the left ear—he could hear no sound in the right ear. Conduction of sound through the bones of the head was acute, as shown by placing the handle of the tuning-fork on the forehead or behind either ear. This test indicated that the nerves were intact and the cause of deafness must be due to interference of the vibration of the tympanic membranes, disease of the mucus membrane lining of the middle ear, which might effect the malleus, incus and stapes, cause ankylosis or adhesion; or the cause may have been imperfect development, malformation, closure of the Eustachian tubes; possibly some one, two, or all of these things might be the cause, but I had seen worse-looking tympanic membranes carry sounds almost perfectly. Inflammation of the mucous membrane sufficient to have caused such deafness would have left some apparent sign, or there would be a history of pain in the ear. Malformation or failure of development would probably have been indicated by some sign, mental or physical. The brunt of suspicion had already fallen on the Eustachian tubes, because I had found them almost closed to the passage of air, when tested with Politzer's bag, and the tympanic membranes were to me indicative of closed tubes, and I make this distinction, that when the tympanic membrane is contracted the tubes are closed to the ingress of air, and when distended they are closed to its egress. The diagnosis assumed was that the primary cause was a congenital narrowing amounting to a closure of the pharyngeal opening of the Eustachian tubes for the exit of air especially. I gave the patient a placebo and told him to return in two days.

The routine treatment of removing the turbinated bones and adenoids, passing the Eustachian bougie, catheterizing the tubes and cutting the tympanic membranes as practiced by some, did not appeal to me, because the operation on the turbinated bones seemed too far removed to have the desired effect; adenoids need to be removed from the tubes themselves to be effectual, and the other methods are damaging and dangerous. Taken as a whole, such treatment for restoration of hearing has proven a failure from the time when the memory of man runneth not to the contrary, and has done more toward making these cases appear hopeless than any other one thing. For the past two years this immediate subject has held for me an all-absorbing fascination, and my mind was so insistent on some things not given in the books, that I selected three of them to test upon my patient when he returned. Instead of trying one at a time and testing the hearing after each, I alternated and did not test in thirty days; the consequence was, when I found hearing I attributed it to another cause, and was misled until later, when it was my good fortune to have another patient, a negro boy 12 years old, and to demonstrate, by being systematic, that hearing is restored by the method which I shall give you.

Shape an ordinary wire loop cautery point to conform to the outline of an Eustachian catheter, the shaft to be marked by spaces of an eighth of an inch; cocaine the lining membrane of the nose and pharynx well with a 4 per cent. solution, so that there will be no pain, and contract the tissues so that the cautery may pass easily, then proceed in the same manner as in passing the catheter. Tilt up the nose with the thumb of the left hand, while the head is steadied by placing the other four fingers against the forehead. Take the posterior extremity of the cautery between the thumb and forefinger and middle finger

of the right hand, insert the point and lower it to the floor of the nose, and then move it backward with the shaft in a horizontal position, the point of the cautery being kept in constant contact with the floor of the nasal cavity until it is felt to pass into the pharynx. When the posterior wall of the pharynx is felt, turn the point obliquely outward, but not quite horizontally, in which position it would be forced into Rosenmuller's cavity. While its posterior extremity is somewhat raised, the cautery is retracted with moderate rapidity, during which movement the point will be felt to slip over the bulging lip of the tube projecting from the lateral wall of the pharynx. After the point of the cautery has thus passed the posterior lip it has arrived at the pharyngeal orifice of the tube. When it has arrived here in this manner, take note of the posterior end of the shaft and retract an eighth of an inch by measure and cauterize lightly. This procedure places the cautery directly upon fibers of the tensor palati muscle which presides over the opening of the tube. The operation is sufficiently near the marginal opening to exert traction through connective tissue formation on the anterior margin of the tube and on the mucous lining, which lies in folds near the opening, acting somewhat as a valve. The operation also shortens some of the fibers of the tensor palati and makes a new fixed base from which they may act. It brings nature to the rescue with all her reconstructive agencies bearing on the weak point. With reference to performing the technic of the operation, it takes an adept to know when he has the proper position for applying the cautery in case of children, because the cartilaginous opening of the tube is not yet established, the pharyngeal walls are smooth, and there are no positive guides to the openings, but they are larger in the child, and if familiar with the method, the educated touch may enable you to discover them. I do not believe that every deaf and dumb one will be made to hear. I do believe there are many shut out as by a hair's breadth and can be restored. The patient's hearing has not improved much in the last three months. What he has enables him to hear a watch tick at from four to six inches. He can use the telephone and can hear ordinary conversation. He can count up into the hundreds, knows figures and denominations of money, his taste is esthetic, he likes a joke and is fond of the society of ladies. (See JOURNAL, January 14, p. 89.)

MOUTH-BREATHING.*

BY JAMES M. CRAWFORD, M.D.

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My paper has reference to those cases where mouth-breathing is the rule and not the exception. If one will take the pains to minutely examine the interior of the nose and its function, he will not be surprised to learn that there is a penalty for those who persistently use the mouth as a breathing apparatus. The object of nasal breathing is twofold, to moisten and to warm the air before its reception into the bronchial tubes. We need not be surprised, then, if many cases of bronchitis are caused by mouth-breathing, the cold and dry air coming in contact with the bronchial tubes and air-cells, causing congestion, and later inflammation. The same condition often causes asthma. We no longer attribute mouth-breathing to habit, and

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scold the patient for not breathing through the nose, but on the contrary, we know that in these cases there is an obstruction in the nares, postnasal or pharyngeal spaces that forces one to breathe through the mouth instead of through the proper channel—the nose.

The most usual causes of nasal obstruction are the various forms of spurs and deflections of the septa, and now and then cases of nasal polypi, and hypertrophies of the turbinates. Usually, accompanying these conditions, we have adenoids in the postnasal space and frequently hypertrophied tonsils; indeed, so universally is this the case that I consider the examination incomplete where one does not examine very closely for the other conditions just mentioned, having already found that one exists. These various obstructions are generally met with in childhood or young manhood or womanhood, from the fact that the nasal, as well as the pharyngeal spaces, are much smaller at this age, and as they grow older these spaces are made larger, tending thereby toward relieving the patients, at any rate making them more comfortable. The frequency of these cases, especially of adenoids, met with here in the South shows that they are as numerous as in the North or West, and that a cold climate is not needful for their development. I am satisfied that adenoids are often hereditary, and am therefore very careful with my examinations of a family when I have found one of them suffering from this trouble. We often see children of an entire household similarly affected. No race seems to be exempt. I have seen and operated upon both white and colored; indeed, some of the worst cases of adenoids I have ever met with were in the colored race. The reason we see so few in the colored race is because of their financial inability to have such work done, and therefore they do not come to us.

The diagnosis in these cases is very easily made, as the pharyngeal tonsil can readily be examined. By placing a little mop of cotton dipped in a 6 per cent. solution of cocain muriate in the nasal spaces, we are enabled to discover the hypertrophied turbinates, as this application has the happy power of relieving engorged tissue, thereby making the diagnosis sure. I find cocain to be of great aid in the diagnosis of such cases, and I never fail to use it. The use of cocain, however, should be limited to making such examinations, and in cases where some form of operation is to be made. It should not be used habitually in the treatment of catarrhal conditions. The rhinoscope is of comparatively no use in diagnosing a case of adenoids, since but few patients can be trained to allow a mirror to be used in the mouth so as to make it possible to see anything in the postnasal spaces. Educate the sense of touch so as to be able to detect a case of adenoids by the use of the finger, which can readily be done. Not only can the adenoids be detected, but by this means you are enabled to say to what mode of operation you will resort. If soft and easily broken down, I prefer the use of my fingernail; if more fibrous, I prefer the Gleitsmann forceps. The causes of these various obstructions are but little known. To say they are hereditary traits is not making it plainer to the inquiring mind. There is no class of patients for whom the doctor can do more than for these.

To relieve one of these obstructions is to place new life in the patient, to make him happier, to make him less liable to the various forms of ear trouble that

sooner or later most usually develop, and to make less liable the bronchial affections, asthma, etc. The successful restoration of nasal breathing, then, depends upon the removal of these obstructions. Spurs and deflections of the septum can be removed best by the saw. I prefer a thin-bladed and therefore a fine-toothed saw to cut when pushing from, and the other when pulling toward the operator—the former to be used when the obstruction is situated on the middle or near the front portion of the septum, the latter when the obstruction is at the rear end of the septum. No anesthetic is needful other than the use locally of a 10 per cent. solution of cocain muriate. The same method of local anesthesia is sufficient in reducing hypertrophies of the turbinates, with either the cautery or chromic acid. The idea should be not to burn the whole surface of the turbinate, but simply to burn the most projecting portion quite deeply, and in this way to cause a contraction of the tissue—buttoning the turbinate down as it were.

I have tried removing the adenoids in many ways, but have found none to equal that with the Gleitsmann forceps when the adenoids are fibrous, and with the finger when of the soft variety. I prefer to do this without an anesthetic, since statistics show the death of so many when made under the influence of chloroform and ether. The operation is not a painful one and is quickly made. It is not needful to put the patient to bed either before the operation or after, as very little reaction follows. I have never seen much hemorrhage follow the operation. I have made many operations on children as young as 4 years without any resistance whatever and without even the patient crying. I admit, however, that the temperament of the patient has much to do with it, some bearing pain much better than others. The operation sometimes has to be repeated.

CARDIAC DISEASE IN PREGNANCY AND LABOR.

BY W. REYNOLDS WILSON, M.D.

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The clinic aspect of the different forms of cardiac disease during pregnancy is largely modified by the physiologic status at this time. The character of the blood, the development of the heart muscle, the changes in the circulation, the displacement of the viscera by the gravid uterus, have all a more or less direct bearing on the abnormal conditions due to cardiac disturbance.

As to the condition of the blood, we may consider in this connection the general increase in the quantity of the blood, this increase, contrary to the earlier observations on this point, being due, according to Fehling and Meyer, to an augmentation in the various constituents—namely, the red and white corpuscles, as well as the serum. This fact has a special bearing on the increased function imposed on the circulatory system, and the occurrence of stasis in pregnancy. The tendency of the fibrin of the blood to increase toward the latter end of pregnancy is also to be noted.

As to the heart, the existence of a physiologic hypertrophy is generally accepted. Vaquez and Millet, however, consider the modification in the volume of the heart during pregnancy as a transitory dilatation of moderate degree. Vinay also, in placing the