirely relieved, and the swelling very much reduced.

*5th.*—The condition of the patient to-day is markedly improved, there being less secretion from the nose and from the external opening; the swelling is still further reduced; no pain; the temperature is normal and has remained so up to the present date.

*9th.*—To-day there is no swelling in the frontal region and, while the quantity of secretion is very much reduced, there is still some pus coming through the external opening, as well as from the nose. The daily irrigations and the introduction of a gauze wick in the external opening are still continued.

I have gone somewhat into detail in relating the histories of these two cases, because they illustrate two different phases of this affection, and I have endeavored to show that no matter how carefully the technique of these operations is followed out, infection occasionally follows; for it must be remembered that we are exposing an aseptic wound to an infection with a most virulent secretion when the sinus is opened, and notwithstanding the careful antisepsis employed it is not possible in every instance to completely destroy the highly infectious character of this pus.

Case I illustrates very well that variety of abscess-

of the frontal sinus which is so frequently complicated with orbital abscess, and consequently is met with more frequently by the ophthalmologist than by the rhinologist. Case II is the variety that we, as rhinologists, see most frequently. The clinical history of these cases is probably the same up to a certain stage, and that is the complete occlusion of the fronto-nasal duct, when the pent-up pus makes a vent for itself at the thinnest part of the sinus, which is the inner part of the floor, and we then have an orbital abscess resulting, which so frequently results in loss of vision.

In my last communication on this subject, read at the meeting of the association in Washington, I stated my preference for the external method of operating upon these cases, believing that the intranasal methods were dangerous and failed to give complete relief in those chronic cases which were complicated with caries to any extent, and I advocated the operation as originally devised by Ogston and later practised by Luc—that is, the median operation with drainage through the nose by means of a drainage tube. While this is the method that has found the greatest favor with operators during the past eighteen months, I believe the method which I have described will be found to possess many advantages over the Ogston-Luc operation. In the first place, it does away with the median incision, which in many instances leaves a scar which is to a greater or lesser degree visible; while the incision through the eyebrow affords just as wide a field for the operation, and the resulting scar is completely hidden by the hair of the eyebrow. In the second place, the drainage tube, which in itself is frequently a source of great irritation, can be dispensed with. This, I think, is a great step in advance in the treatment of these cases, for the gauze for the first few days acts as a drain, and after its removal the opening between the nose and the frontal cavity being of sufficient size permits of a free and constant drainage from the sinus into the nose.

The opening through the ethmoid bone should be large and sufficiently free to permit a complete re-

removal of all caries of the ethmoid cells, which in my experience nearly always complicates chronic abscess of the frontal sinus. After the removal of the drainage tube the opening through which it passes has a tendency to contract, and if an occasion should arise after its removal for a continuance of the local applications to the sinus, the passage is frequently difficult to find, and the passage of instruments through it very painful. Such occasions arise frequently long after the patient has been discharged cured, as many of you who have had much experience with the treatment of abscesses in the accessory sinuses can testify to the readiness with which inflammations in these cavities are reexcited by a simple rhinitis.

*Paper.*

A CASE OF DISEASE OF THE ANTRUM AND THE FRONTAL  
AND ETHMOIDAL SINUSES.

By JOHN W. FARLOW, M. D.

R. M., twenty-seven years of age, gave me the following facts in regard to his previous history:

In 1887 he had a severe attack of scarlatina, which left a swelling in the corner of his left eye. The attending physician thought it had better be lanced, but his incision gave exit to a little watery fluid only and the lump gradually grew larger. In 1895 he consulted two oculists, to see if something could be done to improve his looks, the eye protruding somewhat forward and to the left. They advised letting the eye alone unless it troubled him more. In November, 1897, he caught a severe cold, which caused the eye to close and the lump to swell beyond the level of the nose, and the eye was pushed far to the left, forward and downward. The deformity was so great that while walking in the street people used to stop and stare at him. He was then seen by two oculists, who advised an operation under ether and an incision under the eyebrow and down the nose. One of them suggested the removal of the eye. They were of the opinion that a tumor was the cause of the ocular displacement. Vision was not impaired, except that the red, swollen, and cedematous lids were nearly closed. There had been an overflow of tears for

some time, and there was more or less pain in the head since the recent swelling began.

I saw him first at this time, and found the nearly closed left eye projecting forward beyond the bridge of the nose and displaced outward and downward. At the inner side of the orbit, just under the eyebrow, was a painful, sharp, bony projection, as if pressure from the inside had forced the bones out. There was considerable thickening of the bones below the eye, the superior maxilla and part of the malar. The condition was growing rapidly worse. There was no history of nasal discharge at any time. Examination of the interior of the nose showed entire absence of secretion other than a little healthy mucus; no pus in the middle meatus, and none appeared after wiping out the nose and using cocaine to retract the tissues. The middle turbinated bone was somewhat enlarged in its anterior portion and pressed against the septum. The teeth were all sound in the upper jaw, and transillumination showed both sides of the face dark and was of no positive value. I made no exploratory puncture of the antrum until later.

The increasing severity of the symptoms made immediate action necessary. The existence of marked displacement of the eye, with entire absence of discharge from the nose, had naturally enough led to the conclusion that a tumor, most accessible by an external operation, was the cause of the symptoms. It seemed to me, however, that the want of an exit into the nose had caused retention of secretion in the frontal and ethmoidal sinuses, and that in so acute a case we might hope for relief by establishing drainage into the nose.

With a cold-wire snare I removed the anterior end of the middle turbinate, and there immediately appeared a profuse discharge of yellowish, tenacious fluid, which now and then ballooned out so as to resemble a large polyp. When this was gently wiped away more took its place, and at times it was clear like water, but always tenacious. Those who saw the operation were astonished at the amount of the discharge, which was estimated at three or four ounces. Pressure on the swelling at the angle of the eye hastened the flow somewhat. With a punch I enlarged the opening I had made and washed out the cavity. The symptoms were immediately relieved, the eye began to return to its normal position, and the projection at the corner of the eye receded very much.

The fluid contained much mucus, a few fatty degen-

erated cells, fairly numerous desquamated cylindrical epithelial cells lined with many cilia, occasional leucocytes, and a little blood. Examination for organisms was negative. Diagnosis: A chronic catarrhal process.

Subsequent treatment has consisted in removing more of the middle turbinate, curetting and cutting the ethmoidal cells to secure free drainage, and washing out the cavity with mild cleansing solutions. The discharge gradually diminished and was always odorless, and the patient expressed himself as much relieved.

Having in mind the frequent association of antral disease with affections of the frontal and ethmoidal sinuses, I made an exploratory puncture through the inferior meatus, where the bone proved to be much thicker than usual, and washed out a large amount of flocculent secretion. I repeated the puncture several times, and always with the evacuation of considerable odorless discharge.

The amount of secretion from the nose is now but very little. After extraction of the first molar tooth I drilled through his very thick alveolar process into the antrum a few days ago, and he is now washing out the cavity twice a day with a cleansing solution.

The case is of interest from its previous history, apparently following scarlatina, the absence of symptoms other than deformity for a number of years, the thickening of the superior maxilla, and particularly from the absence of discharge in the nose. I did not think an incision through the frontal bone was advisable, because there seemed good reason to hope that establishment of drainage into the nose might be sufficient. If a frontal opening were made, it might be difficult to make an opening down into the nose in the usual way on account of the long-standing deformity, and the ethmoidal disease would require treatment by the nose in addition.

The opening into the ethmoidal cells by removing the anterior end of the middle turbinate proved much easier than I had expected, for I had supposed that this would be only a step toward giving access to the natural openings of the accessory cavities, which would require to be probed and enlarged before the discharge was reached. The pushing of the eye outward, downward,

and forward, together with the large amount of discharge at the time of the first operation, indicate an implication of the frontal sinus as well as the ethmoidal cells, and it is very possible that the antrum was involved secondarily. The fact that the middle meatus was free from polypi and other obstructions made the absence of pus in that region seem very strange, when we consider how large an amount of secretion there was in the cavities which drain directly into this meatus.

*Discussion.*

Dr. WATSON: I should like to refer to a case of my own, which afterward turned out to be sarcoma, that of a man about forty years of age, who had a smooth, elastic swelling at either side of the root of the nose, with headache, protrusion of the eyeballs, and other symptoms of pressure in the sinuses. Examination of the nasal cavities did not show any disease whatever. He had a history of occasional discharge of blood and mucus from the nose, which he thought at the time relieved his headache. On account of the headache, mainly, I made an incision, under ether, into both swellings. Nothing followed but bloody mucus. The probe passed directly into the anterior ethmoid cells. The incision was simply through the skin. An opening through into the nose was made and a drainage-tube inserted, which was kept in position for several days. The inflammation subsided and the eyes were restored to their normal position. Some months afterward he began to have recurrence of headache with some swelling over the eye. This was incised and gave vent to some pus, and afterward this was followed by the same bloody mucous discharge. By trephining the bone I was able to wash out the frontal sinuses and the fluids returned through the nose. This was followed by relief, but I had several times occasion to open the wound. I subsequently saw the case and found that the swellings had disappeared. We never got anything out of the accessory cavities but blood. About a year before the patient came to me he had been skating and had fallen upon the ice. The fall was followed by lameness, supposed to be sciatica. The pain gradually increased and was found to be caused by a growth on the sacrum, which was removed by a surgeon and pronounced a sarcoma. After the removal of the growth the swellings on his face re-



curred and increased rapidly in size, assuming a brawny hardness. He also had tumors in the axillæ. The patient finally became comatose and died. This seems to me somewhat similar to the case of Dr. Farlow.

Dr. MULHALL: I have found a very excellent wash for purulent sinusitis in a solution of chloral hydrate. I use about a fourth per cent. in warm water and gradually increase the strength of the solution. It is an excellent stimulant and antiseptic.

Dr. WAGNER: Dr. Bryan's results have been very satisfactory, and I hope that Dr. Farlow's case will also prove successful. However, in some cases of this kind under my treatment I have been dissatisfied with the results—dissatisfied, as I was not able at once to eradicate the carious tissue entirely, either on account of severe hæmorrhage or fearing the close proximity of the brain.

I therefore should like to call your attention to an agent, which I have found of late to work satisfactorily in these cases. It is heated air of 112° to 120° F., where the current of this hot air is directed for a minute or two to the place where, after scraping with a sharp spoon, still more carious tissue is suspected to exist. After this a dry gauze treatment is instituted, and when necessary this simple procedure can be repeated. I have observed, though, in a few cases a slight secondary inflammation setting in, and have tried to avoid this by using a spray of heated fluid vaseline.

### *Paper.*

#### THE LOCAL USE OF THE AQUEOUS EXTRACT OF THE SUPRARENAL GLANDS OF THE SHEEP IN THE NOSE AND THROAT.

!

By HENRY L. SWAIN, M. D.

It is about two years since Dr. W. H. Bates referred to the local use of aqueous extract of the suprarenal glands in the eye, and to the most pronounced effects which could thereby be obtained. Since then, while much has been written about the action of the powdered glands taken internally, only a few articles have appeared concerning the local use of this agent. Velich, Darier, Dor, Königstein, and Hajek have all written more or less

extensively, the latter being the only one to say much about the use of the glands on the mucous membrane of the nose and throat, and I am sorry to have been unable to get at the original article. Moved by one or another of these communications, I became interested in the use of this agent, and find in it a wonderful aid in controlling local congestions, both acute and chronic.

The following short description will suffice, without prolonged and detailed histories, to give the results of the few months' use of the agent, with the hope that ere long, by a wider use by the gentlemen present, a more definite knowledge of its possibilities and limitations may be obtained.

What the ultimate active principle is has not been accurately determined, although Abel has done a great deal in that direction. Dr. Wagner tells us that a product which he has had made, called ischæmin, is quite permanent, handy to use, and very concentrated.

What I have used is the aqueous extract, which I prepare from the dried saccharated glands. These are to be bought in powder form. Following Bates's suggestion, I have used a solution made by adding about ten to twenty grains to half a drachm of cold water, and, having thoroughly stirred the powder in, the whole is filtered. The result is a reddish-brown fluid, somewhat redder than but very nearly the color of a good old sherry. This solution is thoroughly unstable and will not keep longer than three days, the signs of decomposition being evident by the formation of a deposit. A small amount of alcohol seems to help out the durability of the solution, and if added to the filtered product does not seem to affect its usefulness, unless it is in eye work, where the added alcohol stings. The solution does not seem to mix well with any drugs and works best alone. Such a strength of the extract causes a trifling smarting when instilled in the eye, and when sprayed on most mucous membranes gives a sensation of slight warmth or stimulation. The action in either case is to induce immediate blanching by virtue of the long-recognized power it has to cause the peripheral vasomotor

apparatus to contract the smaller blood-vessels. This is the same action locally as that which takes place when the extract taken internally causes the blood pressure to rise by this same contraction of the smaller blood-vessels all over the body. Instilled into an eye, which may be red from any cause, or especially in acute hyperæmia, within a minute there will appear a blanching which leads up sometimes to absolute pallor, often so unnatural in appearance as to remind one of the ghastly whiteness of the eye of a dead person. This action lasts for a varying time, dependent upon the type of congestion present, being shorter for active than for passive types, and gradually passes away, leaving the eye about as before. A repetition of this same action can be had apparently for almost any length of time, Bates relating how a patient of his had it instilled every day for a number of months, and the last time perceived as much effect as the first. No benumbing effect exists, and the only influence on pain would seem to be what comes from the lessened amount of blood present in the outer coatings of the eye. Intraocular tension is not altered. In some obstinate forms of congestion, where we seem not to get a good absorption of either cocaine, eserine, or atropine, if we first instill our capsule extract, and then later our drug, we get a pronounced effect of the latter, sometimes more than we desire.

Having observed these facts, I decided to try it on the nasal mucous membrane, and my most sanguine expectations have been more than realized. The inference was that if the blanching of the conjunctiva was due to the contraction of the vessel walls, there would ensue, when applied to the inferior turbinate, a loss of volume, for it will be remembered that the erectile tissue of these bodies is well supplied with large bands of smooth muscular fibre around the vessel walls. And such was found to be the case. One drawback is that only a limited area is affected at a time, and the effect is somewhat less than a pronounced contraction under cocaine. You will bear me out in the observation that we often get a very complete contraction of the inferior turbinate, for

example, with a very limited amount of the membrane having been directly reached by the cocaine which we have sprayed in. This is due to an extension of the first effect from one part to another, and so on until the whole nostril may clear up under the effects of the spray, which probably did not penetrate much beyond the middle portions of the nose. This extended action can be explained by rapid absorption into the vessels and spread through the blood and lymph channels to different parts; but there is probably also a stimulation of vasomotor nerve trunks which supply large areas of blood-vessels, and thus extends the effect far beyond the original absorption area. When the capsule extract is sprayed on to an inferior turbinate, the parts touched by it immediately blanch to a most livid white, then very gradually contract to a very considerable degree, but only over the area directly moistened. In an occluded nostril a second application allows the spray to reach the more remote portions, and the ultimate effect is to cause a nostril to open up very nicely. This would seem to argue that the effect must be directly upon the muscle fibre in the walls of the blood-vessels, rather than upon the nerve trunks, as is the supposed action of cocaine. A further argument would seem to be that we get more pronounced effects from the gland extract applied to the erectile tissue of the nose than upon a congested palate, for example, the reason being apparently that the extra supply of muscle fibres around the blood-vessels of the former gives a better field for the work of the extract.

Still another ground for our supposition lies in the fact that the known paralysis of the vessel walls which follows an excessive stimulation of the nerve fibres by cocaine results in a very pronounced flooding back of the blood into them again, so that sometimes the second distention is worse than the first. This lack of tone of the vasomotor nerves seems to be usually explained by the fatigue or paralysis theory. This seems the only tenable one. In some cases considerable time elapses before the full tone seems to be restored. Frequent use of cocaine seems to lead to a more frequent necessity, and

this latter develops the need of larger doses repeated at shorter intervals to get the equivalent effects, until the membranes become debauched, as may also the individual, all arguing excessive fatigue effects on the nerve. Not so the capsule extract. As in the eye, so in the nose, I can rely upon a given amount of effect every time, when repeated under similar conditions. There is no such specific loss of tone to the vasomotor nerves, rather the reverse, the subsequent congestion never exceeding what was present before the use of the extract, and frequently in acute disorders it was made markedly less by a repetition. In chronic hypertrophies I have sprayed a nostril every day for weeks at a time, have had patients spray three times or more a day, and have the universal testimony that the effects were the same in amount, came punctually, and lasted on an average as long, a month from the beginning of its use, as at the start. No untoward effects seemed to be observed, either locally or constitutionally, and I have not felt in myself anything more than the slightest pulse changes from a large amount sprayed into my nose and the excess swallowed. The immense advantage over cocaine, in that no danger of a local habit of the tissue or a general habit of the patient exists, can be by no means too much emphasized.

When flushed by the excitement of the first interesting experiments, I thought I had something which might be the much-desired and very greatly needed panacea which would be our stand-by in treating the great class of nasal diseases of the chronic type, where we want, as in hay fever, to open the stopped nostrils, and reopen again and again until the patient is more permanently relieved from his distress by other methods. Perhaps even, I dreamed, if I could only make those muscle fibres contract often enough, real hypertrophies might be squeezed out of existence; but I must confess that some of my sanguine hopes were doomed to disappointment, especially as regards the permanent shrinkage of chronic hypertrophies. A large field of usefulness does, however, exist where it is desired to

secure temporary shrinkage to reduce congestion or pressure in a nose, and to insure a moderate amount of patency. Occasionally we find it very desirable to get rid of obstinate congestions, and even hypertrophies, which seem to follow our operative procedures, and which refuse to disappear as a result of them. In a number of such cases the daily use of the suprarenal extract seemed to be the most effective means I have ever used. Especially was this so when the shrinkage produced by the extract was emphasized and followed up by the use of astringents and, wherever granulation tissue seemed to be developing, by ferripyrine. The œdematous hypertrophy of the middle turbinate, such as appears in sneezing catarrh and in asthmatics, seemed to be very favorably affected by the extract, and was certainly shrunk by its frequent use, so that I am very much in hopes, when the season of hay fever comes around, we may find here a most safe and satisfactory adjuvant to our other methods of treatment. In several cases of perennial sneezing catarrh, with large white swellings in the middle turbinate, I am sure I got a very considerable amount of comfort in the post-operative condition, as well as in one patient, who refused operation, a permanent improvement in her condition.

While, as before stated, the extract never seems to work well in combination with any other drug in the same solution, it does aid and abet other medicines in their effects when they are used after it. Just as in the eye, so in the nose, we have cases where cocaine fails to absorb and will not contract a given hypertrophy unless large amounts are used, and sometimes then we fail utterly to get a good operating anæsthesia. In just such cases spray thoroughly with capsule extract, and then, after three or five minutes, lay on the pledget of cotton wet with cocaine, and a most complete anæsthesia and contraction will take place. When on the sæptum there is not the desired ischæmia produced by cocaine to make it desirable to operate, put off operating for a time, and, having first deluged with gland extract, then apply cocaine, and one can operate even in a "bleeder"

with great comfort, sometimes almost bloodlessly. It can therefore be relied upon that the gland extract will not only not interfere with the working of cocaine, but will make the effects more lasting and satisfactory. In acute congestions, when it seems absolutely necessary to do something more than merely contract the erectile tissue, any of the various agents in common use may be applied. Apparently, when a prolongation of the ischæmia is desired, one is justified in using a small amount of cocaine as a single application, and the contraction which follows persists very much longer than when either is used alone. Apparently, also, the same is true if a solution of antipyrine follows the gland extract, and there is unquestionably more quieting and analgetic effect from the antipyrine so used. Oil of eucalyptus inhaled works well, and menthol is made more effective when breathed in over the pale contracted turbinates resulting from the use of capsule extract. If any use of the extract has led me to any especial satisfaction, it may be said to be in acute cases, and I have used it in acute rhinitis, inflammation of the three tonsils—faucial, lingual, and pharyngeal—pharyngitis, and laryngitis, and I flatter myself that I have been able to abort some of these by having had the good fortune to get at them early enough to drive out the congestion, and thus give the vessels a chance to get hold of themselves again, resuming normal tone. Even in that most distressing condition, quinsy, I have succeeded in giving more comfort by spraying with capsule extract, and then applying cocaine, than ever before. The two used together produce a very distinct diminution in the size of the swelling, and during this period a glass of milk and a raw egg, together with a little stimulant, can be worried down when previously impossible. Formerly I used to think I might very occasionally abort a follicular amygdalitis by the following method of treatment: Cleanse surface by thoroughly spraying with alkaline spray, and then carefully enter each crypt where the mucous plugs showed with small probang wet with peroxide of hydrogen. After allowing plenty of time for the working of

the latter, wash it off with alkaline spray, and cover the parts by painting on boroglyceride; then spray with albolene. Since I have added the use of the capsule extract, aided when large swelling was present by the use of a very dilute solution of cocaine, I appear to have aborted many more cases than formerly. Meantime, if this last observation should prove it to be due to my having seen very simple, easy cases this year, I am sure of one fact—whenever I have used it and reduced the congestion for the time, I have made my patient more comfortable, and have usually had the satisfaction of observing that the inflammation as a whole was made a trifle better if not actually stopped. Subsequent applications of the extract leave the blood-vessels in a more contracted condition, and I have allowed patients to take some home in a few instances to use again later. Of course, patients have used the usual internal and local treatment which we all employ.

Without, therefore, presuming too much on my limited term of observation with this agent, and without laying too much stress on the possibilities which seem to be in evidence, I can quite safely sum up my experience as follows:

First. We have in the aqueous extract of suprarenal glands a powerful local vasoconstrictor agent and a contractor of erectile tissue, which it is safe to use in very considerable amounts without any dangerous or deleterious effects locally, or to the general constitution of the individual.

Second. These local effects can be reproduced in the same individual apparently any number of times without entailing any vicious habit either to the tissue or to the individual.

Third. The use of the extract seems to rather heighten the effects which may be expected from any given drug which may be locally used after it.

Fourth. In acute congestions it has its widest application and greatest opportunity for good, but also in certain chronic conditions of the hay-fever type, where œdematous tissue seems prone to develop, it can be re-



lied upon as one of the most helpful adjuvants which we have at command. The only difficulty seems to be in producing it in quantities and in preventing decomposition on standing, which objection will be probably easily overcome by laboratory experiment.

*Literature.*

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*Discussion.*

Dr. MAYER: I should like to ask a question as to the strength of this aqueous extract. I understand the speaker to say that he uses ten to twenty grains in half a drachm of water. I would also like to ask if he always uses the same preparation, and where can it be obtained for further experimentation?

Dr. SWAIN: In answer to Dr. Mayer's question, I would state that I have bought the powdered extract of the suprarenal glands in the drug store, and have, I think, generally used the Parke, Davis Company's preparation.

I might have said a great deal more about the effects of this extract, and would have done so if I had known that I would have been backed up by some one else who had used it. I have myself used it in my operative work every day for the last three months, and expect to continue to use it largely in the future. The solution is made with boiled water and may be reheated almost to boiling point without destroying its activity. It is filtered before use. The strength, as I have stated, is ten grains to half a drachm, as suggested by Dr. Bates. Of course, you use an excess of powder in this way and a good deal is filtered out on account of its not being soluble.

Dr. HOPKINS: Has it anæsthetic effects?

Dr. SWAIN: No, certainly not in the nose; but, on the other hand, it is not irritating in its effects.

Dr. BROWN: Did you use hot or cold water in making the solution?

Dr. SWAIN: I always use cold water.

Dr. BROWN: What is the objection to mixing it with alcohol and water?

Dr. SWAIN: There is no objection that I know of, except that it will sting on application. You understand that I have been experimenting and did not want to get any effects which might be attributable to alcohol. I have no doubt that the addition of a small quantity of alcohol would preserve it almost indefinitely from putrefactive change.

Dr. WAGNER: Of late I have become very pessimistic as to new remedies. We have had so many coal-tar compounds brought to our notice that we can not test them sufficiently. Germany especially has flooded this country with so many new chemical preparations that we can not keep track of all of them. When the extract of suprarenal capsules was first mentioned I was not inclined to give much credence to the extraordinary claims made for it, but I soon became convinced by some experience that they were true. If any of you will use it, you will speedily learn that these claims are well founded. As for controlling capillary hæmorrhages of the mucous membranes, you will be much pleased with the results at your first trial. In my recent operations upon the antrum of Highmore through the fossa canina I have used (by injection) a preparation that I have brought with me and have had very little bleeding. Operations on adenoid tissue also have been nearly bloodless. Further, in performing the Asch operation on the nasal sæptum, I have been able in some cases to dissect a part of the mucous membrane from the sæptum in the form of a flap and to replace it afterward in fracture of the cartilage.

I have been told that this product resembles pyrocatechin. But we have learned by a recent publication that it does not belong to this organic group.

It appears that this new agent, like cocaine, will open a new era in our operative work. For my part, I do not attempt to perform any operation without using this remedy.

In rhinitis hyperæsthetica, I might yet add, I have found it to act very soothingly; especially where I have given it in diluted form to patients to use at home as a spray or in form of a salve.

*Paper.*

THE UVULA IN ITS RELATIONS TO VARIOUS ABNORMAL  
CONDITIONS.

By GEORGE B. HOPE, M. D.

Not only do the standard text-books devoted to the special subject of throat affections, as a rule, contribute the most meagre description of this appendage to the soft palate in disease, but the anatomy itself is dealt with to such a minor degree as to obscure rather than suggest whatever plausible functions it may control. It is reasonable to imagine that the pendent and exposed position of the uvula would render it peculiarly subject to abnormalities sufficient to provoke, more or less, some response on the part of its neighboring and parafunctional structures, either directly or through reflex channels.

In the main, the present intention is to emphasize well-known facts without in any way laying claim to observations that are in their major bearings entirely familiar to the largest number of practitioners. In this connection it may not be amiss to quote somewhat in full from Prosser James, who, in his book on *Sore Throat*, published more than twenty years ago, refers to the uvula cough as follows: "It is important to recognize the liability of the uvula to these conditions—*i. e.*, affections of the soft palate and uvula—in order to prevent errors. Practitioners who never inspect the throat, unless complained of, may often be lulling fear in the midst of danger, or exciting alarm without due cause, and in either instance losing reputation. The uvula cough, as it has been called, is peculiar, and may often be recognized by its quick and ineffectual hack; yet not always. It is, for the most part, worse at night, or when the patient lies on his back. Often he is woke up [*sic*] suddenly with the sensation of being choked, even when he takes a nap on the sofa. Catarrh, relaxation, dyspepsia, want of tone, etc., are sure to aggravate the symptoms. The peculiarly troublesome cough sometimes

gives rise to pains in the chest; and in long-standing cases many of the symptoms of consumption may be assumed. Dr. Stokes declares he has seen all the symptoms of phthisis, except physical signs, thus produced. Furthermore, neglected conditions of this kind may even rouse up to activity pulmonary disease, which had otherwise long lain latent. This is the less to be wondered at, inasmuch as a strumous diathesis is a most powerful predisposing cause of diseased uvula; an observation which will be of value in deciding on constitutional treatment." This extract has been selected for the reason that Prosser James appears to have been a pioneer in the recognition of the importance of the most careful examination with reference to this one feature of clinical work, and also on account of the deductions pointing to the early elimination of a predisposition to more formidable results. As a sum of some particular attention paid to reflex symptoms produced by uvular irritation, however paradoxical it may appear, the writer has been led to conclude that no intrinsic size or shape, beyond the strikingly abnormal, can in every instance be depended upon to furnish a visible guide in estimating the extent to which the uvula should be held responsible for the production of some one of its rational symptoms. The known subjective nervous developments of individuals is a large factor in the cultivation of sensations that seem to arouse the element of reflex irritability. It is notable that following some congestive attack all the discomforts of an appreciated uvula suddenly assert themselves, and continue, if not increasingly, at least with a standing obstinacy. It is not uncommon to hear a specific date fixed when the "fall of the palate" was first detected, with an account of occasional remissions as definitely described. Is this due to the manifestation of a local paresis in the course of an acute attack, or to certain congestive conditions that do not entirely resolve themselves, or to the violent strains of coughing or throat clearing, or more likely as a sequel to the abuse of concentrated or irritating gargles that may have been employed? It is probable enough that any

one of these may be responsible in many instances, but in a fair proportion of cases it would seem as if the initial element lay in a purely accidental discovery on the part of a nervous and susceptible disposition.

The normal size and length of the uvula may vary relatively to that of the oropharynx, which includes the height of the tongue and the capacity of the nasopharynx. This proportionate size of the uvula is incident to its functional purposes, that at once preside over the careful regulation of the voice and the act of perfect deglutition. In paralysis of the controlling muscles of the uvula the voice is notably lacking in resonance and a partial regurgitation of fluids is apt to occur. It was once forcibly demonstrated in the instance of a patient possessing an unusually capacious nasopharynx, whose uvula had been completely ablated by a very distinguished surgeon, with the result of creating a quality of voice similar to that accompanying a fissured palate, and, moreover, compelling him for long after the operation to arrest an uncontrollable regurgitation of fluids swallowed by pressing a handkerchief to his nostrils.

The most common type of disturbing uvula is the simple relaxed or elongated, without hypertrophy of the azygos muscles. The flaccid tip can be folded back upon itself in a manner indicating a complete loss of resistance, and resting on the tongue becomes flattened and clings to its position until pushed aside by a clearing effort. Much less noticeable as a standard, but provoking to an equal if not greater extent a hacking, irritable cough, is an elongation that assumes an acutely pointed tip. The symmetry may be so little altered that without well-marked subjective symptoms it might easily pass unnoticed. In a sufficient number of cases, however, it has been demonstrated that with the excision of the filiform lip the symptoms complained of have been at once radically arrested. The latter condition is not infrequent with the association of thin and anæmic palatine structures, and the subject corresponds to this type. The extremes of hypertrophy, varying between the enormous length of a reported case in which the

uvula could be seized between the incisor teeth and those that are easily classed within this category, require no comment, as their appreciation would be clearly manifest both on the part of the subject and the attendant. In order to secure a value as to the part played by the uvula in the production of abnormal symptoms, it has been proposed to effect its exclusion by means of an application of a cocaine solution. While this does relieve temporarily an irritation of a throat long excited by a pendent uvula, it may nevertheless introduce a chapter of new sensations that would tend to confuse the patient; consequently, it is not to be relied upon as a negative or affirmative answer as to the merits of topical treatment.

Among the reflex nervous symptoms, independent of cough, that occasionally arise through uvular excitement, are vomiting and the aura ascribed to so-called laryngeal vertigo. This is scarcely surprising when one considers the frequency with which purely nervous attacks concentrate themselves in the region of the oropharynx, and as a corollary Dr. C. L. Dana has described a diminished reflex of the uvula to be one of the early signs of impending nerve degeneration.

Whatever method is selected for this very minor operation of uvular excision, it is suggested that due care be taken to preserve, so far as possible, the normal outline. The simple method perhaps most in vogue of employing long dressing forceps and scissors, the tongue depressor controlled by the patient's own hand, is no doubt as efficient and leads to as good results as any. After the line of incision has been fixed the extreme tip of the uvula is seized and drawn down strongly and evenly; the cut surface will be found to correspond to the familiar shape, and without the truncated appearance indicative of the careless or inapt operator.

A curious feature among those occurring in cycles has been the occasional report some years since of a primary or secondary hæmorrhage following staphylotomy, one such instance happening in the writer's own experience. This is so rare, and after all of such simple treat-

ment, that the fact is merely recalled as a matter of interest and practically without bearing on the merits of the operation.

*Discussion.*

Dr. MAKUEN: One of the oldest and most prominent members of this association, the late Dr. Harrison Allen, once visited me on account of some irritation in his throat and a resulting defect of voice. I found a very much relaxed uvula and palate, the uvula being over an inch in length and hanging on the tongue. I recommended the removal of the tip of it, and he said that he had never done the operation. I was much surprised to hear that a man with his experience had never removed the tip of the uvula.

Dr. HOPKINS: The value of the galvano-cautery for removing the uvula should not be overlooked. By its use there is no stripping of mucous membrane, leaving the muscle bare, as often occurs when the tip of the uvula is seized with a forceps; there is no bleeding; the after-soreness is less than follows cutting, and a symmetrical stump is easily secured. Dr. DeBlois called attention to this use of the galvano-cautery at the meeting of the association in 1893.

Dr. FARLOW: There is a condition of the uvula which is often mistaken for relaxation, and that is the irregular or unequal development of the two sides of the azygos uvulæ muscle. The uvula hangs toward the side which has the greater amount of muscular fibres, simulating a paretic or relaxed condition.

Dr. ASCH: While on the subject of operation, the reader said that the best method was to pass a thread through the tip of the uvula and allow the patient to hold the spool of thread in his hand and then for the operator with scissors and forceps to remove the amount desired.

In many cases this is not possible, especially in children. Therefore it is desirable to have some instrument which can be used without assistance or pain. I have for some years been using a guillotine with Stark's handle. The uvula drops into the opening and you see exactly how much you wish to take off; then inclining the handle downward, it is cut off with the raw surface presenting posteriorly. There is very little trouble in healing such a wound.

Dr. MULHALL: Many practitioners blunder in this little operation. I lately saw a case which took four

weeks to heal. The reason was that the uvula was cut off too close to the palate and the sides of the stump were constantly dragged apart by the crossed fibres of the azygos uvulæ muscle in the act of swallowing. It is malpractice to cut this muscle.

Dr. WATSON: Several weeks ago I saw a case of varicose veins of the uvula and soft palate. The uvula was fully two inches long, extending below the entrance to the larynx, and in order to be seen had to be hooked up out of the throat. The patient complained only of a lump in the throat. The uvula was made up of knotty bunches of enlarged veins, the same condition extending to the soft palate above the uvula. I have never seen a case resembling it, nor have I ever read of such a condition. That condition would be a source of danger in amputation of the uvula.

Dr. NEWCOMB: I recall the ingenious expedient to check bleeding in the case reported by Dr. Carroll Morgan, where, after staphylotomy, he applied a little clip, such as is used in holding up the shirt sleeves and sold in all the men's furnishing stores, and thus checked the hæmorrhage.

### *Paper.*

#### THYREOTOMY IN PAPILLOMA OF THE LARYNX IN ADULTS.

By T. MELVILLE HARDIE, M. D.

It is too short a time since the publication of Heymann's *Handbuch der Laryngologie* to make a historical or a bibliographical review of the operation of thyreotomy either necessary or interesting, and I shall, therefore, limit this paper to a report of two cases of laryngeal papilloma in adults on whom I performed thyreotomy, and to the incidental statement of the indications for the operation:

CASE I.—John B., aged nineteen, was referred to me June 27, 1894, on account of such difficulty in breathing as compelled him to give up work. Inquiry as to family and personal history elicited nothing of particular importance. The patient's lips were bluish and he had a slight stridor, which was increased upon exertion. He had lost in weight, was hoarse, suffered no pain; the



mucous membrane of the mouth and pharynx was anæmic. Inspection of the larynx showed the cause of the dyspnoea to be a pale subglottic tumor, involving the anterior commissure and apparently attached to both vocal cords, on their under surfaces, and to the anterior wall of the lower larynx. The extent of the growth inferiorly could not be determined. Iodide of potassium had no effect.

On three occasions it was found possible to remove portions of the growth with a Juaraz laryngeal forceps, but with no effective relief to the breathing. On microscopical examination the fragment was pronounced papilloma. As I hoped to be able to remove much of the growth by endolaryngeal procedures, I did a high tracheotomy under cocaine anæsthesia and inserted a tube, which completely disposed of the dyspnoea. Endolaryngeal operations with snare, curette, forceps, and galvano-cautery were resumed with but slight benefit, and since these consumed a great deal of time, and the patient complained further that no one would employ him on account of his tracheotomy tube, a thyreotomy was decided upon.

A Hahn's tampon cannula was inserted into the original tracheotomy opening, which I enlarged a little, and after a few minutes the thyreoid was split and the cartilages held apart with retractors. It was noticed at this instant that the patient was not breathing, the evident cause for the accident being a bend in the chloroform tube, which was caused by the anæsthetist, who was stationed at the foot of the table, becoming interested in the operation. I detached the anæsthetic tube from the tracheal cannula; we raised the foot of the table so that the patient was hanging head downward, and performed artificial respiration. On the patient's breathing again I completed the excision of the growth with scissors, and cauterized its wide place of attachment. Bleeding almost immediately ceased, and I sutured both the thyreoid plates and the external incision. The tampon cannula was removed and an ordinary double-tube silver tracheotomy tube was introduced.

The patient's recovery was uninterrupted, but I foolishly made him wear the tracheotomy tube for nearly two months. This was done some years ago, and I did not know any better. I persuaded myself that I was right, because I wished to be prepared for a possible re-

currence, and so that I might see the patient for some time subsequent to the operation. I saw the patient a little more than one year after the operation. There had been no return of the growth; his voice was slightly hoarse, but good, and the somewhat prolonged sojourn of the tracheotomy tube had done no visible harm.

CASE II.—Julie K., aged forty-nine, married, appeared at my clinic at the Post-graduate School, March, 1895. On account of her aphonia she required an interpreter, who informed me that the patient, her mother, had been hoarse and had difficulty in breathing for a long time before she lost her voice. In January, 1895, the breathing became so bad that a surgeon performed tracheotomy, which relieved her at once; but the spasmodic cough from which her mother suffered caused them great concern, and they wondered, further, whether nothing could be done to recover the voice. The woman was emaciated and feeble.

Examination of the lungs demonstrated an extensive bronchitis, with little, but very tenacious, secretion. The patient made vigorous attempts at making herself understood, but could only move her lips and make such sounds as I could not describe without the assistance of a phonograph. It was evident that no air was inspired through the mouth or nose. On using the mirror I saw a papilloma, which completely filled the upper larynx, and covered its posterior wall so that only the epiglottis was to be seen. Touching the tumor with a probe excited so severe and so prolonged a spasm of coughing that I had to wait ten minutes before spraying the tumor with a ten-per-cent. solution of cocaine.

This proceeding again excited severe cough, and all attempts at securing even partial anæsthesia by means of the cocaine with spray and absorbent cotton brush were unavailing. The spasms were so severe, both at the first and at succeeding examinations, that every attempt to encircle the growth by means of a wire snare, or to grasp it with forceps, was unsuccessful. Bromides were given, and cocaine was used in as large amount as was considered safe.

I regretfully concluded that I could not remove the growth through the mouth, and therefore, on March 29, 1895, split the larynx under chloroform anæsthesia. I had secured the smallest Hahn cannula to be had in Chicago, but found, when I enlarged the original tracheal opening, that it was impossible to introduce it into

the very small trachea which presented. The original tracheotomy had been a very high one, and I therefore made the incision from just above the thyroid notch to the tracheotomy opening. Before opening the larynx I had the head lowered so that the blood could not run down the trachea, and then cut through the cricoid and thyroid cartilages as nearly as possible in the middle line.

On separating the cartilages it was seen that the papilloma was attached by a comparatively small base near the anterior end of the left vocal cord. It was removed by means of an ordinary nasal snare and its base cauterized with chromic acid. A little iodoform powder was dusted in the larynx and externally. The cartilages were not sutured, but carefully approximated, and the skin was sewed with silk. The tracheotomy tube was left in for three weeks.

The voice was hoarse, but improved gradually. There were very few attacks of the spasmodic coughing after the operation, and the bronchitis was entirely recovered from with great benefit to the patient's general condition. Two or three granulations at the anterior commissure required endolaryngeal cauterization, but there was no recurrence of the papilloma while the patient was under observation, a period of six months only. I omitted the sutures so far as the cartilages were concerned, in order to compare the result with that in my first case.

#### *Paper.*

#### SARCOMA OF THE NASAL SÆPTUM.

By J. PAYSON CLARK, M. D.

THE number of reported cases of sarcoma of the nasal passages is still sufficiently small to rank this among the less common nasal affections and to make of value complete reports of all observed cases. Bosworth, in 1889, had collected forty-one cases, about half of which were sarcoma of the sæptum. In a paper on sarcoma of the nose in 1891 I added seven cases to this list, and Boylan, in 1896, added fourteen more. Since 1896 I have found references to fourteen cases, but have been able to consult the reports of only ten. Boylan

says of the twenty-one cases which he collected (seven of which were mentioned by me in 1891) that in two cases no operation was attempted, in two it was admittedly incomplete, leaving seventeen in which extirpation was attempted. Of these, two are recorded to have died of recurrence, and in five no subsequent history is referred to. In seven, the length of time the case was observed after operation is not given. In only three is it distinctly stated that there was no recurrence a year or more after the operation. In Boylan's case the growth, a spindle-celled sarcoma, was removed by means of a snare, and the site on the lower turbinate thoroughly curetted. There was no sign of recurrence over a year after the operation. In the ten cases since 1896, the records of which I have been able to consult, seven died of the disease, and one (Bliss's second patient), although living at the time of the report, was in such poor condition and presented such an extensive growth that operation was thought inadvisable, while another (Nichols's Case III), in which the growth was also very extensive, was lost sight of. The one which recovered (G. M. Black's) was a woman of thirty-eight with an alveolar sarcoma of the right middle turbinate, which was removed by means of the snare and curette. There had been no recurrence over two years later. In one of the seven fatal cases no operation was attempted. This case (Scheppegegrell's) was in a man, fifty-six years of age, with a round-celled sarcoma of the quadrangular cartilage. The growth was so extensive that operation was not considered justifiable. In another fatal case (Bliss's), that of a boy, aged four years, the growth was so extensive that only a palliative operation was attempted. Following are brief reports of the five remaining cases:

Bonain: A boy of thirteen years had a polyp of left inferior turbinate removed by snare and pedicle destroyed by galvano-cautery. The polyp (there is no record of its microscopic character) recurred in the course of a year and was treated in the same manner. Six months later the left nostril was occluded by a soft, dark-red tumor from the lower turbinate. This

was thoroughly removed, but recurred in four weeks. Further operation was refused, the growth increased rapidly, and the patient died a year and ten months after being first seen. The growth was a myxo-angio-sarcoma.

Onodi: A man, aged fifty, had both nostrils filled with apparently benign polypi, which were treated with snare and cautery. The left nostril remained free, but the right refilled in several months. Some of the recurrent growths did not differ in appearance from rather dense polypi, while those on the middle turbinate had a suspicious appearance and were found on microscopic examination to be round-celled sarcomata. All growths were removed and suspicious-looking places cauterized. Ten months later there was no sign of recurrence, but eleven months after this the right nostril was again filled with the growth. A radical operation was advised and performed (two years and a half after the patient was first seen for polypi). The patient died two months later from a rapid recurrence.

Greene: A woman, aged thirty-two, had nasal stenosis, with pain and frequent epistaxis. A growth discovered between the middle and lower turbinates on the right was removed with forceps. Three months later the growth had extended to the orbit and ethmoid. No radical operation was attempted, and the patient died five months after she was first seen. The tumor proved to be a mixed sarcoma and carcinoma.

Nichols: 1. A woman, aged twenty-seven, had a polyp (?) removed from the left nostril one year before. When first seen by Nichols the growth was very extensive, involving left antrum and sphenoidal cells. An extensive operation was done, and later antitoxine treatment was tried without avail, the patient dying three months after the operation. 2. A girl, aged seventeen, had obstruction of left nostril for several months. A dense tumor (myxosarcoma) filled left nostril. It extended into the antrum and ethmoid cells. It was removed by snare and sharp spoon and ethmoid cells curetted. For six months the patient was well, then the growth recurred in the sphenoidal region. The tumor was removed as thoroughly as possible, and the patient remained in good condition for a year. Then the growth recurred, increased with great rapidity, and resulted in death a little less than two years after the first operation.

The case which I have to report is one of sarcoma of the nasal sæptum. I shall take this occasion to give

also the subsequent history of a similar case which I reported in the *Boston Medical and Surgical Journal*, September 3, 1891. A brief *résumé* of the history of this case as then given is as follows:

G. W., aged thirty-five, was first seen by me in July, 1890. He first noticed obstruction of the left nostril three months before. This nostril was found to be filled with a bluish-gray mass. This was removed in several sittings by means of a cold-wire snare. One month after this operation (September 29th) the mucous membrane appeared everywhere normal. There was nothing to show where the tumor had been attached. But a month later a small, rounded elevation was seen on the septum near the posterior border, and two weeks after a growth of the size of a large bean was removed from this site. The patient was kept under observation during the winter. The growth showed little tendency to increase, although it never disappeared entirely. On May 2, 1891, a recurrence the same size as the last was removed. From this time the growth began to be more rapid, but it was not until January, 1892, that I concluded that the snare and curette were inadequate for its thorough removal. Then, at my request, Dr. J. C. Warren removed the whole septum under ether, having first laid the nose over on to one cheek (Brun's operation), in order to get at the septum better. Dr. W. F. Whitney reported: "Septum thickened by a spicula-looking formation of bone, on the outside of which was a soft, grayish, more or less translucent new growth—osteoid sarcoma." The whole septum showed this appearance. Dr. Warren went as high up in the nose as possible, but the disease went farther. The course of the disease from this time on was very rapid. The growth soon involved the left orbit, destroying vision in that eye. It also appeared in the scar of the operation in a cauliflower mass. The patient suffered from severe headaches and occasional severe hæmorrhages from the nose. He became dull and stupid, and when last seen, in June, 1892, it was evident that he had not long to live.

Mrs. W. H. M., aged forty-two, was first seen by me June 1, 1897, when she gave the following history: Her father had a cancer of the lip removed eight years ago and is now living, aged seventy-five. Her only sister died three years ago of cancer of the liver. Her maternal grandfather died in old age of cancer of the stomach. The patient has always been well. Has eight

children living. Lost one in infancy. About two years ago she noticed that the left nostril was obstructed, and soon perceived a "lump" in the nostril, which bled easily. There was a disagreeable nasal discharge. Examination showed a dark, reddish-gray tumor filling the anterior portion of the left nostril, also visible by posterior rhinoscopy. This growth was removed in several pieces by the cold-wire snare. It was very friable, but did not bleed profusely. After the growth had been thoroughly removed, it was seen to have been attached to the cartilaginous septum by a pedicle about a centimetre in diameter, nearly opposite the lower border of the middle turbinate. At the site of the attachment of the growth was an area of cartilage denuded of mucous membrane, not quite a centimetre in diameter. Dr. J. H. Wright, the resident pathologist of the Massachusetts General Hospital, gave the following report: "The growth consists for the most part of small cells with long branching processes forming a loose reticulum, in which a mucinlike material is present, as shown by a bluish staining with hæmatoxylin. In places this tissue merges into a hyaline semifibrillar substance, which seems to represent degenerate tissue. There are also areas made up of small, oval, nucleated cells closely packed together. A few thin-walled, atypical blood-vessels are present. Diagnosis: Myxosarcoma." As the patient lived at a great distance, and could not therefore be under observation, it seemed best to remove the site of the growth, together with considerable surrounding tissue. This operation was done by Dr. S. J. Mixter on June 19th. A transverse incision was made over the bridge of the nose, the nasal bones sawed through with a fine saw, and the nose turned down over the mouth. Most of the cartilaginous and part of the bony septum was removed with scissors and forceps. The nose was replaced and the patient made a good recovery. The portion of the septum removed showed no evidence of sarcomatous growth. The patient was seen again on September 30th. She had had occasional slight epistaxis. Examination revealed nothing suspicious. A small projecting piece of mucous membrane at the junction of the remains of the septum with the floor of the nose was removed and examined microscopically. It was "hypertrophied mucous tissue." A letter from the patient's doctor dated March 28, 1898, says that there is at the junction of the septal remains with the floor of the septum a little enlargement, but this has not changed in size or appearance. This is

undoubtedly the same "hypertrophied mucous tissue" mentioned above. Otherwise the sæptum looked well.

On the ætiology of nasal sarcoma the cases which I have here collected throw no new light. It would seem at first as if three of these cases lent support to the theory that myxoma may become converted into sarcoma. However, in Bonain's case there was no microscopical examination of the so-called polyp, which besides grew from the lower turbinate, a very unusual site for polypi. There was no microscopic examination of the polyp in Nichols's case, besides which the whole history in this case seems to indicate that the growth was malignant from the first, while in Onodi's case there is nothing to show an ætiological connection between the polypi and the sarcoma. They seem rather to have originated independently. It seems to me, after a study of the literature, that we are no longer justified in assuming that sarcoma in the nasal passages is less malignant than in other localities. It is less malignant only in so far as it may be in a situation to be thoroughly eradicated. The case of G. W. indicates well the extreme malignancy of the round-celled variety; and while Bosworth's statement, that the intermingling of normal tissue elements renders the prognosis less grave as the proportion of normal elements increases in the tumor, is undoubtedly true, still we should not be led into giving a favorable prognosis in any case because we find a mixed growth. That such a mixed growth may be extremely malignant, Bonain's and one of Nichols's cases (myxosarcoma) show. As regards treatment, I think no one will deny, in the light of the subsequent history, that the only chance for the eradication of the sarcoma in the case of G. W. would have been the removal of the whole bony sæptum when the patient was first seen. The slow growth of such a neoplasm should never deceive us as to its real malignancy, or lead us to adopt any half measures in treatment, because the history of many cases shows that an apparently quiescent sarcoma may suddenly and without any warning take on a terribly rapid growth. Given a round-celled sarcoma on



a structure like the nasal sæptum or one of the turbinates, it should be removed at once, together with a wide margin of normal tissue. If the sarcomatous elements are mingled with normal tissue elements, as in fibrosarcoma, myxosarcoma, etc., one may be justified in attempting their removal by means of the snare and curette, provided the patient can be seen often and the part closely watched for any recurrence. But in case the patient lives at a distance, or for any other reason can not be under the watchful eye of the physician at frequent intervals for one to two years, a radical operation should be performed at once in these cases also. The condition of the sæptum in the case of Mrs. M. showed that a snare and curette would have probably entirely removed the growth, but under the circumstances I did not feel justified in taking the risk.

The performance of such an operation does not dispense with the subsequent close watching of the nasal cavity, when that is possible. In case of recurrence after an operation with snare and curette no further attempt should be made to operate in this manner, but a radical operation should be at once resorted to. In view of the horrible condition of the patient who dies of this disease, it certainly seems far preferable to perhaps remove too much normal tissue at first than to suddenly discover that the disease has extended beyond the reach of the surgeon's knife.

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NOTE.—The writer has been unable to obtain the last four articles referred to.

### *Paper.*

## OBSERVATIONS ON THE VALUE OF LACTIC ACID AS A REMEDY FOR CERTAIN CONDITIONS OF THE UPPER RESPIRATORY TRACT.

BY ALEXANDER W. MACCOY, M. D.

IN the *Transactions of the American Laryngological Association* for 1887 I contributed a paper on the use of chromic acid for the relief of certain conditions of the nasal chambers in which I advocated the use of *fused* chromic acid, my contention being that the *fusion* into small beads on finely graduated cotton-carriers gave not only a more definite and more available quantity of the acid to be applied, but also, because of its loss of water of crystallization, a more precise local application; and, too, the nasal tissues were for the same reason protected from the spreading of the acid to contiguous tissue. At that time I was a strong advocate of the use of chromic acid, guarding its application by every judicious means, and antagonizing its harsh effects by the most careful details of after-treatment. Notwithstanding these precautions, I am aware that the reactions were severe and sometimes violent. The amount of sloughing tissue was often greater than necessary, and after the slough separated there remained a raw, irritable, and bleeding surface to medicate, which

sometimes caused great discomfort to the patient and was slow in healing. The amount of reaction and determination of blood to surrounding tissue was out of proportion to the benefit derived. In private practice such results were annoying, and when sometimes added to a patient's previous experiences from severe galvanocautery or harsh surgical treatment caused a resentment of such methods, and made it necessary that I should be very critical in the selection of remedies, and that I should study day by day to determine wisely the most available and successful remedies with the fewest objectionable features. This critical attitude on my part soon led to the discarding of chromic acid and the trial and investigation of other remedies. During the period of disaffection toward chromic acid, glacial acetic acid and trichloroacetic acid were successively used, and each had its advocates. My personal experience with glacial acetic acid led me to consider it one of the most objectionable remedies one could select, and for many years I have discarded it, and have never found reason to regret its discontinuance. Extended use of trichloroacetic acid and careful study of its action lead me to acknowledge that it is undoubtedly effective, vastly superior in many respects to chromic acid or glacial acetic acid, and less objectionable than either; nevertheless, the severe reaction, with more or less tendency to cause cell proliferation, often defeated the primary object desired; and, while I still use the trichloroacetic acid occasionally, and know it to be appreciated by my colleagues, I can not give it the first place in my list of chemical agents for the relief of the various obstructive conditions of the soft parts found in the nasal chambers.

During these years of clinical investigation in rhinological work, lactic acid became favorably known and employed in *laryngological* practice, chiefly in tubercular conditions. The deduction was apparent to me that, although the causes might differ widely, the hypertrophic and proliferative conditions resulting might be amenable to the same drug and method of application.

This led me to substitute lactic acid for the acids formerly used in rhinological practice, and it has since been my mainstay in rhinological work for non-surgical conditions—conditions urgently requiring some positive interference for the relief of symptoms more or less distressing and abnormal.

In advocating the use of lactic acid in the nasal chambers for obstructive conditions dependent upon engorgement or hypertrophy, I call attention to the fact that the procedure is simple, quickly performed, and free from danger or much pain. Lactic acid, being fluid, is more available than acids of crystalline form. A small thread or thin tuft of cotton is applied to the small roughened probe, and then saturated with the strong acid, and, after complete cocaineization of the parts, is applied to that portion of the nasal chambers requiring it. Without previous cocaineization the application of lactic acid is *sharp*, but the pain caused is of short duration. With careful, complete cocaineization the application is painless.

To enumerate all the various conditions to which this acid is applicable is quite unnecessary, but I will mention a few of the most important.

Its employment is indicated in conditions found in chronic rhinitis, chiefly hypertrophic, though often in certain atrophic conditions and in purulent chronic rhinitis of childhood. In the catarrhal conditions in children not amenable to milder measures it often offers advantages over other remedies in its milder reaction, freedom from deep wounds of tissue, and rapid restoration of epithelial membrane. In adults, after the removal of polypi, applications of lactic acid to tissue from which they have been removed is so much more advantageous than any other means of which I have knowledge that I have for some time allowed it to supersede the use of galvano-cauterization. Recurrent suppuration of the anterior ethmoidal cells, with accompanying headaches, etc., atrophic changes in the vault of the pharynx in adults—often difficult to cure—respond happily to the use of lactic acid. The nasopharyngeal vault

is often the seat of catarrhal discharge, sometimes associated with lymphoid tissue in young adults. This may not be at all obstructive to nasal respiration or interfere with vocal resonance, but the secretion is annoying and excessive. Under these conditions lactic acid will be found effective; also in obstructions of the Eustachian tube, as an effect of nasorhinal inflammation, the congestion and hyperplasia of the tubes can, in some instances, be removed. Lymphoid tissue in young adults in the fossa of Rosenmüller can be mummified or absorbed by repeated applications of lactic acid. This is of value in cases not available for surgical procedure.

To make a summary of my personal clinical observation: The employment of lactic acid offers advantages over other acids now used, in that it is less severe in action and reaction, but none the less efficient; that it is superior to other acids by reason of its power to change cell action and quicken changes in the mucous membrane, effecting absorption of cell tissue in a remarkable manner; that it does not produce cellular irritation in contiguous tissue when locally applied; and is therefore of greater value than any other active chemical agent now employed; and that, while lactic acid has a cauterant action on mucous tissue, it also has, in addition, special selection for cell tissue, making its effects apparent by absorption of hyperplasia.

*Paper.*

SPASM OF THE TENSORS OF THE VOCAL CORDS.

By JOHN EDWIN RHODES, M. D.

MACKENZIE (1), in 1880, was probably the first to accurately describe this condition, although Schnitzler (2), in 1875, Schech (3), in 1879, and Prosser James (4), in 1879, reported cases which manifested somewhat similar symptoms of a spasmodic character. I find on consulting the literature of the subject that these spasmodic affections of the larynx have been treated of by different writers, as "stammering of the vocal

cords," "spastic aphonia," "spastic dysphonia," etc. I believe they may be classed together, and, although the cases which I shall report may properly be classified under the title given by Mackenzie, it would, perhaps, be preferable to place all similar cases of spasmodic affections of the larynx under the uniform title of "dysphonia spastica" (5). It is certainly a rare affection. Mackenzie saw but thirteen cases. I have found a few on record besides those mentioned above. Among these, Michael (6), Heyman (7), Oltuszewski (8), Massuci (9), Landgraf (10), Onodi (11), Rethi (12), Knight (13) have reported cases most of which differ materially from those I shall report in their manifestations. In many the affection seems due to an abnormal use of the voice or to its overuse, but it may be manifested only after many years of such use, and it is possible that some neuropathic condition which is not well understood is the cause of its development. Landgraf believes that degenerative processes of the nervous system (*e. g.*, multiple cerebral sclerosis) are important ætiological factors. Fraenkel (14), Michael, Schech, and others suggest that it is an occupation neurosis similar to writers' cramp. Krause (15), in reporting a case of aphonia with dyspnoea (laryngeal) spastica, arrived at the conclusion, from the history and status of the case, that it was one of incipient multiple sclerosis. Catching cold has been named by Mackenzie as an apparent cause of the complaint in some cases coming on suddenly. Oltuszewski has reported cases connected with nasal affections which were relieved by treatment of the latter. Browne (16) believes it a common affection, considers it neither of neuropathic nor myopathic origin, but a result of improper voice production dependent upon wrong breathing while speaking. No post-mortem examinations have been reported, and it is probable that the pathological changes would be of too obscure a character to admit of satisfactory study.

The symptoms in these cases appear on every attempt at phonation. The whisper voice is usually perfect. The speaking voice is feeble, husky, wavering, and

jerky, with perhaps change from low to high tones frequently in the attempt to speak more clearly. In the beginning there may be simply a difficulty in getting started, and after speech has been in progress for a time the tones may be clear and unwavering, or there may be the involuntary break in phonation only after speaking for a time, the voice changing to the high-pitched, jerky voice, as in Knight's case, reported to you in 1896. In Schnitzler's case there was complete aphonia and dyspnœa in speaking only, accompanied with some facial spasm. In Schech's case there was some pain and oppression felt in the throat in speaking, and finally complete aphonia, and in another case the voice, at first normal, changed to falsetto, followed later by aphonia, accompanied with spasm of the neck muscles. In the Prosser James case there was an interruption of function of the cords during speaking, and words and sentences were dropped inaudibly. In Michael's case there was loud stridor on inspiration, and a throat voice, and also dyspnœa. Under chloroform this subject was relieved of dyspnœa, and the phonation became natural. This fact seemed to prove the presence of spasm and not of paralysis. One of Massuci's patients was a female singer troubled with hoarseness. Here the abduction of the cords was found normal, but in adduction, on the slightest effort at vocalization, the glottis was completely closed and no rima glottidis could be seen. Landgraf has given the record of a woman in the later stages of pulmonary tuberculosis. There was apparently a participation of the diaphragm in the glottic spasm. Onodi recites a case in a hysterical girl with loss of voice and difficult breathing, relieved by ether and cured by hypnotic suggestion. Rethi reported an instance last year of a female singer whose voice "stuck" as she tried to pass from one register to another, and a laryngoscopic examination showed at the moment of change an elongation and tension of the cords with scarcely a perceptible separation and no tone produced. In this patient he thought there was a reflex starting from the nose, and the higher register muscles were affected.

Dr. E. Fletcher Ingals and myself have observed five cases, the reports of which are as follows: Three of these I have recently had an opportunity of studying carefully.

CASE I.—S. O. J., clergyman, native of Scotland, aged fifty-six years, gives the following history: His father, who was a miner, died at eighty-one of old age; his mother at about thirty-five of consumption. He has no full brothers or sisters. His father was deaf and dumb, as were his father's brother and sister. Two of his mother's brothers were stammerers. These are interesting facts. He has two half brothers who are healthy and have no abnormality of speech. He was rather a frail child, and during his early life endured many hardships, doing severe labor in the mines and having insufficient food. He has been usually healthy, with the exception of an attack of yellow fever eight years ago, and at that time suffered from nervous dyspepsia. Since then he has also had yearly attacks of hay fever, beginning in the middle of August and continuing until cool weather. His temperament is markedly neurotic, but the strain of an exacting position always increases his nervous symptoms. Since the inception of hay fever, until recently, he has used freely as a spray several times a day, and sometimes much more frequently during the summer, a solution containing ten grains of cocaine and ten grains of boric acid in eight ounces of water. He has always had some dread of public speaking and feared that at some time his voice might suddenly fail him. Realizing that his voice had not carrying power he raised its pitch, and spoke with greater force. There was, however, little difficulty in speaking until a year and a half ago. This came on gradually. In the beginning there was huskiness of the voice and slight difficulty in public speaking, very little in ordinary conversation, but often the voice became clear after a few moments' use. No dyspnoea has ever been present. Soon he found that by changing the pitch to high tones he spoke with less effort and the voice was clear. Since August, 1897, there has been more interference with speaking in the chest tones. Speaking does not tire the throat greatly. Early in the history of the case, in beginning a sentence he often found that with the first effort to speak aloud no sound was produced, and it was necessary to attack the sentence again. After his discourse was under way,



and his attention was entirely occupied with the subject in hand, he spoke easily. Later his voice became unsteady in the chest tones in all attempts at phonation. Now, in conversation, the voice is slightly husky and repressed, is tremulous, jerky, and strained in character and irregular in pitch, the sentences being often preceded by a very full inspiration, as he had found that a full chest cavity enables him to speak with greater ease, though it does not improve the voice. In the midst of a sentence he often "yawns." The whisper voice is normal. At present his general health is excellent. An examination shows a little thickening of the nasal mucous membrane, with marked deviation of the septum to the right. Before coming to us his uvula had been amputated without benefit. The fauces appear normal; the larynx is normal except a moderate and diffuse congestion of the cords; there is also a mild congestion of the tracheal mucous membrane. The action of the cords is nearly normal. On phonation the alignment is at first perfect, but on continuing the effort there is a marked relaxation of the internal fibres of the thyreo-arytænoids, but in the higher tones the tension is perfectly held. The muscular action in abduction and adduction seems perfect. The faucial reflex is lost, the scapular is absent, the ankle clonus is absent, but the plantar reflexes and the patellar tendon reflex are exaggerated. All the others are normal. No abnormal signs are obtained over the chest. He has now rested from his professional duties for over six months, he has had electrical treatment for three months, and has had local and constitutional treatment of various kinds without benefit.

CASE II.—L. C., clergyman, aged sixty-nine years, first came under observation in July, 1886, complaining of a strained feeling in the larynx at times during the previous six months, more marked when tired and worried, and more perceptible during ordinary conversation. Ten years previously he had had a spasmodic affection of the larynx, from which he fully recovered. At the time he came under my observation his larynx showed a paresis of the right cord, the movements being slow both in abduction and adduction. A few applications of mild astringents were made, and he left in a few days for his summer vacation. In September he returned and resumed service in his pulpit, feeling little better, but preaching with comparative ease. He was placed on phosphide of zinc, a quarter of a grain; strychnine sulphate, a twenty-fourth of a grain; and arsenious acid, a twenty-fourth of a grain, with local

applications of zinc sulphate, two grains to the ounce, and later copper sulphate, ten grains to the ounce. An examination of the larynx at this time showed free movement of the cords, but there was congestion of the edge of the right cord, and it slightly overrode the left in phonation. In November an examination showed sluggishness in the movement of the right cord. Occasionally he could preach as well as ever. He continued his services regularly from this time, and we had no opportunity of examining him again until September, 1890, when he again began to have his nervous trouble. He could preach once or twice weekly fairly well, but each afternoon and toward evening he experienced difficulty in ordinary conversation. He complained most of the effort in public speaking, the necessity of forcing the voice, and the tired condition of the muscles of the larynx, throat, and chest during and after speaking. He was taking at this time strychnine sulphate in one-twenty-fourth-grain doses, which he continued for some weeks. In October he complained of some difficulty in respiration, although there was no marked dyspnoea. The throat felt tired and uncomfortable at night. Except early in the day, when his voice was good, he was obliged to "jerk out" his words. He could read the service and preach in his usual good voice, but in conversation there was spasmodic action of the cords and an involuntary change to the falsetto tone. He continued his services quite regularly from this time until 1893, when he retired permanently from his work, in the meantime consulting many leading throat and nerve specialists in America and Europe, and being treated with electricity, hypodermics of strychnine, etc., with no benefit. We saw him again quite recently and found his condition much changed for the worse. His general health is robust, his intellect as keen and vigorous as formerly, his appetite excellent, and he sleeps well. On any attempt to speak or whisper there are violent spasms of the muscles of the larynx, the face, and some of the muscles of respiration, and the voice is uncertain, broken, and uncontrollable, changing rapidly from one pitch to another. He continues conversation only with great effort, but can say half a dozen words with perfect enunciation in a loud oratorical voice, such as he was wont to use in his pulpit. An examination of the larynx shows only slight congestion of the vocal cords, and the muscular action seems perfect. The phonation during laryngoscopic examination is excellent. There are no abnormal chest signs, or abnormal conditions of

the nose or throat. An interesting fact in the case is that he has found that the use of cocaine in the nose will enable him to speak as well as he ever did in his life for one or two hours, and he has recently read a paper before a literary society of an hour's length, with perfect ease after its use. Experimentally, a minute quantity of a powder containing four per cent. of cocaine was insufflated in the nares. After a few seconds he remarked: "There, you see I can speak with perfect ease," and he could. It would be interesting to make applications of cocaine to other mucous surfaces—the larynx, the pharynx, and the tongue. We might thus determine whether we had or had not a reflex starting from the nasal membrane, but possibly the results here are due to the systemic influence of the drug. He volunteered the suggestion that if he could be placed under hypnotic influence he believed he could be helped, but efforts in this direction have been unsuccessful. Just now he is taking a systematic course of breathing exercises.

CASE III.—Sister C., aged twenty-five years, was first seen March 28, 1898. She has been a teacher in a convent nine years, and has also led the singing in the choir. She has been subject to colds during the last few years, and has frequently become hoarse, often losing the voice two and three days at a time, but up to September last the voice was usually clear and normal. At about that time she noticed that, while the voice was clear a part of the day, at about four o'clock in the afternoon she began to be troubled with dysphonia, and was obliged to speak in a whisper during the remainder of the day. Since January the dysphonia has been constant, and the voice has been affected during the entire day. In using the chest tones particularly, there is considerable muscular effort, and the voice will change from the chest tones to those of the upper register involuntarily and very abruptly; at other times the loud voice is lost entirely, quite suddenly, but she can speak easily in a whisper. She noticed a curious condition in singing. She says that "she seemed to have a double voice, as if she had an accompaniment similar to that produced by striking the A and E strings of the violin together." After using the chest voice for a time, besides the pain in the larynx, there seems to be some swelling of the muscles externally, as she is obliged to loosen a silk handkerchief she is accustomed to wear about the neck. She says that the nose has been treated for hypertrophy by cauterization, and some

treatment has been applied to the throat. There is no heredity in the family. She is of an exceedingly nervous disposition. About three weeks ago she had a slight attack of acute pleurisy, from which she has not fully recovered. She now has a slight hacking cough and a poor appetite; has lost about twenty pounds in weight, and complains of general weakness and a great deal of headache. There is a history of no other illness. An examination of the throat and nose showed that the nasal cavities were free and the tonsils moderately enlarged. There was some enlargement of the glands at the base of the tongue. Examination of the larynx showed the vocal cords clear and the upper portion of the larynx slightly congested. On phonation, at first the cords come together perfectly, but the ligamentous glottis fails to approximate perfectly, there being a space of about one millimetre. She has been seen but once, and was asked to avoid speaking in a loud voice, and was given arsenious acid, one thirty-sixth of a grain; strychnine sulphate, one twenty-fourth of a grain; quinine valerianate, two grains; camphor monobromide, three grains, four times a day.

In two other similar cases the records are not complete and the patients can not be found.

CASE IV.—P. I. J., male, aged fifty-one years, farmer. He was seen but once. For four or five years had trouble with his voice. It was feeble, high in pitch, strained and spasmodic, and seemed as if it required marked muscular action in the larynx to produce it. He could call cattle loudly by sucking in his breath. There were no abnormal appearances in the larynx.

CASE V.—T. S. F., male, aged thirty-three years, merchant. Had for two or three years previously a strained, catchy, and muffled voice, hoarse, jerky, and wavy in character, which was worse in damp weather, and talking was sometimes quite difficult. At times the voice was perfectly normal. The spasmodic action of the thyreo-arytænoid and the abductors was evident on examination.

In two of these cases the improper use of the voice is plainly an element in the causation. In the first case there had been an effort for a number of years to accommodate the voice, which had little carrying power, to a large auditorium, and in order to reach the auditors in the rear the pitch was raised. In the second case the fault appeared to lie in the improper production of the

voice, in cultivating the "accentus ecclesiasticus" to add to the effectiveness of the Episcopal service, but it seems to me evident that there was some other ætiological factor. In one case the affection did not appear until twenty-five years after the beginning of the patient's professional work, when it came on simultaneously with an attack of nervous dyspepsia and hay fever. The latter has persisted ever since. This patient has been under a constant nervous strain for several years, and the dysphonia has progressed in spite of treatment. There is a disturbance of reflexes also. In the other, in which there seemed an element of hysteria, there has been a long-continued and most vigorous use of electricity, tonics, absolute and prolonged rest, suggestion, etc., notwithstanding which the disease has steadily progressed.

In these cases we are forced to the conclusion that the disease is of neuropathic origin, probably located in the motor areas of the medulla. In the first patient a careful objective study has seemed to me to localize the spasm in the internal tensors of the vocal cords, as Elsberg(17) terms the thyreo-arytænoid muscles, the inner fibres of which, as stated by McCoy (18), "are chiefly concerned in fixing the free edge of the vocal bands in a state of rigidity." The picture shown by the laryngoscope in this case varied in the production of the chest voice and the falsetto. In the chest voice the vibratory action of the ligamentous glottis was evident, regardless of any action of the expiratory muscles, or a full amount of air in the chest, thus excluding one factor upon which Browne (19) lays stress. The alignment of the cords upon the attack in phonation is perfect, the arytænoids adducting perfectly. As the tone progresses the inner portions of the cords of the ligamentous glottis become lax and there is an elliptical opening with the production of the characteristic broken voice. In the falsetto voice, the action of the cords is perfect, and the tone is clear and unwavering. In the second case, however, there is, on every attempt at phonation, spasm in both lower and higher tones, and at the present time spasm of the muscles of the face and neck and some of the respiratory muscles.

The spasmodic action of the laryngeal muscles on attempt at phonation, with the production of the characteristic voice, but more or less perfect condition of the parts on laryngoscopic examination, are the essential points in making a diagnosis. The prognosis is unfavorable. Few cases are cured or much relieved. Two of the cases here reported have run the gamut of treatment by rest, lessons in proper breathing and use of voice, electricity, local applications, strychnine, arsenic, etc., in large and long-continued doses, and nerve sedatives, but are to-day in no better condition than when first seen. Dr. C. E. Mudge, an expert in treating stammering, after careful examination of the first case, concluded he could do nothing for him.

Prolonged rest for the voice and a general tonic course of treatment for the nervous system are indicated. Such nervine and general tonics as strychnine, arsenic, valerian, potassium bromide, quinine, iron, etc., are suggested. Electrical treatment has seemed to give relief in some cases. Astringent and sedative local applications have been used with some benefit, and the results in Oltuzewski's cases would indicate that any abnormal conditions in the nose and upper air tract should be relieved. It is an interesting fact that the use of cocaine in the nose in Case II seemed to relieve the spasm for a time, but the continued use of such an application could not be recommended. Ingals(20) recommends prolonged rest for the voice, and then exercise in systematic reading in a low and unvarying monotone, discontinuing the exercise as soon as the voice breaks, and gradually prolonging the effort, if possible, and finally varying the pitch and intensity. We can not hope for a cure in any fixed line of treatment.

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*Paper.*

**A CASE OF FRACTURE AND DEPRESSION OF THE  
ANTERIOR WALL OF THE MAXILLARY ANTRUM,  
WITH RESTORATION OF THE DEPRESSED WALL.**

By JOHN O. ROE, M. D.

THE following case is of interest, first on account of the rarity of the occurrence of fracture of the walls of the antrum and, secondly, on account of the complete success attending the operation for the restoration of the depressed wall:

On the 14th of last February, Mr. G., a strong, muscular man, thirty-five years old, became engaged in an altercation with a man weighing about two hundred and fifty pounds, receiving a very severe blow in the face with the fist, which fractured the anterior wall of the antrum, breaking it into several pieces, and smashing it inward like a collapsed eggshell. He was referred to me by his attending physician, but it was not until the third day after the accident that I saw him, when, notwithstanding the swollen condition of the soft

parts, his face presented a very onesided appearance on account of the well-marked concavity of the left cheek.

The operation for elevating the depressed fragments was performed under ether as follows: The upper lip on the left side of the face was raised by liberating it from its maxillary attachment, as in Rouge's operation, the dissection being carried high enough to fully expose the field for operation, and by keeping very close to the bone very little hæmorrhage was encountered. An open-



FIG. 1.—Fracture and depression of the anterior wall of maxillary antrum.

ing was then drilled through the anterior wall of the antrum with a Curtis drill run by an electric motor, entering the cavity obliquely from the canine fossa far enough forward to pass under a firm arch of bone. This opening was made sufficiently large to admit a curved sound, which I had improvised for the purpose, and with it the wall of the antrum was raised to its normal position.

The antrum was then cleansed, made thoroughly aseptic, and packed with iodoform gauze sufficiently firm to maintain the wall of the antrum in place. On the sixth day I removed the dressing, irrigated the wound, and repacked the antrum, the wall being so firm that



there was no sagging inward on the removal of the support.

The dressing was changed as often as was deemed necessary, when, at the end of two weeks, the bone evidently was so firm as to require the support no longer. The antrum was then left open and cleansed three or four times each twenty-four hours for about ten days until the hole that had been drilled through the anterior wall closed. There has been no evidence of any trouble in the antrum since, and the contour of the bone is now perfectly normal, it being impossible to detect any difference between the two sides of the face.

The accompanying illustrations are made from photographs taken before and after the operation:

Fig. 1, taken just before the operation, shows the marked depression of the bone and sinking in of the cheek. The actual depression of the wall was greater, however, than that represented by the photograph, for the reason that there was considerable swelling of the soft parts when the photograph was taken, although there was sufficient deformity to give him an unsightly appearance.



FIG. 2.—Restoration of wall, four weeks later.

Fig. 2, taken four weeks later, shows the complete restoration of the depressed portion.

*Paper.***RHINOSCLEROMA.****By JOHN O. ROE, M. D.**

THE illustrations which I present to you to-day are photographs taken from a case of rhinoscleroma. They were taken from a patient of Dr. G. W. Wende, of Buffalo, who has very kindly loaned me the pictures that I may present them before this association.

**FIG. 1.**

When the disease was in the stage as shown in picture No. 2, the patient was presented by Dr. Wende before the American Dermatological Society at a meeting held in the city of New York in 1896. The diagnosis of the case was based upon the disfigurement. The location of the disease, the glossy appearance, together with the fact of its originating in the nasal mucous membrane, of its

later encroachment upon the lower part of the nares, of its gradual development without disintegration, of its peculiar hardness and elasticity, of its extension to the upper lip, of its sharp border, and of the regeneration of the excised portions, led to the conclusion that the person was affected with rhinoscleroma.

The name rhinoscleroma was conferred in 1870 by Hebra and Kaposi upon a newly recognized form of disease which they characterized as having hard, smooth infiltrations, affecting the sæptum of the nose, the adjacent parts of the alæ nasi, and the upper lip.



FIG. 2.

Histologically, the growth, which closely approximated the epithelial portion of the skin, is composed of a dense, fibrous connective tissue, having numerous round and spindle-shaped nuclei. The new fibrous and cellular tissues extend between the fat cells. Some portions of the skin apparently include the advancing margin of the new growth, while other portions exhibit a direct resemblance to glandular tissue.

In this case Dr. Wende states that it was very difficult to demonstrate the presence of bacilli in the cells, as claimed by so many authorities, but bacilli were cultivated which were not unlike the pneumococcus of Friedländer.

This case is one of unusual interest, not alone for its rarity, but from the fact that it is the first instance on



FIG. 8.

record of the appearance of the infection in a person born in the United States. There have been five authentic cases previously reported in the United States, but in each instance the patient was foreign born, the origin of the disease being traced to Austria or southwest Russia. It was also found that the disease had manifested itself in each of the persons before they emigrated to this country, thus showing that the disease was endemic in those countries.

The patient, the subject of these illustrations, was

a fine, clear-eyed, intelligent boy of eleven years of age when the disease manifested itself, and survived the affection but three years and a half. His family history was exceptionally good. Many of his ancestors were noted for their remarkable longevity. He had two brothers, seventeen and eighteen years of age, respectively, who have always enjoyed excellent health, and there was no cause to which could be attributed the contraction of this disease. The disease began as a small nodule just at the lower portion of the right ala, and progressively extended to the other portions of the nose, and finally involved the whole face, as shown in the illustration taken just before his death. It was at first thought that it might have been due to hereditary syphilis; but vigorous treatment of that nature, pushed for a considerable period, had no influence upon it, nor did any other remedies that could be suggested.

The photographs revealing the progress of the disease were taken by Dr. Wende at regular intervals of five or six months during the course of the disease. The pictures reproduced are the first two and the last one, which was taken a short time before the patient's death.

*Exhibition of Cases.*

**Cases of Tuberculosis of the Larynx.**—Dr. J. W. GLEITSMANN: There are two cases here of tubercular laryngitis, and I have notes of a third one, which has not materialized. All three patients are females. The two cases before us, so far as I can make out, are certainly primary cases of tubercular disease of the larynx, without any infection of the lungs.

**CASE I.**—This woman was first seen by me exactly ten years ago, May 1, 1888. She was then suffering with beginning ulceration at the left side of the base of the tongue, involving in course of time the larger part of the base of the tongue, the left tonsil, the whole lingual surface of the epiglottis, and the left aryepiglottic ligament; arrested October 26th.

The diagnosis was verified by repeated microscopical examinations of the parts removed, and the patient was seen several times by members of the New York Acad-

emy of Medicine. Although the affection was most extensive and grave, the lungs never became involved, and after a short last treatment of a recurrent ulcer of the left tonsil, January, 1889, the patient has since remained entirely well. (Case reported in *New York Medical Journal*, October 11, 1890.)

CASE II.—The second patient present, thirty-eight years of age, felt a fullness in her throat in the latter part of June, 1897. Her physician saw an ulcer in her throat, and sent her to me July 15th, when she was treated by my assistant until my return from Moscow. I took charge of her October 29th, when she had dysphagia, but no fever and no pulmonary symptoms. At that time the whole free border of the epiglottis was one ragged ulcer; the right arytaenoid was also ulcerated and thickened, and the right ventricular band infiltrated. I sent her to the German Hospital and excised, November 5th, the whole border of the epiglottis in five pieces, and also the larger portion of the right arytaenoid infiltration. November 24th I curetted the external posterior wall outwardly of the right arytaenoid and extending toward the pyriform sinus. This wound, being very deep, healed slowly, but finally had cicatrized at the end of December, 1897. At the beginning of January of this year I observed an infiltration at the right side of the base of the tongue. Into this I twice injected lactic acid in preference to another operation, on account of tendency to bleeding. The infiltration had disappeared in February, and the patient felt very well and gained considerably in March. Her visits having been less frequent, I was surprised to find on April 12th a large ulcer at the middle of the base of the tongue, which, in spite of several curettements, has continued to grow, and only within the last few days has ceased to increase in size. This patient experienced great comfort from inhalations of orthoform, made at my office and her home, which enabled her to partake of sufficient nourishment. Her larynx has remained in a healthy condition.

CASE III.—The third patient, I am sorry to say, has not appeared. She was seen for the first time May 26, 1897. The family physician upon whom she had called for treatment in the latter part of 1894 gave the following history: At that time she had cough, expectoration, and night sweats. Examination showed infiltration of the left apex; bacilli were found, and they soon became very numerous in the sputum. During her sickness one of her children died from tubercular meningitis. Later,

hoarseness developed, and examination with the laryngoscope showed ulceration of the left vocal cord, swelling of arytenoids, also of false cords and of epiglottis. In March, 1897, she gave birth to a child, but was in a pitiful state, being unable to swallow nourishment without the use of a local anæsthetic. She was treated at one of our best hospitals, but received no relief. On taking charge of her I sent her to the German Hospital May 27th, where she was nourished by enemata exclusively until June 17th. The treatment instituted was as follows: On May 29th submucous injections of pure lactic acid were made into both arytenoid swellings. Previous injections of cocaine had caused hæmorrhage, which rendered curettement inadvisable. The slough on the left side came off soon, leaving a healthy surface. The right arytenoid, becoming denser, was excised with the adjacent part of the posterior wall June 9th. After curettement of the swelling at the external posterior wall June 30th no fresh ulceration or infiltration has set in. She was discharged from the hospital July 15th, and went to the country, where she gained twenty-five pounds in weight, and now feels perfectly well. She was presented before the Laryngological Section of the New York Academy of Medicine, October 27, 1897. At that time the arytenoid region appeared somewhat fuller than normal, which condition was assumed by some members to be tubercular infiltration. I considered it healthy tissue, and in confirmation of the correctness of my view, it certainly is *in statu quo*, without treatment, after six months. A small infiltration of the posterior laryngeal wall is now being removed by a physician in her neighborhood. (Reported in *Laryngoscope*, October, 1897.)

**(1) Case of Tubercular Laryngitis; (2) Case of Subglottic Thickening.**—Dr. W. K. SIMPSON: This is a case of tubercular laryngitis, which I present through the courtesy of Dr. Delavan, and which illustrates to a very marked degree some points that were brought out in yesterday's paper by Dr. Mackenzie.

The main feature in the outset was an isolated enlargement of interarytenoid tissue. Aside from this there was general thickening of the interior of the larynx, which, in conjunction with the interarytenoid thickening, produced marked stenosis. The patient is thirty-three years of age. The disease began about March, 1897. On February 16, 1898, when seven

months pregnant, she suffered greatly with dyspnoea, and premature delivery was inaugurated. On February 17th it was necessary to intubate on account of the severe dyspnoea. In conjunction with Dr. Delavan this was done. The smallest size adult tube was used, and firm resistance was encountered. Coincidentally with the intubation delivery took place. The tube was removed on the third day. She was given iodide of potassium, but without result. She again developed dyspnoea, and was intubated again March 2d, and again on April 10th. The last time a rubber tube was substituted for the metal tubes formerly used. It was allowed to remain a week, but at that time she developed increase of temperature, which was due to rapidly advancing pulmonary disease. An interesting point was now observed. The isolated interarytænoid thickening projecting at the time of the first intubation into the larynx has now become reduced to a mere ring around the upper border of the larynx. Though the interior of the larynx is still distorted in contour, there is ample breathing space. This shows that intubation was better than a tracheotomy, for if she had been tracheotomized it would have been necessary for her to wear a tube during the rest of her life. The tube in the main was very well tolerated. Two superficial pressure ulcerations were occasioned by the last introduction of the tube, situated bilaterally over the site of the vocal cords.

The next case presents a very rare laryngeal condition, but one which thus far has not been dangerous. The patient has complained of hoarseness for two years. The examination of the larynx shows a bilateral, uniform, and circumscribed thickening anteriorly, just below the vocal cords, about the size of an ordinary pea, and non-inflammatory either in color or general appearance. She has been under iodide-of-potassium treatment, but no effort has been made to remove the growth by instruments. At times there has been a great deal of thick, dry secretion. During the last two weeks I find that she has also developed a suspicious thickening on the right false vocal cord, which may prove to be tubercular. Her general health and appearance do not indicate any constitutional trouble.

#### **A Case of Asch's Operation upon the Nasal Sæptum.**

—Dr. MORRIS J. ASCH: I have been frequently asked what the result of my operation upon the nasal sæptum would be after the lapse of considerable time.



When the operation is done, which is known by my name, what becomes of the part of the septum that is forced over? The inference is that there must be a projection. There may be such a projection for a time, resulting from the overlapping of the superfluous tissue that is forced into place after incision, but this is usually absorbed after a little while, or, if it should persist, it is easily removed by the electro-trephine or galvano-cautery. The operation consists of first making a crucial incision through the cartilaginous septum, breaking up the segments thus made at their base, and, after straightening the septum by forceps, holding it in place by a hollow vulcanite splint. In this case (a young man) the septum was deflected so as to touch the turbinal on the left side. The operation was done as described, and the tube introduced. The boy has recovered entirely with restoration of function. The septum is perfectly straight and the respiration is perfectly re-established. I simply bring him before you to show the result of an operation performed three years ago, with especial reference to the permanency of the result.

**Specific New Growth obstructing Anterior Nares.—**

Dr. EMIL MAYER: The case I here present has some unusual features. This woman presented herself in 1892 when she had complete atresia of both nostrils due to a web of tissue occluding both nares. This web was firm and pale in color. In addition there was complete destruction of the soft palate and adhesions of both anterior pillars to the posterior pharyngeal wall. The webs were removed with the electro-trephine, and free breathing was established.

A few months ago there was a recurrence and her nose was again occluded by a similar formation.

I trephined the one on the left side. The one on the right still exists, so that she now presents a free breathing space on the left with an occluded right nostril. The remains of the old destruction and adhesions in the pharynx are apparent and the diagnosis of specific condition, probably congenital in origin, is thus readily verified.

It may be of interest to add that the patient was married two years ago and has given birth to a child who bears no evidence whatever of a specific disease.

**A Case of Spastic Aphonia; Cases of Laryngeal Neoplasm: treated by Instillations of Alcohol.—Dr.**

CHARLES H. KNIGHT: The first case I have to show is that of a woman, twenty-five years of age, who has been under treatment at my clinic as a case of spastic aphonia. I thought that it might be interesting to the Fellows in connection with the paper read by Dr. Rhodes this morning.

The second case is one of a series of cases of growth in the larynx treated by instillations of alcohol. Under this treatment, which was adopted because it was impossible to approach his larynx with any instrument, the patient, a boy of ten years, has done very well, and the growth is shrinking. Absolute alcohol was applied, drop by drop, through a Eustachian catheter with a rubber bulb attached. The laryngeal growth is a papilloma about the size of a split pea situated at the anterior commissure. The boy's voice is not yet very good, and he speaks with considerable effort, but there is no longer any obstruction to breathing, and eventually we may expect to witness obliteration of the neoplasm.

In another case, that of a boy aged five years, who is not able to be here to-day, I have just had to do a tracheotomy in consequence of the swelling and irritation produced by the alcohol.

In a third case of multiple papilloma, that of a man thirty-five years old, a very different result was observed. Here the alcohol seemed to me to induce a condition of tolerance of the laryngeal mucosa, so that I have been enabled to attack a subglottic mass with the electric cautery, completely eradicating it and at the same time restoring a lost voice.

(1) **Warty Growths under the Tongue;** (2) **Obscure Disease of Larynx causing Aphonia.**—Dr. GEORGE B. НОРВ: This case, which I took at the last moment from the hospital, seems to me of interest.

The growth is undoubtedly scleroderma, and involves the lower surface of the tongue and the sublingual floor, having a history of five years or more, and steadily increasing in extent and density. The interesting feature lies in the local employment of the tincture of thuja—a favorite remedy among homœopathic practitioners.

The patient makes use of the tincture as a pigment four or five times daily and with very excellent results, notwithstanding the unfavorable situation. The ordinary cautery applications, said to have been thoroughly applied in the early treatment, seem to have stimulated rather than retarded the growth.

The other case is one that is brought here without diagnosis, but with an interrogation as to what it is. It is a laryngological case which presents some difficulties in diagnosis. The principal symptoms are hoarseness and spasmodic dyspnoea. He has been suffering with laryngeal trouble for about seven years. His voice has been almost entirely lost. When he first came to the hospital, about two years ago, he was more or less in the condition of the present. The larynx presents a very considerable thickening of the ventricular bands, sufficient to cover the vocal cords. As regards the diagnosis, the question lies very much between tubercular laryngitis and some form of malignant growth. There are many symptoms that make it difficult to reach any clear appreciation as to the nature of the disease. For one point, the growth has existed for seven years or more, without reaching beyond a certain degree of intensity. Secondly, it has recently improved under treatment. Thirdly, there is no enlargement of the cervical lymphatics; moreover, there has been no pain. I will be very much pleased to receive any suggestion as regards either diagnosis or treatment.

**(1) Pemphigus of the Mouth and Throat; (2) Vascular Growth at Base of Tongue; (3) Congenital Tumor of Lower Lip.**—Dr. JONATHAN WRIGHT: This case I want to present on the part of Dr. Miller. It is one of pemphigus of the mouth and throat in an elderly male patient. Although in this case pemphigus has lasted for nearly three years in the throat and on the soft palate, there has not as yet been any appearance of this eruption on the skin. I hear that our friends the dermatologists hesitate about accepting this diagnosis; they say that if only one bleb would appear on the skin they would acknowledge this to be a case of pemphigus. We will not, however, wait for the lesion to appear on the skin, but will set it down as an undoubted case of pemphigus of mucous surfaces.

He has been well until lately, when he got up one or two blebs on the tongue in honor of the American Laryngological Association. His usual history is that, without any warning or evidence of other disturbance of health, he will notice one or two of these blebs in his mouth. The final end of these cases is pneumonia, which usually terminates the case.

The second case will be illustrated upon the screen.

This case, a lady, came to me with a vascular growth

in the mouth three years ago. On examination with a laryngoscope I found a lymphoid mass extending from the base of the tongue down deep into the laryngo-epiglottic fossa. She suffered very little from it. Although I was inclined to remove it, yet, on account of its vascularity and because of the small amount of inconvenience resulting from it, I decided to leave it for a time. Since then I have examined her about every three months, but I find little or no increase in size. It is a very good example of the benefit of the expectant method in these cases. If I had operated, I might have got into a great deal of trouble. Probably treatment by electrolysis would be the preferable plan. She is forty-five years of age, and I do not think that for the next two or three years at least it would be wise to interfere with this growth. (Pictures and diagrams shown on the screen.)

**A Case of Cured Phthisis.**—The PRESIDENT: I present this case as one of cured phthisis. I do not mean that the patient has been cured by means of any special remedy or method of treatment. I present the case simply as an illustration of the fact that phthisis is not infrequently a self-limited disease. Two years ago, when the patient first came under my care, she had an irritative cough, fever, and the usual symptoms attending phthisis. Both pulmonary apices were found to be consolidated. She has since continued her work as a Sister of Charity, nursing the sick, and performing the usual duties of a nurse in the hospital, and has gradually recovered, though the treatment employed was only of a palliative character. When she first came under my observation her voice was nearly extinct, and had been so for a year. The arytaenoid cartilages were red and slightly swollen, and the thyreo-arytaenoid muscles were paralyzed. During phonation the characteristic elliptical glottic chink presented, which was accompanied by overriding of the ventricular bands, as shown in the photograph of her larynx, now displayed upon the screen, which was taken two years ago. I place by its side a second photograph, taken last week, which shows how completely those conditions have disappeared. The patient has just made it clear to you that the voice is normal. She states that the cough began six years ago, but she is now free from cough, and presents the appearance of excellent health, which, indeed, she enjoys.

The President presented on behalf of Dr. L. H.

Miller a lantern slide representing a congenital malformation of the lower lip of a young lady which, curiously enough, resembled the end of her nose.

He also exhibited a second photograph upon the screen showing the result after removal of the malformation by operation.

*Lantern Exhibit.*

Following the demonstration of cases, Dr. Jonathan Wright, after throwing on the screen the pictures in connection with a case of rhinoscleroma, brought into requisition a projection microscope and gave a beautiful exhibition of microscopical specimens from his private collection. The immense amphitheatre of the Polhemus building had been arranged with infinite pains, so that it was as dark as night, making the magnified sections stand out on the screen as if under one's own eye at the microscope. About twenty-five specimens were thus exhibited, and included among them were some of the rarer tumors of the nose and throat. Others showed the finer anatomy and histology of the turbinal bodies and their erectile tissue.

At the close of this most interesting and instructive feature of the session, to which it is impossible to do justice except by reporting at much greater length, the following gentlemen presented pathological specimens and instruments:

*Presentation of Specimens.*

Dr. LELAND: It will be remembered that at Pittsburgh, two years ago, Dr. John O. Roe presented a paper on the *Ætiology of Deviations, Spurs, and Ridges of the Nasal Sæptum*, very conclusively showing that they are frequently due to faulty development. I need only recall to your minds, as one of the points of his paper, that the bony sæptum develops from two or more centres of ossification which are located in parallel planes. If one surface takes on a greater development, it is apt to increase more rapidly than the other, therefore bending away from it and leaving a cavity between the two centres; this cavity has been called the organ of Jacobson.

I wish to present this collection of fourteen bottles, containing fifteen spurs and ridges which have been re-



Bottles containing spurs and ridges. Photograph about two thirds of actual size.



Specimens removed from bottles and photographed with cut surface forward—about two thirds of actual size.

moved from the nose by myself and by Dr. E. M. Holmes of our city, who sometimes renders me most valuable assistance. These spurs (see illustration) are contained in bottles two inches and three eighths in length. As you see, they vary in size, the longest being an inch and a half in length, three eighths of an inch wide, and three eighths of an inch thick. It will be seen that on the cut surface of each one there is a concavity, which on examination will be found to be covered with mucous membrane (from one or two the membrane has been stripped off). By the removal of these spurs there was no perforation made into the other nostril, the septum not having been sawn through. In two of them will be seen a bristle passing through a foramen from the nasal side of the spur into the Jacobson cavity. I am glad to have such a valuable confirmation of the existence of this cavity, as shown in one of Dr. French's microscopic specimens.

#### SPECIMEN OF ENUCLEATED TONSIL.

BY DR. J. W. FARLOW.

Dr. FARLOW: I ask permission to present a specimen consisting of an enucleated tonsil, which was removed completely by the cold snare. In the throat from which it was taken there is absolutely no tonsillar tissue left on the side from which it was removed.

#### *Presentation of Instruments.*

J. W. GLEITSMANN, M. D., of New York, presented for examination "the latest form of Kirstein's autoscope."

Dr. GLEITSMANN: When I was in Berlin in 1895 Dr. Kirstein assured me that the autoscope, known by his name at that time, was as perfect an instrument as could be designed. But in 1897, when I was coming back from the International Medical Congress at Moscow, he showed me another instrument, which he regarded as an improvement upon the former, and which is certainly much simpler. As you see, it represents a plain, narrow, elongated tongue spatula, whose farther end is inserted into the glosso-epiglottic fossa. An electric lamp worn on the forehead furnishes the illumination, and for the purposes of demonstration the lamp can be



attached to the handle to give free access to the line of vision to the third party.

*Discussion.*

Dr. LANGMAID: I would like to have from the lecturer the results of his own experience with the instrument, and also his method of using it.

Dr. GLEITSMANN: I must say that I am not much inclined to speak of my own experience with the autoscope, as I have not employed it persistently enough to pass a definite judgment as to its merits. I have tried to use it in private practice, but the American people are not well disposed to it, although in my private patients I always apply cocaine previous to the examination. I used it in the German Dispensary for several years, with the result that part of the patients did not return. They did not appear to like the instrument; perhaps it was my want of dexterity in using it which was at fault. I have seen Dr. Kirstein examine all his patients with the autoscope at his clinic in Berlin, and, as far as I can judge, he is able to make an inspection of the larynx in all cases.

I have found one disadvantage of this instrument, and it is that in many cases it can not be used for a sufficient length of time to make a thorough examination of the throat, as we are in the habit of doing with the mirror. In such patients you can not leave the autoscope in the throat long enough to get a good view of the larynx.

I think that the autoscope has several advantages of its own, especially in examinations of the posterior wall, and in some cases it has been successfully used where the patients could not be examined thoroughly with the ordinary mirror. If the patient's throat is not too sensitive, it can be used without much difficulty. I think that Dr. Watson had one used upon himself some time ago, and he might give us his impression of the instrument from a patient's point of view.

Dr. WATSON: All that I have to say is that if any of you were to have it used upon yourselves it would be quite clear to you what the grounds were for objection to its use by our patients. It requires considerable endurance to stand the pressure, even under cocaine.

Dr. RICE: I would ask if you can see the larynx in children, or can you always see the larynx with the aid of the autoscope? Can you use it without anæsthesia?

Dr. GLEITSMANN: I have not made use of the auto-scope in children.

Dr. FARLOW: You spoke of the method as applicable for examining the posterior portion of the larynx. I should think that if you were to practise what is known as Killian's method it would be better.

Dr. GLEITSMANN: I am glad that this method has been spoken of, and I always employ it when necessity arises. In one of the recent text-books by Schroetter, he recognizes the method of examination of the posterior wall of the larynx by bringing the head of the patient forward. I often get on my knees before patients in my office in order to get a good view of the posterior portion of the larynx.

Dr. WAGNER: I have had quite an extended use of Kirstein's autoscope in its original form, and also with the modification which Dr. Gleitsmann has just shown, and have obtained similar results as Dr. Gleitsmann states. I found that I could only use it with advantage in certain operative cases. In my experience it is especially useful in operating upon children for papillomata of the larynx. I also found it very useful in the treatment of two cases of lupus of the larynx, where I found that I could get at certain parts of the afflicted larynx in no other way than with the autoscope. Except in these operative cases it can not be used generally with great success. For ordinary examinations at the clinic or in my office I found its use a difficult one, and that, after its use, patients are loath to return for further treatment.

In all my cases I have used cocaine before making the examinations.

Dr. LELAND: In connection with the paper by Dr. DeBlois I present some instruments for elevating the mucous membrane in operations upon the sæptum.

Dr. CLARK: I should like to show the society a knife which I have found useful in removing anterior thickenings of the quadrangular cartilage, as well as deviations



Codman & Shurtleff,  
Boston.

The diagram is about three fifths natural size.

of its lower (free) border into one nostril or the other, and also in dissecting out a dislocated columnar cartilage. The mucous membrane is always dissected back and preserved when not too adherent to the cartilage.

The special advantage of this shape of knife is that the tip is a cutting edge instead of a point.

The other instrument is a tonsil punch for removing a tonsil piecemeal when it does not project sufficiently to permit the use of a tonsillotome. As you see, although longer and heavier, it is shaped much like adenoid forceps. The blades are circular open rings, one fitting closely into the other, so that they will punch a clear, round hole in a piece of paper. This tonsil punch is a modification of one devised by Dr. Coolidge, in which the blades are smaller, and oval instead of round.

The PRESIDENT demonstrated a new and highly efficient electric transformer for the Edison continuous current, which was made for him by Mr. L. M. Pignolet, of 78 Cortlandt Street. It is capable of heating a ten-inch loop of wire and of lighting a six-candle-power lamp. The current is easily regulated by a switch so that any degree of heat or light can be obtained within the limit of ten volts. A small but powerful electric motor is used to convert the continuous current into the alternating current. This is necessary not only to operate the transformer, but also to supply power for surgical drilling. The model shown was for use in the office, and the case is so arranged that the noise of the motor can scarcely be heard. Another model is incased in enameled iron and is placed on rollers for use in the operating room.

Dr. J. C. MULHALL: Provided suppuration in the maxillary sinus be simple and uncomplicated, I still believe the Astley Cooper operation to be the best. It has fallen somewhat into non-use, and many failures have been reported. The chief reason for this failure I believe to be in the kind of drainage tube generally used. The diameter of the one I exhibit is one fourth of an inch, considerably larger than those recommended by the text-books. Its length is three fourths of an inch. The entrance of food into the antrum is prevented in my tube by a sliding cap. Another improvement is the beveled edge of the antral end of the tube. In the tubes I have seen the antral end has presented a sharp edge, a condition which irritates the antral mucous membrane, and thus produces granulations, which soon close up the antral end. These tubes are of gold, and are made and fitted for me by Dr. J. Warren Wick, one of the leading dental surgeons of St. Louis.

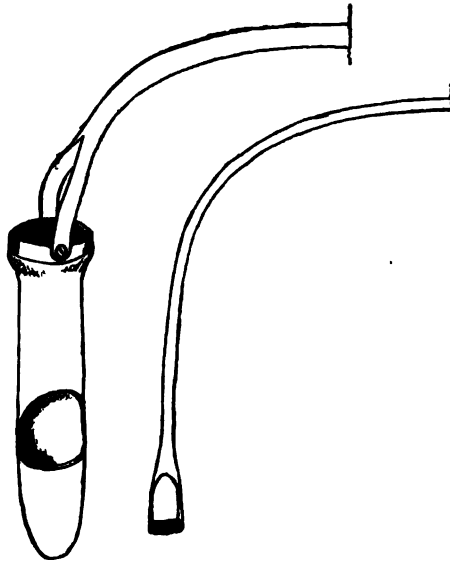
I show you here an improvement in Dr. Gradle's forceps for the removal of adenoids. I had the mis-

fortune several years ago of seizing and tearing off quite a piece of the nasal surface of the soft palate. Ever since then I have used the instrument with the steel plate you see, absolutely preventing any such accident. This is the syringe I use for intratracheal medication. It is made by the Blee-Moore Instrument Company, of St. Louis. Here are two knives which take the place of Dr. Asch's scissors in making the crucial incision for correcting deviated septum in Asch's operation.

Dr. THOMAS HUBBARD presented a fenestrated laryngeal operating tube.

The tube is modeled after the adult intubation tubes of O'Dwyer, and can be revolved in the collar of the introducing handle when the small screws are loosened. At the lower end is a breathing hole, about a quarter by an eighth of an inch in dimensions. The fenestra seen in the model is adapted to subglottic operations.

The curette, snare, forceps, applicator, or syringe can be used under accurate guidance by means of the laryngeal mirror. The curette has a sharp, draw-cutting



edge and flexible shaft, so that it can be used for operations on either side. The introduction can be readily accomplished after cocainization, the mirror being used

to direct the tube. The handle is then held firmly by an assistant. Usually the operative steps can be taken deliberately, but if blood or mucus accumulates in the tube coughing will be excited. I have found that a small dose of morphine and atropine, or even codeine, an hour prior to operation aids decidedly in lessening secretion and quieting irritation.

Operations can be more safely, deliberately, and thoroughly performed than with unguarded instruments, and where chemical destructive agents are employed this method offers great advantages, since a neutralizing solution can be used, and the action of the destructive agent being limited there is less danger of spasm or subsequent inflammation.

**BUSINESS MEETINGS.**

THE Twentieth Annual Congress of the American Laryngological Association convened at 10 A. M. on the 16th of May, 1898, at the hall of the Long Island Historical Society, Brooklyn, N. Y. The Association was called to order by the President, Dr. Thomas R. French. There were present during the sessions the following Fellows:

THOMAS R. FRENCH, Brooklyn, President.  
 ALEX. W. MACCOY, Philadelphia, First Vice-President.  
 HERBERT S. BIRKETT, Montreal, 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.  
 CHARLES H. KNIGHT, New York, Member of Council.  
 MORRIS J. ASCH, New York.  
 ARTHUR A. BLISS, Philadelphia.  
 M. R. BROWN, Chicago.  
 W. E. CASSELBERRY, Chicago.  
 W. F. CHAPPELL, New York.  
 J. PAYSON CLARK, Boston.  
 J. W. FARLOW, Boston.  
 RICHARD FROTHINGHAM, New York.  
 J. W. GLEITSMANN, New York.  
 J. H. HARTMAN, Baltimore.  
 F. W. HINKEL, Buffalo.  
 G. B. HOPE, New York.  
 F. E. HOPKINS, Springfield.  
 F. L. IVES, New York.  
 S. W. LANGMAID, Boston.  
 G. A. LELAND, Boston.  
 J. E. LOGAN, Kansas City.  
 J. N. MACKENZIE, Baltimore.  
 EMIL MAYER, New York.  
 J. C. MULHALL, St. Louis.  
 J. E. NEWCOMB, New York.  
 W. H. PARK, New York.  
 J. EDWIN RHODES, Chicago.  
 C. C. RICE, New York.

BEVERLEY ROBINSON, New York.  
W. K. SIMPSON, New York.  
A. B. THRASHER, Cincinnati.  
S. O. VAN DER POEL, New York.  
HENRY L. WAGNER, San Francisco.  
A. W. WATSON, Philadelphia.  
JONATHAN WRIGHT, Brooklyn.  
D. BRADEN KYLE, Philadelphia.  
G. HUDSON MAKUEN, Philadelphia.

The Secretary having called the roll, formal proceedings were begun by the address of the President.

At the close of the morning session the election of candidates took place and resulted in the choice of the following for active fellowship in the Association: J. L. Goodale, M. D., Boston, Massachusetts, proposed by Dr. Langmaid and Dr. F. I. Knight. Thesis—A Contribution to the Histopathology of Acute Tonsillitis. D. Braden Kyle, M. D., Philadelphia, Pennsylvania, proposed by Dr. Delavan and Dr. Swain. Thesis—The Position of the Orifice of the Eustachian Tube and the Possibility of Catheterizing through the Mouth. G. Hudson Makuen, M. D., Philadelphia, Pennsylvania, proposed by Dr. Delavan and Dr. C. H. Knight. Thesis—Artistic Breathing.

The President appointed Dr. Knight and Dr. Rice as the committee to audit the accounts of the Treasurer.

The election of the Nominating Committee resulted as follows: Dr. Morris J. Asch, Dr. D. Bryson Delavan, Dr. C. H. Knight, Dr. Jonathan Wright, and Dr. A. B. Thrasher.

At the business meeting on the second day the following reports were read and approved:

*Secretary's Report.*

In accordance with our traditional custom, your Secretary has the pleasure of presenting to the Association the last volume of the *Transactions*.

The active and corresponding Fellows elected at the last meeting have all duly qualified. Since we last met the Association has lost by death one of its older, most renowned, and most beloved Fellows, Dr. Harrison Allen. This leaves our roster, together with newly elected members, with seventy-one names. There has been one meeting of the Council, the minutes of which will now be read.

*Treasurer's Report, 1897-'98.**Receipts.*

Balance from 1897 account . . .	\$163 24
Dues, 1896 . . . . .	35 00
Dues, 1897 . . . . .	40 00
Dues, 1898 . . . . .	255 00
Transactions, 1889 . . . . .	2 50
Transactions, 1895 . . . . .	5 00
Transactions, 1896 . . . . .	12 50
Transactions, 1897 . . . . .	20 00
	<hr/> \$533 24

*Disbursements.*

Pasteur Memorial . . . . .	\$25 00
Stenographer, 1897 . . . . .	101 12
Treasurer of the Congress of Physi- cians and Surgeons for 1897 . . . . .	58 80
D. Appleton and Company, <i>Trans- actions</i> , 1897 . . . . .	139 67
Printing stamped envelopes, post- als, programmes, circulars, etc. . . . .	51 44
Postage on programmes . . . . .	7 50
	<hr/> \$383 53
Balance to credit . . . . .	\$149 71

CHARLES H. KNIGHT, }  
CLARENCE C. RICE, } *Auditing Committee.*

*Librarian's Report.*

The Librarian has to report that during the past year thirty-nine pamphlets and three bound books have been added to the library of the Association, making the total number of volumes 1,195.

Respectfully submitted. J. H. BRYAN, *Librarian.*

The Nominating Committee reported the following as a list of officers for 1898-'99:

*President.*—W. E. CASSELBERRY, Chicago.

*First Vice-President.*—J. W. FARLOW, Boston.

*Second Vice-President.*—F. W. HINKEL, Buffalo.

*Secretary and Treasurer.*—HENRY L. SWAIN, New Haven.

*Librarian.*—J. H. BRYAN, Washington.

*Member of Council.*—THOMAS R. FRENCH, Brooklyn.

*Delegate to the Congress of Physicians and Surgeons.*—W. K. SIMPSON, New York. *Alternate.*—JONATHAN WRIGHT.



The recommendation of the Council concerning the addition to Article IX of the By-Laws was next taken up, and, after some general discussion, the following clause was added to the article: "This rule shall not apply to Fellows of twenty years' standing."

The Secretary having been questioned as regards the delay in publishing the *Transactions*, replied that it was caused almost entirely by the tardiness of the Fellows in handing in their papers to him. He hoped that there might be a great improvement in that respect for this year, for Dr. R. B. Granger, of the *New York Medical Journal*, had promised him that if the papers should be in his hands by July 1st he would guarantee that they should all appear before the end of 1898. Some debate then followed on the question whether it would not be well to have a time limit placed, after which no papers would be accepted for publication. It was, however, agreed best not to adopt any such restrictions.

In executive session, on the third day, the officers whose names had been presented by the Nominating Committee were unanimously elected. It was voted that the place of meeting be Chicago and the date at the discretion of the Council.

After the newly elected officers had been escorted to the chair, the Association voted to thank Dr. French, Dr. Wright, and Dr. Dudley for their untiring and most successful efforts to have everything perfectly arranged for the meeting and the personal enjoyment of the Fellows.

The Secretary was instructed to extend to the officers of the Long Island Historical Society, the Long Island Hospital Medical College, the Hamilton Club, and the Montauk Club the most sincere thanks of the Association for the courtesies which had been shown it during the sessions, and for the care which had been taken to have every possible comfort for the individual members.

The First Vice-President, Dr. Farlow, then declared the Twentieth Annual Congress of the Association to be adjourned.

## OBITUARY.

## JAMES EPHRAIM HASTINGS NICHOLS, M.D.

ON September 10, 1898, at Sapphire, North Carolina, occurred the death of Dr. James E. H. Nichols. He had been out of health for over a year, suffering from a chronic pleurisy, and for this latter had been South. While there he had become considerably improved in health, but finally succumbed to an attack of meningitis.

Dr. Nichols was born in Geneseo, N. Y., in 1856, and received his earlier as well as his university education in Rochester, graduating from Rochester University in 1878. He then went for two years abroad, living in Italy, being connected with the United States Legation in Rome. On his return he began his medical studies in Rochester, and later finished them at the College of Physicians and Surgeons of New York city, graduating in 1885. He remained in New York city, where his practice became devoted to the special branches of the ear, nose, and throat, and he became eminent in medical circles by his diligence, enterprise, and good work. After some years of service at the Manhattan Eye, Ear, and Throat Hospital he was appointed an aural surgeon, which position he held to his death. In 1895 he married Miss Mary Winthrop Tappan, who survives him. Dr. Nichols was a member of the New York County Medical Society, New York Academy of Medicine, the New York Otological Society, the National Otological Association, the Laryngological, Rhinological, and Otological Association, the New York Medical Union, the Physicians' Mutual Aid Association, and was for several years secretary of the Quill Club. All these associations had tended to make him a very deservedly popular physician, and when he became a Fellow of our own Association in 1895 he was well known to the majority of us, and seemed to bring with him the augury of great deeds for the reputation of this branch of medical science. He won for himself with us, as it appears he did in every walk of life, the highest esteem for his honesty and sincerity of purpose, for his skill in practice and investigation, and for his broad views of the

usefulness and scope of our work in the realm of medicine; while his integrity, frankness, and purity of character evoked our greatest respect and warmest friendship. He was a frequent contributor to medical literature, and willingly did his full duty in connection with the various medical bodies to which he belonged. Though working only a short time with us, we had learned to value his aid and began to count upon him as one who would surely contribute his full share toward keeping the growth and influence of the Association well up to the high standard which it has always enjoyed. As we then contemplate the life, early broken off, when the full fruition of high ambitions and justly great expectations seemed near at hand, when we, his friends, were feeling more and more his worth, there comes all the more strongly before us the realization of his having been removed from a life which promised great things, and we are brought all the more closely into touch with the sorrow of his bereaved family.

THE CONSTITUTION AND BY-LAWS  
OF THE  
AMERICAN LARYNGOLOGICAL ASSOCIATION.  
1898.

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CONSTITUTION.

ARTICLE I.

1. This Association shall be known as the "American Laryngological Association."

ARTICLE II.

1. The object of this Association shall be the promotion of knowledge in all that relates to Diseases of the Upper Air Passages.

ARTICLE III.

FELLOWS.

1. The Fellows of this Association shall consist of Fellows, Corresponding Fellows, and Honorary Fellows.

2. The Fellows shall not exceed seventy-five (75) in number.

3. The Corresponding Fellows shall not exceed thirty (30) in number. The Honorary Fellows shall not exceed five (5) American and fifteen (15) Foreign.

4. Candidates shall be proposed to the Council, at least one month before the first day of meeting, by two Fellows, and, on recommendation of the Council, shall be balloted for at the first session of the ensuing Annual Meeting, a list of the names having been sent to every Fellow, with the notification of the meeting.

5. A two-thirds affirmative vote of all the Fellows present shall constitute an election.

6. No one shall be eligible for active Fellowship until he shall have submitted to the Council a paper on some subject connected with Laryngological Science.

#### ARTICLE IV.

##### HONORARY AND CORRESPONDING FELLOWS.

1. The power of nominating Honorary and Corresponding Fellows shall be vested in the Council. The election shall take place in the same manner as that of ordinary Fellows. They shall enjoy all the privileges of other Fellows, but shall not be required to pay any fee, or be allowed to hold any office, or cast any vote.

#### ARTICLE V.

##### OFFICERS.

1. The Officers of the Association shall be a President, two Vice-Presidents, a Secretary and Treasurer, and a Librarian, who, with four other Fellows, shall constitute the Council of the Association.

2. The Secretary and Treasurer, and the Librarian, shall be permanent officers, holding office from year to year at the discretion of the Association.

3. At the first session of the annual meeting a committee of five shall be elected who shall nominate the officers of the Association. This Nominating Committee shall report at the business meeting on the second day and the election shall take place on the last day of the meeting.

4. A majority of the votes cast shall constitute an election.

5. The President and Vice-Presidents shall enter upon their duties immediately before the adjournment of the meeting at which they are elected, and shall hold office for one year.

6. The members of the Council other than the President, Vice-President, Secretary, and Treasurer, shall hold office for four years; except such of them as are elected at the first meeting, the first-named of whom shall retire at the end of one year; the second-named at the end of two years; the third at the end of three years, and the fourth at the end of four years, their places to be supplied by the election of one member at each Annual Meeting.

7. Any vacancy occurring between the Annual Meetings shall be filled temporarily by the action of the Council.

8. All Officers shall be eligible for re-election.

#### ARTICLE VI.

##### ANNUAL MEETING.

1. The Annual Meeting of the Association shall be held at such time and place as shall be designated by the Association at the final session of the previous meeting. It shall continue for three days, unless otherwise previously ordered by the Council.

#### ARTICLE VII.

##### AMENDMENTS.

1. This Constitution may be amended by a three-fourths vote of all the Fellows present, at an Annual Meeting, provided that previous notice of the proposed amendment has been given in writing, and it shall be the duty of the Secretary to insert the proposed amendment in the notification of the approaching meeting.

#### BY-LAWS.

##### ARTICLE I.

##### PRESIDENT AND VICE-PRESIDENTS.

1. The President and Vice-Presidents shall discharge the duties belonging to their respective offices according to Robert's Manual. The President shall be *ex officio* Chairman of the Council.

##### ARTICLE II.

##### SECRETARY AND TREASURER.

1. As Secretary, he shall attend and keep a record of all the meetings of the Association, and of the Council, of which latter he shall be *ex officio* Clerk.

2. At each Annual Meeting he shall announce the names of all who have ceased to be Fellows since the last report.

3. He shall provide a Register, in which the members attending shall record their names.

4. He shall superintend the publication of the transactions, under the direction of the Council.

5. He shall notify candidates of their election to Fellowship.

6. He shall send notifications of the Annual Meetings, one month previous to the meeting, and of the meetings of the Council.

7. At the Annual Meeting of the Association, he shall read the minutes of the previous meeting, and of all the meetings of the Council that have been held during the current year.

8. As Treasurer, he shall receive all moneys due, and pay all debts.

9. He shall render an account thereof at the Annual Meeting, where an Auditing Committee shall be appointed to report.

### ARTICLE III.

#### COUNCIL.

1. The Council shall meet as often as the interests of the Association may require.

2. Four members shall constitute a quorum.

3. It shall have the management of the affairs of the Association, subject to the action of the Association at its Annual Meetings.

4. It shall consider the claims of the candidates recommended to it for admission to Fellowship, and shall have the sole power of making the nominations.

5. It shall arrange the order for the scientific work at the Annual Meetings.

6. It shall not have the power to make the Association liable for any debts exceeding in total one hundred dollars, in the course of any one year, unless specially authorized by a vote of the Association.

7. It shall have the entire control of the publications of the Association, with the power to reject such papers or discussions as it deems best.

8. The President or any two members may call a meeting, notice of which shall be transmitted to every member two weeks previous to the meeting.

9. The Council shall determine questions by vote, or—if demanded—by ballot, the President having a casting vote.

10. The Council shall constitute a Board of Trial

for all offenses against the Constitution and By-Laws, or for conduct unbecoming an honorable physician, and shall have the sole power of moving the expulsion of any Fellow.

11. Notice of any important business to come before the Council should be sent to each member of the Council two weeks before the meeting, and any member unable to be present may send in his vote by mail on any question relating to membership or place or time of meeting.

#### ARTICLE IV.

##### ORDER OF BUSINESS.

1. The order of business at the Annual Meetings of the Association shall be as follows:

General meeting at 10 A. M. each day.

1. Report of Committees.
2. Reading and Discussion of Papers.
3. Miscellaneous Business.

2. The Business Meeting shall be held during the first hour of the second morning session, at which only Fellows of the Association shall be present. The Secretary's Records shall then be read; the Treasurer's account be submitted; the Reports of Committees on other than scientific subjects be received; and all miscellaneous business be transacted.

3. Urgent business may be transacted at any meeting by unanimous consent.

#### ARTICLE V.

##### PAPERS, ETC.

1. The titles of all papers to be read at any Annual Meeting shall be forwarded to the Secretary, not later than one month before the first day of the meeting.

2. No paper shall be read before the Association which has already been printed or been read before another body.

3. No paper other than the President's Address shall consume more than twenty-five minutes in its reading, without the unanimous consent of the members present.

4. All papers that may be read before the Association, and accepted for publication, shall become the property of the Association, and their publication shall be under the control of the Council.



ARTICLE VI.

QUORUM.

1. A Quorum for business purposes shall be ten Fellows.

ARTICLE VII.

ASSESSMENT.

1. Every Fellow shall pay in advance the sum of five dollars annually.
2. Any Fellow whose subscription shall be more than nine months in arrears shall be reminded of the fact by the Treasurer, in writing; in event of payment not being then made, he may, on vote of the Council, be dropped from the Association.

ARTICLE VIII.

AMENDMENTS.

1. Any of these By-Laws may be amended, repealed, or suspended by a two-thirds vote of the Fellows present, at any meeting.

ARTICLE IX.

1. Any Fellow who shall have failed to furnish a paper for three successive meetings, or who shall have absented himself from three successive meetings, may, on vote of the Council, be dropped from the Association. This rule shall not apply to Fellows of twenty years' standing.

1899.

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., 41 Park Avenue, 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., 613 Beacon Street, Boston, Mass.  
1880. DALY, WILLIAM H., 516 Market Street, Pittsburgh,  
Pa.  
1882. DEBLOIS, T. AMORY, 48 Gloucester 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, Brook-  
lyn, 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.
1898. GOODALE, J. L., 3 Fairfield Street, Boston, Mass.
1896. HARDIE, T. MELVILLE, 34 Washington Street, Chicago, Ill.
1878. HARTMAN, J. H., 5 West Franklin Street, Baltimore, Md.
1888. HINKEL, F. WHITEHILL, 412 Franklin Street, Buffalo, N. Y.
1881. HITCHCOCK, URBAN G., 51 West Twenty-ninth Street, New York.
1893. HOPE, GEORGE B., 133 West Seventy-second 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.
1898. KYLE, D. BRADEN, 1517 Walnut Street, Philadelphia, Pa.
1880. LANGMAID, SAMUEL W., 373 Boylston Street, Boston, Mass.
1878. LEFFERTS, GEORGE MOREWOOD, 212 Madison Avenue, 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.
1898. MAKUEN, G. HUDSON, 1419 Walnut Street, Philadelphia, Pa.
1896. MAYER, EMIL, 25 East Seventy-seventh Street, New York.

**ELECTED.**

1886. MULHALL, J. C., 3561 Olive Street, 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.  
 1894. PARK, W. H., 128 West Eleventh Street, New York.  
 1892. PORCHER, W. PEYRE, 99 Meeting 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, 624 Gravier Street, New Or-  
 leans, 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, Scranton, Pa.  
 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., 522 Sutter Street, San Fran-  
 cisco, Cal.  
 1892. WATSON, A. W., 126 South Eighteenth Street, Phil-  
 adelphia, 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, Manchester  
 Square, London, England.

**CORRESPONDING FELLOWS.**

1892. BROWNE, LENNOX, 15 Mansfield Street, Portland  
 Place, W., London, England.  
 1880. BRUNS, PAUL, Tübingen, Würtemberg, Germany.

**ELECTED.**

1896. CHIARI, OTTO KAR, Ballariastrasse 12, Vienna, Austria.
1890. DE LA SOTA Y LASTRA, R., 7 Calle de Torqueros, Seville, Spain.
1893. DESVERNINE, C. M., Cuba 52, Havana, Cuba.
1887. GOUGUENHEIM, A., 73 Boul. Hausmann, Paris, France.
1894. HOLDEN, E., 13 Central Avenue, Newark, N. J.
1892. KRAUSE, H., Neustädt. Kirch-Strasse 13, Berlin, Germany.
1881. LABUS, CARLO, Via St. Andrea 8, Milan, Italy.
1897. LUC, H., 54 Rue de Varenne, Paris, France.
1896. MACDONALD, GREVILLE, 85 Harley Street, London, W., England.
1894. MACINTYRE, JOHN, 179 Bath Street, Glasgow, Scotland.
1892. MASSEI, F., 4 Piazza Municipio, Naples, Italy.
1887. MOURE, E. J., 25 Cour du Jardin-Public, Bordeaux, France.
1896. MYGIND, HOLGER, 60 Kjobmagergade, Copenhagen, Denmark.
1894. SAJOUS, C. E., 2043 Walnut Street, Philadelphia, Pa.
1896. SCHMIEGELOW, ERNST, 18 Nørregade, Copenhagen, Denmark.
1881. SCHROETTER, LEOPOLD v., Schwartzenberg-Strasse 8, Vienna, Austria.
1881. SEMON, FELIX, 39 Wimpole Street, Cavendish Square, London, England.
1881. STOERK, CARL, Wallfischgasse 13, Vienna, Austria.
1880. WHISTLER, W. McNEIL, 28 Wimpole Street, Cavendish Square, London, England.
1894. WOLFENDEN, R. NORRIS, Rougemont, Seaford, Sussex, England.

## PAST MEMBERS.

### *Honorary Fellow.*

#### ELECTED.

- \*1881. Sir Morell Mackenzie, London, England.

### *Corresponding Fellows.*

- \*1880. Wilhelm Meyer, Copenhagen, Denmark.
- \*1881. Pugin Thorton, London, England.
- \*1881. R. Voltolini, Breslau, Germany.

### *Active Fellows.*

- \*1880. Harrison Allen, Philadelphia, Pa.
- \*1883. C. W. Chamberlain, Hartford, Conn.
- 1880. E. W. Cushing, Boston, Mass.
- 1878. Ephraim Cutter, Boston, Mass.
- \*1878. F. H. Davis, Chicago, Ill.
- \*1878. Frank Donaldson, Baltimore, Md.
- 1886. Frank Donaldson, Jr., Baltimore, Md.
- \*1879. J. H. Douglas, New York.
- \*1879. W. F. Duncan, New York.
- \*1878. Louis Elsberg, New York.
- †1879. Edgar Holden, Newark, N. J.
- \*1882. Franklin H. Hooper, Boston, Mass.
- \*1878. Hosmer A. Johnson, Chicago, Ill.
- \*1879. Woolsey Johnston, New York.
- \*1880. William C. Jarvis, New York, N. Y.
- 1879. R. H. Kealhofer, St. Louis, Mo.
- 1881. G. W. Major, Montreal, Canada.
- 1879. Charles McBurney, New York, N. Y.
- 1885. H. Clinton McSherry, Baltimore, Md.
- \*1881. E. C. Morgan, Washington, D. C.
- 1881. H. Mynter, Buffalo, N. Y.
- \*1895. J. E. H. Nichols, New York.
- 1879. H. K. C. Oliver, Boston, Mass.
- 1881. J. M. Robertson, Detroit, Mich.
- 1878. T. F. Rumbold, St. Louis, Mo.
- †1880. Charles E. Sajous, Paris, France.
- \*1893. Charles M. Shields, Richmond, Va.
- 1879. Andrew H. Smith, New York.
- 1879. Bernhardt Tauber, Cincinnati, Ohio.
- 1878. Clinton Wagner, New York, N. Y.
- 1879. G. Whitefield Ward, New York, N. Y.
- \*1886. Benjamin F. Westbrook, Brooklyn, N. Y.

\* Deceased.

† Corresponding Fellow.

## LIST OF OFFICERS.

*Presidents.*

1879. Louis Elsberg.	1889. J. N. Mackenzie.
1880. J. Solis-Cohen.	1890. W. C. Glasgow.
1881. F. I. Knight.	1891. S. W. Langmaid.
1882. G. M. Lefferts.	1892. M. J. Asch.
1883. F. H. Bosworth.	1893. D. B. Delavan.
1884. E. L. Shurly.	1894. John O. Roe.
1885. Harrison Allen.	1895. W. H. Daly.
1886. E. Fletcher Ingals.	1896. C. H. Knight.
1887. R. P. Lincoln.	1897. T. R. French.
1888. E. C. Morgan.	1898. W. E. Casselberry.

*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 Roalde.
1896. T. M. Murray, D. N. Rankin.
1897. A. W. MacCoy, H. S. Birkett.
1898. J. W. Farlow, F. W. Hinkel.

*Secretaries and Treasurers.*

1879. G. M. Lefferts.	1889. C. H. Knight.
1882. D. B. Delavan.	1895. H. L. Swain.

*Librarians.*

1879. F. H. Bosworth.	1883. T. R. French.
	1893. J. H. Bryan.





INDEX TO THE  
FIRST TWENTY VOLUMES  
OF THE  
TRANSACTIONS OF THE  
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ASSOCIATION.

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### BEAN, C. E. :

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cal Band, 1887, 195.—N. Y. Med.  
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- On the Recurrence of Adenoids after Excision, 1896, 89.—N. Y. Med. Jour., vol. lxviii, p. 617, 1896.
- BOSWORTH, F. H. :  
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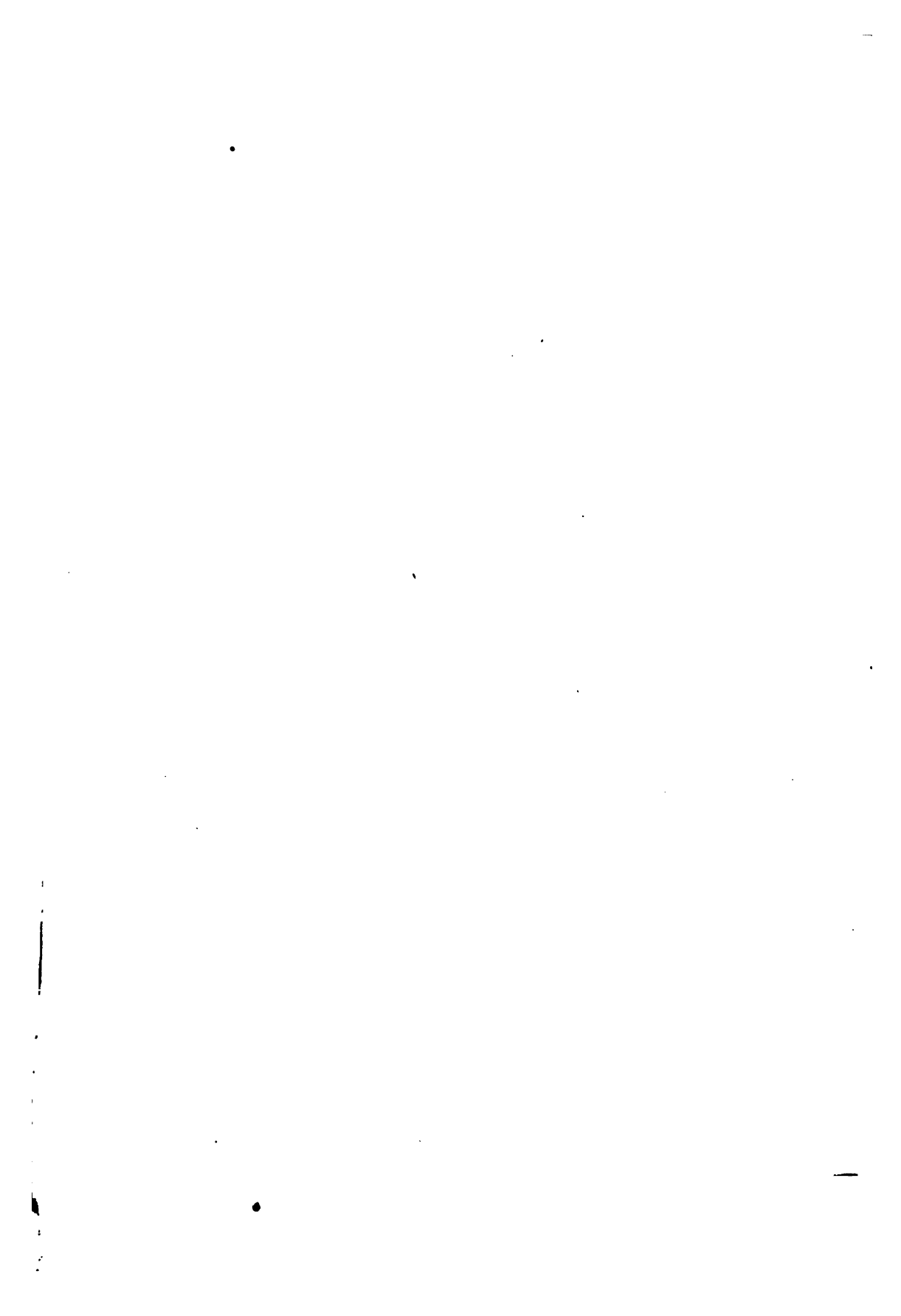


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