

TREATMENT OF PULMONARY TUBERCULOSIS, DISEASED LACRYMAL DUCTS, CATARRHAL OTITIS MEDIA, HAY-FEVER AND CHRONIC ASTHMA NOT COMPLICATING HEART DISEASES.

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THE author is convinced, by a large clinical experience, that the majority of cases of pulmonary tuberculosis can be cured by choosing for the patients conditions favourable to the cure of bronchitis. These conditions are obtained by elevating the "atmospheric relations," that is, diminishing the difference between external and internal atmospheric pressures during inspiration, so that while residing at home the patient will be subject to the conditions prevailing at an altitude of about 15,840 ft., or three miles.

This alteration of atmospheric relations is realised by the removal of one fourth of the most prominent lower turbinated bone. (Deformities of the septum require no attention providing free nasal inspirations can be obtained without removing them.) This favourable condition for the cure of chronic bronchitis¹ having been established, it only remains to eliminate the tubercle bacilli from the patient.² These bacilli can be destroyed by resorting to a forced diet such as milk—a tumblerful of pure³ sterilised⁴ milk being given to the female every forty-five minutes for twelve hours, and an equal amount being given to the male every thirty-six minutes for the same length of time, the milk being taken ice-cold, or from a sterilised bottle sealed air-tightly. To one quart of the milk there are added four drachms of dilute hydrochloric acid, one half of this mixture being given at the commencement of the twelve hours, and the other half being the last food given during the day. The addition of hydrochloric acid not only assists digestion, but also ensures that plastic exudation shall be much more liberally and quickly thrown out in the lungs, as is necessary for obliteration of the cavities existing therein.

¹ *Archives of Otology*, vol. xxxvi, No. 4, 1907, Case No. 3, p. 409.

² *Ibid.*, vol. xxxvi, No. 4, 1907, Case No. 1, p. 407.

³ The milk must be so rich in cream that $\frac{3}{8}$ in. to $\frac{1}{2}$ in. of cream will appear on $\frac{1}{2}$ oz. of milk standing in an ounce test-tube in the living-room for twelve hours.

⁴ To sterilise the milk, the uncorked bottles of milk are lowered in dry metallic pails into a wash-boiler containing boiling water, which has been removed from the fire, the water being at such a height that it cannot enter the dry metallic pails. The cover is placed on the boiler, and the milk is allowed to remain for twenty minutes; the temperature is thus raised to 75° C. or 167° F. The milk is then kept cool, or it is sealed air-tightly in bottles until consumed.

One teaspoonful or more of fresh castor-oil is given in hot black coffee upon retiring nightly for the purpose of ensuring an open alimentary canal, which is necessary in treating pulmonary tuberculosis.

The average time required in New York for the cure of pulmonary tuberculosis does not usually exceed eight months. The case is cured when the tubercle bacilli have disappeared, the cough has ceased, and the patient has gained from 30 to 60 lb. in weight. The author believes that the average time required in London is much longer. The only case treated here by the author required eighteen months to produce a cure.

Complications do not prevent the patient from being cured. The only unfortunate condition is a poor digestion.

Diseased lacrymal ducts¹ can be cured, according to the author's experience, by simply amputating one fourth of the lower turbinated bone on the affected side. With pliable probes passed through metallic tubes, so curved that the direction of the point of the probe is shifted through a right angle, the author has demonstrated on the cadaver that they are as effectively used through the nasal end of the lacrymal tube as through the ocular end. Less pain is caused by probing the nasal end of this tube, and no deformity results from this operation.

The majority of cases of catarrhal otitis media² under twenty-five years of age can also be cured by the same elevation of atmospheric relations; this entails the cure of the hypertrophic nasal catarrh existing in all of these cases.³ Further treatment will not be required.

The cure of hay-fever and chronic asthma not complicating heart diseases, can be attained in the majority of cases by altering the atmospheric relations equivalent to an elevation of about 31,680 feet, or six miles. For this purpose it is necessary to remove one fourth of both lower turbinated bones. The operation is required when both lower turbinated bones are so prominent that with their coverings swollen they obstruct both nostrils. In hay-fever the amputation of so large a surface of sensitive tissue is an important element in the cure of this disease. The above-described "atmospheric relations" can be indicated by experiment made with the "respirometer."⁴

¹ *Archives of Otolaryngology*, vol. xxxvi, No. 4, 1907, Case No. 7, p. 410.

² *Ibid.*, vol. xxxvi, No. 4, 1907, Cases Nos. 5, 6, p. 409.

³ *Ibid.*, vol. xxxvi, No. 4, 1907, Case No. 4, p. 409.

⁴ The least height to which water has been raised in the "respirometer" by

After sufficient clinical experience with every method ever used for the removal of the lower turbinated bones, the author recommends his nasal saw of 1905¹ as the only satisfactory means of accomplishing these operations. This saw consists of a reversible blade 6 in. in length with $3\frac{1}{2}$ in. of teeth, twenty to the inch, so set that they only cut upon withdrawal; this obviates the liability of the saw to buckle. These teeth are set in imitation of those on the butcher's saw. Skilled hands only require, with this saw, five seconds to amputate the lower turbinated bone at any position desired. The only caution necessary to give to the users of this saw is not to attempt to drive it as it will surely bind.

The lower turbinated bones should be thoroughly under local anaesthesia before any operation is attempted.

First the nostril should be sprayed with a 20 per cent. solution of cocaine. Ten minutes later a hypodermic injection should be made through a needle 5 in. in length on both sides of the lower turbinated bone of 10 minims of the following mixture: cocaine solution 1 per cent. $\frac{3}{4}$ j; adrenalin solution 1:1000 $\frac{3}{4}$ j. The pain incidental to the injections and the subsequent operation will be entirely absent as a result of the local anaesthesia.

To avoid the fainting sensations which may be experienced as a result of these injections, the patient should be placed in a reclining position before the injections are made and retained there for some time after the operation has been completed.

If it be desired to operate with the patient in a sitting position, about one ounce of whiskey or brandy should be given twenty minutes before the injections are made.

The success of the operation can be established by an experiment with the respirometer. The statements of patients regarding nasal obstructions are never reliable.

patients who have not been operated upon is 10 in. In New York the majority of cases of pulmonary tuberculosis require an operation for the relief of their bronchitis. An ability to raise water to a greater distance than 18 in. in the "respirometer" by a person having pulmonary tuberculosis clearly indicates that an operation on the lower turbinated bone would be beneficial. A description of the "respirometer" and its uses will be found in the *Archives of Otology*, vol. xxxvi, No. 4, p. 399, 1907; *Ibid.*, vol. xxxvii, No. 5, p. 365, 1908; *Archiv für Laryngologie*, Bd. xxii, Heft 2, 1909. From either of these two last mentioned journals specifications may be obtained which will enable every instrument maker to manufacture the latest "respirometer."

¹ These saws may be obtained from George Tieman & Co.; E. B. Meyrowitz and Kny-Scheerer Co., New York; John Weiss and Son, 287, Oxford Street; Adolph Zwicker, 15 and 16, Thavies Inn, Holborn Circus, London; and Jetter and Scheerer Co., Totlingen, Germany.