right apex, and who was very plethoric in spite of careful dieting and plenty of exercise. Immediately on the presence of any such symptoms, as referred to above I resorted to the treatment described, and no haemoptysis resulted, although previously without such treatment an attack resulted. Exceptions are met with, and the following case is one in point:

The patient, a man, who on arrival at this sanatorium weighed 15 st. 3 lb. (1 st. above his normal weight), and was very flabby, with a large patch of solid pleura with some disease in the adjoining lung at the right base, slight consolidation at both apices, and tuberculous laryngitis, has had, after about two months of sanatorium life, four attacks of haemoptysis, namely, on October 7th and 21st, and on November 6th and 21st. The attacks always come on at the same time—after the mid-day dinner—the quantity of blood lost has always been the same, just over 1 pint. There have been no premonitory symptoms as already mentioned, beyond a slight uneasiness felt in the chest. On the last occasion (November 21st), however, flushings and slight uneasiness were experienced, which the patient did not communicate to me until afterwards, so I was unable to follow my usual course in this case. The advent of the above symptoms, together with the regular periods of the attacks, tend to show that they are in the main determined by the blood pressure, which evidently rises to a certain point with resulting haemoptysis and then falls. My treatment all along in this case has been to reduce the weight, which is now 14 st. 6 lb.; it will be seen from this that he has had a moderate diet, and the amount, one would think, not enough to induce plethora. The patient, however, has a temperature which unfortunately prevents his taking only a small amount of exercise, consequently one of the most important details in the treatment of plethora, namely, exercise, is unable to be followed.

It must be borne in mind that the treatment described is not applicable to every case, but each one must be treated individually. For instance, where cavitation is present, and where it is suspected that the bleeding may come from the leaking of a large or the rupture of a small pulmonary aneurysm, the treatment must be modified accordingly, by lowering blood pressure and rest, with very careful exercise if given at all. In these cases experience is the main thing to rely on, together with a perfect knowledge of the case.

Wind exposure is always liable to bring on an attack of haemoptysis, and, therefore, should be avoided by having the sanatorium in a sheltered country.

TWO CASES OF LUNG DISEASE TREATED WITH THE EMANATIONS FROM THORIUM NITRATE.

By GORDON SHARP, M.D. EDIN.,
Leeds.

ACTING on the suggestion of Mr. Frederick Soddy, M.A., contained in the BRITISH MEDICAL JOURNAL,¹ I have been employing during the past few weeks the emanations from thorium nitrate solution in the treatment of two cases of diseases of the lungs, details of which will be given presently.

500 c.cm. bottle (17.598 oz.) containing 100 grams ($3\frac{1}{2}$ oz.) thorium nitrate in solution. The outlet tube (the smaller) acts as a mouthpiece. The inlet (the larger tube) should be straight not bent as in the drawing.

APPARATUS EMPLOYED.

The apparatus employed consists of an ordinary gas washing bottle modified to suit the special conditions. This has been made for me by Messrs. Reynolds and Branson. Every part of the apparatus is of glass, and the inlet and outlet tubes are attached to the stopper, so as to form one continuous piece.

The outlet tube is drawn in the shape of a mouthpiece, by means of which the inhalations can be made. The arrangement will be readily understood by a study of the accompanying figure.

CHARGING THE BOTTLE.

The bottle has a capacity of 500 c.cm., or, roughly, 17.598 oz., and in this quantity of water are dissolved 100 grams of thorium nitrate, or as near as possible $3\frac{1}{2}$ oz. When solution has been effected drop by drop of dilute ammonia is added to neutralize any excess of nitric acid that may be contained in the thorium. As soon as the first cloud of white thorium hydroxide is thrown down no more ammonia is to be added. Later on small quantities of thorium fall to the bottom of the bottle, but this is not important. The solution having been so prepared, more water is added to fill the bottle, in order that when the stopper with the inlet and outlet tubes is in position the "dead air" space above the liquid may be as small as possible. Having stood for twenty-four hours so that gaseous emanations may have time to collect, the solution is ready for use. Two patients may inhale the emanations continuously for one hour a day each at an interval of eleven hours—that is to say, one patient could start at 9 in the morning and inhale for one hour, while the other could inhale for one hour at 9 in the evening. By observing this rule time is given for the emanations to re-collect after each exhaustion.

Mr. Soddy says a small tube of pounded caustic potash may be inserted in the mouthpiece tube to absorb moisture and to neutralize the possible presence of nitric acid vapour. I have not found any need for such a tube. In the inlet tube I place a few pieces of dry thorium nitrate. This may act as an additional help in preventing the escape of emanations when the apparatus is not in use. When the bottle is not in use the inlet and outlet tubes should be closed by glass taps or glass stoppers to prevent leakage of the accumulating gaseous contents. In my present apparatus I have no such arrangement, so I have to close the inlet tube with a strip of glass thickly smeared with white vaseline, and the narrow opening of the outlet tube I cover up with the same unguent. Carbonaceous or easily oxidizable matter must not be employed as stoppers.

For further particulars Mr. Soddy's article should be studied.

CASE I.—Suspected Phthisis.

A boot-fastener, aged 24, had suffered from a "neglected cold" for many weeks previous to my seeing him on November 4th, 1903. He complained of shortness of breath, persistent cough with expectoration of white frothy material, increasing weakness, and he said he had lost 6 to 7 lb. in weight within two months. I examined his chest and found on the right side behind and over the lower lobe increase of vocal fremitus, scattered patches of dullness, and soft mucous râles. There was no heart trouble and no kidney trouble. I thought it was a case of incipient phthisis and had his sputum examined on one occasion, but with a negative result. He was put on Begbie's mixture alternating with Easton's syrup. He also took cod-liver oil and malt extract, and he himself suggested living out of doors as much as the weather warranted, and this was carried out. At the end of six weeks he showed no signs of improvement, and at this period his chief complaint was of shortness of breath on exertion and the persistent cough. I now started him with the inhalations from thorium nitrate solution, and at the end of fourteen days he felt so much improved that he went back to work and has been at work for over a week, although he comes daily to have the treatment. The chest condition is improving.

CASE II.—Suspected Phthisis: Pleuritic Onset.

A brickmaker, aged 23, was first seen in the beginning of September, 1903, the history being that he had spit blood two months before I saw him. He now complained of pains on the left side of the chest below in the collar bone. Distinct pleuritic rubbing could be detected over this region. He again spat blood in small quantities on five separate occasions and at intervals of two or three weeks. He says he had lost half a stone in weight. Mustard plasters were repeatedly applied over the area of pleuritic rubbing, and internally he was treated with the usual round of tonics; he was also sent to the country for one month but was hardly any better. His sputum was not examined. He had at the beginning of December, 1903, arranged to try an extended change of air, when I asked him to undergo the thorium treatment. He had altogether twenty-one sittings, and he has improved so much that he has returned to his work, and when I last examined his chest the pleuritic friction had disappeared.

Let me add I do not claim for the emanations a specific action, nor, indeed, any action at all, but I believe I am warranted in giving the treatment a further trial, and I place these results on record in the hope that others may give it a trial also. In this way we shall find out if these emanations possess any virtue in the treatment of the class of diseases I have mentioned. Having watched the patients while inhaling I could perceive that, quite apart from any virtue possessed

by thorium, the breathing exercises must be good. The gas-washing bottle costs 10s. 6d. and the $\frac{3}{4}$ oz. of thorium nitrate 12s. 3d., making a total of 22s. 9d.

REFERENCE.

¹ A Method of Applying the Rays from Radium and Thorium to the Treatment of Consumption, BRITISH MEDICAL JOURNAL July 25th, 1903, p. 197.

THE THERAPEUTICS OF SEA VOYAGES.*

By MARTYN WESTCOTT, L.R.C.P.LOND., M.R.C.S.ENG.

[ABSTRACT.]

THERE is so little available literature on this subject, and it is so useful for stay-at-home medical men to know something of the nature of sea-voyaging from a therapeutic standpoint that I make no apology for introducing the subject on this occasion.

Yearly there are sent abroad on sea voyages a large number of invalids who have no chance of receiving benefit therefrom. The main idea is that a change of air is probably the one thing likely to do good, and that brings me to the first point, namely, that a perfect all-the-year-round climate is not to be found in the world. If bracing and dry, there will be much wind and dust; if equable it will necessarily be moist and to some extent enervating: there is no known climate which is dry, windless, invigorating and equable. A sea voyage gives one a good chance of a long period of equable weather, but in a steamer making for any particular place, and proceeding northwards or southwards, there is too much rapidity in the changes for most invalids. The voyage to New Zealand, one of the two commonly prescribed for febrile consumptives, running out via Cape Town and back via Cape Horn, is by no means always a desirable journey, whether on first-class liner steamers or specially-fitted sailing vessels. From my own notes of weather experienced during a round voyage to New Zealand and back, from April to September, I may summarize that the first fortnight was cold, windy, and wet, and the third week was spent in muggy heat in the tropics; that the weather then grew daily colder and less agreeable, while from April 29th to May 6th the average mid-day deck temperature was as low as 40° F. On May 19th we arrived in New Zealand in autumn time, and for a week in Port Chalmers the weather was as variable as it is possible for weather to be in a temperate zone. At Lyttelton in June the weather strongly resembled that of an English November. Homewards, between the Colony and Cape Horn were days of bitter cold, tempests, and heavy rains. Five days later we were in almost insufferably hot weather, and two consumptives on board became highly febrile and contracted troublesome coughs.

Now, on both steamer and sailing vessel changes of climate must, of course, be encountered; but if on the latter they are more gradual, it is also true that, once in the tropical doldrums—a most unfavourable place for the phthisical and debilitated—a sailor may have to wait even weeks for a favouring wind. Physiologically speaking, on a sea voyage there is plenty of open sunshine and light, and the air is uncontaminated by organic particles. Passive motion takes the place of exercise for the feeble; tissue change hurries along, and where an increase of appetite follows all may go well; but many invalids find ship food very unappetizing.

As a tonic, a restorative, and a sedative for worn-out or brain-fagged people a sea voyage may do wonders. For consumptives with actual slight mischief in progress or in a latent state a voyage to South Africa and back from January to April will often prove an excellent measure; but to send a phthisical person really febrile and subject to pleurisy on a long sea voyage by himself is often a piece of ignorant cruelty. Nor will a voyage that includes much of the tropics be suitable for nervous diseases. The intense heat and damp are too enervating. Cases of angina pectoris, exophthalmic goitre, hypochondriasis, chronic bronchitis (unless sicca) should never be sent to sea.

The second point is the choice of a ship. For the majority, a first-class steamer in a first-class line is too expensive; though on the steamers of some of the second-rate lines the cabins are larger and the feeding not at all unsuitable, moreover the attendance is often better in the latter. But no steamers carry certificated nurses regularly, if at all; the

surgeon meets with the greatest difficulty in getting invalids supplied with medical comforts and extra attention, and there is a feeling that board-ship is no place for the sick. Again, there is seldom adequate provision for cold and draughty weather; cabins are small, inconvenient, and must often be shared with some one else; and in bad weather the passengers may be "battened down between decks" in a place which rapidly grows steamy and unwholesome, and has little air or light. Three consecutive days of this weather will produce a most depressed effect on most invalids, the "racing" of the screw the continual jerky motion of the entire vessel, and the nervous dread of disaster often act disastrously on people who are out of health. *Per contra*, the duration of the voyage is definite, and the course is prearranged in a steamer voyage; the bill of fare is plentiful, so is drinking-water, and there are generally entertainments on board; moreover, there is nearly always a qualified medical man.

The contrary conditions frequently obtain on sailing ships, except those fitted up solely as invalid passenger ships. But the lack of an ice chamber is generally much felt, and handicaps the cook in his efforts to provide dainty fare. In favour of sailing ships, I may remark that the cabins are commonly well-ventilated and roomy; there is no smell or throb of machinery, no cramping of space on deck, and life, if monotonous, is peaceful and undisturbed. Where time is no object, in cases of neurasthenia and brain fag, such a voyage may well be prescribed. The treatment of sea-sickness, which is so greatly dreaded, and over-dreaded, should in my opinion be begun before embarking. Four or five days before sailing I like to bring patients under a course of sedatives such as chlorobrom or ammonium bromide, at the same time attending thoroughly to the action of the bowels, and endeavouring to remedy any dyspeptic condition. Beginning with a brisk purge of calomel and hyoscyamus, or colocynth, I prescribe gentian and soda, or bismuth and hydrocyanic acid, according to the case, and then 10 gr. or 15 gr. of ammonium bromide and a small dose of hydrobromic acid three times a day regularly until the second day out. An individual with bad circulation and flabby heart will require diffusible stimulants in addition, and either sedative or stimulant may be increased as the critical time approaches, according to the necessities of the case. A great deal may be done by judicious counsel and encouragement from the medical man attending the case, especially if he be skilled in the art of hypnotic suggestion. I have frequently improved bad cases of *mal-de-mer* by mere hypnotic suggestion as recommended by Lloyd Tuckey and others. In severe cases, whether due to cerebral or gastric disturbance, I have been well satisfied with the results of a blister, as large as the palm of one's hand, placed over the epigastrium. Of course there is no royal road to cure in all cases of *mal-de-mer*; some seem to be due even to such a trifling matter as slight astigmatism or ordinary errors of refraction, and the wearing of suitably prescribed spectacles on deck gives the relief required.

As advisers in the home circle, we doctors should remember that in sending a patient on a voyage we are isolating him from his home, and from any kind of home, and from the everyday world altogether; and that he will live among a set of more or less unsympathetic and careless strangers. We should reflect what it would mean if he were to die on board, or if it became essential that he should land somewhere abroad, far from friends and country, and remain there for a time. To some people mere home-sickness makes a voyage one prolonged discomfort. I would urge on family doctors the desirability of sending a communication to the ship's doctor in every instance. This is seldom done, and I have often been confronted, as the vessel leaves the land in the distance, with serious cases of whose technical medical history I have been told nothing. It is well-nigh impossible to make a satisfactory physical examination of a patient in the cabin of a steamer in motion. Again, the dispensary of a ship is not too well stocked, and if the doctor has no knowledge of the drugs that have been already exhibited, the patient may suffer in consequence. Only on my last voyage I had to treat a case of violently spasmodic asthma, and neither nitre nor stramonium were to be found in the medicine chest; and there was a quite inadequate supply of potassium iodide.

The routine of life on board ship has been too often described to need recapitulation here. Patients should be warned against over-eating (and this warning is by no means unnecessary, for little exercise is taken); also against sleeping on deck, especially in the tropical nights, which are very uncertain in temperature.

* A paper read before the St. Pancras Division of the Metropolitan Counties Branch of the British Medical Association.