If any member of this Section, or any reader, has seen anything similar, I would esteem it a favor if he would inform me as to the circumstances of the case.

THE EFFECT WHICH THE SO-CALLED CATARRHAL DISEASES OF THE NOSE AND THROAT MAY HAVE UPON THE GENERAL HEALTH.*

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Myself when young did eagerly frequent
Doctor and saint, and heard great argument
About it, and about; but evermore
Came out by the same door wherein I went.

Thus sings that old cynic Omar Khayyam, and Omar's criticism of theologic discussions applies with more or less force to medicine. It is so much easier to accept an explanation already made, than to think about the reason for ourselves, that what argument we hold is likely to be about the details or variations of already existing theories, without much inquiry whether they may be right or wrong. The explanation of any local disease which we do not thoroughly understand, and therefore fail to treat successfully, is simplicity itself. We say, with many variations of the wording perhaps, that it depends on the state of the general health. This explanation is very satisfactory to the patients and their friends, and it saves the physician the labor of finding the true cause for the condition. We are rarely very definite in our statements as to what the condition of the general health may be, and when we do come down to particulars, we are quite likely to think that the patient has the then fashionable disease. Fashions change in disease as they do in dress; just now the uric acid diathesis is a prime favorite; a few years ago it was congestion of the portal circulation.

In the treatment of disease of the nose and throat, we constantly meet with the explanation that the local disease depends on some disturbance of the general health. This has been so often and so confidently asserted, and so generally accepted, that it may seem too radical a statement to make, that the diseases of the nose and throat are not often caused by general conditions, and, further, that they are often the cause of the very state of the general health, which has been supposed to produce them. The exceptions to this statement are, syphilis, tuberculosis, rarefying osteitis, and some of the rarer forms of disease. The acute exanthematous diseases, as well as pneumonia and influenza, have not been considered because the involvement of the nose and throat is a part of the general infection. Certain conditions, as anemia and lowered vitality from whatever cause render the tissues more vulnerable, and other conditions which produce congestion, as indigestion, constipation, menstruation, may and often do cause an exacerbation of an already existing disease. This statement of the position which the state of the general health occupies as a cause of local disease, is perfectly consistent with the idea of the bacterial origin of the acute diseases of the nose and throat, and we have every reason to consider most of the so-called catarrhal diseases the sequelæ of the acute attacks. If we believe, as all progressive physicians to-day do, that most acute and many chronic diseases depend on germ infection, then the relation of the diseased conditions

of the nose and throat becomes of the utmost importance.

Assuming the infectious origin to be accepted, the question then is: In what way do the bacteria gain entrance to the system? The principal ways in which this takes place are through wounds, or through the respiratory, digestive, or genito-urinary tracts. Of these different routes of infection, we will consider only the respiratory. During normal respiration through the natural passages, Nature has thrown up a barrier, which not only prevents the entrance of the bacteria to the deeper parts of the respiratory tract, but warms and moistens the inspired air as well. When this barrier is rendered inoperative by disease, or by nasal obstruction, the throat and lungs are exposed to the danger of infection. If, in addition to this loss of function of the nasal mucous membrane, there is a constant discharge of mucus or pus into the pharynx, the probability that the general health will be affected is very much greater. The effect that diseases of the nose and throat have upon the surrounding parts, as the ears, eyes, larynx and bronchial mucous membrane, and as a cause of headache, is a well-recognized clinical fact. If we attempt to analyze the different ways in which disease of the nose and throat may affect the general health, the subject naturally divides itself into two parts, 1, the effect that may be produced by obstructed nasal respiration, and 2, the effects produced by the migration of bacteria or by the absorption of the products of their action.

Under the first division we find those effects which are produced by mouth-breathing, such as anemia from lack of oxygen, disturbances of sleep, aprosexia, mal-development of the face if the mouth-breathing is established in early life, and frequent attacks of inflammation of the oropharynx, the tonsils, the larynx, and the bronchial mucous membrane. The effect upon the nervous system, of nasal obstruction, is marked, and varies in different cases through a wide range of symptoms, the most prominent of which are mental dulness, loss of memory, irritability and chorea. The effects produced by mouth-breathing are too common and have been too often reported to need more than a passing mention.

The second division needs more extended notice, because, while the effects may be no more serious, the connection between the local disease and the general condition is more likely to be overlooked. The different ways in which a nasal or nasopharyngeal discharge may affect the general health are: 1, the extension of the inflammation on the surface of the mucous membrane, either to the skin, where it causes excoriations of the skin, or more severe inflammation, as erysipelas, acne, etc., or to the larynx and bronchi, causing in this way protracted attacks of laryngitis and bronchitis. There is no doubt that this extension of the disease occurs, and it is probable that most of the cases of chronic laryngitis not caused by mouth-breathing, depend on disease higher up in the respiratory tract. The bronchial mucous membrane is involved in a large percentage of these cases and, where the bronchitis has this origin, the treatment is unsatisfactory unless the disease of the nose and throat is treated also. An illustration of the failure of treatment directed to the general health, and to the bronchial mucous membrane only, is seen in those cases of winter cough which finally run on to the so-called twenty years' consumption. These patients have usually taken, literally, barrels of expectorants and emulsions, and very few of them have

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ever had any attempt made to control the disease higher up in the respiratory tract. Hajek's statement that it is better for the patients to have the fluid removed from the facial cavities, than to send them from a summer to a winter cure, where the symptoms are lightened, but the disease is in no way cured, is worthy of notice. I can add only that every case of chronic bronchitis should be subjected to a searching examination of the nose and throat, and if disease is found there it should be treated. By doing this, I am certain that many patients can be cured who are now thought incurable.

The second result of a chronic postnasal discharge is the inevitable swallowing of a considerable quantity of this mixture of mucus and muco-pus. That this takes place no one denies, and I am convinced that most, if not all, of the indigestion from which these patients suffer is caused, or at least aggravated, by this cause. Patients who have suffered a long time with postnasal catarrh are often thin, pale, and dyspeptic, and the indigestion is usually rather intractable, so long as the discharge continues. I have seen so many patients who have voluntarily reported that their indigestion was much better as soon as the nasopharyngeal discharge ceased, that I am forced to believe that the swallowing of the secretion has a decidedly bad effect upon the digestive process.

The third effect of the presence of disease in the nose and throat upon the general health, which I wish to discuss, is the migration of bacteria to the surrounding parts and to distant parts of the body. This very important phase of the question has been studied by such men as Ross, Stabell, Otto Seifert, Emil Mayer, Frederick Packard, A. L. Loomis, R. C. Cabot, and many others, who have reported cases of acute rheumatism and endocarditis as direct results of acute tonsillitis. Ziem reports a case of muscular rheumatism which was caused by chronic antral disease, and the disappearance of the rheumatism without treatment after the cure of the antral disease. He also maintains that nasal suppuration may cause abscess of the bones of extremities, or of the joints, and advises examination of the nose and sinuses in all such cases of obscure origin. The fact that a collection of pus in the nasal cavities may be a grave menace in surgical operations is just beginning to be recognized. In this connection H. O. Pantzer says that he believes the septicemia which followed a colotomy in one of his patients had its origin in a nasal disease. This statement is rather a hard one to prove, but it is nevertheless suggestive of a possible source of infection following surgical operations. The fact that migration of bacteria to the surrounding tissues and to distant parts of the body does occur during the course of acute and chronic disease of the nose and throat, has been established by such a number of observations of the leading men in the profession, that it seems hardly necessary to multiply proofs. This migration probably takes place in one of two ways, either through the lymphatic system or through the blood circulation. The first of these routes is the more common, the infection following the flow of the lymph current and causing in this way the involvement of the surrounding tissues. Infection of the lymph current may also be the source of the contamination of the blood current through the anastomosis of the lymph channels with the venous circulation; this will be alluded to later, when we come to consider the infection of the blood circulation. It is possible that infection can take place against the lymph current, but I have never ob-

served it, and I think it not probable. The swollen tissues and enlarged glands of the neck, during the course of acute and chronic diseased conditions of the nose and throat, are illustrations of the migration of the bacteria by the lymph current, that all are familiar with. I wish in this connection to call attention to the purulent rhinitis of children as a source of infection causing cervical adenitis. I went fully into this subject in an article in the *Boston Medical and Surgical Journal* of Jan. 10, 1901. The second route of infection, that through the blood, is more rare, and occurs through the anastomosis of the lymph channels with the venous circulation, through the erosion of a small blood-vessel, which is in contact with the pus collection, or through venous thrombosis, in the same way as a thrombosis of the lateral sinus occurs in mastoid disease. When the infection has once gained access to the blood, it does not differ materially from infections from other sources. The quantity of the infective material from the nose and throat is perhaps not so large as that from other sources, but in other ways it acts the same.

The fourth way in which diseased conditions in the nose and throat may affect the general health is by the absorption of the toxins which are the result of bacterial life. This subject is so intimately connected with the actual migration of bacteria, that it is often impossible to determine which has actually occurred, except by the progress of the resulting disease. The diseases resulting from the absorption of toxins are generally of shorter duration than are those which are the result of the migration of bacteria, but the depression is perhaps greater in the toxemia. When toxins are absorbed every secreting surface in the body participates in the effort to excrete them, and from this participation we obtain a variety of diseases, that apparently are not related, but which in reality have the same source. Many of the transient cases of acute rheumatism, of nephritis, of pericarditis and of pleurisy following the acute inflammations of the nose and throat are examples of this effort of the system to free itself from toxins. Of equal and perhaps greater importance is the condition of chronic sepsis from which many of the patients with chronic purulent disease of the nose suffer. They are marked examples of the condition of the general health, which is supposed to cause nasal catarrh. If we found a collection of pus in any other part of the body, associated with this condition of the general health, we should, and rightly, assume that the patient had sepsis as a result of the pus absorption, but when we find precisely the same condition in connection with a purulent collection in the nose, we put the cart before the horse and say that the state of the general health is the cause of the purulent discharge. I have not considered the functional nervous accompaniments of the diseases of the nose and throat, the so-called reflex nervous systems, not because they are not real enough and distressing enough, but because it seemed better at this time to limit our inquiry to such diseases as had a definite pathologic basis. The field which I have attempted to cover is so far-reaching that it is impossible to more than call attention to a few salient points, and it is only by the reported observations of those who are interested in the subject that we shall be able to judge the extent of the subject. Enough has already been done to show that the acute and chronic diseases of the nose and throat are a grave menace to the general health, and that they may also be a source of infection in surgical operations. The conclusions to which I wish to call attention are:

1. Diseases of the nose and throat affect the general health through obstructed nasal respiration, or by extension of the diseases of bacterial origin.

2. The diseases of bacterial origin affect the general health: *a*, by extension upon the surface membrane; *b*, by the migration of bacteria to surrounding tissues or to distant parts of the body; *c*, by swallowing of the discharge; *d*, by the absorption of toxins.

3. The migration of bacteria takes place through the lymph current, or through the blood.

4. Septic infection originating from disease of the nose and throat does not differ materially from infections from other sources.

5. Much of the indigestion from which these patients suffer is caused or made worse by the swallowing of the secretion.

6. A condition of chronic sepsis may be caused by a purulent collection in the nasal chambers or accessory sinuses.

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DISCUSSION OF PAPERS BY DRs. RICHARDS AND COBB.

DR. W. E. CASSELBERRY, Chicago—I would first refer to Dr. Richards' paper. At the Atlanta meeting a few years ago, Dr. Sterling stated that he would be glad to show in his office three cases of "bone in the tonsil" which he would like to have elucidated. It was suspected at the time that there might be some delusion in the matter and a committee was appointed, of which I was one. Dr. Sterling had tried to make a tonsillectomy in one case and had encountered the bony projection. They were all cases in which the styloid process was rather long and turned in the direction of the tonsil, projecting into it.

With reference to the evil effect of catarrhal conditions of the nose and throat on the general health, I think that side of the subject will bear some emphasis, for we have heard so much on the effect of the general health on local conditions. The essayist has ably supported his contention that local diseased conditions are capable of producing systemic disease, but I do not think that we should therefore decide that systemic disease may not cause or aggravate catarrhal states of the nose. I recall cases, recovering from acute disease or cases that were run down from confinement indoors in which the general debility would seem to have caused vasomotor debility and disturbance in the nose with discomfort from over-secretion and obstruction, which discomforts passed away as the patients regained strength and vigor. In this connection we also recognize the importance of the uric acid diathesis, or whatever it may be called, whether due to uric acid or the alloxuric bases. Treatment directed towards a better mode of life and more active exercise demonstrates that this systemic state has an influence, especially upon chronic pharyngeal and nasal inflammations. That certain systemic conditions do produce local diseases, we need only instance syphilis, which has local lesions in the nose. There are doubtless other constitutional states with local lesions in the nose. The proposition which the essayist demonstrates in his paper is certainly important. The absorption of material from the sinuses produces a systemic state of toxemia which is associated often with an afternoon temperature, and produces anemia; it may even lead to confusion in diagnosis between it and tuberculosis of the lungs. We should be particular to search in all such cases for empyema of the maxillary sinuses. I am convinced that in a large majority of cases of excessive nasal secretion, especially of purulent, there is disease of one or more of the sinuses. Also a state allied to rheumatism may be due to tonsillitis, rather than the tonsillitis being due to rheumatism.

DR. G. V. WOOLLEN, Indianapolis—I have had a very distinct explosion of rheumatism after a slight infection of the nose, following an operation. It shows how readily the system is influenced by the nose. Probably nineteen out of twenty people in this country suffer from catarrh, or catarrh and rheumatism. If any other conditions were so often associated with bad health we would naturally look to local causes. Instead of a cuspidor,

I make use of a pus basin and I have frequently tried to estimate the quantity of secretions that are discharged from these cases, who often have no idea that they have any local infection. I have made it a routine practice that patients shall always treat themselves before meals so that they will not swallow these infecting secretions. In consequence I do not use tonics and restoratives nearly as often as I did formerly. I was a general practitioner of twenty-three years before I went into this work, and would be naturally inclined to the general treatment rather than the local, but I have been driven to this conclusion by my observation. If you clean out the nose and head well after meals you will not find nearly so much secretion, showing that it is largely precipitated into the stomach with the food. The relationship between the local condition and the general health is so intimate that there can not be any mistake. I measure all my patients and weigh them repeatedly during treatment; I have found that 90 per cent. of them are under weight. A large percentage of these patients recover their normal weight under treatment.

DR. L. C. CLINE, Indianapolis—I think the class of cases referred to should be separated into groups. We have a certain group of cases in which the nasal troubles are brought about by systemic conditions and that are cured by systemic treatment. In another set of cases the disease is absolutely local and the systemic affection is brought about by the local conditions. If we can separate those cases and differentiate between them we will be much better able to determine the proper treatment. I believe that to operate on every case that comes along is a mistake and we should look a great deal to the systemic treatment of some cases by elimination, giving calomel and salines, and teaching our patients to look after their skin, which is a very important factor in many of these cases. I have repeatedly had cases in which I thought an operation was indicated and necessary, yet by using other measures, such as having them bathe and giving them such remedies as would eliminate retained poisons from the alimentary tract and putting them on a diet, they would recover without an operation.

DR. DUNBAR ROY, Atlanta—I think the tendency with us, like in every other specialty, is that we become too narrow. One gentleman has spoken of routine treatment. I do not believe that all the local conditions in the nasopharynx and the nose are the causes for so many systemic dyscrasias, but every case is an individual one and the treatment that would benefit the case may benefit the systemic condition, but that it would universally do that I do not believe. That cleansing the nose and throat will relieve the systemic conditions mentioned, I do not believe will be found true in every case. Whenever there is a local cause it must be removed; but the idea of any routine method of treating the nose, and cleansing the nasopharynx and nose before eating in every case I think is unwarranted.

DR. O. T. FREER, Chicago—It would be difficult to recognize epithelial cells derived from the nose in the gastric contents. If there is any digestion going on at all the delicate cilia of the nasal epithelium would entirely disappear, and the epithelial cells from the mouth, esophagus and nose would swell so that it would be difficult or impossible to differentiate them from each other or from other cells. As to pus cells coming from the nose—and leucocytes form a large part of the nasal discharge—these would not differ from leucocytes derived from other regions. I think that the effect of disease of the upper air-passages on diseases of the stomach and lungs is apt rather to be exaggerated than underestimated. In Rush Medical College our throat and nose patients are classed with those having diseases of the chest, and we systematically examine the throats and noses of the latter class; yet in spite of our large pulmonary material, especially numerous cases of chronic bronchitis coming under observation, it is not common for us to find diseases of the lungs strikingly associated with those of the upper air-passages.

The number of cases of chronic nasopharyngeal catarrh that improves after correction of gastric difficulty has seemed to me sufficiently noteworthy to suggest some connection between the affections, but only very extensive statistics could establish this as a fact.

DR. P. J. H. FARRELL, Chicago—Where the nasal douche is used in catarrhal conditions, particularly by the general practitioner, damage may be done. In my own work in the last six months I have been called upon to treat a dozen or more cases of middle-ear trouble following the use of one of the many instruments sold for this purpose. On Monday morning, before leaving home, I made a paracentesis on a medical man, which had become necessary as the result of this form of treatment, although I had cautioned him about the use of the nasal douche.

DR. COBB, in closing—The question of the relation of diseases of the nose and throat to general diseases, whether these other conditions cause or are caused by them, is a question that has been frequently thrashed out here. If you were to go to the Section on Gynecology you would probably find that somebody will read a paper on the effect of systemic disease on uterine diseases. Many of those cases are improved by general treatment, but do not get well that way. In fact they never get entirely well under general treatment, if we exclude syphilis. In nasal catarrh we have to deal with a disease caused by poor drainage, and when we improve the drainage the case recovers, but just so long as there is no improvement of the drainage the case does not recover. Such cases may improve, but they will not entirely recover under general treatment, but if you secure drainage from the cavities you will put the patient in a better condition to get well. I have been a firm believer in the uric acid diathesis, but I do not believe that it is the cause of the nasal catarrh from which even a uric acid subject suffers. Indigestion may be accompanied by catarrh and still not produce it. Intestinal absorption of decomposing food may and often does produce a profound and prolonged intoxication and in the effort which every secreting surface in the body makes to throw off the poison, the mucous membrane of the nose and throat participates; but this mucous membrane does not suffer more than mucous surfaces in other parts of the body. One attack of intestinal intoxication does not cause a post-nasal discharge for years afterward any more than it causes a diarrhea lasting the same length of time.

CHANGES IN THE FACIAL BONES DUE TO ADENOIDS.*

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The enormous amount of literature on the subject of lymphatic growths in the nasopharynx that our medical journals have been publishing lately is certainly presumptive evidence that the matter has been well sifted from a clinical point of view. It has, but only in consideration of the effects of the condition on children, under 15 generally. In these cases the assertions of Meyer of Copenhagen, thirty years since, have been thoroughly worked out. The definite connection between habitual mouth-breathing, and mental as well as physical development, has been established.

The peculiar characteristic departure from the composite type of human skulls shown by those who throughout life have had functionless noses is also defined, and as this essay hopes to show, logically.

The bones whose part is the greatest in this change are those making up the hard palate. From the gently rounded curve of the roof of the mouth, that is the normal type, we see extreme examples where the arch is high up and the encroachment on the space of the nares most extreme. The same factor is accountable for a nasopharyngeal space, but little larger than the finger tip of the examining hand, the nasopharynx of a new-born babe in a man.

While the mouth roof elevation has really encroached on space originally intended for nose development, yet to put the blame clearly on the part at fault, lack of development alone, of the upper respiratory tract, is responsible for setting in motion the entire vicious cycle. Although the matter of these changes in shape of the bones and of their relation to space is well known, and the remedy applied more and more generally and effectively by the medical profession, there has been, so far as I have seen, no recognition of the bearing of these conditions by dentists on what is a large field of their work, viz., the straightening of front teeth. If this be true, then work done with this object in view, on children, is a hopeless superfluous infliction in extreme cases, and in all cases can be aided by a properly performed, thorough removal of all blocks to the patency of the upper respiratory tract before complete ossification. That it can be shown to be true, a consideration of the changes necessarily accompanying the altered direction of growth of the palate processes will demonstrate. This demonstration is simply the fact that the upward extension of the roof tends to bring the sides together. As the regular number of teeth begin to demand their space, they can find it in only one extension, and that is forward. The molars get more of the room available because they do the bulk of the work through the grinding motion given them by the pterygoids. The incisors and canines suffer the crowding and malposition the most because the front is the only way to expand, and also because man has largely passed much need for the prehensile and tearing function they were originally and respectively used for by the progenitors of the human mammal of to-day.

These two considerations will also account equally as well for the same malposition in a forward direction of the front teeth of the lower alveolus, i. e., the mechanical limitation to backward extension and the all-important need of the grinding process of mastication by the molars. It plainly follows that the inferior will be kept in apposition by the pterygoids.

It would seem, then, that attention to this condition in early life would be equally effective in lessening the number of people with prominent front teeth as it is in stopping the mouth-breathing with its accompanying evils, which are as apparent to a medical man as the teeth are to the public.

Without rehashing the well-known picture of running ears, constant coryza, etc., in children, I think I can show that even those who have only a small amount of this tissue, and who apparently get through to puberty with no damage are yet, as these cases will show, to be relieved of ear and throat conditions that have no plain, evident connection with adenoids only by due consideration of the atypical anatomy of the nasopharynx on the lines above set forth.

If, in a first view of the cavity, remnants of adenoids are still present, it is fair to assume their existence in greater amount in earlier life, and independent of elicited history, a minute, detailed examination of their present relations to a normal or abnormal pharyngeal vault is in order. The assumption is based on the well-known elimination of such glands as those composing the tonsillar ring, the thymus, etc., by the organism on reaching the limitation of growth; provided previous inflammations have not produced permanent hypertrophy by metaplastic or direct connective tissue proliferation, a common type of which is the persistent hypertrophied tonsil seen at all ages. Bearing in mind

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