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THE

CURABILITY OF CONSUMPTION :

BEING

The Reprint of a Series of Papers,

PRESENTING

THE MOST PROMINENT AND IMPORTANT PRACTICAL POINTS
IN THE DIAGNOSIS, PROGNOSIS, AND TREATMENT
OF THE DISEASE.

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LONDON :

LONGMAN, BROWN, GREEN, AND LONGMANS.

1850.

CURABILITY OF CONSUMPTION:

OR

THE MOST IMPORTANT AND IMPORTANT FACTS
IN THE DIAGNOSIS, PROGNOSIS, AND TREATMENT
OF THE DISEASE.

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LONDON:

JOHN WATTS, BROWN, GREEN, AND LONGMAN.

1881.

PREFACE.

THE different papers which are here republished appeared in a medical journal some years ago, when the pathology and treatment of pulmonary diseases were perhaps not so well understood as they are at present.

At a very early period of my professional career, I was induced to devote my attention, almost exclusively, to the study of consumption and its allied affections, and my position, as Physician to the Infirmary for Asthma, Consumption, and other diseases of the Lungs, afforded me the advantage of a very wide field of observation. New pathological views occurred to me, and suggested a plan of treatment which I soon found attended with the most signal success; and now, after an experience of upwards of thirty years, during which time not less than 30,000 cases of consumption, in all its various stages, have come before me, I have no hesitation in asserting—in contradiction to the opinion of many medical practitioners—that this disease when properly, judiciously, and skilfully treated, is as curable as any other disease, the curability of which is not disputed.

It is scarcely necessary to premise that I do not here aim at setting forth a complete treatise on consumption—far from it. In these contributions, written in a detached form, amidst the more serious avocations of public and private practice, I only

aimed at selecting some of the most prominent and important practical points connected with my views of the pathology and diagnosis of this disease, for the purpose of showing how it may be treated in the most successful manner. The cases I have detailed prove beyond any doubt the expediency and soundness of the plan of treatment I recommend; for, after all, the success of our practice is the best criterion of the correctness of our views.

It has indeed been my great pride to witness the principles propounded in the following pages adopted by some of the most eminent medical men in this country. They have been recognised in France, Germany, and Italy; and I constantly receive letters from the United States of America requiring my further advice and assistance. Under such circumstances I feel that I may, with some degree of confidence, again submit these papers to the Profession, in the hope that their perusal will convince many who may yet be sceptical of the curability of consumption.

F. H. R.

40, *Clarges Street, Piccadilly,*

26th June 1850.

THE CURABILITY OF CONSUMPTION.

[*Reprinted from the MEDICAL TIMES, August 27, 1842.*]

THE misunderstanding and obscurity which so long prevailed respecting the nature and treatment of phthisis gave rise to a popular notion, which amounted almost to a superstition—entertained even by some professional men of eminence—that this disease, when once developed, was incurable, and that the victims it assailed were predestined to sink into an early and premature grave. This gloomy prognosis threw a cloud over the happiness and prospects of every family doomed to contend with so grievous an affliction; nay, the case was looked on as one inevitably distressing; for, the disease being pronounced hereditary, it was considered to be entailed upon generation after generation. Happily, the progress of Medical Science has done much to dispel this delusion; inasmuch as it has been proved by evidence the most irrefragable and conclusive, that consumption, even in its advanced stages, may be arrested in its progress, and cured with as much certainty as any other disease incident to humanity. Many years ago the illustrious Laennec published cases showing that Nature effected a curative process in the lungs by the cicatrization even of extensive tubercular cavities;—hence he came to the conclusion, that “patients may recover after having had in their lungs tubercles which became softened and formed ulcerous cavities.” He states, that on the shores of the Bay of Douarnenez, his native place, whither he himself retired in a state of latent phthisis, one-half of the consumptive cases were cured. Unhappily for science, this great man was cut off prematurely by the very disease he had studied so profoundly.

Fournet, who obtained the prize at the Concours of the Hospitals of Paris, for his clinical researches on auscultation of the respiratory organs, in the preface to his work, expresses the confident hope that his investigations may impress the influential classes of society with the salutary conviction that consumption *is* curable, and that an opposite opinion is not only worthless but mischievous. Dr. Carswell, in the "Cyclopædia of Practical Medicine," observes:—

"The important fact of the curability of the disease has, in our opinion, been satisfactorily established by Laennec. All the physical signs of tubercular phthisis have been present, even those which indicate the existence of an excavation, yet the disease has terminated favourably, and its perfect cure has been demonstrated by the presence of a cicatrix in that portion of the lungs in which the excavation had formerly existed. . . . There must be few practical pathologists who will not consider these anatomical facts as evidence that tuberculous phthisis is a curable disease. No objection has been brought forward, calculated, in the slightest degree, to invalidate the conclusion to which we have been led by the repeated observations of the changes we have described, viz.:—that these changes are positive indices of the removal of the material element of the disease, and also of the cure of the lesions of structure to which it gives rise, even at an advanced period of its progress. . . . We cannot avoid repeating the fact that pathological anatomy has, perhaps, never afforded more conclusive evidence in proof of the curability of a disease than it has in that of tuberculous phthisis."

Here it may be premised, that by consumption I understand the deposition of tuberculous matter in the substance of the lungs, which, unless checked by nature or art, will so far derange or destroy their structure as to render them unfit for their vital office in the system. Tubercular deposition almost invariably commences in the summit of one or both lungs, and, if uninterrupted, gradually spreads to the lower lobes. Catarrh has been considered to be one of its most frequently exciting causes; but my observations induce me to believe that catarrh is

not, and cannot be, a direct *cause* of this disease. An inflammatory state of the mucous membrane lining the bronchial tubes has no necessary connexion with this deposit of tuberculous matter. It may, when severe, promote its softening and consequent expulsion; but in so doing, it tends to establish a condition which is capable of protecting the lungs from further injury. It is, in fact, one of the principal agents by which Nature endeavours to effect a cure.

The presence of tubercles and of cavities of any kind in the lungs is not incompatible with the continuance of life. The danger lies in the successive and continuous formation of tuberculous matter, and not in the liquefaction and elimination of a portion of it. So long as the lower lobes are exempt, the patient rarely dies from phthisis; but it may be observed incidentally, that a great many patients die under secondary affections. Autopsy displays the lungs in various states and stages of tuberculization. A very considerable number of persons in this country have, or have had, tubercles in their lungs; and were it not for the existence of natural or artificial interruptions to this disease, the population would probably be diminished by at least one-half.

I have said that catarrh is one of nature's grand remedial agents in consumption, and shall, at the risk of being accused of repetition, adduce here and elsewhere cases and arguments in proof of this assertion. Before me is a letter from a highly respectable solicitor, illustrating the truth of my statement. His father had, in early life, exhibited unequivocal signs of consumption, and was despaired of by the physicians at Naples. Business obliging him to repair to Newfoundland, he contracted catarrh in that cold climate, under which he laboured during the remainder of his life, which terminated in his 84th year. We need only look around us among the circle of our acquaintance to find ample proof of the correctness of these views. We may observe persons in youth, middle life, and old age, suffering from what is called a constitutional cough, yet otherwise enjoying good general health, some living even to the most advanced term of human existence, and carried off, ultimately, by a

disorder unconnected with consumption. If the early history of many of these cases be traced, it will be ascertained that the catarrhal state had been preceded by the characteristic signs of phthisis—the hectic fever, perspirations, purulent expectoration &c.;—that the catarrh, or bronchial affection, which, in fact, supervened on consumption, had arrested, masked, or cured it. The lungs, too, of these persons will be found to exhibit, on dissection, unquestionable vestiges of tubercular disease.

The supervention of asthma, either consequently on chronic catarrh, or in its idiopathic form, arrests the progress of tubercular deposition, and renders inert and harmless, tubercles previously formed. In the entire range of a practice, which has not been limited, a case of idiopathic asthma accompanied with consumption, and terminating fatally, has never come under my notice.

Another very important observation may here claim attention: enlarged tonsils have the effect of arresting phthisis; whilst, in most instances of phthisical manifestation, they will be found either very small, or apparently absent. Nature, also, it may be mentioned, avails herself of other pathological conditions, which have a prophylactic effect; thus, bronchocele, tumours pointing to the pharynx, polypi of the nasal passages, a strumous thickened state of their lining membrane, contractions of the windpipe, whether spasmodic or structural, aneurysm of the aorta, disease of the heart, from whatever cause, hysteria, pregnancy, obstruction of the liver, in short, whatever impedes free expiration, tends to mitigate and arrest the disease.

The controlling influence of cardiac affections over phthisis is well marked, and highly illustrative of the assertion now made. Such cases are every day to be met with; so long as the affection of the heart is in the ascendant, the morbid process is kept in abeyance; a lesser evil being substituted for a greater.

In consumption, the lungs are not fully inflated, and the walls of the chest undergo gradual contraction. The normal relation between the powers of inspiration and expiration is lost. The great air-passage becomes, as it were, too wide for the diminished volume of the lungs. Whatever, therefore, restores

the normal relation between the lungs and the windpipe, contributes to arrest the progress of tubercular disease. If this principle be applied to the various diseases above-mentioned, we shall be enabled, without difficulty, to account for many extraordinary results. For instance, let us begin with catarrh. Here tumefaction of the mucous membrane preventing the free egress of the air, imprisons it in the air-cells, and produces a *quasi* emphysematous state of the lungs, expanding their entire volume to a certain degree, and pushing outwards in every direction the walls of the chest. Asthma also acts in a similar way. The membranous portion of the trachea being spasmodically contracted, confines the air within the lungs, and fills up every available cell. The lungs, it may here be observed, are not at all times equally or perfectly expanded, a fact, of course, well known; in asthma, every permeable cell is more or less filled with air. So, also, tumours, external or internal, contracting the circumference of the air-passages, such as preternatural tonsillary development, polypi in the nares, as already remarked, bronchocele, tumours at the root of the lungs, will produce the same effect. In diseases of the central organ of circulation, venous congestion takes place in the mucous membrane that lines the bronchial ramifications, and hence tumefaction follows. The anatomist will at once understand the circle of changes by which this is brought about.

Taking for granted, that what has just been stated is really the case, we may perceive how economical and admirable is the use which Nature makes of her resources. She establishes her outworks in the nares, the fauces, and the pharynx; draws her parallels in the larynx and trachea, and when destitute of materials on these lines of defence, falls back on the capital, and often contends for life in its citadel—the heart. Continental writers have done much to elucidate this subject, but, singularly enough, never seem to have put the question to themselves, how it is, that the cicatrizations, denoting the existence of old cavities, and the quiescence of tuberculous matter, were brought about. Any one who peruses Laennec attentively will at once see that he frequently approached the solution of the difficulty,

but always stopped short; yet it lay so obviously in his way that it is curious he did not stumble upon it as a matter of necessity. The expansion of the lungs brings the walls of a cavity into contact, and thus effects union, as it were, by the first intention; while the healthy well-developed action of the lungs renders old tubercles inert, and prevents the deposition of new tuberculous matter.

This being the true pathology of phthisis, the object of treatment should obviously be to imitate the curative process which Nature herself adopts; and for this purpose we may have recourse to various expedients. That which I have found the most convenient and successful has been the inhalation of common atmospheric air through a tube, which, while it admits the air freely, presents a slight obstruction to its egress. The full inflation of the lungs is hereby secured. The chest becomes by degrees expanded, and the healthy relation between the lungs and the windpipe imperceptibly restored. The mode of using this tube, though apparently simple, is not well understood: hence, many persons take it up, and deriving no benefit, lay it aside as useless. The manner in which inhalation operates is similar to that of catarrh. It possesses, however, this important advantage, that what Nature merely attempts, or imperfectly accomplishes, is hereby effected more surely, and without superinducing any new disease. I have never known an instance of bad effects, or even inconvenience, resulting from the use of the inhaling tube. As to medicated vapours, they have obtained favour with certain practitioners, but, upon the whole, I have found them to be either useless or injurious. The action of the tube which is recommended is almost mechanical.

The use of the inhaling tube I consider to be essential in the treatment of phthisis; indeed, all other treatment is comparatively secondary and ancillary. It possesses the negative recommendation of simplicity and safety; and it may be advantageously resorted to in cases of asthma as well as phthisis. In asthma the windpipe is too small for the volume of the lungs, and, though it may seem contradictory, the mechanical respiration by the tube has the effect of restoring this disturbed rela-

tion to its healthy standard. The objection to it, on the score that asthma is liable to be superinduced by its use, arises from idle prejudice. Could I but present one-tenth part of the cases which have been rescued from a premature grave, chiefly by means of using this instrument, I should force irresistible conviction on the most incredulous, or at least induce them to institute a number of experiments, patiently and judiciously, so as to satisfy themselves of the truth.

Let it not, however, be supposed that constitutional treatment is to be consigned to neglect or deemed a matter of trivial importance. The judicious application of leeches over the parts affected, and at proper intervals, vesication, tonic and sedative medicines, &c., constitute an important part of the treatment, and afford ample scope for the nicest discrimination. When symptoms of inflammatory action in the chest present themselves, the mechanical respiration is contra-indicated. The possibility of its abuse or misapplication, together with the necessity of subsidiary general treatment, point out the propriety or rather the necessity of medical superintendence.

This mode of treatment has many advocates, both in England and abroad. Lebeau, physician to the King of the Belgians, and senior surgeon of the Military Hospital at Brussels, as also Hohnbaum, physician to the Duke of Saxe Meiningen, and a distinguished pathologist, highly approve of it. Among the American medical men might be mentioned, the names of Drs. Fitch, Newton, and Hull, of Philadelphia, and several other distinguished practitioners of the same country, together with a great many continental physicians, all of whom have adopted its use, and are its zealous supporters.

[MEDICAL TIMES, *September 3.*]

The frequent coincidence of catarrh with the manifestation of phthisis, cannot be denied; but this fact may be accounted for on a widely-different hypothesis from that which supposes the former to be the cause of the latter. A very large proportion

of catarrhal cases, it will be granted, are not followed by phthisical symptoms; persons very liable to colds rarely die of consumption. When this disease shows itself in summer, catarrh seldom accompanies it: the coincidence takes place in the winter,—and, finally, there is no argument founded on either anatomical or pathological deduction which can be brought forward to prove that catarrh ever stands with respect to phthisis as its primary cause. This seems to be one of those assumptions, which by tacit general acquiescence has been allowed to pass as an indisputable truth. Under what circumstances, and to what extent, it may be regarded as an exciting cause of the manifestation of this disease, is another and very important question. Laennec observes, we meet with many persons whose first cold is merely the catarrh that accompanies phthisis, excited, no doubt, by the presence of tubercles in the lungs,—making out that catarrh is frequently the effect, and not the cause. This may be explained as follows. An extension of irritation takes place from the diseased structure of one lung into its bronchial ramifications. The trachea is then affected and irritated by sympathy; this irritation is then reflected, and operates in the same way on the mucous membrane of the other lung.

But we may safely go further than this. Irritation and inflammation of the mucous membrane, when severe, may, and often do, lead to liquefaction of tubercles already formed; *i. e.*, may cause the manifestation of phthisis previously latent.

The most heterodox part of this view may appear to be that which considers catarrh to possess a curative influence on phthisis. How it operates by dilatation of the air cells and expansion I have already explained; and, on this head, court the most ample discussion. “The motion of the upper part of the chest,” Sir James Clarke states, “at the early periods of phthisis, if carefully observed during inspiration, may be remarked to be unequal; one side of the chest being more fully expanded than the other.” In the progress of the disease, “the upper parts are less freely raised during inspiration,” and at a more advanced stage “the form of the chest is remarkably

changed—there is a deep hollow space between the clavicles and the upper ribs—the chest is flat, instead of being round and prominent, &c.” What do these changes of form, so evident to every observer—this collapse of the substance of the lungs, in various degrees—indicate, but the necessity of that counter-expansion which Nature is frequently enabled to effect in the manner already described?

This leads me to advert to the popular and fashionable practice of relegating patients at various stages of phthisical development to mild or foreign climates. It is singular that so much care should be taken to secure a mild and mean temperature; yet when we come to inquire of patients who have wholly or partially recovered, we find their symptoms first made their appearance in winter. By the disease showing itself at this season, it so happens that it associates itself with catarrh, thereby counteracting the contraction of the chest, and thus opposing the production of fresh tubercles. The softened tuberculous matter having become eliminated during winter; the return of the spring and summer may remove the catarrh, leaving the patient for the time secure. In phthisical families, those members who are catarrhal will be found to be the only survivors though left to Nature; and the practitioner may often soothe the anxiety of relations by pointing out those who have passed through the tubercular ordeal. Again, we generally observe that fatal cases are those which first show themselves in summer, and are thereby deprived of the advantage of early association with catarrh. Again, let us examine cases of chronic catarrh of less than five years' standing, before traces of the early symptoms have vanished from the mind, and we shall meet with many patients who retain a lively remembrance of the existence of the indubitable signs of phthisis antecedently. Even so late as ten years, in one-half the instances, by properly-put questions, and calling in the aid of their friends' recollections, the same results will be ascertained. The catarrh supervening, has thus arrested, or permanently cured, the consumption. The phthisical patient, by going to a southern climate, loses an important chance of recovery by catarrh, the most fre-

quent cause of which is exposure of the cuticular surface to cold, which constricts the superficial vessels of the body. The deeper-seated vessels then become congested, and the bronchial mucous membrane has a difficulty in transmitting its venous blood into the venous system, and in consequence becomes tumefied; which tumefaction, by its power of retarding the expiration, arrests the progress of the disease.

[MEDICAL TIMES, *September 11.*]

One of the alleged benefits of a southern climate is the influence of a warm dry air on the animal economy, promoting an equable distribution of the circulating fluids over the system, and particularly augmenting the circulation of the capillaries on the surface, and diminishing in the same proportion the congestion of the internal vessels, &c. We have means at home to promote the equable distribution of the circulating fluids; but by diminishing the congestion in the mucous membrane of the lungs, we cut off from the patient the advantage of the remedial agency of our own climate. The liquefaction of tubercles may take place at any time; it is highly necessary, therefore, that the patient should always be within the reach of the best medical advice, which is hardly to be met with when at sea, or in many of our foreign places of resort. Persons sent abroad indiscriminately, for various diseases, are liable to fall into the hands of unskilful practitioners, who may, under the supposition of disorder of the liver, or from some other erroneous view of the case, administer mercury, and rapidly bring on a general and sudden softening of the tuberculous deposit. Aggravation of the symptoms always attends these liquefactions, and demands the utmost vigilance and skill, which may be more surely expected from one who has had familiar acquaintance with the patient's constitution, and the history of his case, than from a stranger.

The bland effect produced on the nervous system by change of scene, &c., with the superior opportunities of taking exercise

in the open air, may easily be obtained in England to every desirable extent, without incurring the expense and sad inconvenience of a long sea voyage, or journey by land. The great advantage derived from migration, consists in the stimulus given to the lungs by exercise, the change of air or its bracing qualities, as at sea — deepening the inspirations and expanding the chest. As to exercise in the open air, that may be obtained at home, without incurring the risk of breathing a cold temperature,—for instance, through Jeffrey's respirator,—if desired, though if the supervention of catarrh be a good, rather than an evil, this instrument will be rarely used by consumptive patients.

The lungs may simply and safely be kept in daily exercise, and expansion to the full amount may be effected by atmospheric inhalation, through the respiratory apparatus. I have never known a well-marked and decisive instance of the cure of phthisis by removal to a southern climate. Those who return no doubt will be found on examination to have carried out their protection in their own persons, in the form of enlarged tonsils, cardiac affections, &c. And very many who have breathed their last abroad in the unavailing pursuit of health, would probably have lived many years, had they remained at home and run the risk of contracting a catarrh, or retaining one already contracted, by losing which, in their travels, they may be said to have parted with their best protection.

The use of the inhaling tube supersedes the necessity of recurring to the expedient of superinducing catarrh; but, in the absence of the inhaler, I have no hesitation in saying, on the principle of choosing the minor of two evils, that exposure to the exciting causes of catarrh, under prudent restrictions, is an alternative that may be judiciously adopted in consumption; nay it is a curious fact that the poor often owe their protection against the effects of this disorder to their frequent exposure to the open air and the vicissitudes of the weather.

A lady of illustrious rank, the late Queen Dowager, who for a long period laboured under occasional phthisical symptoms, owed possibly the prolongation of her life, not so much to remedial treatment, as to the disease manifesting itself in the winter season,

and its consequent association with catarrh,—or to enlarged tonsils, a cardiac affection, or some of the influences already named, which oppose the formation of fresh tubercular matter. It is true that at one time the chief danger was from the catarrh, which might have been followed by inflammation, either with or without œdema of the lungs. The air of Malta and of Madeira and other changes of locality were ineffectually tried; but the inhalation of atmospheric air would, I have reason to believe, have proved more advantageous. The lady of a gentleman, who held a highly confidential appointment in Her Majesty's establishment, had been ten years suffering from convulsive asthma; under the system prescribed of using inhalation and appropriate medicinal treatment she recovered in a few months, and, with the exception of a slight relapse, which was easily removed by the same means, she still remains perfectly well.

An officer in the Guards, son of one of the members for Bedfordshire, was pronounced by one of Her Majesty's physicians in ordinary to have a cavity in the right lung; he expectorated blood. In this case the chest was decidedly flattened, particularly over the site of the cavity, beneath the clavicle on the right side. Restorative and sedative treatment, with the use of the inhaler, were adopted; the inhalation being persevered in for some months. His symptoms gradually disappeared, the chest re-expanded, and he afterwards enjoyed excellent health, while remaining with his regiment in Canada. Had he gone abroad, as at first advised, the case would probably have proved fatal.

The son of a respectable merchant in the Borough, whose only brother had died of consumption the year previous, was recommended, by the author of the "*Sanative Influence of Climate*," to go to Madeira; but on being counter-advised in consequence of its being ascertained that he was without any of the natural defences against the progress of tubercle, and, besides hectic, and emaciated, spitting blood, &c. he remained at home, where, by the use of the inhaler and general constitutional treatment, he by degrees lost all his unfavourable symptoms, to the agreeable

to another locality, exhibited the usual symptoms of consumption, which appeared to have been brought on by scarlet fever, caught some time previously at school. Her health had been always delicate, and her lungs, no doubt, had been already tuberculated. Either in consequence of the fever, or the liquefying powers of mercury which had been employed in subduing it, a cavity had formed, the existence of which was considered to indicate sufficiently the absolute incurability of the case, and it was therefore pronounced that she could not possibly survive to see Christmas. Notwithstanding this prognosis, which was also given by Dr. Davies, she still lives and enjoys excellent health. When placed under my care she was suffering under asthmatic, combined with consumptive disease. Her asthma was so severe as to render her for whole nights incapable of lying down. The cavity in the chest remained distinctly perceptible on auscultation. She had become catarrhal owing to the winter season, and besides, from hereditary circumstances, derived a disposition to convulsive breathing. It might be supposed that the supervention of asthma, and consequent emphysematous state of the lungs, would have brought the walls of the cavity into contact and produced its obliteration; but here the surrounding induration of the pulmonary tissue seems to have been of such a thickness as to prevent the walls of the cavity from coming into contact by the emphysematous pressure. Some pleuritic adhesion also might have interfered with the mobility and expansion of the lung towards the diseased structure. Not dismayed by this complication of asthma with phthisis, having first soothed the spasmodic irritability of the trachea, which is ever present in asthma, by a leech or two, applied over the depression above the sternum, I recommended and prescribed the process of inhalation, along with sedatives, diuretics, &c. The primary object was to reduce the distressing enlargement of the pulmonary tissue: this was effected by making her expirations more complete through the agency of the inhaling tube. Meanwhile proper attention was directed to reduce congestion in the summit of the diseased lung; and inhalation, while exerting its salutary influence on the asthma, tended to approximate the

internal surface of the cavity so as to produce cicatrization. Her recovery was tedious, owing in a great measure to her occasionally discontinuing the treatment when decided amendment showed itself. The chest, which at the commencement was remarkably flattened in front, with the shoulders prominent, by degrees became sensibly improved, and acquired a very satisfactory amount of development. She afterwards exhibited no signs of either asthma or consumption, and now enjoys very good general health.

The eldest son of Mr. E—g—n, the extensive marquée manufacturer at Smithfield Bars, presented all the symptoms of consumption, and was given up as incurable. Notwithstanding this gloomy prognosis, he gradually recovered and remained in tolerable health till about three years ago, when he was again seized with severe cough, sanguineous expectoration, and other alarming symptoms. On examination of his chest, there was observed a great contraction of the left side, more particularly superiorly and anteriorly; beneath which, on exploration, a cavity was detected, which had probably been in existence and unnoticed since his first attack. Febrifuge, demulcent, and sedative treatment, followed by inhalation, were recommended, and the result was highly satisfactory.

[MEDICAL TIMES, *October 8.*]

Mr. Swain, between 50 and 60 years of age, a confidential clerk in the employment of Messrs. Betts and Co., was seized with influenza. About six months afterwards his lungs were pronounced to be tuberculated, and the case was considered hopeless. I was requested to see him. He had been recommended to leave town, of which I disapproved, as his legs were dropsical, and the breathing extremely difficult; he suffered from violent fits of coughing, during which large quantities of purulent matter mixed with blood were brought up. A simple change of air could not remove such a formidable train of symptoms. Without entering into details, it is only necessary to say, that the

surprise of Dr. Hull, of Peckham, who, as the family practitioner, had the case under his daily superintendence.

I have now before me the copy of a letter written by a Scotch gentleman, Mr. C—p—ll, to the father of the late Master of the Mint, in which, after detailing the early history of his case, he states that he consulted Drs. Alison and Spittal, of Edinburgh, who pronounced his lungs tuberculated, and advised him to go to Madeira. On the eve of departure he was induced, by Dr. Hull, of Peckham, to call upon me, when I found that his case was decidedly consumptive, a well-marked cavity existing in the summit of the right lung. Persuaded not to go to Madeira, he accordingly remained at Peckham, and adopted the mode of treatment now recommended, consisting of restorative diet,—medicines, &c., adapted to meet urgent symptoms,—out-door exercise, though in winter—and the mechanical process of inhalation. By persevering in this course for four and a-half months, he increased in weight about 16 lbs., the chest expanded some inches, his breathing became perfectly natural, and the expectoration ceased. He considered himself chiefly indebted to the inhaling tube for his improvement, but at the same time attached due importance to the auxiliary treatment.

To the medical gentlemen who attended the Infirmary for Diseases of the Lungs, I have repeatedly explained the fact that the regulated atmosphere of the wards—(65° Fahr.)—in general did not suit phthisical patients, and was only useful in cases of chronic catarrh. Even the matrons of the infirmary, one of whom held the situation seven years, and the other three, uniformly observed that in consumptive cases, the regulated temperature, and confinement of the patients in the wards, were after a time injurious. Their frequent opportunities of observation entitle their opinion to some consideration. Dr. Buxton, who founded the charity, also entertained the same views; and my experience, during a period of more than twenty years at the infirmary, led me to adopt the same conclusion.

[MEDICAL TIMES, *September 24.*]

Before entering into any further disquisition on the principles now propounded, I shall proceed to adduce a few additional facts confirmatory of the main question. This mode of procedure, both in the way of argument and illustration, will perhaps more readily remove prejudice and induce conviction.

A few years ago I was requested to see Miss S—th, daughter of a respectable individual in business in Little Britain. She was then labouring under an affection of the heart, attended with difficulty of breathing, and the respiration was somewhat obscure in the summit of the left lung. During convalescence from an attack of continued fever in the spring of the year, she began to cough, and to expectorate blood and purulent matter; evening chills and night sweats took place; in fact, she exhibited all the symptoms of manifest consumption. An unctuous guggle was heard every time she coughed, clearly indicating the existence of a cavity in the left lung. Her chest, which had been formerly large, presented a marked depression under the clavicle of the left side. There was no possibility of preventing the progress of the tuberculous liquefaction; to effect, therefore, an immediate removal of the symptoms was not possible. Her friends were advised to take the opinion of Dr. T. Davies, the junior physician of the Infirmary for Diseases of the Lungs, who accordingly met me in consultation, and agreed that the case was one of genuine consumption; but without reserve, or concurrence on my part, he announced to the family the utter hopelessness of the patient's recovery. No words can describe the agonised state of the parents' feelings on hearing so unexpected a sentence; but, under the impression that he had only given an unbiassed, candid opinion, his services were retained. About a month afterwards I was again called in, and the patient being placed under my entire management, was treated upon the principles already described, under which, in a few months, she recovered and remained quite free from all phthisical symptoms.

A young lady, Miss S—tt, about sixteen years of age, then residing close by St. Bartholomew's Hospital, and since removed

chest. Beneath and above the clavicles there were, however, the marked depressions, such as we find in consumptive persons. The action of the heart having been interfered with by the emphysematous state of the lower lobes, and displaced by the highly voluminous condition of the inferior lobe of the left lung, he became dropsical, and entered the Infirmary as an in-patient. After various remedial attempts to relieve the gorged state of the venous system, and the visceral disorders, its never-failing consequences—aggravated not a little by former habits of intemperance—he succumbed to internal effusion.

In the early part of the treatment it was attempted to render the expiratory powers more effective by the mechanical process, so as to establish a normal relation between inspiration and expiration, or, in other words, to bring about the natural proportion that should exist between the windpipe and the lungs; but, in this case, there was a physical impediment, which no skill nor contrivance could overcome, for the first ring of the trachea was constantly in the way of the expired air.

Dissection of the body a few hours after death, showed the upper lobes of the lungs to be contracted, indurated, and studded with innumerable tubercles of various sizes, generally small, and semi-transparent when divested of the black pulmonary matter surrounding them. Cicatrizations of different forms were therein observable, and the investing membrane of the tuberculated summits was thickened, partly cartilaginous, and adherent throughout to the opposite serous surface. The other lobes of the lungs were hypertrophied and emphysematous in the highest degree. The alteration noticed in the contour of the chest is easily accounted for by the condition of the inexpandible summits of both lungs, and the greatly enlarged state of the vesicular structure everywhere else.

This is an instructive case, as it illustrates the correctness of the view that whatever serves to expand the lungs removes the tendency to form tubercles, and alters entirely the scrofulous diathesis. Had the patient lived, the greater portion of the tubercles found on dissection would have disappeared by absorp-

tion. After the manifestation of catarrhal asthma, all the phthisical symptoms disappeared.

The following case will also be read with interest:—

Mrs. Levi, residing in Bevis Marks, and the mother of a large family of young children, had been for some months troubled with severe cough, purulent expectoration, hectic fever, and the other external signs of consumption. Her chest, which had undergone much contraction, was stethoscopically explored, and pronounced to contain a cavity of no small extent in the superior lobe of the left lung. Her life was therefore despaired of. A flattish substance of irregular form, between two and three inches in its longest extent, and which, from the absence of uneasiness, attracted but little attention, appeared a little above the upper circumference of the left breast, and adhered firmly to the muscles over the third and fourth ribs. When called in consultation I satisfied myself that, besides the constitutional symptoms of consumption, she had disease in the summit of both lungs, and a well-defined excavation, and I concluded that the indurated mass on the exterior of the chest was a tuberculous deposition.

Having prescribed for the most urgent symptoms, and advised inhalation, with a view of defeating further contraction of the chest, which, from long experience, I knew would be followed by fresh crops of tubercles in the lungs, as well as dangerous secondary affections, such as diarrhoea, ulceration of the larynx, &c., which so frequently follow the extension of the disease into the inferior lobes, I pointed out the possibility of a solution of the exterior tuberculous mass taking place. At the expiration of more than a month the tuberculated mass liquefied, and caused a sympathetic inflammation of the entire of the left breast, terminating in suppuration. To relieve the painful distension, and allow the escape of matter, a puncture of the breast was proposed, but the courage of the patient failed, and a postponement of the operation to the following day entreated.

The same night, under a sense of great difficulty of breathing, she felt something pass into her chest. This was instantly fol-

treatment was conducted on the principle of establishing a healthful relation between inspiration and expiration, and of meeting constitutional symptoms by appropriate medicines. In about three months he recovered, and resumed the duties of his situation, after an absence of nearly a year.

Mr. A., deputy-alderman of one of the wards of Cripplegate, being pronounced consumptive, was advised by his medical attendants to go abroad, and a strong opinion was expressed that he never would recover. He wintered in Nice, and returned home early in the ensuing summer. From inquiries into the case and its past history, it appeared that he had gone away with catarrh and a cavity, and returned with the latter only, losing thereby his best protection. He was at this time perspiring at night, and expectorating sanguineous purulent matter. The treatment adopted comprised the use of the mechanical process ; his chest expanded, the cavity healed up, and all unfavourable symptoms disappeared gradually. Two years afterwards, he declared that he never had enjoyed better general health, and that all traces of his old disease had vanished.

A child named Ann Cooper, about six years old, residing near St. Bartholomew's Hospital, daughter of the sextoness of St. John's Church, Clerkenwell, was brought to me suffering under empyema, which had made for itself an opening about two inches below the left nipple, and discharged freely for several months, till she had lost at least two or three times her own weight. A cavity had been previously ascertained to exist in the summit of the left lung. No hopes of recovery were in this case entertained ; the symptoms remained much the same for many months, till at length she was seized with measles, the result of which was, that the catarrh which accompanies this disease expanded the lungs ; the chest, which before hardly measured twenty inches in circumference, in two months increased more than three inches, the discharge ceased, and she perfectly recovered.

[MEDICAL TIMES, *November 12.*]

The next case I shall cite may be considered somewhat extraordinary, inasmuch as it was occasioned by an attempt of the patient to deprive himself of life by cutting his throat.

William Bell, aged 52, coach-maker, entered the Infirmary for Diseases of the Chest, as an in-patient labouring under symptoms of catarrhal asthma, which had existed for some years, but which, until a short period before his admission, did not prevent him from following his daily avocations. He mentioned that, whilst labouring under a severe cough, perspirations, hæmoptysis, &c., he had been under professional care, and that the medical practitioners, after an examination of the chest, pronounced him to be consumptive. A short time previous to receiving this intimation, he had been induced to risk his entire savings upon a prize-fight, he having himself been a pugilist, and scarcely had it been announced that a vital organ was attacked by a formidable disease, before his fortune also received a shock by the defeat of the party on whom he had betted, and the consequent total loss of all his property. The result was, that he committed the act of desperation before-mentioned. This attempt to destroy life became the means of prolonging it for ten years, for, by a series of phenomena thereby superinduced, the consumptive symptoms were dissipated.

Soon after, by surgical treatment, he recovered, and it became his practice to conceal the mark of the incision with a piece of flannel. Notwithstanding this ingenuity the cicatrix sufficiently indicated the fact of his having attempted suicide. On examination, it was observed in breathing, that when the patient inspired, a slight protrusion took place where the wound had been—which was between the first ring of the trachea and the cricoid cartilage: and that, in the act of expiration, a small portion of the anterior part of the circle of the former passed within that of the latter. The impeded expiration, the result of the obstacle just mentioned, caused, in process of time, the lower lobes of the lungs to be exceedingly enlarged, which was perceptible by auscultation, as well as by ocular inspection of the

Hæmorrhage, or profuse or too frequent bleedings from any part of the body.

Disease in the vertebræ of the neck, I have noticed, in more than one instance, to point beneath the pharynx, and constitute a tumour standing in the way of the expired air.

Enlargement of the Tonsils.

The great rarity of manifest consumption in children is owing to the enlargement of the tonsils, so commonly observable in them. The same strumous habit that gives rise to the foregoing state, previously deposits tubercles in the lungs. In the majority of such cases we have no opportunity of demonstrating their existence owing to their reabsorption; but when, after a lapse of years the patient has died of some complaint unconnected with any chest affection, we then discover upon dissection the black stains or some induration in the summits of the lungs, where they have been. It may be here mentioned that even the greater number of adults who are seen with any degree of enlarged tonsils, can recollect, when only superficially questioned, that they had suffered under some previous affection; displaying all the constitutional symptoms of consumption.

As the greater power of the inspiratory muscles will, even under this state of enlarged tonsils, draw in the air with more freedom than it can escape, the preponderating action will, of course, expand the lungs, and, assisted by the weakness of the expiratory powers, imprison air sufficient to increase that expansion and thus enlarge the thorax; and what is remarkable, by making the patient short-breathed or asthmatic, so completely alter the scrofulous habit as to remove the very impediment (*i.e.* the enlarged tonsils) which has the capability of defeating any contraction of the lungs that would lead to unmasked tubercular phthisis. Still more extraordinary, the enlargement of the tonsils alone is sufficient to render the lungs voluminous, and to close up a cavity resulting from liquefied tubercles. Enlarged tonsils, therefore, indicate a scrofulous habit, and that the lungs are, or have been, tuberculated; but this enlargement is, at the

same time to be considered a sign of the non-liability of the patient to sink under consumptive disease.

Diseases of the Heart.

In all lesions of the heart, as before stated, there is to be found congestion of the venous system ; and the bronchial mucous surface is in a greater or less degree tumefied, owing to the difficulty which the bronchial veins experience in transmitting their blood into the larger venous trunks destined to receive it. The consequence is, that imprisonment of air is effected after the manner already explained, and the lungs become voluminous. Though tuberculous deposits may have previously taken place in the top of one or both lungs, the disposition to form new ones is subverted by this enlargement of the lungs, which I have more than once described to be unfavourable to the continuance of the scrofulous habit, or entirely subversive of it. Pathological researches clearly establish the coexistence of tuberculous disease with scrofula. Nor, indeed, is this all : aneurysm of the aorta, or of any large artery, is often the result of previous tuberculous disease which has impaired its power of resisting the impulse of the circulation. Dissection has proved to my satisfaction that this is the fact, and that there existed, at one period or another, in such cases, a tuberculous disease of the lungs.

[MEDICAL TIMES, *January 7, 1843.*]

Diseases of the heart, accordingly, form one class of the antagonisms of which nature avails herself against the invasions of phthisis. The frequency and variety of heart affections, and their important bearing on the malady under consideration, will, I trust, justify my entering a little further into details. That tumefaction of the mucous membrane lining the bronchial tube occurs in all cases of disturbance of the central organ of circulation, is capable of demonstration, and will, I presume, at once be conceded. The manner in which this tumefaction

lowed by an uncontrollable cough, and an abundant discharge of fetid expectoration. She continued coughing and expectorating, almost unceasingly, for ten hours, and brought up in this time more than two quarts of pure pus. Regretting the result of her opposition to the lancing of the mamma, she willingly submitted the next day to having it performed by one of the surgeons of Guy's Hospital. As soon as an incision was made near the nipple of the breast, a great quantity of matter, followed by air, rushed through the opening. The air came from the cavity in the top of the left lung, into which two quarts at least of puriform matter had spontaneously burst from the outside of the chest.

Two days after the surgical vent had been given, upon carefully exploring the chest it was obvious that the air, with some of the matter, emanated from the cavity, the existence of which had before been announced. It was singular to witness how, at the will of the patient, the ærial fluid escaped from the wound with a hissing noise! In a few weeks she ceased to discharge from the mamma any kind of fluid; the respiratory murmur was considerably augmented, and the presence of a cavity no longer discernible. She afterwards gave birth to two children, and enjoyed good health: owing to the disease disappearing in the summer season, she continued without any catarrhal complaint whatever.

This extraordinary and interesting case recovered in consequence of the free communication between the surface of the body and the cavity of the left lung, which, whilst it allowed the free escape of the air from the cavity, permitted a general enlargement of the pulmonary tissue to take place, which obliterated the cavity.

[MEDICAL TIMES, *December 31.*]

In all cases of consumption, the grand object of treatment is to prevent contraction of the chest; the localities in which a prevention by nature often occurs are, as I shall have occasion

to point out, various. Yet, in every variation, the antagonism to consumption is established by one ruling principle, viz., the readjustment of the deranged relation or balance between the organs of inspiration and expiration, through the agency of something obstructing more or less the exit of the air in the act of expiration. Here let it be remembered by the bye, that Nature in her operations under this law, rarely does her work perfectly, and, in many instances, runs from one extreme into another. The forces which represent the powers of inspiration are stronger than those forces which represent the powers of expiration; consequently, when the impediment mentioned exists, owing to the weaker expiration, and the imprisonment of air, in some degree, an enlargement of the lungs takes place, and the cure of the disease is brought about.

No sooner does consumption occur, than it is earlier or later marked by contraction of the chest. The windpipe, by retaining its almost original size, becomes comparatively too large for this reduced compass; the exit of the air is too free to offer antagonism to the advance of the disease, which would be attended by the occurrence of new crops of tubercles, and their presence and subsequent liquefaction in the lower lobes of the lungs. It is interesting to observe, that when nature or art interrupts the daily contraction of the lungs, before the invasion of the tubercles in the lower lobes, we find little or no disposition in the larynx or intestines to fall into diseased action. The following are some of the simple and accidental processes which arrest the progress of the disease. They may be comprised under the head of—

Different means by which Consumption is arrested by Nature.

Enlargement of the tonsils.

Diseases of the heart.

Tumours of any sort on the windpipe, or its division.

Hysteria.

Asthma.

Catarrh, symptomatic or idiopathic.

Polypi in the nose, or, indeed, any mucous intumescence in the same part, or nasal passages.

accidental affection, should not be rapidly closed? These cavities may be formed from tubercles which had lain latent for years, but cannot progress, nor can a new crop arise in this expansive state of the pulmonary tissue.

Enlargement of the thymus gland has a similar effect in protecting children from early tuberculous deposits, and many adults refer their dyspnœal affections to an attack of croup in infancy, which, I would observe, is always produced and kept up by irritation, from the mechanical pressure of the enlarged gland, acting as a foreign body. When children survive this affection they are generally short-breathed, and protected against consumption in after life.

A congeries of scrofulous tumours is occasionally formed at the root of the lungs, or, in some rare cases, so as partially to embrace the windpipe, diminishing its diameter and acting as before described. Aneurysmal tumours are powerful antagonists to phthisis. I have a pathological specimen of aneurysm of the aorta, protruding at the point where the trachea bifurcates into the bronchi. The case was operated upon by the late Mr. Earle, in the presence of Dr. Ashwell and myself, to relieve suffocative dyspnœa.

The operation was admirably performed: the man, however, died; and it appeared, on autopsy, that the opening had been made above the seat of the obstruction, which lay at the bifurcation of the trachea. His lungs exhibited the usual traces of a previously well-marked phthisical condition; arrested, no doubt, by the intervention of the tumour.

Among the other obstructions worthy of note, I may mention enlarged bronchial glands at the root of the lungs, and along the course of the principal bronchial ramifications, and calcareous deposits, in situations where tuberculous matter had previously existed, but had either made its escape or become absorbed.

[MEDICAL TIMES, *January 14.*]*Hysteria.*

Individuals belonging to consumptive families, labouring under this affection, are rarely susceptible of tuberculous deposits. Hysteria has the remarkable effect, as may be frequently observed, of giving greater or less roundness and fulness to the chest, according to its degree of severity, and the length of time it may have lasted. Spasms of the membranous portion of the trachea is the main cause of the laborious and irregular breathing. The air being forcibly drawn in, and retained, distends the air-cells; this, together with the spasmodic action of the diaphragm, reduces the convexity of that muscle, thus enlarging the capacity of the thorax; and the frequent occurrence of the paroxysms, with the long establishment of the hysteric habit in the system, ultimately leads, by these means, to permanent enlargement of the lungs, and expansion of the walls of the chest; it being a well-known fact that the latter contract or expand in the same proportion as the lungs. To these I may subjoin all those who are affected with diseases of the convulsive kind, such as epilepsy, or, in truth, any state in which a prolonged or forcible retention of the breath is frequently seen. In hysteria of any considerable standing, the neck is rounder and fuller than usual:—if I might so express it, hypertrophied, both in the muscles and the integuments. The sterno-cleido mastoid muscles, in some cases, become so large towards their insertion as to exert a lateral pressure on the trachea, above the sternum; thus offering a permanent mechanical impediment to freedom of respiration. In aggravated cases of epilepsy, patients rarely die of consumption, for the reasons just mentioned.

Asthma.

The several varieties of this affection act in the way already described: viz., by enlarging the air-cells, which they do more or less permanently, according to the frequency and duration of

arrests tuberculous deposit has been explained. Disease of the heart, however, will sometimes be found coincident with consumption. In these cases, the formation of tubercles precedes the cardiac affection. It may be safely laid down as a general rule, that, where the affection of the heart is primary, the strumous diathesis does not exist. In a majority of cases, where the former is subsequent in point of time, the latter is either arrested and cured, or masked and rendered stationary and quiescent. It may not be uninteresting to add that persons who undergo liquefaction when the heart is affected sometimes do not exhibit the ordinary symptoms of consumption. This is particularly the case, as far as regards the perspirations. When we find a patient with lividity of the lips, permanent distention of the jugular veins, dyspnœa, and abnormal action of the heart (without entering into auscultatory minutiae) we must not hastily pronounce an unfavourable prognosis; for if these symptoms be moderate, such a patient may, under proper treatment, survive many years. Nay, even physical deformity has in some cases a prophylactic tendency. Who has not observed the remarkable exemption which gibbous or hump-backed persons enjoy from the fatal effects of tuberculous disease? This is a singular fact, and worthy of attention. It may be readily accounted for by the displacement of the heart; consequent mucous intumescence, and an infarcted state of the lungs, to which the deformity of the chest in a great degree contributes. Again: has any practitioner met with a case of simple and genuine chlorosis terminating in phthisis? In this malady, there is always some functional disturbance of the heart, which antagonises the disposition to tuberculous deposit. A popular notion prevails, that chlorotic females are either consumptive or likely to become so. It has not escaped the common observation of mankind, that debility is often the precursor and always the attendant of consumption.

When the meridian of life has been some time passed, primary deposits of tubercles are of very rare occurrence. The disease, if met with, will be found to have had its origin at some anterior period. At and after this time of life, there is a venous pre-

ponderance producing mucous intumescence: this is not necessarily so considerable as to superinduce catarrh, but sufficient to prolong the expiratory act,—the sure sign of obstruction somewhere in the respiratory organs. The practised auscultator will readily detect the prolonged expiratory murmur. From this we might deduce as a corollary, that a certain amount of disease has the effect of prolonging life to the full term of its natural duration. Even our winters, by causing suppressed cuticular secretion, internal venous congestion, and mucous intumescence, &c., have a share in impeding the advance of diseases that, otherwise, would have had an earlier fatal termination. If climate has its bane it contains also its antidote. Looking at the question in the light I view it, the very variableness of the temperature, so far from increasing the amount of phthisical mortality, actually diminishes it.

Tumours of any Sort on the Windpipe, or its Division.

These are useful agents in the hands of nature. The first which may be noticed is bronchocele. The mechanical pressure of this kind of tumour is sometimes lateral, and sometimes in an antero-posterior direction, according to the form and place of the enlargement. The amount of obstruction determines the amount of pulmonary expansion, vesicular emphysema, and dyspnœa. I appeal to the experience of medical men, whether they have ever witnessed a case of fatal phthisis in a patient labouring under bronchocele? No cavity can exist in the lungs, in the face of such an impediment. Let me again repeat it,—here the contraction of the windpipe prevents the free egress of the air, imprisons it in the air cells, and makes the lungs excessively voluminous, *i. e.*, though the bony frame of the chest is pushed outwards in every direction, and the convexity of the diaphragm diminished, yet the expanded lungs not only fill up the additional space thus gained, but would occupy more if obtainable. How is it possible that under these circumstances an excavation can exist in the lungs? or that small cavities, formed by the recent solution of tubercles, from some

the paroxysms. Even in those cases of pure asthma, where the intervals between the attacks happen to be long, leaving time for the lungs to return to their previous dimensions, a certain amount of protective effect is gained. Indeed, I have never known an instance of pure asthma succeeded by phthisis. This I should suppose, *à priori*, would be the case, inasmuch as the exercise and expansion of the lungs, though occurring with comparative infrequency and of short duration, can scarcely fail to exert an influence sufficient to alter the scrofulous habit, and render the lungs unproductive of tuberculous deposit.

Asthma has the effect of taking away the perpendicularity of the windpipe. The *pomum Adami* in males becomes exceedingly prominent, and, in both sexes the inferior part of the trachea is retracted sometimes to a remarkable extent. The inspection of the front of the neck will frequently enable us to form an opinion of the state of the lungs, and constitutes no mean addition to the number of our diagnostic signs, in certain forms of thoracic disease. I may here observe that in this affection the principal seat of spasmodic contraction is in the membranous portion of the trachea, forming its posterior boundary.

An interesting case, illustrative of the antagonistic power of asthma in phthisis, occurred some years ago in the Infirmary for Diseases of the Chest. James Walford, a pipe-maker, labouring under consumption, was admitted as an in-patient: he displayed, unequivocally, all its auscultative signs and constitutional symptoms. He had, moreover, ulceration of the pharynx, which, in spite of suitable local applications, extended itself downwards, till, on reaching a certain point, asthmatic convulsions of a most violent description took place. A stridulous, mucous ronchus was heard in the windpipe; the lungs became suddenly and enormously emphysematous, and the difficulty of breathing almost intolerable. The asthmatic condition lasted, with few intermissions, for some months, and disappeared only when the pharyngeal ulceration was healed. During this period, from the very commencement, no phthisical symptoms had shown themselves. The nocturnal perspira-

tions, &c. ceased altogether, and did not return. He was seen by several medical gentlemen at the Institution, and among them were several highly-intelligent American physicians.

The following case will also be found interesting. A patient, who had been previously under treatment for phthisis at the Middlesex Hospital, presented himself at the Infirmary for relief from severe catarrhal asthma, which, it appeared, had for some time masked the consumptive symptoms. The regulated temperature of the atmosphere of the ward, together with the medical treatment, soon removed all mucous irritation, and, with it the spasm. He was discharged cured, and remained free from asthma and phthisis for 17 years. During this period, however, he had had an attack of insanity, and latterly his habits became drunken and dissipated. Being refused admission into St. George's Hospital, as a hopeless case of phthisis, he again applied to me for advice, but it was too late—he died a few days afterwards.

Here was total absence of all asthmatic interference for a very long period, possibly, in some degree, owing to the attack of insanity, which sometimes has a tendency to suspend asthma. Had the asthmatic affection recurred at intervals, the return of the consumptive state might have been prevented. From the whole, I would draw the conclusion that asthma, once developed in the system, being in some instances a curable disorder, does not necessarily imply that the individual so affected may not, at some period, die of phthisis. When a cure of asthma takes place, the system is in *statu quo*, so far as liability to phthisis is concerned. In the case above related, it is probable that the man's intemperance and debauched habits had so far weakened his system as to bring on contraction of the chest, from want of power in the muscles of inspiration to elevate the ribs,—new tuberculous deposits took place, or old ones liquefied, or perhaps both,—a cavity formed, and the disease terminated in death. I should here subjoin, that the asthmatic state in the first instance was of very short duration. I find, after a complete cure of asthma, that the return of the phthisical disease is rare.

Catarrh or Bronchitis.

Symptomatic or idiopathic catarrh or bronchitis, in all its phases and varieties, is attended with more or less bronchial intumescence. By catarrh, I understand irritation of the mucous membrane of the air passages, in any part of their extent. It is either latent or manifest, mild or severe. In its mild or latent form it may happen to be unaccompanied by either cough or expectoration, and can only be detected by the ear. The easy, soft, downy murmur of natural respiration, degenerates into a coarse heavy breathing, with prolongation of the expiratory act. Between this and its aggravated forms, there are various gradations in the scale, but the tumefaction of latent catarrh, if of any considerable duration, is sufficient to antagonize phthisis.

Perhaps there is no morbid affection more common in this climate than catarrh, particularly in cold and damp weather. It is symptomatically present in most chronic diseases of the heart and lungs, in all febrile affections, and in numerous cases of impaired constitution. When irritation of the trachea takes place, or spasm of its posterior membranous portion, it is propagated downwards by continuous sympathy. But for the intervention of this complaint, the mortality from consumption in Great Britain, already so considerable, would, as we have seen, be far more than doubled. Laennec, with all his acumen and experience, with the proofs daily staring him in the face, never, as I before remarked, alighted on this simple and important discovery. He combated, along with Bayle and others, the doctrine of the old schools, that it was one of the causes of phthisis, but most unaccountably overlooked its preservative influence. He has recorded cases of persons with chronic catarrh who lived to an advanced age; he had an opportunity of examining many of them after death, and observing the traces of old tuberculous disease, either cured or rendered quiescent, and yet never even so much as suspected the inherency of any preservative power in catarrh, thus verifying the old adage, "*Non omnia possumus omnes.*"

One of the circumstances which contributed to the erroneous

supposition that catarrh is one of the causes of phthisis is, that the two are often found coincident. We are, however, more liable to set down a case of phthisis for catarrh than the latter for the former. Where there are small incipient cavities, separated by healthy pulmonary tissue, or small disseminated tubercles with or without yellow points, the ear may not be able to detect any positive evidence of the morbid phthisical action commencing in the lungs—not even that of a practised auscultator. The best guide we have in this unsatisfactory state of things, is the absence or presence of successive nocturnal or morning perspirations, and this will enable us to discriminate in all cases, excepting a few complicated with affections of the heart. When these are present, the patient is decidedly consumptive. Inattention to this symptom too often leads to a false diagnosis, even with some high authorities: the patient is pronounced catarrhal only, his apprehensions are disarmed, and he rests for a time in the enjoyment of a fatal security. This important symptom is overlooked or undervalued, because the auscultatory signs are either absent or obscure. Auscultation, under such circumstances, is purely speculative. The perspirations, though with many a discarded symptom, will, as I have said, in almost all cases, alone enable us to decide correctly.

It occurs frequently to me, that I am applied to for advice in such cases, when it is too late to repair the mischief; and all that is left for me to do is to pronounce the melancholy fact of the real character of the disease, and, when permitted, to verify, by autopsy, the correctness of this prognosis. In the latter stages of phthisis, catarrh is always present, arising, probably, from extension of the inflammatory action in the substance of the lungs to the lining bronchial membrane, but it comes too late to arrest the disease.

Assuming that general debility is the grand cause of tuberculous deposit, I may be asked why convalescents from fever do not necessarily become consumptive? The answer is furnished by the coexistence of catarrh, either latent or manifest, defeating contraction of the chest, and the consequent deposit of tubercles.

Acute or inflammatory catarrh, independently of the direct danger to which it exposes the system, sometimes brings on a rapid and simultaneous liquefaction of pre-existent tubercles; and, though its own course may be arrested, the patient may die of galloping consumption. Influenza frequently proves fatal in this way, when severe. Like mercury, it quickly matures all crude tuberculous deposits, and if these be large and extensively distributed through the pulmonary tissue, their general and speedy solution is too much for the powers of nature, and the patient sinks. If, however, the deposit be small and partial, and the inflammatory affection moderate, the elimination of the morbid matter is often followed by a cure, more or less complete and lasting, but generally entailing a catarrh.

[MEDICAL TIMES, *January* 21.]

Polypi.

Polypi, or any mucous intumescence, in the nasal fossæ, obstruct the free egress of air in expiration, and produce effects similar to those already described. A chronic thickening of the mucous membrane of the nose may often be observed in children of a strumous habit; and the amount of obstruction from this cause or from catarrh, although apparently insignificant, rarely fails to operate as a check on the progress of phthisis. The mechanical impediments presented by the presence of polypi are sometimes so considerable as almost to preclude the possibility of breathing through the nostrils, and they are seldom so slight as not to embarrass it in some degree. Persons who sleep with their lips closed, or who labour at the same time under contraction of the posterior nares, or in whom the uvula, or soft palate, is preternaturally enlarged, necessarily make prolonged expirations, which in consumption cannot fail to have a beneficial tendency. It is not necessary in this place to do more than allude to the other morbid conditions of this vestibular portion of the respiratory apparatus and its adjacent structures—such as lupus,

ozæna or disease of the antrum, congenital malformation, &c., which will be found to act upon the same principle of narrowing the passages, and preventing the easy exit of the inspired air.

Hæmorrhage.

Profuse or too frequent bleedings from any part of the body, occasioned by an irregular state of the heart's action, exercise a greater or less control over the progress of consumption. Hæmorrhoids, or sanguineous fluxes from any part of the portal system, menorrhagia, epistaxis, hæmatemesis, and immoderate loss of blood from venesection or accidental injury, are all followed by disturbance of the circulation at its centre, and tumefaction of the bronchial mucous membrane. Hæmorrhage from the lungs, the result of lesion of that organ, and when profuse indicating an alarming state of pulmonary disease, often forms an exception to this rule; yet under favourable circumstances, when very moderate, if followed by blood-letting in small quantities and often repeated, by lessening the *vis a tergo*, it may be devoid of danger, and tend to modify the character of the tubercular depositions. This is a practice, however, to which I seldom have recourse. In fact, the practice of venesection must in all cases be resorted to with extreme caution. The heart, like every other muscular part under great loss of blood, gives way; and, as Corvisart expresses it, falls into a state of passive aneurysm. Great care should be taken not to reduce it to such a state, as may superinduce general debility. Some of my pupils may remember the cases of Susan Thomas, aged 30, and Elizabeth Good, aged 22, who were patients in the London Hospital. The former was bled 50 times, by order of a physician of that establishment; the latter was bled 57 times, and in the course of four years had 450 leeches applied, and was repeatedly cupped. They had previously exhibited symptoms of phthisis, in which the cardiac symptoms had subsided; but from this great loss of blood they became excessively plethoric, and a state of cerebral congestion, with frequent hæmorrhage from the nose, stomach, and bowels, were the results of this treatment. The physician

had been a surgeon in a militia regiment, and seemed to forget that bold military practice was not exactly applicable to delicate civilians.

An interesting case of uterine hæmorrhage complicated with phthisis occurred some years ago. Mrs. H., a lady from Sheerness, presented the following symptoms :—There was old phthisical disease in the summit of both lungs; the want of clearness in the respiratory murmur was most obvious in the infraclavicular region of the right side; the right was more affected than the left lung, in which there was chronic disease, where it comes in contact with the pericardium. The general or constitutional symptoms were never well marked, owing to uterine hæmorrhage some three years previously, which had been exceedingly profuse. Dilatation of the heart followed, as well as a tumefied condition of the bronchial mucous membrane. Owing to the imprisonment of air consequent upon this change, the lower pulmonary lobes were preserved from contraction, and thereby remained in a state unfavourable to any new tubercular deposit. Under the plan of treatment already described, this lady improved, much to the surprise and satisfaction of her friends, and returned home comparatively well.

[MEDICAL TIMES, 4th February.]

The treatment of consumption may be discussed under two heads—the mechanical and the medicinal. One great and leading fact forced on our attention by the symptomatology and pathology of consumption is, that Nature very frequently attempts and succeeds in effecting a partial and temporary, or perfect and permanent cure. The analysis which has been already given brings us to the discovery of the agencies employed, and a little further consideration conducts us inevitably to the conclusion, that they all act in one way, viz., by expansion of the lungs. But we find that in producing this effect, Nature sometimes oversteps the bounds of expediency, and that she does evil in her restorative efforts. She frequently makes the expirations

too prolonged, and fails in restoring the nice normal balance between inspiration and expiration. The evil is either equivalent to the good done, or it is less ; greater it would be hard to suppose. The business of art, therefore, is to diminish or prevent the evil effects of her operations by judicious control or assistance, and, if possible, to accomplish her aims by an agency similar to her own, and not liable to its objections.

The expansion of the lungs may be effected to a certain extent by exercise, and there are certain species of exercise which expand them more than others. This prophylactic operates both generally and locally ; it invigorates the body and the mind, thus obviating debility, which is the great cause of tubercular deposition, and by stimulating the lungs to deeper and more frequent inspirations, increases their volume and gives enlargement to the chest.

Sea voyages, land journeys, riding, running, swinging, &c., and whatever sports or employments exercise the pulmonary tissue prove beneficial. In trotting, which is the best species of horse exercise, the increased movements of the trunk on the saddle are followed by a proportionably increased descent of the diaphragm, which gives the lungs more space for expansion, particularly the lower lobes, on the integrity of which so much depends.

The increased exercise of the lungs themselves is advantageous on the same principle as in other tissues. The muscles of voluntary motion, from their frequent action, are very rarely indeed the seat of tubercles. The lungs, as a general rule, may be stated to be first affected in the parts where least motion is allowed, viz., the upper lobes. The lower, from their proximity to the yielding and descending diaphragm, and the greater arches of the ribs are less interfered with in their motions, and therefore less liable to become diseased, unless where there exists some adhesion to restrict their expansibility. In sea voyages or new localities, the action of the lungs is deeper and fuller from the stimulus of the unaccustomed atmosphere. The increased pulmonary action, and consequent improved sanguification, may be regarded as the causes of the amelioration we observe effected by changes of locality in convalescence. As

the employment of general exercise is sometimes forbidden by circumstances, or in some cases may not be practicable to any great extent, we must have recourse to other means of exercising the pulmonary tissue, and expanding the air-cells, surely, steadily, and directly. In order to accomplish this, let us endeavour, after the manner of nature, to prolong the expiration. This can be done by a very simple contrivance. Let a tube be constructed, so that when breathed through, backwards and forwards, the air will be inspired more easily than it can be expired. The impediment offered to the expiration need not be considerable, and can be graduated. A common quill, larger at one end than the other, will answer the purpose tolerably well. But it is better to employ a tube nicely constructed on the principle already laid down.

It may here be observed that the effects of prolonged expiration are the same, whether produced by natural or mechanical experiments: these are imprisonment of the air in the lungs; distension of all the permeable air-cells; increase of the pulmonary volume; enlargement of the cavity of the thorax, from the pushing out of its walls in every direction by the expanded lungs; approximation of the surfaces of cavities, from pressure on all sides by the pulmonary tissue external to them; union of these surfaces,—if early, by a soft membrane,—if late by a semi-cartilaginous intervention, &c.; arrest of the tendency to fresh tuberculous deposition from exercise and full expansion of the structure of the lungs, and a state of inertness or quiescence more or less complete of the tubercles already formed and uneliminated, they being surrounded by black secretion, isolating and often rendering them innocuous. Such are the effects of prolonged expiration in favourable cases. The great comparative advantage of the tube over nature lies in the following circumstances. It is capable of being so made that we have neither more nor less prolongation of expiration than is exactly necessary; it can be taken up and laid aside at pleasure, so that the lungs when fatigued with this mechanical exercise may have repose; it can be persevered in for any desired length of time, and abandoned when no longer necessary, or when contra-

indicated by the supervention of some incidental malady or symptoms. It is, in short, an instrument completely at our command, simple in its mode of operation, certain and safe in its effects. This may be properly called a manual or mechanical mode of treating consumption. No medicated vapours are required. The common atmospheric air, the elasticity of which is an essential requisite, is sufficient. We have no occasion for the fumes of tar, iodine, chlorine, hemlock, or turpentine.

Simple as this instrument is, its power is greater than can be appreciated by those who have not used it. Let it not be despised on account of its apparent simplicity being so incommensurate with its real pretensions.

When Naaman, the favourite minister of the Syrian monarch, applied to the wonder-working prophet of Israel for the cure of his leprosy, he was ordered to bathe in the waters of Jordan, but indignantly exclaimed, "Are not Abana and Pharpar, rivers of Damascus, better than Jordan's contemptible stream?" His servants judiciously reminded him that it was but a little thing the prophet had commanded. He bathed in the prescribed waters, and his leprosy was removed.

So would I counsel those who at first may treat this simple instrumentality with haughty disdain. The difficulty in making the experiment is little; try it, and though I have no pretensions to the gift of prophecy, or the working of miracles, I promise you success, exceeding your most sanguine expectations.

There are, however, certain rules which should regulate its use—viz., the stages, symptoms, and complications of consumption in which it is either inefficient, inadmissible, or for intervals longer or shorter to be suspended. These it is essentially necessary should be well understood, and shall be explained as we proceed.

[MEDICAL TIMES, 18th February.]

All attempts to place the treatment of consumption on a satisfactory medicinal basis have signally failed. The animal, vegetable, and mineral kingdoms, have been laid under contri-

butions to supply prophylactics and curatives. Demulcents, expectorants, emetics, sudorifics, narcotics, tonics, astringents, balsamics, &c., all have been combined in formulæ of endless variety, congruous or incongruous, scientific or empirical, and without any good effect.

Hence Laennec commences his chapter on the treatment of consumption, by commenting upon the unsatisfactory nature of the remedies usually prescribed. Fashion has suggested a variety of nostrums, which has each in its day enjoyed a transitory popularity, and then been quietly consigned to oblivion. The most conflicting and contrary plans have been adopted; acids and alkalies have been alternately recommended; spare diet, and rich animal diet; dry air, and moist air; pure air, and foetid air; oxygen, hydrogen, and carbonic acid; exercise and quiet; emollients and tonics; heat and cold; paretics, anodynes, and stimulants not only of the aromatic and antiscorbutic kind, but the most irritating preparations of mercury; the sulphate of copper, arsenic, &c.

Happily the pathology of the disease being better understood, our method of treatment is now placed on a firmer basis, and while, in many cases, certain medicines may be administered with advantage, the value of exercise, particularly such as bears more immediately upon the lungs, cannot be too highly appreciated. The principle, however, of its beneficial operation appears hitherto not to have been well understood, that is to say, the importance of giving expansion to the pulmonary tissue. Neither perfect recovery, nor indeed exemption from the danger of a relapse into a consumptive state can be relied on, except in very rare instances, unless the pulmonary organs become naturally or artificially voluminous. By medicine alone this effect cannot be produced, and so long as we confine ourselves to it, disappointment will track our course; there is no alternative left; the lungs must be expanded by some means, and those are obviously at our command in the process of artificial respiration, mechanically regulated by the construction of the respiratory tube.

Diminution of the pulmonary volume and contraction of the

chest are always found together, and have a reaction on each other. The moment the chest begins to contract from inadequacy of power in the respiratory muscles,—the result of debility, no matter how superinduced,—that moment also the lungs begin to contract, and *vice versâ*. The area of the great air-passage remaining nearly the same, while the capacity of the lungs is diminished, subverts the normal relation between the inspiratory and expiratory powers—renders the expiration too easy. The consequence of this contraction, viz., diminished activity, and disturbed balance, is the deposition of tubercles primarily in those parts of these organs, which, from their locality, possess least expansive power. Auscultation and autopsy concur in leading us to this conclusion. The evil once commenced, multiplies itself; the dissemination of tubercles at the summits of the lungs propagates irritation to the adjacent pleura pulmonalis and p. costalis, and leads to adhesions. The deposit in this site is very common. In the majority of adult *post-mortem* dissections, we find either tubercles or black stains, or dark oval indurations of the pulmonary tissue remaining after absorption: unless some stop be put to the progress of pulmonary contraction, a second crop succeeds to the first, and the morbid deposit goes on, if not cut short by dissolution, till at length the lower lobes are implicated. This increasing monopoly of the lungs by tubercles proportionally diminishes their expansibility. Even in health, owing to the various motions and positions of the body, the entire capacity of the air-cells is seldom fully dilated; how much more must this be the case under tuberculous dissemination?

The altered form of the chest, as it gradually departs from the healthy standard, is a faithful index of the morbid changes going forward internally. In phthisis there is generally a wide intercostal space; the convexity of the ribs looks more downwards than in health, and the lateral defences of the chest appear greatly lengthened; the sternum is either perpendicular, or drawn downwards and backwards, increasing the usual elongated appearance of the neck; the chest, losing its arched contour, becomes flat: from the sinking of the ribs, a marked depression is seen both above and below the collar bones, and the shoulders

come forward, giving to the scapulæ behind a wing-like form; all combining to contract the chest round the collapsing lungs. Now, in asthma we have the same coincidence exemplified by contrast. The lungs being preternaturally expanded, the chest also becomes so; some of the muscles of the neck are hypertrophied and unusually firm; a hollowness is seen above the sternum from the retraction of the trachea and advancement of the larynx; the shoulders are raised, the patient stoops, and unless there have been previous pleuritic adhesions or contractions from tuberculous disease at the summit of the lungs, there is no depression above or below the clavicles; the sternum advances forward in its entire extent; the arches of the ribs tend upwards, so as to give the chest a rounded, full form, adapting the capacity of the thorax to the voluminous state of the lungs. By regulating the respiration, we bring both the chest and the lungs to the normal state, which lies in the middle between these two extremes. Even so early as a month from the commencement of the use of the respiratory tube in young consumptive patients, it becomes occasionally necessary to let out the clothes round the waist. The following case will give some idea of its power over the structure of the chest.

The Rev. J. M. Howe, late chaplain of the City Hospital, New York, had consulted, without deriving benefit from their advice, many of the most eminent physicians in France, and also in London, and was, from the progress of phthisis, reduced to a state of almost hopeless prostration. Upon the principles now laid down he employed the inhaling tube, and was placed under the medical treatment adapted to alleviate concomitant symptoms. He very rapidly improved, and eventually recovered. His own account of the changes in the form of the chest appears in an American publication, dated 1839. He says, "the shape of my chest is astonishingly improved and enlarged. About six years since, the measurement of my chest close under the arms was thirty-two inches; but for five years following there was a gradual diminution, so that for three years previous to my getting the tube, my measurement was thirty inches, making a decrease of two inches; since using the tube,

I have increased in size two and a half inches, making my measurement now thirty-two and a half inches. But the alteration in the conformation of my chest is truly wonderful. The collar bones were very prominent, and the chest so drawn together, that I was afraid to see myself in the glass. Now my chest has recovered a round and plumper appearance, and my neck is filled out so that the conformation is better than it had been for years."

In a letter subsequently published, he mentions the names of several clerical and other friends, who made use of the tube by his recommendation, for relief from catarrhal asthma and phthisis. In some of the former, the disease had gone so far as to deprive the ribs of mobility; and in the latter, the chest had undergone various degrees of contraction. The mechanical respiration steadily persevered in, had the effect of imparting mobility to the chest in the asthmatic, and expansion of the chest to such as were phthisical.

Some time ago I received a letter from another American gentleman, who states that having employed the inhaling tube as recommended by me, at a time when the chest was contracted and his flesh much wasted, he gained, under the use of the tube, forty-one pounds in weight, and some inches in the size of his chest. He had been recommended to go to Madeira, but in deference to my advice he remained in London, and found the advantage of so doing, as indeed have many others with whom I am acquainted, who had been ordered abroad, but remained at home and recovered under this treatment. Here it should be observed, that although the use of the respiratory tube has, in phthisis, the effect of enlarging the pulmonary volume and the chest, it is not to be inferred that there is any danger of its being carried so far as to bring on a permanently emphysematous or asthmatic state of the lungs.

It may be asked why is consumption so prevalent among musicians who perform on wind instruments? The answer obviously is because they make several successive expirations to one inspiration. This is in direct opposition to the natural function of respiration, and also to the mechanical process as

regulated by the respiratory tube, and therefore produces effects directly the reverse, contracting the chest and diminishing the size of the lungs. On one occasion I was consulted by the leader of a band on behalf of himself and fellow-musicians, as to the best method of counteracting the effects of this irregular breathing, and I recommended that they should all take a long and quick run immediately after the close of their performances, or provide themselves with a tubular walking stick, constructed on the principle of the respiratory tube, and respire through it at proper intervals. This was followed by the best effects. Thus, upon examining an objection which apparently militated against my theory, we find that in reality it constitutes a well-marked confirmation of its truth.

How many instances of consumption occur among females who habituate themselves to the use of very tight stays or corsets! an injurious practice against which medical men have long lifted up their warning voice to no purpose. The confinement and stooping attitudes of young persons in counting-houses, manufactories, and various kinds of mechanical trades, send thousands prematurely to the grave, and sow the seeds of death, the fruits of which are sure to be reaped by future generations. All these bad effects may be accounted for upon the simple principle I have laid down,—contraction of the chest, and want of due pulmonary exercise.

The North American Indian, in the humid atmosphere of his boundless forests, exposed with very imperfect coverings to the rigours of variable and inclement winters, almost uniformly exhibits symmetry of the chest, and a sound state of the lungs. It is only by coming in contact with the habits of civilised nations that he suffers from the invasion of the malady, which desolates the enlightened regions we inhabit.

[MEDICAL TIMES, *February 25.*]

When we consider the exquisitely fine gossamer-like tissue of the air-cells, their prodigious number, and immense extent of surface, we need not wonder at the facility and certainty with

which they can be expanded, and the important changes consequent on the attainment of this object. The free and ample exposure of the blood to the atmospheric air is necessary to prepare it by arterialisation for the nutriment of the system; and in proportion to the extent of the air-cells impaired, will the sanguification be imperfect, and the due evolution of the animal heat interfered with, on which the healthy action of all the vital organs so absolutely depends.

The following cases corroborate those already adduced, in proving the power which pulmonary expansion exercises over consumption.

M. Lebeau, physician to the King of the Belgians, and principal physician to the military hospital at Brussels, in the preface to his translation of my work on consumption, mentions, that having long devoted his attention to this disease, he has been himself struck with the conviction that asthma has the power of arresting as well as preventing it; and that he could cite a considerable number of facts to illustrate this statement, but confines himself to one of recent date, and complete in its details.

M——, aged 48, a captain of an infantry regiment, presented himself at the military hospital at Brussels, with a view to obtain a certificate to exempt him from active service, in consequence of habitual dyspnoea. He complained of no other ailment, and was of full habit; his chest was of remarkable amplitude; wheezing, and the sibilant râle were heard over the whole thoracic region; the heart's action was regular and moderate, the pulse calm and natural, and the face exhibited no signs of venous congestion. He gave the following account of his case, in the presence of Dr. Coombe, of Edinburgh, who happened to be there at the time, of Drs. Limaugue and Biefve of Brussels, and several pupils:—"In 1816, after severe fatigue, I was attacked with cough and copious expectoration, wasted away rapidly, and was subject to shiverings in the daytime and perspirations at night, with wandering pains below the collar bones. My medical attendants repeatedly assured me I was consumptive, and could not long survive. While matters were in this state, I was seized with a difficulty of breathing, to such a degree as to oblige me to get out of bed at night, and repair to the

window to breathe fresh air. From this period my strength began to return, the perspirations ceased, and I soon became of as full habit as you now see me. My chest, which was flat and contracted, enlarged in an extraordinary manner, and I was completely cured, save the difficulty of breathing, for which I could obtain no remedy."

M. Lebeau adds, that Dr. Canstatt, a young physician of great merit, had related to him a similar and strikingly illustrative case which had occurred in his own family.

Among other remarks worthy of attention in Mr. Lebeau's preface, he makes the following very interesting and curious one:—"Taking into consideration all the circumstances preceding and accompanying this disease, and the appearances after death, I have had the most satisfactory evidence that the compression on the upper part of the chest of young soldiers, caused by the weight of the arms and accoutrements, has contributed very much to the occurrence of consumption."

The subjoined cases are submitted as additional examples of the benefits derivable from pulmonary expansion by measured mechanical respiration:—

Miss ——, aged 23, the daughter of a member of Parliament, was attacked by consumption, displaying itself in the usual manner by cough, expectoration, night sweats, and gradual emaciation. A few months after its commencement, one of her tonsils acquired considerable size, and coincidently her symptoms showed signs of amendment. This tonsil, after a short interval, suppurated, and the signs of amendment soon disappeared. Her relatives now began to entertain serious apprehensions, more especially as she had lost a brother and two sisters by consumption within a few months. When consulted I felt satisfied, upon examination and inquiry, that disease had commenced in the right lung, and been interrupted by the enlargement of the tonsil. It was also evident that it now existed in the summit of the left lung. The chest was flat and contracted, both the collar bones very prominent, and the infra-clavicular depression on the left side remarkable. The constitutional disturbance and preternatural heat of the chest were reduced by the application

of a few leeches occasionally between the second and third ribs of the affected side, and the administration of nitre and tartarised antimony, &c. Tonics and sedatives also were prescribed, to support the system and allay irritation. The patient, however, was taught to place her chief reliance on the artificial respiration, and not expect results in a very sensible degree sooner than a month. By perseverance in the use of the inhaling apparatus, her strength gradually returned, the appetite improved, the nocturnal perspirations ceased, the quality of the matter expectorated was amended, a satisfactory respiratory murmur became audible, the frequency of the pulse abated, the countenance resumed its former animation, the chest expanded, she increased in flesh, and the entire constitution was renovated. Before these desirable results were gained, she had twice or thrice, within six months, fresh liquefactions of pre-existing tubercles, attended, of course, with more or less renewal of the constitutional symptoms, during which the expectoration showed the softened opaque tuberculous matter minutely subdivided and suspended in the muco-purulent sputa. With the exception of these changes, the cure went steadily on till recovery took place. The great augmentation of flesh and enlargement of the chest that followed were particularly noticed by her friends and relations to whom she was in the habit of explaining the improvement that had taken place, by throwing her shoulders upwards and forwards, thus bringing the clavicles greatly in advance of the upper ribs, in imitation of the appearance of the chest in its previous state, that they might judge by contrast. This patient had used the tube for the space of about twelve months, three times a day as directed, and her symptoms had disappeared some months before she left it off.

Hohnbaum, the distinguished German pathologist, who translated my work on consumption into German, strongly recommends the extension of the term of its use for the sake of security.

About two years afterwards, at the close of the gay season in London, I was again called in to see this lady. She complained of cough and pain in the lower scapular region, which I attri-

buted to fresh softenings of old tuberculous nodules. Appropriate medicinal treatment, with the use of the tube, soon removed these symptoms of relapse, and she has not since required any medical advice. The mechanical respiration in this case prevented the deposit of fresh tubercles, and altered that peculiar habit which generates it.

Her eldest sister, with whom she had been in the habit of sleeping, a few months previous to her attack exhibited unequivocal signs of consumption; and, though having the advantage of the most distinguished advice, experienced no relief till she removed to Hastings. The bracing sea air and horse exercise which she there enjoyed, brought about an amelioration, so far as to check the most distressing symptoms and do away with the cough, but she still remained in a very delicate state. The satisfactory result of the sister's treatment induced her mother to draw my attention to her case also. I found the chest very much contracted, the middle of the collar bones standing out nearly three-fourths of an inch in advance of the upper ribs, which were, of course, greatly depressed, particularly those on the right side. Auscultation discovered in the summit of the right lung clear indications that consumption existed in a latent form, attended with an insensible excavation. For the improvement of her general health, tonics, chiefly quinine, with preparations of iron, were occasionally prescribed, and for the local affection the artificial respiration was steadily employed. The result was, that under this treatment she rapidly improved, the chest expanded, her complexion from being very pale became somewhat florid, and the functions of the system, which had been deranged by the constitutional debility, were restored to their normal state. She was subsequently married to an individual of noble rank, by whom she has had children, and her general health has not since been interrupted by any phthisical manifestations.

In examining the chests of the remaining members of the family, my attention was directed to that of a younger sister, which was preternaturally full and large, forming a remarkable contrast to the two preceding cases. Her general appearance

was that of robust health, the complexion florid, and her size and growth beyond her years. From the conformation of the chest, I at once suspected that there was some physical impediment to the respiration, which, on inspecting the throat, proved to be the case; the tonsils being so large as almost to meet. This enlargement at times interfered with the voice. There was nothing remarkable in the respiration, except that it was puerile. I explained to the family, and to her father who was present, the connection between the tonsils and the highly developed chest; and added, that although I could not by the ear detect the signs of tuberculous disease, yet I had no doubt the peculiar diathesis which had given rise to this unusual tonsillary enlargement had also led to the deposition of tubercles, and that they existed in a scattered form in the lungs. With a view to lessen the susceptibility of mucous irritation in the throat, I suggested the propriety of diminishing the tonsils by a leech applied occasionally below each ear, to be succeeded at times by moveable blisters. Sarsaparilla to improve the general habit, and iodide of potassium to promote absorption, were also recommended. This treatment was adopted, and the tonsils were reduced in size. The young lady was sent to a school at Brighton, where the tonsils became still more diminished from the sea air, and her chest after some time began to flatten, and other signs of phthisical disease betrayed themselves. She had been forewarned to use the tube, to make up by art for the loss of the protection derived from the lessening of the tonsils, but she neglected it. She returned to London for advice, when I was again called in. I pointed out that the reduction of the tonsils, coupled with the operation of some exciting cause, had brought on the softening of the tubercles previously suspected, and that the flattening of the chest, with the other symptoms, would have been prevented, had my directions relative to the tube been observed. Finding her constitutional symptoms urgent, I advised the abstraction of blood from the upper part of the chest by leeches, attention to medicinal remedies, alleviating and preparatory, and the regular employment of artificial respiration. These were followed up for some months at Brighton, to which place she after a

short time returned, and finally got quite well, in the identical locality where the disease had first declared itself in a manifest form.

The eldest son of this family had recently returned from a continental tour, undertaken to improve his general health, which was delicate. On examination, no evidence of disease was detected by the ear, but his chest was very much contracted, and his general appearance by no means healthy. He had spent some time among the mountains of Switzerland, where the climbing of ascents was well calculated to excite his lungs to deep inspirations. But the flatness of the thorax, the tuberculous diathesis prevalent in the family, the absence of tonsillary enlargement, disease of the heart, or any other protective agency, led to the conclusion that his lungs were extremely liable to tuberculous invasion, if not already tuberculated. He had just obtained a commission in a light infantry regiment, and was about to join it—a course which could not fail to be approved of, as the exercise, which includes a great deal of running, would prove highly favourable to the proper expansion of his lungs. The service agreed with him remarkably well; he liked it much, and was exceedingly active; the chest expanded, and his general health was considerably improved. After some months he married; and about a year subsequently, the regiment to which he belonged was ordered to hold itself in readiness for foreign service, on the breaking out of the war in Syria. Being the presumptive heir to a peerage, and by the particular desire of the nobleman whose daughter he had married, he retired from the army, very much against his own wish. This change from an active to a comparatively inactive life, was followed by an impaired state of his general health, and a cough. Four months from its commencement he came up to town, and had the advice of one of her Majesty's physicians in ordinary, who considered his case decidedly phthisical, and exceedingly serious, and directed him to proceed immediately to Tonbridge, giving him the name of a medical man, under whom he was to place himself. This was in the middle of summer, and in the latter part of autumn he was to

leave for Nice. The right lung was diseased, and the difference between the semicircumference of this side of the chest and the other amounted to nearly an inch and a half. The usual symptoms—cough, nocturnal perspirations, &c., were present. Considering that it would be highly improper to send him away, in such critical circumstances, from the very place where it might be expected he could procure the best attention—that it would be, in fact, a virtual abandonment of the case—I dissuaded him from his proposed journey, and apartments were, in consequence, taken for him near the residence of his parents, a short distance from Hyde Park. Due attention having been now premised for the relief of the constitutional symptoms, he was placed under a course of mechanical respiration, and shortly began to show evident signs of amendment, which ended in recovery, and thus superseded all necessity for leaving town or going abroad. Some winters have elapsed, and he still enjoys immunity from any return of the consumptive symptoms.

The above cases are not the less interesting from the circumstance of having occurred in one family, shortly after three of its members had been cut off by consumption; and it is not going beyond my own conviction to say, that but for the use of the mechanical respiration, they, in all probability, would have shared the same fate. The analogous features in their respective histories afford at once negative and positive evidence of the soundness of the principles assumed in the preceding statements. Some of these details are worthy of remark. In the first case the pulmonary affection showed itself originally in the right lung; and here we see it retarded and driven back, as it were, by the accidental enlargement of the left tonsil; on the return of this gland to its normal size, we find the consumptive indications reappearing, the site of the disease having changed from the right to the left lung.

It may here be incidentally remarked once more, that the greatest amount of disease is almost invariably recognisable, before and after death, in the left lung. When tubercular deposition first commences, it is generally in the summit of both

lungs, but greater in the right than in the left, and therefore solution is first discovered in the former. After this, it will often happen that some circumstance, such as has been already mentioned, interrupts its progress by expanding the pulmonary tissue in the neighbourhood of the disease. The more this tissue is expanded, the less susceptibility does it retain of fresh tubercularization; and hence the disease, if not checked in its advance, spreads more on the left side, and makes its most extensive ravages in that lung.

The effect of tonsillary enlargement was also seen in a very marked and unequivocal manner in the third case, where the chest was prematurely full, and well developed during its presence, but sunk into an opposite state of contraction upon its removal. The whole family, indeed, evinced a predisposition to the disease. Tubercles had formed in all their lungs; but in the cases adduced, their liquefaction had been kept back, and controlled partially and temporarily by natural antagonistic causes, and ultimately in a permanent way by art, which stepped in with aid, more certain and decisive than nature. Some credit was, no doubt, due to the medicinal treatment, both preparatory and accompanying, and this is a part of the question to be considered in its proper place; but the complete failure of mere medicinal treatment in similar cases, or its very modified and unsatisfactory results, argue strongly that the mechanical respirator had to bear the brunt of the action, and may with justice lay claim to the credit of success.

The fourth case exemplifies how unnecessary it is to remove patients from town, either to the country or abroad, when suffering from manifest phthisis. When affected with this disease, the practice of sending them away from their friends and their country, appears to me incapable of being defended; the chief argument in its favour would seem to be precedent. The fashion has so long prevailed that the propriety of it has ceased to be questioned. No good could have resulted from the patient's removal in this case. He would have been separated from his friends and relatives at a time, and under circumstances, that

most called for their attention and sympathy, also from the opportunities of procuring the best medical advice, which, it may be presumed, are much more numerous in this metropolis than abroad. He recovered without removal, and was thus spared the inconvenience and fatigue to which a long journey would have exposed him. Liquefactions are of constant occurrence; while they are going forward, patients require all the medical skill and care they can have, to watch and control the symptoms as they arise. Travelling by land or sea, places these, in most instances, beyond their reach; and, when located in the place of their destination, they run the serious risk of falling into the hands of unskilful practitioners, who, too frequently, by the administration of improper medicines — as, for instance, mercury — cut short the work of decay. These considerations are serious drawbacks to the hypothetical benefits of warm climates. Some of our high medical authorities, however, still sanction this practice, by recommending migration to many of their patients. When benefit appears to be derived, and the patient has returned alive, I have, as has been already noticed, been able to trace the cause to some natural protection, such as a contraction of the trachea, disease of the heart, &c., existing before they left home; or to pulmonary expansion, brought about by accidental catarrh caught in the prosecution of their journey; or, when the disease has been incipient, to the deeper and more energetic inspirations, which change of air and increased exercise occasion.

Here while considering the treatment of this disease, it may be advisable to explain in what manner the simple process of inhalation, while it expands the pulmonary apparatus, at the same time regulates the most important of the visceral functions. The mere expansion of the lungs in the first instance tends, indirectly, to remove congestion of the liver and also of the stomach, spleen, pancreas, and intestinal canal, all depending on the more free circulation of the blood in the former. The biliary as well as the great salivary secretion is hereby promoted to a healthy activity, such morbid irritability of the mucous membrane of the stomach as may be present, productive of indi-

gestion, is removed; the chyliferous absorption belonging to the small intestines, so indispensable to life, is actively carried on, and the injurious retention of excrementitious matter in the larger intestines is obviated by increased mucous moisture and accelerated peristaltic motion. It were easy, did I deem it essential, to point out at length the beneficial effects produced on other secretions, and to explain the mode by which inhalation acts on the kidneys; but sufficient has been stated to enable the medical man to draw his own deductions in these particulars.

With respect to the method of treating pulmonary consumption here laid down by me, I am well aware that it will have to combat with deep-rooted prejudice, wilful misrepresentations, and supercilious neglect: all which I anticipate and am prepared to meet. I shall, however, console myself with the reflection so felicitously made by Sir David Brewster, that "he who contends for truths which he has himself been permitted to discover, may well sustain the conflict in which presumption and error are destined to fall. The present age may not be a tribunal either sufficiently pure or enlightened to decide the issue; but he can appeal to posterity, and rest with confidence in its sure decree."

[MEDICAL TIMES, *March 4.*]

The principal concomitant affections or complications of phthisis, over which measured mechanical respiration exercises a beneficial control, next claim consideration. One of the more frequent and troublesome of these is ulceration of the larynx. The vicinity of the morbid action to the brain determines the blood to that organ; and the obstacle to its return, presented by the peculiar stifling character of the cough, keeps the patient in a constant state of excitement and irritability, equally distressing to himself and his attendants. The sense of constriction in the throat, dryness of the fauces, dysphagia, rejection of the food through the nostrils, lancinating pains shooting in the

direction of the ear, all conspire to torment the unhappy sufferer, and diminish the value of any addition to the term of his existence. It is astonishing how long this affection may protract life. I have known it to do so in some instances for several years; this is effected by the impeded expiration, consequent on tumefaction within the larynx, and adjoining portion of the trachea, which renders the lungs voluminous. Thus, we may account for the small size of the cavities so commonly observed on dissection: traces of obliteration are also of frequent occurrence, indicating the repairs nature was carrying forward by the aid of the obstruction.

M. Cruveilheir, in his "*Anatomie Pathologique*," records a case in point. "A labourer, aged 40, entered the *Maison Royale de Santé*, with all the symptoms of laryngeal phthisis. He had been seized with hoarseness about ten months previously to his entering. On examination, his lungs appeared healthy, with the exception of a dry and sonorous cavity in the summit of the right lung. The patient died, suffocated by the laryngeal affection. On opening the body, the vast cavity in the summit of the right lung was perfectly cicatrized." The affection of the throat, in this case, obstructed the expirations; the lungs, rendered voluminous by the detention of the air, brought the sides of the cavity into apposition, and cicatrization ensued. This was, however, but the substitution of one evil for another, equally, or, I might say, more dangerous, and certainly more distressing. Occasionally so little do the lungs exhibit of the characteristics of disease, so masked are all phthisical signs, that the affection of the throat is often regarded as primary, and hence we hear laryngeal phthisis sometimes mentioned as an idiopathic disease. In all cases supposed to be so, the lungs, on autopsy, will be found to reveal the unequivocal tokens of primary pulmonary tubercularization, or the practised auscultator will have discovered it previously. The use of the tube has been found eminently serviceable in averting this complication, or modifying its character; it will rarely happen that prevention is not secured by its timely employment. Its power will be in proportion to

the length of time intervening between the commencement of its use, and the period when, without it, in the course of nature, the laryngeal affection would have supervened. If other circumstances should not contra-indicate its use, even after the supervision, it may be advantageously employed to relieve the difficulty of breathing present. All these desirable results are obtained without the drawback of any aggravation of the symptoms, danger, or pain.

Another very serious complication is diarrhœa. When it sets in, the patient's death-knell, in the great majority of cases, begins to toll: the chances remaining of a lengthened respite are very few indeed; but even these are increased by the careful and judicious use of the respiratory tube. A patient named Swedenburg was admitted into the Infirmary for Diseases of the Chest, with every bad symptom of consumption; and, among the rest, diarrhœa. His lungs were very extensively diseased, yet he lived more than two years; during which, under this treatment, all the constitutional symptoms were greatly moderated, and existing cavities healed up. He died at last of diarrhœa. It has been already stated that, in old catarrhal cases, tuberculous diarrhœa is seldom met with. Inhalation in the later stages produces a similar effect to catarrh: little apprehension of diarrhœa need be entertained, if its use has been previously persevered in for any reasonable period. Thus, it would appear, that it may be employed to execute palliative and prophylactic, as well as curative, intentions. It may be thrown out as a sheet-anchor, even at the eleventh hour. A clergyman's daughter, who had been despaired of, in phthisis, by several medical men, was induced, as a *dernier ressort*, to employ the inhaling apparatus for two or three months, during which period a decided retrogression of all her bad symptoms was established. Considering herself well, she left it off and died. It is not improbable that, had she gone on till her disease had been more completely brought under, she might, so far as it was concerned, have been still alive. Many similar cases might be cited.

Pleuritic adhesions in by far the greater number of cases are occasioned by irritation from tubercles in the subjacent tissue of

the lungs. Whatever expands the air-cells seems to take away this disposition to form pleurisy. In cases of asthma we find pleuritic adhesions of very rare occurrence, except at the summits of the lungs: when met with they may be often considered antecedent in origin to the latter disease. The lungs in this state afford the finest specimens of exemption from morbid pleuritic agglutinations or thickenings. It is interesting to observe in those cases where they do occur, how the air-cells of the portions covered by healthy pleura are greatly dilated, hypertrophied, and, as it were, ready to burst their bonds. The respiratory tube, by its expanding power, in a similar manner prevents these adhesions.

The value of the tube in catarrh, which it supersedes as a curative agent, must not be overlooked. By due exercise and expansion of the bronchial ramifications, it contributes to allay, or indispose to, irritability of the lining membrane, and I have often heard patients state that after its use in the morning they have been better, and more freely able to bring up the accumulated phlegm. When contraction of the trachea exists, the exertion on the lungs required for the expulsion of the air by the pressure from below upwards, dilates the great air-passage, and counteracts the tendency to spasmodic action and superficial ulceration or thickening. Hence it may be advantageously resorted to a few months before the setting in of winter, or before removing to cold humid climates, particularly by persons who are very susceptible of the return of the bad symptoms from exposure to the ordinary exciting causes. It contributes to prevent and remove congestion of the mucous membrane, by the healthy cuticular action consequent upon improved sanguification. As a prophylactic it may also be ordered when the constitution is scrofulous; it alters the habit, and renders not only the lungs, but also all the other viscera less susceptible of tuberculous deposit. Hence we might deduce the propriety of its general adoption by the members of those families in which the hereditary taint is suspected, or already begins to develop itself.

In cases of empyema its employment is calculated to add to the chances of recovery by improving the condition of the lung

on the side opposite to that affected, and producing slight expansion of the diseased lung even in the face of the accumulated fluid, if timely resorted to, before the conversion of the investing pleura into fibro-cartilaginous tissue. The disease is kept from advancing; the empyematous matter thus left to itself, may, under favourable circumstances, determine to the surface, in illustration of which the following cases may be read with interest.

About five years ago, Mr. S——, of the Entrée Office, at the Custom House, Liverpool, came up to London for advice. He was found on examination to be labouring under consumption, with empyema of the left pleural sac, and his general health was less impaired than might have been expected from the nature of his complaint. The state of the chest, and all the symptoms were further improved by the use, for several months, of the respiring tube. A tumour at length formed which soon began to fluctuate, and matter pointed externally. It was opened by a surgeon in Liverpool, and the contents of the pleural sac allowed to escape. After some short time he improved surprisingly, became robust, and considered himself perfectly restored, with the exception of a slight oozing discharge, which rarely amounted to a wine-glassful in a day. During this progressive state, he was in the habit of practising the mechanical respiration, but on his health appearing to him so very satisfactory it was laid aside. He now married, and mixed in general society, visited and frequented parties as a person in perfect health would do. A few months subsequent to his marriage, fresh liquefactions in his left lung brought about a return of alarming symptoms, which becoming gradually worse, he came to town once more for advice. He acknowledged that he had neglected the instructions sent to him in Liverpool, the principal of which were, to persevere in the use of the tube, and avoid exposure to the night air. Had he carefully observed the advice given, he might have recovered instead of sinking as he did under the disease. His well-marked improvement in the beginning when he strictly acted upon it countenances this supposition. His death took place

about eighteen months after the operation, and was attributable to exhaustion from fresh liquefaction and its sequelæ. The discharge never entirely ceased, but did not increase during his last attack.

A young lady living at Gravesend, a friend of a very intelligent practitioner, had been confined to her bed for some weeks, constantly lying on the left side. The case was obviously one of empyema supervening on consumption. The constitutional symptoms were absent, but had been exceedingly well displayed, as appeared from inquiry, before the occurrence of effusion. It is worthy of note here, that when empyema takes place in phthisis, the constitutional symptoms become equivocal,—they are either very slightly marked, or nearly absent. Leeches were recommended to be applied to the side, followed by blisters, with a view to lessen the vascular action of the serous membrane and promote absorption. It is unnecessary to enter into the case more minutely than to state that the mechanical treatment was adopted to obliterate phthisical excavations, and produce a general pulmonary expansion. After the lapse of about two months the matter pointed; an opening was made by a surgeon, which was followed by a purulent discharge; this continued for some weeks. Meanwhile, she persevered, as directed, in the practice of inhaling, her symptoms being at the same time watched by her usual medical attendant. A few months afterwards, being perfectly restored, she came to town, and continued without any pectoral disease, in a very satisfactory state of general health.

The respiratory tube was originally prohibited in affections of the heart generally, but further experience has proved that it may be resorted to here also with advantage, when the lungs are not congested, but simply voluminous in consequence of mucous bronchial intumescence or tracheal spasm. It has been found useful in heart affections symptomatic of chlorosis, and in most of the nervous complaints of females attended with cardiac dilatation. Its beneficial effects on the sanguification are exemplified by altering the complexion from a pale to a healthy sanguineous tint, and on venous congestion by removing sublividity of the lips and turgescence of the veins of the neck.

DIRECTIONS FOR THE USE OF THE INHALING TUBE.

Let the patient inhale and exhale through the tube for at least eight or ten times in the minute, with the lips closely applied to the mouth-piece. Little effort is required beyond that of ordinary respiration. As an easy posture, and freedom from any tightness of dress are indispensable, the opportunity may occasionally be taken of inhaling in bed.

On commencing a course of mechanical respiration, it is recommended that the patient use the tube before meals, for about five minutes, three times a day, viz., morning, noon, and night, and gradually increase the period by a minute or two each day, until it reach half an hour. The process must then be reversed, and the duration of the respiratory exercise be reduced in the same gradation to the five minutes with which it commenced.

In this manner the employment of the tube should be continued long after the removal of the symptoms of the disease.

If any fatigue be felt, the tube may be laid aside for a short time, and then resumed.

The patient should avoid inhaling when there is spitting of blood, difficult breathing, pain in the chest, or during the presence of any inflammatory symptom.

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