

worthy fact, however, that those who had the largest practice were the most sure to fill their hours.

Would it not elevate the standard of the society to require that every person should read before the Association a paper showing original investigation in some line of professional work before he should be admitted to membership.

What kind of paper do you want? We want them short and clear. Do not repeat in order to make the article longer. Do not try to cover too large a field. Let the article consist of a general review of the subject, followed by a more minute examination of some particular portion, with personal notes, if possible. A compilation and analysis of the thoughts and observations of others is better than nothing at all; but original investigations are the most needed. Distinguish clearly between fact and theory. Such a paper would not only be profitable to the whole society, but it would benefit its writer far more.

As a society we ought to make some original investigations. Take diphtheria one year and require each member to note down and report every case under his observation, telling age, exposure, both as to time and kind, duration of disease, treatment and result; water used; house clean; condition of cellar? The next year we might take pneumonia. In such work it would be better to work with the committee of the American Medical Association in accordance with the report of the *JOURNAL* of August 25.

Our highest duty and privilege is not to deal out physic, but to preserve the health of the community in which we live. This we must do as public teachers. At the last meeting of the American Medical Association it was recommended that each county society establish a school for nurses. Said school to be conducted as best might suit the circumstances, but probably on the lecture plan. Do we not need such a school here? And would we not be personally benefited?

NOTES ON TRACHEOTOMY, WITH CASES.

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[Read in the Tri-State Medical Society, September, 1883.]

"It is not new facts that avail, but the heat to dissolve everybody's facts."—Emerson.

FOREIGN BODIES IN THE AIR PASSAGES.

I will not discuss the nature of the bodies introduced, how introduced, nor the symptoms developed by their presence; but the prognosis, and that only so far as it refers to the effects.

Of the operation itself I have only this to say: It should not exist—at any rate in the professional mind—as a *dernier resort*, for this would delay the surgical treatment, and the prognosis would be accordingly extremely grave, believing with Trousseau that "there is an imperative duty imposed upon the practitioner of performing tracheotomy as obligatory as tying the carotid artery when that vessel has been

wounded, although death quite as often as recovery follows the operation."

I will further urge the propriety of *early* operation in all cases of tracheal obstruction, whether depending upon the presence of foreign bodies or obstruction from disease, differing, as I am well aware, from Dr. Wiest, who recently published an extremely interesting paper on this subject. In it he enunciates the following propositions:

1. "The presence simply of a foreign body in the larynx, trachea or bronchi does not make bronchotomy necessary."

2. "While a foreign body causes no dangerous symptoms, bronchotomy should not be performed."

These inferences were based upon 937 cases; of these 599 were not operated upon, 76.79 per cent. recovered and 23.20 per cent. died. Bronchotomy was performed in 338 cases; 72.48 per cent. recovered and 27.42 per cent. died, leaving in favor of non-interference 4.31 per cent. The fallacy of the argument is apparent when the author attempts to determine in what cases bronchotomy should be performed. This difference furnishes the solution to the results in the tables, and vitiates their value in the light in which the author presented them; for it is evident all the *difficult* cases would be included in the list operated upon, and the less difficult, where spontaneous expulsion took place and caused but little disturbance, these would be found in the class where nature effected the cure.

These tables establish the following conclusions: :

1. When foreign bodies were easily expelled—for instance seeds—recoveries took place in a larger per cent. than in the cases subjected to bronchotomy.

2. Only those where spontaneous expulsion had *not* taken place, and the symptoms were urgent—the *bad cases*—those threatened with asphyxia, inflammation and its products, were subjected to bronchotomy.

"Modern medical literature teems with statistics as to the results of tracheotomies. Their study only establishes the conclusion that the operation must be made with reference to the individual case in question, rather than with regard to the proportionate number of recoveries." The above is the language of one of our most enlightened specialists. While I will not attempt to deny the value of statistics, when properly presented, yet in medicine, we know the plainest rules of philosophical investigation have been disregarded. Things have been associated having no necessary relation, and conclusions have been drawn that had but an indifferent foundation in fact. Statistics imply something more than a process in arithmetic. They should be a profound philosophical analysis of materials carefully collected, with an enlightened confidence in their fitness for the purpose in question.

Without the proper regard for the principles here enunciated, they have been singularly barren of results. When the historian, the chemist and the naturalist require unexceptional authority for the statistical facts, and do not hesitate to subject them to a rigid scrutiny, only then do they become of any value. They must be applied only to incidents and events that have an objective existence, and just so far as

¹ Troeltsch, Lehrbuch, p. 413, seg.

² "Cases of Fatal Otorrhœa," *Boston Med. and Surg. Jour.*, Nov 30.

they have a subjective relation to the mind, in that degree are they incapable of being statistically expressed, and are mere matters of opinion. The above statements are made in the presence of a complete knowledge of the labors of Zuitlet, the controversy of Sir J. Y. Simpson and Charles D. Meigs, and the publications of the Statistical Society of London.

In reply to the second proposition: "While a foreign body causes no dangerous symptoms, bronchotomy should not be performed," I have only this to say: I believe the prognosis to be materially influenced by the period of sojourn of the foreign body. In delay we incur the hazard of:

Asphyxia.

Chronic inflammation of the larynx and trachea.

Chronic phthisis.

Pulmonary abscess.

Bronchitis, with or without hemoptysis.

Acute phthisis, and even apoplexy.

Furthermore, his proposition is not sustained by the surgical profession.

Sir Benjamin Brodie, speaking of a foreign body remaining in the air passages, says: "The records of surgery furnish abundant evidence that under such circumstances diseases of the lungs, sooner or later, are induced, and the death of the patient invariably ensues."

In the Principles and Practice of Surgery, by Holmes, speaking of treatment, he uses the following language: "When the diagnosis of a foreign body has been made, the surgeon should allow *no delay* in removing it at once."

Prof. S. D. Gross writes as follows: "Having satisfied himself that the foreign body is in the air passages the sooner the surgeon opens the wind pipe the better, for the want of this precaution I have known a number of children lost in the vain hope that extrusion might occur spontaneously." These are the expressed opinions of Morrell McKenzie, Profs. Spence, Chelius, Hamilton, and Pancoast. James T. West, Senior Surgeon Queen's Hospital, Birmingham, thus forcibly pronouncing his views: "The fact that a foreign body does exist in the air passages, no matter whether it causes urgent symptoms or not, calls imperatively for surgical interference for its removal, and the surgeon who defers the operation does so at the risk of leaving the patient in danger of sudden death."

That the non-interference doctrine is not sustained by the medical profession, I will quote from a lecture delivered by Dr. Johnson, of King's College, London: "A foreign body in the larynx is a continual source of danger; therefore, it should be removed as speedily as possible, even though the present symptoms may not appear alarming nor very distressing." Sir Thomas Watson says: "When we know that a solid body has been entrapped in the air tubes our business is plain. There is no room in my opinion for hesitation. We must let the substance out through an artificial wicket."

There is no security except in the early performance of tracheotomy. The above opinions are fully sustained by Stokes, Neimeyer, Meigs, Bristow and

Trousseau. Among the cases which have come under my observation with foreign bodies in the air passages four children perished without tracheotomy, and in these cases death did occur, after a lapse of four or five days, it was almost instantaneous. You will infer from the foregoing that I am not a believer in spontaneity. In Germany therapeutics have been signalized as something hardly better than Nihilism, and the practice of physic not much more than a meditation on death. Let it not be said that we as surgeons will stand idly by and wait for nature to kill or cure our patient when a foreign body is in the air passages. For myself I can boldly affirm that I live to heal; that there are now a few persons in the world who, but for me, would have been amongst the dead, and this remark will apply to every educated practitioner.

This doctrine of spontaneity has its American headquarters in the State of Massachusetts and its capital is Boston, where nature trusting to homœopathy and its kindred delusions have led to well pronounced skepticism in the healing art. If nature is a curer, then are we impostors. Nature pursues her ways with men, regardless of their infirmities. The living man left to his course with reason to guide him, is neither protected from disease nor cured of it when assailed; for him no special force or power is evoked in case of accident. To trust to so called *vis medicatrix nature* and neglect or omit scientific methods of cure is to forsake the path of duty and leave to chance that which falls within the domain of reason. Does nature or art cure ovarian dropsy or cataract, or if she *sometimes* cures spontaneously an aneurism or hernia, or a wound? Do we trust to her unaided efforts in any such cases? Neither can we trust to nature to spontaneously expel the foreign body, its exit being opposed by the narrowing of the glottis, which takes place during expiration, especially when this is augmented by the spasm and cough which its presence excites.

"To say nature cures disease is a bad expression if it create in our minds a metaphysical conception, as if there were some personal animus controlling the operation."—Sir William Gull.

Efforts of nature are regarded with watchfulness and doubt. Often must we agree with Professor Houghton, of Dublin, who, when told that the evacuations of cholera are due to an effort of nature to cure the disease, said: "I will tell you what nature wants. She wants to put the man in his coffin, and that's what she succeeds in doing for the most part."

Not long since I read of a learned professor who was desirous to illustrate to his class the curative effects of nature in the disease known as pericarditis. He commenced his learned proof of natural cure by taking the heart of the cured man out of a pickle jar, and by describing from the disorganized specimen how beautifully the heart, by the exudation of lymph, had become adherent everywhere to the pericardial surface, and thus prohibited the pericardium from being filled by water.

In one case only, observed by me was the foreign body expelled spontaneously after remaining four months in the respiratory passages. The sequellæ

were never entirely recovered from, so that my own experience agrees with McLeod's, that "hope of spontaneous expulsion is not great, and may, by its delusive promise, fatally delay operative proceedings."

In 1879 a child aged 4 years was placed under my care for treatment. The history was briefly as follows: Four days previous to the visit a grain of corn passed into the trachea. Tracheotomy was decided upon, but was unavailing, for the grain of corn could not be dislodged by the use of forceps nor by the expulsive effort of the lungs. The autopsy revealed the true condition: Hepatization of a portion of the lung, and the grain of corn firmly impacted in the bronchus. Its enlargement was the result of the imbibition of fluids. Who can doubt the child perished the victim of delay.

In 1872 a boy, *æt.* 6, was brought to the St. Joseph Hospital in Fort Wayne, with a foreign body in the trachea; no urgent symptoms were present. Twenty-four hours had elapsed since the intrusion. Upon opening the trachea the grain of corn escaped through the opening made, and a rapid recovery was the result.

In the few cases of diphtheritic croup operated upon by me, the result was uniformly fatal; due entirely to the opposition to tracheotomy in the earlier stages, thus depriving them of the only chance of being saved. By this time, you all understand that I am a decided advocate for early interference in all cases of obstruction in the air passages, whether it be a foreign body, croupal or diphtheritic exudation; chronic laryngitis, syphilitic or tubercular; or in paralysis of the arytenoid cartilages.

To illustrate the effect of tracheotomy in laryngeal disease, I will present two cases of perhaps more than ordinary interest.

On the 28th of June, 1883, I was hastily summoned to see Wm. Moyer, the messenger announcing the probability of the death of the patient "ere we could arrive the point proposed." Upon my arrival, I found him insensible; respiration feeble and gasping; surface cold and clammy; pulse almost imperceptible. I was impressed that not one moment was to be lost; that promptness and rapidity were both required, so extreme was the urgency.

With the knife, I made a long incision, extending from the cricoid cartilage almost to the epi-sternal notch. The structures overlying the trachea being divided by a few strokes of the knife, the hæmorrhage was venous; ligation of blood-vessels was out of the question, for the delay would have caused the death of the patient.

Upon reaching the trachea, I did not wait to use the tenaculum or short-tooth forceps, as recommended, but flattened it by pressure with the left index-finger, and thrust the knife boldly into it, dividing three rings. Separating the edges with forceps, the tube was quickly placed in proper position by Dr. Devilbiss. No immediate improvement occurred. The insensibility gradually passed off in three hours.

I found him almost fatally asphyxiated by the carbonized blood, acting upon the exhausted nerve centers as a powerful sedative, failing to arouse the

healthy gasping respiration which usually takes place in a less degree of carbonization. He had thus become greatly narcotized, days before my visit.

In this case, then, we witnessed the most serious features of bi-lateral paralysis of the abductors, producing that glottis closure, which gave rise to the peculiar dyspnoea from which he had been suffering long anterior, but in a less degree, than at the time when surgical treatment was necessary to save his life.

It is probable now in this case that the abductor muscles have undergone degenerative change, owing to disease, implicating one or both recurrent nerves, and that the disease is of a specific nature.

On the 1st of July, 1883, I was called in consultation to visit Moses Millman. I found him suffering with deep suppuration of the cellular tissue of the neck, the swelling extending from the sternum to the chin. His illness was of fourteen days duration. I was enabled with the aspirator to make out the diagnosis. The purulent collection was in the immediate vicinity of the trachea. I carried an incision down to this point extending from the cricoid cartilage to the epi-sternal notch. A large amount of dark, highly offensive, foetid pus made its escape. After the wound was thoroughly washed out, and the pus had made its escape, spasm of the glottis ensued from the presence of pus that had made its way into the pharynx and the air passages; respiration ceased, as did also pulsations of the heart, and apparently our patient was dead. I opened the trachea, and kept up artificial respiration until at last our patient rallied; after three hours insensibility passed off. He is now almost restored to health after a tedious convalescence. The wound in the trachea was allowed to close up and no tube inserted.

I will not speak of the pathology of cellulitis, or point out its distinctive clinical characteristics as distinguished from erysipelas or diffuse abscess, but will remark that the treatment of cellulitis of the neck is not satisfactory in its results. Billoth reports no recovery. Jordan was unsuccessful. Bickerstern has advised an incision on the middle line down to the trachea. In the case just reported the incision was made *into* the trachea, partially owing to the exigency, I admit, and I am able to report favorably.

I would recommend tracheotomy also in chronic thickening of the mucous lining, and in ulceration from the effect of tertiary syphilis or tubercular deposit in the mucous membrane. For if allowed to progress they usually terminate in œdema of the glottis, and cause death, in cases such as above described. Spence strongly urges the operation, informing us that the improvement of the general health is often very marked, and that with a large experience in such cases, the results have been almost uniformly successful.

We may now briefly consider the treatment of chronic laryngeal disease by surgical procedure after medical measures have failed.

In the thesis maintained by Professor Krishaber, of Paris, in the Laryngological Congress at Milan, he says he has employed against laryngeal phthisis all known topical remedies, nitrate of silver, sulphate of

zinc, iodine, chromic acid, scarifications and they have all proved inefficacious. He now uses local applications of narcotic sedatives only. He maintained that the local therapeutical means are without action, and concludes: "We require something else and something better."

Now let me ask is not tracheotomy the remedy? I believe in the future the attention of the profession will be profoundly directed to surgery, instead of to medicine for relief in those cases. The intimate relation between laryngeal disease and pulmonary disease can no longer be doubted; nor the fact that the exciting cause of pneumonia may be the result of blood poisoning through the absorption of morbid products from ulcers in the larynx, as when after syphilitic ulceration the lungs are involved and also when laryngeal phthisis is followed by tubercular infiltration of the lungs. These are points worthy the best attention of the physician and surgeon.

The sequence of events are often as follows: The laryngeal disease may be the result of a neglected cold, sore throat and hoarseness remaining for months; cough and mucous expectoration; pain and difficult deglutition. In this early stage of the laryngeal affection there is no evidence of pulmonary disease; the chest movements and the percussion sounds are normal, yet in a large proportion of these cases the physical signs of tubercular deposits are discovered in due time, and is it not the result of pre-existing laryngeal affection? It is not improbable that morbid infecting materials from the ulcers in the larynx may be carried by inspiration into the interior of the lungs, or that the lymphatics may become the poison route? If this theory be true, and I believe it is, may not the question of tracheotomy be entertained even in the earlier stages before the dyspnoea imperatively demands it. This would secure absolute and complete rest to the larynx from the movements of phonation and respiration, and freedom from air currents. The rest thus secured would favor the resolution of the inflammatory process and prevent the absorption of septic materials.

IS CONSUMPTION AN INFECTIOUS DISEASE?

BY U. P. STAIR, M.D., OF BLACK EARTH, WIS.

I wish briefly to offer a few observations upon the subject of the nature and origin of tuberculosis.

At the recent meeting of the State Medical Society of Wisconsin, held at Milwaukee, September 4, 5 and 6, a resolution was adopted declaring in substance that we now *know* consumption to be an infectious disease, and that the authority of the State Board of Health should be sought to the end that persons afflicted should be "separated from intimate association with the well in our public institutions." It would seem to me that the passing of this resolution as based upon what we actually know concerning the origin and nature of consumption, is wholly premature. We certainly do *not know* that consumption is an infectious disease. On the contrary, the vast majority of the profession, from actual clinical experience as we believe, are pretty well satisfied that it is not.

We do not know positively, that it is a disease capable of being transmitted by heredity, but we believe it is and to say that the profession has, all these years been making a great and fatal mistake in regarding tuberculosis as a hereditary malady, hopelessly deathward in its tendency, and in which there was little to be done but to palliate severe symptoms, is to make a very grave charge indeed. We learn from a report presented to the same society a year ago, by Dr. Senn, of Milwaukee, that this author believes that tuberculosis is both a parasitic and hereditary disease; that the primary condition is inherited and the active disease parasitic.

As to the primary condition of tuberculosis being a result of heredity we believe with Dr. Senn that there can be but little question. The only doubt that remains is as to the origin of the active phenomena manifested. Do these arise from parasitic infection? The affirmative answers given to this question recently no doubt rest very largely upon the late investigations instituted by Dr. Koch, of Berlin. But are we to accept the conclusions of this author as final upon this all-important subject. I think not. Already dissenting voices are heard of such authority that they must receive due attention. Prof. Formad, of the University of Pennsylvania, in a lecture reported in the *Philadelphia Medical Times*, November 18, 1882, declares most emphatically for the non-parasitic origin of tuberculosis. He there says that he pursued essentially the same method of staining in its recent improvements as described by Dr. Koch, and after four years of careful experiment upon animals he arrives at the following conclusions briefly stated thus:

The presence of bacilli is merely accidental wherever found in tuberculosis deposits. "The tuberculous tissue seems to serve merely as a nidus for the growth of the bacillus" and again he says:

"An analysis of Dr. Koch's experiments shows that he has not proved the parasitic nature of phthisis or that there exists a special bacillus tuberculosis, and that the infectiousness of tubercular disease is still *sub judice*."

Prof. Formad regards the primary condition of scrofula and tuberculosis as being one and the same, and that this condition consists in an abnormal "narrowness of the lymph spaces and their partial obliteration by cellular elements," and then he adds: "The natural history of tuberculosis just narrated, is surely against the existence of a special poison, such as now offered by Dr. Koch;" and again: "Koch has discovered that tubercle tissue is always infected by bacilli, and this is correct; but this tubercle tissue is not created on account of, or caused by, the bacilli. These organisms invade the tissue in question solely because it is a culture medium favoring their predominant development."

Then in respect to the special character of the parasite, Prof. Formad further says: "Koch further claims that the bacillus tuberculosis differs from other bacilli morphologically, and in its behavior to staining fluids. We can not confirm this. My assistant, Mr. Bodamer and myself, after prolonged study with instruments as good as those of Koch, and after using