

protrusion of the superior anterior teeth. The operation had been performed slowly and with great care, to avoid serious irritation of the dental tissues and alveolar processes, and the final retaining plates had been worn for about six months. About this time a slight discoloration near the gum of the right superior central was discovered. She came in great haste to know why this should occur. There had been no pain in the tooth, and there was no soreness to percussion; it was slightly sensitive to heat and cold, but this symptom was not so marked as in the adjoining teeth. My diagnosis was either passive congestion of the pulp, induced by the irritation in moving the teeth, or the formation of an embolus in the pulp vessels. Which it was I was unable to decide, and as there seemed to be no hope of saving the vitality of the pulp by the ordinary methods of treatment, the positive galvanic current was applied. In the treatment of this case, I called in council Dr. Plymon Hayes, of Chicago. On the application of the current to the neighboring teeth, three-fourths of a milliampère was all that could be comfortably borne, while the diseased tooth would bear just double this amount. This was due to the impaired vitality of the pulp. Daily treatments of twenty minutes each were maintained for a week; during the first three days there was a slight increase in the sensation of the tooth under the current, and the strength was reduced to one milliampère; after this, however, sensation seemed to grow gradually less, the current being increased to three milliampères without unpleasant response; the treatment was therefore abandoned, the tooth tapped and the pulp removed, and the case treated by the usual methods.

In the treatment of pericementitis not caused by septic poisoning from a devitalized pulp, it is, many times, of very great benefit. In these cases the positive pole should be applied to the gum over the roots of the affected tooth. Marked relief is often experienced in a few minutes, and often entirely relieved after three or four applications.

In a former paper, published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1889, I have called attention to the prevalence of hyperæmic odontalgia frequently accompanying pregnancy, as a result of impeded circulation in the lower extremities, and thereby causing general hyperæmia of the upper half of the body. The general treatment suggested in that class of cases was rest in the recumbent position and anodynes. I would now suggest as an additional treatment the local application to the affected teeth of the positive galvanic current.

With regard to the strength of the current, experience proves that from three-fourths to one and a half milliampères is sufficient in the class of cases so far mentioned, while the frequency of the sittings will depend upon the severity of the local symptoms and the nervous susceptibility of the individual.

As a rule, one treatment in twenty-four hours is all that will be required; in aggravated cases, two, and occasionally three, may be advisable, the duration of the sittings being from fifteen to thirty minutes.

As a means of diagnosis in obscure cases of the vitality or non-vitality of the dental pulp, I know of nothing so sure to demonstrate to a positive certainty these conditions as the electrical currents, both the galvanic and the faradic. In the more obscure cases, however, the faradic is superior to the galvanic, for if there is the slightest vitality remaining in the pulp

it will demonstrate it instantly by causing a response in the tooth. It is superior in this respect to the transmission of light by the electric mouth-lamp, for many times when the condition is upon the border line between the life and death of the pulp, the electric light fails to satisfactorily demonstrate the condition.

I also believe that the electric currents will serve to demonstrate the presence of low grades of inflammation of the tooth pulp so often the cause of various forms of neuralgic conditions of the face and head. The faradic current especially, if applied in such cases, will demonstrate a hyper-sensitive condition of the tooth pulp. In order to locate the tooth causing the neuralgia, it will be necessary to apply the current to each individual tooth; the diseased one will give more active response to the current than will the healthy teeth; in other words, the diseased tooth will not bear so strong a current as will the healthy ones, hence the importance of using the milliampère metre for measuring the exact strength of the current.

The value of the current in the treatment of neuralgia, paralysis, atrophy of muscles, chronic indurations, tumors and various other conditions there is not time to detail; we shall therefore leave the matter here, feeling that we have offered a sufficient number of suggestions to stimulate investigation as to the value of electro-therapeutical treatment in the class of cases which have formed the especial topic of this paper.

The battery and the electrode which I use were made for me by the McIntosh Battery and Optical Company of Chicago.

No. 9 Jackson Street.

THE PREVENTION OF COLDS, AND THEIR SEQUELÆ, BY SURGICAL METHODS.

Read before the South Carolina Medical Association, June 9, 1891.

BY W. PEYRE PORCHER, M.D.,

CHARLESTON, S. C.

There is, perhaps, no class of diseases to which humanity is more subject than rhinitis, or common coryza, nor are there any to which less attention is paid, and perhaps not any of which less knowledge is had of their true character and proper treatment. It is apparent that the larynx and bronchi soon give way to frequent inroads of these attacks.

In the simplest inquiry into the functions of the nose as a breathing organ, we find that the mucous membrane covering the turbinated bones is composed of erectile tissue, styled by Bigelow, of Boston, the turbinated corpora cavernosa. It is composed of large venus sinuses, which can be suddenly filled by the capillaries which open abruptly into them, causing distention and erection.

This arrangement, in combination with the vibrissæ and ciliated epithelia, serves the two-fold purpose of acting as a guard against the entrance of cold, draughty air, particles of dust or other extraneous matter, and at the same time as a strainer for the twelve to sixteen ounces of fluid which is daily excreted to purify and moisten the air before its introduction into the larynx. This fact is well established by all authorities.

Frequent or repeated distensions or inflammatory attacks on a membrane of such an erectile character not only produce hypertrophic degeneration by adventitious connective tissue formation, but, in addi-

tion to this, and of almost inexplicable frequency, we find either a deflection or deviation of the septum from its normal position, or else an exostosis; or, more commonly still, an ecchondrosis or cartilaginous spur projecting from the surface of the septum, and in many instances penetrating into the inner turbinate, or forming a bridge entirely across the nostril.

So frequently do these growths occur, and so entirely unconscious are the individuals of their presence in the nose that, were it not for the absolute certainty of the ill effects resulting from allowing them to remain, and the great benefit derived from their removal, one would almost be inclined to act according to the motto of, "Where ignorance is bliss," etc., and leave them untouched. We immediately ask ourselves, however, what might we naturally expect from the presence of such a growth, or what would result if no surgical interference were instituted? Why, of course, a narrowing of the calibre or lumen of the nostril is caused, and the space allowed for the turgescence of the turbinated corpora cavernosa is diminished, and, being so diminished, the slightest draught or exposure serves to cause sufficient swelling to completely occlude the nostril; and a sense of stuffiness or cold in the head, with all its attendant evils, constitutional symptoms, mouth breathing, etc., is felt.

2. The normal passage of air being prevented, all the æxvi of fluid above alluded to is retained until it becomes inspissated and acrid, and causes submucous infiltration of the membrane covering the septum and turbinated bones. A portion trickles down the pharynx, and irritates the larynx to such an extent that violent hawking and coughing has to be resorted to in the effort to clear the throat of its presence.

This condition is thought by many authorities to constitute one of the most common forms of chronic nasal catarrh.

Under exposure to cold or sudden changes, the pressure of the contiguous surfaces will be greatly increased, forming an inflammatory center from which many reflex phenomena occur, viz., cough, asthma, headache, vertigo, sneezing, etc.

Dr. Charles R. Weed, of Utica, N. Y., speaking of hypertrophic rhinitis, says:

"Resulting from these conditions, and the most frequent of all troubles, is, first, deafness from pressure upon and occlusion of the Eustachian apertures; next, neoplasms of various kinds, polypi, ulcers, etc.; pharyngeal disease, with its various conditions; laryngeal disease, resulting from the constant irritation produced by the dropping into the throat of the retained post-nasal secretions and the hawking process to dislodge them, often resulting in a catarrhal laryngitis, and ultimately in consumption. Asthma is a very frequent sequela. Schmiegelow, of Copenhagen, in an essay published in London this year, places the cases of asthma caused by nasal diseases at about 10 per cent. in males and 6 per cent. in females, and the cases tabulated, without exception, were cured by the result of proper treatment of the nasal passages. Hack, in his work published in 1884, although exaggerating the reflex conditions arising from hypertrophies, is nevertheless entitled to the credit of being really the first rhinologist to establish that asthma resulting from the hypertrophy of the turbinated bodies is a fact. Woolen says that asthma is especially due to hypertrophy of the posterior tips of

the inferior turbinated bones, and occasionally of the middle ones, which either touch the septum or curl on themselves and touch the outer wall of the nose. This same writer considers hypertrophy of the anterior tips the essential local factor of hay fever, while in our own country, such men as Roe, of Rochester, Daly, of Pittsburgh, Sajous, of Philadelphia, and Bosworth, of New York, all agree with the foreign authorities just quoted. Hay fever, with its distressing symptoms, and even aphonia, caused, in my opinion, by a nervous reflex condition in persons of a highly sensitive nature, is another of the ills following these hypertrophic conditions. Cough, in some cases, is certainly from the same source. Vertigo is often present, and even epileptiform convulsions have been reported, though rarely, as arising from these hypertrophic conditions, while supra-orbital neuralgia, diffuse headache and migraine almost invariably have their origin from nasal obstruction. I mention these diseases as being the most commonly complained of by patients suffering from hypertrophies. Of course, there are probably others more complex in character that we may be able to trace to the same origin, but, being rare, are naturally overlooked, and my time forbids a more extended research into them. I might add that Guye, of Amsterdam, Holland, finds aprosexia (inability to fix the attention) occurring mostly in young persons and especially would-be students—a condition due to nasal obstruction and hypertrophy, while Hill, of London, also tabulates a number of cases from this cause."

Many diseases of the ear through the Eustachian tube are directly attributable to and dependent on such growths in the nose and adenoid hypertrophy of the vault of the pharynx. Sir Morrel McKenzie says: "The middle ear may be considered as an accessory cavity to the nasal cavity, not only during the act of deglutition, but also during quiet respiration, and this has been proven by experiment. An obstruction in the nasal cavity interfering with the admission of air to the middle ear, will cause an inward collapse of the drum, then follows congestion, then an exudation of serum, and then otorrhœa—so frequent is the otorrhœa of young children dependent on nasal obstruction, that if one was brought to him suffering with an otorrhœa, or was a mouth breather, he would in nearly every case without any preliminary examination introduce the forceps into the naso-pharynx and bring out a piece of adenoid tissue. Nasal obstruction by adenoid vegetation, or otherwise in young children, interferes so materially with their development that if not corrected in early life, it may mean irremediable condition in after life. In fact it may be considered as axiomatic, that free breathing through the nose is absolutely essential to physiological life."

Dr. Jno. McKenzie, of Baltimore, emphasizes the statement, "that inflammatory troubles of the middle ear are frequently dependent on nasal obstruction. The irritation caused by the obstruction induces an inflammatory condition of the naso-pharynx. This continued inflammation will cause a fatty degeneration of the tensor palati muscle and the Eustachian tube will not be acted upon, thus involving the middle ear. Of course, the walls of the Eustachians are in contact, in a state of rest, like the walls of the vagina for instance, but that air is admitted into the middle ear during quiet respiration has been proved by experiment in Germany."

Nasal obstruction is also the cause of far more eye troubles than is generally supposed. Notably trachoma, pseudo erysipelas of the lids, conjunctivitis, both hyperæmic and phlyctenular, keratitis, etc. Only recently the report of a remarkable case appeared in the New York Medical Record, of "Convergent squint corrected by Adams' modified operation for deflected septum."

A brief résumé of this case is as follows: "A boy aged 12 fell from a height 10 years before and struck on the bridge of his nose. From that time the boy's eye was turned to his nose, and the nose bent in an opposite direction. The strabismus was of so exaggerated a type, that the cornea of left eye seemed almost in contact with the inner canthus of the orbit.

The voice was high-pitched and decidedly nasal in tone, giving evidence of a continual strain of the vocal muscles. He saw always double and experienced a feeling as if the affected side of his face were drawn to the opposite side. Examination showed that the left nostril was so much occluded by the deflected septum that a probe could scarcely be passed. An opening was made under a 20 per cent. solution of cocaine and the septum fractured by Adam's punch and replaced in position. The operation was painless and loss of blood not more than a teaspoonful. Goodwillie's nasal tubes were introduced and the nose packed with cotton soaked with Dobell's solution; result: the hitherto "hideously crossed eye boy was converted into a smiling boy with straight eyes and a straight nose."

The next point to which I would ask your attention is one the importance of which in my opinion should not be overlooked, namely, the dependence which exists of almost all the functions of the larynx upon what I would term "pharyngeal competency." I regard the relations of the pharynx to the larynx in almost the same light as I do the driving wheel of an engine to the engine itself, or to speak more plainly, I believe that the pharynx is the great lubricator of the larynx, which almost absolutely controls the clearness of the voice. The majority of aphonic cases are in my opinion produced by pharyngeal incompetency, and this in turn by nasal incompetency, and therefore it is a matter of continual surprise to me that the profession seem to attach so little importance to those ever-excreting organs, the pharyngeal glands.

Why do they always wait for a cavity to form in the lungs before attempting to account for the origin of the mass of sputa which has been pouring out ever since the cough began? It will not be disputed that the causes of a cough are many and various, and are by no means confined to acute or chronic inflammations of the lungs, pleuræ or bronchi. Is it not then reasonable that we should not, as heretofore, wait for a cough to become loose, as the expression goes, while the larynx, bronchi, and lung tissues are becoming daily more disorganized, but rather to exert every effort to cut off the early source of the discharge, viz.: in the nose and naso-pharynx.

I now reach the most important part of this paper, viz.: How nasal obstruction and occlusion should best be relieved. On account of the great density of the tissues the lumen of the nostril can only be restored by the free use of the knife, saw, or galvano-cautery, the punch, chisel, wire snare or chemical acid, and the forcible removal of all obstructions—be they bony, cartilaginous or membranous. In my

hands the nasal trephine driven by the C. & C., or challenge motor, has proved of invaluable assistance. Next to these I have used Dr. Bosworth's nasal saws and the galvano-cautery itself, or the hot wire snare. Many of the growths however are indurated in character, and having a bony substratum, their total removal becomes a matter of repeated attempts, and success is only then achieved by the aid of the most powerful and effective appliances. In conclusion, it is not necessary for me to say more than that experience has taught me that nothing but good results come from the restoration of the lumen of the nostrils to their normal calibre, as shown by cases published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Sept. 19, 1890, and the transactions of the South Carolina Medical Association, September 23, 1889; in which patients who had not only been subject to an unusual amount of coryza, but who showed all the symptoms of the ill effects of obstructed nostrils, difficult respiration, etc., from adenoid hypertrophy in the vault of the pharynx, ecchondromata, etc., passed for months and years after the removal of such growths with material if not complete relief from the recurrence of the naso-pharyngeal inflammation.

—George St., Charleston, S. C.

NOTE.—Since writing the above I learn that to Dr. W. H. Daly, of Pittsburg, Pa., is due the credit of having first pointed out the relation of the nasal and neurotic factors in the causation of asthma in an article on that subject which he published in 1881.

BOOK REVIEWS.

TEXT-BOOK OF ANATOMY. By H. C. BOENNING, M.D., Lecturer on Anatomy and Surgery in the Philadelphia School of Anatomy. Published by F. A. Davis.

This is an excellent practical treatise on Anatomy, particularly for the student. It is a good working compend of the subject, and has sufficient illustrations to make the subject matter clear and practical. It is an excellent work for the director to have at hand during his work.

HYDATID DISEASE. IN ITS CLINICAL ASPECTS. By JAMES GRAHAM, A.M., M.D. Illustrated with 34 colored plates. Published by J. B. Lippincott, Philadelphia.

This work probably is the most complete treatise extant, upon the diseases produced by the evolution of the embryonic echinococcus. It will prove of great value to the student and pathological investigator who seek for comprehensive and accurate data upon this exceedingly interesting subject. The plates are accurate, well executed, and exquisitely colored. The author inclines to favor the method of free incision, in the treatment of accessible hydatids. He does not particularly favor electricity.

A MANUAL OF VENEREAL DISEASES. By E. M. CULVER, M.D., and J. R. HAYDON, M.D.

In this little manual, a short practical outline of the subjects within its scope is presented. The book is well illustrated and will prove very serviceable to the student, who has little time for study of the larger and more comprehensive works.

The book is published by Henry C. Lea, of Philadelphia, and it is hardly necessary to state that it is a well made and neat little volume.