

# THE

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### ON THE EMPLOYMENT OF INHALATIONS IN CONSUMPTION AND OTHER PULMONARY DISEASES.

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THE facts which have been brought forward with reference to the beneficial effects gained by combining local with constitutional means in the treatment of laryngeal diseases, would lead us to expect similar advantages from the direct application by inhalation of volatile remedies to the seat of the disease in pulmonary affections. It can scarcely, however, be said that we have as yet derived an equal advantage from the use of inhalations; and it may be asked how it is that a mode of treatment, which has been used more or less from the earliest periods, has not furnished more definite and useful results; and that, notwithstanding the discovery of a new class of remedies—the anæsthetic, such as ether and chloroform—this mode of treatment may still be said to be in its infancy. One reason may perhaps be that the investigation is a difficult matter, and would require to be made thoroughly on a large scale in order to furnish definite results. It is an easier matter for a medical man to prescribe a medicine than to superintend the inhalation of remedies. I believe, too, that our knowledge of the subject has not advanced as much as it might have done, because many who use inhalations prescribe them without any well-defined object beyond the soothing effect, which may often be attributed rather to the watery vapor than to the medicinal agent; and Dr. Snow has shown that some used for this purpose, such as extract of hyoscyamus, are incapable of being volatilized, and cannot therefore have any effect at all. There are, however, a great variety of volatile agents capable of being used for inhalation, which have never been tried at all; and, as organic chemistry is constantly adding to their number, there can be little doubt that this is a mode of treatment from which we may yet expect to derive a considerable amount of assistance in the treatment of pulmonary diseases.

My own researches on the use of inhalations being at present incomplete, I should not now have touched upon the subject were it not to direct attention to a mode of treatment which seems to me to be somewhat neglected. I shall examine it, therefore, rather with the view of ascertaining what is the actual state of our knowledge of this mode of treatment, and how far we may reasonably expect to derive benefit from

the use of inhalations, than for the purposes of stating the results of my own observations.

When volatile remedies are inhaled, they must produce, besides the general effect resulting from absorption, as occurs with chloroform, a local action on the mucous membrane and its secretions, and hence we should expect them to exert an influence in bronchitis, especially the chronic forms. They must also produce a direct action upon the nerves which supply the mucous membrane, and through them upon the muscular fibres of the bronchial tubes. This would lead us to expect that inhalation of antispasmodic remedies would prove beneficial in spasmodic asthma, a deduction which is confirmed by the results of experience. Some remedies, such as iodine, must, when inhaled, act more directly upon the tissue of the lung itself, than when taken internally, and hence it was thought that they might promote absorption of tubercles of the lungs. But experience has not confirmed this view; and, when we consider that tubercle is the result of a constitutional disease, there does not appear to be any good ground to expect advantage, until at least the constitutional tendency to deposition has been arrested or removed. There is still another very common morbid condition of the lungs, upon which the inhalation of volatile agents must act directly, viz., ulcerated cavities resulting from tubercular disease. In these cases it would be a vain hope to expect any lasting good from mere local treatment; but, in conjunction with such treatment as suspends or removes the constitutional disease, it is reasonable to expect benefit from such means. I have never, therefore, used inhalations in those cases where cavities were present in the lungs, except in conjunction with other means, to arrest the disease, and seldom until some decided progress had been made. I conceive, however, that in many cases where the health has been restored by the use of the means which recent improvements have placed in our hands, when the patient has become stout and often apparently well, but has still an open cavity in the lung, it is quite possible that local means may be used with advantage. In such a condition we know that, even after the cavity has contracted, and the process of healing is advancing, the ulcerated surface is liable to become inflamed from exposure to the weather and various other exciting causes; that the unprotected vessels often allow blood to escape, causing hæmoptysis; and that there is always more or less purulent secretion, which weakens the system and re-acts upon the constitutional tendency to tubercular disease. There can be no doubt that the want of power to complete the healing of cavities, even after considerable progress has been made, is one reason that patients so often relapse after they have regained an appearance of health. Without overlooking the fact that tubercles generally exist in other parts of the lungs, I consider that the discovery of means which would promote the cicatrization of cavities in these cases of arrested phthisis is a desideratum and a legitimate object of inquiry. Any means which would promote this object would certainly tend to advance still further the treatment of consumption.

Dr. Snow has shown, in a paper on the inhalation of various medicinal substances, that some must be inhaled with the aid of heat, such as

opium, morphia, extract of stramonium, and the gum resins ; others with the vapor of water, such as iodine, camphor and creosote ; and a third class of substances, such as hydrocyanic acid, ammonia and chlorine, at the ordinary temperature. Mead, in his day, recommended fumigations with the balsams in phthisical cases ; and Dr. A. T. Thomson (*Cyclopædia of Medicine*, Art. Expectorants) has stated that he has seen much benefit from them when inhaled in spasmodic asthma, in shortening the paroxysm and promoting expectoration. Dr. Snow found that ammoniacum gives off a fragrant, rather pungent odor, which can be inhaled very well by most persons. He also found inhalation of the watery extract of opium serviceable in relieving the cough, but that morphia was the most pleasant and suitable preparation of opium for inhalation. Extract of stramonium afforded more or less relief in five or six cases of asthma. He tried iodine in eighteen cases of consumption at the Brompton Hospital ; in ten of them it was continued for more than a month ; and the conclusion to which he came was, that no benefit could be observed to follow its use. Oil of turpentine appeared to relieve the cough in a few cases, and likewise camphor. He used the volatile alkaloid conia in the quantity of one minim diluted with nine of spirit ; the cough was usually relieved, and in two or three cases the breathing also. It would therefore seem from its volatility, at the ordinary temperature, to be a remedy peculiarly suitable for inhalation, if it could be obtained more easily. Dr. Snow also found great relief produced in a few cases of bronchitis with difficult expectoration, from inhaling ammonia, twenty drops of the strong solution being mixed with two ounces of water in a Woulfe's bottle. Chlorine has been much used for inhalation. It was introduced for this purpose in France, and there seems to be good reason to believe that it has proved of material service in cases of chronic bronchitis, and even in some of phthisis. With reference to its use in the latter disease, Sir James Clark has observed, "We have tried it in many instances, and it has in several apparently suspended the progress of the disease." He also states, that it relieved dyspnœa and cough in some cases, though in the majority it produced no amelioration. Dr. A. T. Thomson has likewise stated, that in cases of asthma the relief it produced was very striking, and that in phthisis he had observed the hectic symptoms abate.

Of the various remedies now mentioned, it is probable that the gum resins and balsams, camphor, conia and chlorine, are the most suitable and useful for inhalation ; but it does not appear that, by inhalation of opium or morphia, any very decided advantage has been gained over the more ordinary mode of exhibiting them.

The vapor of tar was formerly recommended for inhalation, and few medicines have been more used for this purpose than creosote. Sir Alexander Crichton, in 1823, strongly recommended tar vapor in consumption ; but Dr. Forbes, in a report of cases in which he had tried it, published in the *Medical and Physical Journal*, stated that he had found it injurious in this disease, though of service in some cases of chronic bronchitis. He appears, however, to have used it in cases so far advanced, that no benefit could reasonably have been expected from its

employment. Creosote has now superseded the use of tar vapor, which does not, from its irritating properties, seem well suited for inhalation, though there can be very little doubt, when we consider the healing power which it has as an external application, that it must exert a similar effect upon the lungs, if it could be used in such a form as to obtain its beneficial influence apart from its irritating properties. Creosote is, perhaps, more generally used by the profession for the purpose of inhalation than any other remedy; and I believe that when sufficiently diluted with the vapor of water it is one of the most useful. I have found that it has a sedative influence, relieving cough and promoting expectoration, whilst it at the same time not unfrequently lessens the quantity of this secretion both in consumption and bronchitis.

I have already observed that the pyrogenic bodies act upon the mucous and cutaneous surfaces; and my attention has been directed to other bodies of this class by the fact that many of them have remarkable healing properties when applied to ulcers and chronic cutaneous eruptions, a fact which leads me to expect that this class of bodies may, when fully investigated, furnish a suitable remedy for promoting the healing of pulmonary ulcers, and thus supply the desideratum to which I have previously alluded. Many of the pyrogenic bodies possess such healing properties in cutaneous diseases in a greater or less degree. From my own experience, I know that ointments made with tar, creosote, spirit of tar, juniper tar oil, and naphthaline, each have such properties, and are valuable remedies in the treatment of skin diseases.

The inference drawn from these facts, has led me to use for inhalation, some other pyrogenic bodies, viz., spirit of tar, juniper tar oil, Persian naphtha, and eupion. The spirit of tar possesses the healing virtues of tar, without its irritating effects; so much so, that I think it might advantageously supersede the crude substance, as an external remedy. It is more readily volatilized than creosote; and, when inhaled, it produces generally a mild, stimulating, and often rather a soothing effect upon the lungs. In some instances, however, it has appeared to increase the cough and expectoration, and it is not, therefore, suited for cases of bronchitis until inflammatory action has been subdued completely, or for cases of consumption until progress has been made in arresting the disease. Without wishing to speak confidently of the remedy, I may state that it has appeared useful in some cases of the latter disease, in conjunction with other treatment. Juniper tar oil (*oleum cadinum*), which is a valuable remedy in skin diseases, and much used on the Continent, is less volatile than spirit of tar, and it is more irritating when inhaled. Persian naphtha and eupion possess decided anæsthetic properties: the former, when inhaled along with the vapor of water, has in some instances relieved difficulty of breathing in a very remarkable and decided way; and this fact renders it worthy of trial in spasmodic asthma. Eupion has decided sedative properties, it has relieved cough and difficult breathing, and patients have slept after using it; but it is not a pleasant remedy to inhale, and it has not unfrequently produced sickness afterwards, so that I should not recommend it to be used for this purpose.

I have used several of the essential oils for the purpose of inhalation. Many of them possess decided antispasmodic properties; and I have found that they have a remarkable power of relieving difficulty of breathing, a property which renders them peculiarly suitable for the treatment of spasmodic asthma. The oil should be dissolved in spirit, and inhaled with the vapor of water, so as to dilute its stimulating properties. The oils of cubebs, turpentine and copaiva, which are pure hydro-carbons, are mild in their action, and produce very little stimulating effect. The oxygenated oils which I have used appeared to be more stimulating in their action on the air-tubes; and some of them have stronger antispasmodic and expectorant properties. The oils of anise seeds and of peppermint are very stimulating, and in general cause too much irritation. Oil of spearmint is milder and anti-spasmodic, relieving difficulty of breathing in asthma, and even in phthisis. Oil of fennel is also mild. The oil of origanum is moderately stimulating and expectorant. I have also used the oils of rosemary and pimenta, which have similar properties. The hydruret of benzoyle, which is the bitter almond oil deprived of its prussic acid (and closely connected with gum benzoin, becoming benzoic acid in a higher state of oxidation), is very irritating and much too stimulating for inhalation.

Chloroform is a remedy which has been much used by some medical men for the purpose of inhalation, not only in asthma, but in a small quantity in consumption, in order to relieve irritable cough. In some cases, I have dissolved the essential oils in chloroform, and given them in this way for inhalation, their volatility being so much increased that they may thus be given on a handkerchief, as chloroform is usually administered.—*Report on the Treatment of Consumption.*

#### CONCENTRATED MEDICAL AGENTS.

*To the Editor of the Boston Medical and Surgical Journal.*

SIR,—In a recent number of the Journal, is an article upon the establishment of the American Chemical Institute, by Messrs. Keith & Hendrickson, New York. I hail the universal knowledge and use of concentrated medical agents by the profession, as one of the distinguishing marks between the infinitesimal homœopath, infinitesimally diluted and attenuated—the patent pill-monger and nostrum-vender—or the quack with his secret remedies, together with Major Standstill—and the learned medical profession with their safe and proper medicinal agents, scientifically-prepared and administered. Well may Dr. Jalap retire from the cares and troubles of professional life, since Dr. Jalapine will undoubtedly prove to be the dutiful son who more than makes good his father's place.

I have long since laid aside all those bulky articles of the *materia medica*, for which I could substitute the concentrated preparations. I am also using several articles which would have offered, by their bulk, insurmountable objections to their general use, had they not been presented in a concentrated form. My patients have already remarked the