repetition, and with a persistency belonging to no other cause. Even when there are no external indications of maternal syphilis, the succession of abortions or of dead children in more advanced pregnancy is traceable to a latent form of the disease which manifests itself in this fashion. If a woman has syphilis before conception, she is much more predisposed to abortion than a woman taking the disease after conception; if conception and syphilis commence together, abortion and premature labour with a dead child are the rule, but treatment is more potent in preventing them; syphilis acquired after the mid-period of pregnancy has less influence on the child, and it may escape altogether. One of the ways in which syphilis brings about intra-uterine death is by producing disease in the foetal appendages; the venereal poison is transmitted to the embryo through the maternal blood, and may affect any or all of the tissues in the gravid womb. Uterine congestion or displacement, leucorrhoea, oxytoxic medicines, and reflex motor actions induced by minor surgical operations (tooth-drawing, &c.), have the effects of inducing abortion in some cases. All surgical proceedings during pregnancy ought to be abstained from, but if such operation be absolutely necessary the time corresponding to the catamenial periods must be avoided, the uterus being at such times more irritable. Dr. Priestley concluded his lecture by briefly referring to the effects of persistent gastric irritation, vesical, renal and rectal irritation, ovarian irritation, and finally to the injurious influence of mental emotion—fright, anxiety, &c.

A Lecture

ON THE

NEW METHOD OF TREATMENT OF CONSUMPTION AND OTHER DISEASES OF THE RESPIRATORY ORGANS BY GASEOUS RECTAL INJECTIONS.

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GENTLEMEN,—Occasional paragraphs in the medical journals have called attention during the past few months to a method of treating consumption and other affections of the organs of respiration which, whatever may be the ultimate estimate of its value, certainly possesses the characters of originality and novelty. I allude to the employment of gaseous rectal injections introduced and practised by Dr. Bergeon, a well-known physician at Lyons, and formerly a *professeur suppléant* in the School of Medicine in that city. Dr. Bergeon brought this subject before the Académie des Sciences and the Académie de Médecine in Paris through Professor Cornil, the eminent pathologist, last summer. Since that time it has been adopted by several eminent physicians in Paris, including Dr. Dujardin-Beaumetz of the Hôpital Cochin, Dr. Constantin Paul, and Dr. Chantemesse, Chef du Laboratoire de Bactériologie in the Faculty of Medicine; by Dr. Vailet, Professor in the University of Geneva; by Dr. Queirel, Professor in the School of Medicine at Marseilles; and by other eminent practitioners of medicine on the continent of Europe. Our own countryman, Dr. Henry Bennet of Mentone, has written a warm eulogium of its effects, and has claimed for this method "serious consideration and trial." I have thought it my duty, as Professor of Clinical Therapeutics in this College, to make further inquiry into this method, to familiarise myself with its details, and to put it into practice before your eyes. In order to do this, I first communicated with my friend Dr. Leudet of Paris, who has had a very large experience in the treatment of affections of the respiratory organs at Eaux Bonnes, and begged him to inform me what impression his observation of this treatment had made upon him. He replied that there was certainly "something in it," and kindly offered, if I would come to Paris, to obtain for me

opportunities of seeing it carried out there. I therefore at the end of last year paid a short visit to Paris for the purpose of informing myself thoroughly of the details and results of this method so far as at present ascertained. My best thanks are due to Dr. Dujardin-Beaumetz, to Dr. Bardet, the able Chef du Laboratoire Thérapeutique of the Hôpital Cochin, and also especially to Dr. Leudet for so kindly affording me all the information I required. I may say at once that I agree with Dr. H. Bennet in considering this method as having been attended with results which would make it culpable in us to disregard it or fail to avail ourselves of such opportunities as we possess to give it a fair and persevering trial. I am, moreover, disposed to believe that the local application of sedative gases and vapours, which this method makes easy, may prove of considerable service in other affections, and especially in the treatment of uterine and intestinal maladies.

Dr. Bergeon's original object was to discover some means by which the development of the tubercle bacillus should be hindered; this does not necessarily mean the destruction of the organism *in loco*, but the modification of its probable chemical action on the tissues, so as to render it harmless. And here I would like to point out that those who have been in haste to repudiate antiseptic medication as applied to the treatment of phthisis, because of the necessity, as inferred from laboratory experiments, of administering such large doses (if the bacillus is to be destroyed) as to render them actually toxic, have really been most illogical and unscientific in their imagined submission to scientific experiment. A narrowness of view is, I regret to say, not inconsistent with an assumption of scientific accuracy. It has not as yet been proved in what way the bacillus acts in destroying pulmonary tissue, and in determining the production of the disease known as pulmonary consumption; and it does not help us to say that it sets up inflammatory changes, and then determines a certain kind of degeneration in the products of inflammation. These are only phrases which explain nothing. Numbers of other microbes reach the lung and do little or no harm there, their mere presence proving harmless! I beg you to mark that.

Are we to assume that it is impossible so to alter the medium, the soil, the surroundings (whatever you like to call it) in which the tubercle bacillus is found and where it develops, as to reduce its presence to the same condition of harmlessness as that of a number of other microbes? It would be most illogical and absurd to do so. It is this idea that is in the minds of those who speak of an "antiseptic" treatment of phthisis as being possible and necessary. One method of fulfilling this indication would be to cause gaseous bodies capable of modifying the development of the bacillus to penetrate the air cells and parenchyma of the lungs. Amongst the substances which seemed capable of doing this were sulphuretted hydrogen and the vapour of bisulphide of carbon. The inhalation of the spray, as well as of the vapours given off by natural sulphuretted waters, and the administration of such waters by the stomach, have long been held in high repute, especially in France, in the treatment of consumption and other chronic diseases of the respiratory passages. In the autumn of 1876, some years before the publication of Koch's discovery of the tubercle bacillus, in a paper I contributed to the annual meeting of the British Medical Association on "Recent Researches in the Treatment of Phthisis," in referring to the use and action of sulphur waters, I used these words: "I am by no means sure that we shall not discover that many of our remedies for phthisis act *antiseptically* which are thought by many to act otherwise. May not the sulphurous mineral waters, such as those of Eaux Bonnes, act in this way?"

Other vapours were also tried by Dr. Bergeon, such as gaseous iodoform and eucalyptol. This observer had not been able to obtain all the good effects he desired from the use of antiseptic vapours by inhalation; and although, for my own part, I have had most convincing proof that such a mode of administration is attended with benefit in most cases, and with very remarkable amelioration in some, it requires a steadfastness of purpose and a constancy of application on the part of the patients and their friends, as well as on the part of the physician, that are but rarely met with. Without great thoroughness in this mode of applying antiseptic vapours, no doubt they penetrate but very imperfectly to the often diffused and deep-seated foci of disease; moreover, some of these gases would prove poisonous when admitted into the lungs by inhalation. This is the case with sulphuretted hydrogen, which is

highly poisonous when respired in certain proportions, and it produces serious effects on the blood-corpuscles when it passes into the arterial circulation. Diffused in *small* proportions through the atmosphere inhaled, it has for many years, as I have already stated, formed a part of the regular treatment of affections of the respiratory organs at sulphur spas, such as Eaux Bonnes, Luchon, Cauterets, &c.

It was through calling to mind the experiments of Claude Bernard on the absorption of gases by the large intestine that the method of gaseous rectal injection suggested itself to Dr. Bergeon. C. Bernard discovered that gases were readily absorbed by the large intestine, and that when thus absorbed they passed into the portal circulation, and thence into the pulmonary artery, and there came into contact with the pulmonary parenchyma, and were eliminated (if the dose had not been too large) through the lungs. He found that, if a small quantity of a weak solution of sulphuretted hydrogen were injected into the rectum, it was eliminated without any ill effects by the lungs; while the same quantity respired under a glass jar would be toxic. In administering gases by the rectum, it is, of course, necessary to inject only such an amount as can be readily eliminated by the lungs, otherwise the whole would not be separated and a portion would pass into the arterial system. After a series of test experiments, Dr. Bergeon found that by the method of rectal injection he could administer relatively large doses of antiseptic gases, and it was clear that in elimination they would be distributed over the whole parenchyma of the lungs, and so of necessity come into

well as the fluid in the bottle, between them. This "resistance offered by the rectum" is sometimes very manifest, as we found in the first two cases in which we applied this method. 2. The use of *mineral* acid to generate the carbonic acid is attended with the risk of carrying over irritating sulphuric vapours. 3. The price was excessive—viz., 70 francs, or £2 16s.!

The apparatus which I have before me, and which we have used in this hospital, was devised by M. Bardet, the Chef du Laboratoire de Thérapeutique at the Hôpital Cochin, at the request of Dr. Dujardin-Beaumetz. It is manufactured by Galante et Fils, the well known instrument-makers, No. 2, Rue de l'École de Médecine, Paris, and it may be obtained from them at the moderate price of 35 francs (see woodcut). This apparatus has the great advantage of having all its component parts contained in one box, and is therefore easily transported from place to place; its manipulation and application are easily learnt, and may be entrusted, after a time or two, to an intelligent attendant, or even to the patient himself. Moreover, the carbonic acid is generated by means of a vegetable acid, which is neither toxic nor corrosive. It consists, as you see, first, of a "generator" (A), and a large glass bottle with a wide mouth, in permanent communication with the indiarubber bag or "reservoir" (R). In the generator the carbonic acid gas is generated, and for this purpose there are furnished with the apparatus small cartridge-like boxes, each filled with the necessary quantity of bicarbonate of soda and tartaric acid (separated by a partition of cardboard), in the proportion of twenty parts of

contact with the diseased parts. Having determined to ascertain the value of sulphuretted hydrogen given in the form of rectal injection, he had next to discover the best gas to be employed as a vehicle. On experiment it was found that atmospheric air, so far from being inert, was a very active irritant to the rectal mucous membrane, and finally carbonic acid gas was chosen because of its well-known anæsthetic properties, and because it is rapidly eliminated. The method employed by Dr. Bergéon was a very simple one. An indiarubber bag, holding from four to five litres, was filled with pure carbonic acid, and this was connected with an elastic ball, the working of which withdrew the gas from the bag containing it and drove it into a bottle—the "barboteur" as it is called in French,—which held a solution of sulphuretted hydrogen or of bisulphide of carbon. In its passage through this solution the carbonic acid gas became charged with the sulphuretted vapours, and this mixture of gases was very slowly injected into the rectum through a tube terminating in an ordinary bone cannula. In the apparatus constructed for this purpose by Dr. Morel, Dr. Bergéon's assistant, the carbonic acid was generated by adding dilute sulphuric acid to bicarbonate of soda. The gas given off was collected in an indiarubber bag, which, when filled, was detached and then connected with the bottle containing the sulphur water or other agent. The following were the objections to this apparatus:—1. That, as the injecting ball was placed in front of the "barboteur," it was difficult to feel the sensation of *resistance* offered by the rectum, as there was a long tube, as

the former to sixteen of the latter, to set free enough carbonic acid gas to fill the reservoir, containing four litres. The "injector" (I) is worked by an elastic ball, or "pear" (P), which, with its tube, is outside the apparatus. This injector is provided with valves, which allow the gas to be aspirated from the reservoir (R) by suction action of the ball (P), and when the ball is compressed prevent the gas from flowing back into the reservoir and cause it to escape by the cannula (c). The bottle (B), called a "barboteur," contains the medicated fluid through which the carbonic acid gas is forced to pass on its way from the reservoir to the injector. The box, then, contains the following parts—a generator of carbonic acid (A), a caoutchouc bag or reservoir (R), a "barboteur" (B), and an injector (I). Outside the box are the injecting ball or pear (P), and the "cannula" (c) with the tubes connecting them to the injector. The injector, which is formed of an arrangement of valves (*i* and *i'*), is made of metal, and is, together with the other connecting portions of the apparatus (*r t t'*), combined together into a single solid block. The gas furnished by the generator (A) passes out by the tube *a*, which is connected at the tap *r* with the central metallic block, whence it escapes by the tube *t'*, through which it reaches the reservoir (R). It cannot escape by *t*, as it is prevented by the resistance of the liquid in the "barboteur" (B). As soon as the reservoir is filled with gas the apparatus can be put in action. We compress the elastic ball (P), and the air it contains is driven out through the valve *i* and the cannula; then, when it re-expands, it tends to produce a

vacuum, and so opens the valve *i'* and aspirates the gas from the reservoir, which, passing through the tubes *t* and *t'*, reaches the "barboteur" (B) by the tube *v*, which descends to the bottom of that vessel; it becomes charged with the medicinal vapour in passing through the fluid contained in the "barboteur," and then escapes by the exit tube *v'* into the caoutchouc tube connected with the valve *z* and the injector (I); the ball (P) and the injector are then filled with gas. We then compress the ball, and the compressed gas opens the valve *i'* and escapes by the cannula (C), and so on until the reservoir is emptied.

Having described to you the different parts of the apparatus, I will now show you how it is worked. First, you fill the "barboteur" (B) rather more than half-full of the medicated solution you intend to employ (sulphur water, water impregnated with bisulphide of carbon, or hot water containing iodoform, terpinol, &c., in suspension), and you close it tightly with the cork. Secondly, you put a few drops of water into the generator (A) and then empty into it the soda and acid powder contained in one of the little cartridge-like boxes. You wait a few seconds in order that the air contained in this flask may be driven out by the small quantity of carbonic acid, which is set free by the few drops of water which you have placed in the bottom of the vessel previously. You then cork it firmly, and by means of the funnel provided with the apparatus you fill the generator about half-full of water, being careful to see that the tap *r* is open. As soon as the water is added the gas comes off freely, and in about two minutes fills the reservoir; shaking the flask will hasten the discharge of gas. The reservoir being filled, you work the elastic ball (P) three or four times in order to get rid of the air contained in the tubes and in the "barboteur," and then you introduce the cannula into the rectum. The ring on the cannula serves to regulate the length of tube introduced into the rectum and to maintain it there. The injection of the gas must be made very slowly and gently, waiting ten or fifteen seconds between each compression of the ball (P), and taking from twenty minutes to half an hour over the operation. The quantity of gas injected at each operation must depend chiefly on the tolerance of the patient—the minimum being one litre, the maximum about four litres. It is necessary also to take account of a certain amount of resistance to the injection on the part of the rectum encountered during the first two or three attempts with some patients. In this case it is well to wait a few minutes, and then to inject very slowly. As soon as the operation is finished it is necessary to empty and wash out the generator.

It has been stated that Dr. Bergeon, in order to obtain sulphuretted hydrogen in a pure and unirritating form, has hitherto been obliged to confine himself to the use of Eaux Bonnes water. Some bottles of this water are on the table before you. But an obvious inconvenience attends this limitation of the source of the sulphur gas, and, besides, the Eaux Bonnes water is but feebly charged with the gas, and some bottles are found unfit for use, as they yield little or no gas. We have had recourse here to the solutions suggested by Dr. Bardet for generating the sulphuretted hydrogen, and we have found them to answer perfectly. The first of these (No. 1), the sulphuretted solution, contains 10 grammes of sodium sulphide in 100 cubic centimetres of distilled water. This is made by passing pure gaseous sulphuretted hydrogen through a pure solution of soda, subsequently adding a weight of soda equal to that already employed, and then the water necessary to arrive at the strength indicated. A cubic centimetre of this liquid sets free exactly 10 cubic centimetres of sulphuretted hydrogen. No. 2 is an acid solution used for setting free the sulphuretted gas from the preceding; this is made by dissolving 25 grammes of tartaric acid and 1 gramme of salicylic acid in 100 cubic centimetres of distilled water. (The salicylic acid is simply to prevent the formation of mould in this solution.) One cubic centimetre of this solution entirely displaces the sulphuretted hydrogen of 1 cubic centimetre of the preceding. These solutions¹ afford us the means of estimating accurately the quantity of sulphuretted hydrogen administered. It is advisable, as Dr. Bardet points out, even when using a natural sulphur water, to add some solution of a vegetable acid, to set free the sulphur gas; if you do not do so, you will find the carbonic acid acts very slowly in setting free the sulphuretted hydrogen.

With regard to the dose. We have been using here the

proportions indicated by Dr. Bardet as giving the best practical results—viz., 10 cubic centimetres of the sulphuretted solution to 200 grammes of water; this mixture is placed in the "barboteur," and 10 cubic centimetres of the acid (No. 2) solution is added. If all the sulphuretted hydrogen were set free from this and mixed with the carbonic acid gas injected, we should obtain a dose of sulphuretted hydrogen equal to 100 cubic centimetres. But there is always a little milkiness produced on the addition of the acid solution, due to the deposition of sulphur, and probably not more than two-thirds or three-fourths of the above stated quantity reaches the rectum, even when the full quantity (4 litres) of carbonic acid gas is injected. As to the quantity of carbonic acid injected, it varies from one to four litres, according to the tolerance of the patient. Dr. Bergeon directs that two injections should be given daily, but in Paris they rarely give more than one, unless the patient can only tolerate a small injection at a time, and then they also give them twice a day. At present we have only given them once daily. Those of you who have seen these injections administered will agree with me that apart from the odour of the gas there is nothing particularly objectionable in this method, either to the medical man or to the patient. But it must be admitted to be a troublesome method, when compared with our routine modes of treatment, and that it takes up much time. When, however, we consider the vast amount of time we give to investigations in morbid anatomy, we ought not to complain because modern progress in connexion with experimental therapeutics throws on us additional labour and additional duties in this the most practical and most essential branch of our art. The trouble and labour attending the application of this method make it very desirable that it should be taken up and put into practice, not by one or two physicians only, but by a considerable number, for only in this way can its merits and applicability be tested in a sufficiently large number and variety of cases. Hitherto its application has been limited to affections of the respiratory organs, to phthisis, to asthma, and to catarrhal conditions of the air passages. It has, however, occurred to myself and to others that the injection of sedative gases and vapours by means of this apparatus may be destined to be of great service in other maladies, and especially in some painful uterine and intestinal affections.

Other agents besides sulphuretted hydrogen have been applied in the form of gaseous rectal injection with the aid of this apparatus. Iodoform in suspension in warm water has been placed in the "barboteur," and a mixture of its vapour with carbonic acid injected. It has been found of value especially in cases of fetid expectoration. Eucalyptol has also been used, but it has so far been found to be attended with so much bronchial irritation that its employment has not been persevered in. Terpinol has proved useful in phthisical and catarrhal cases with much fetid expectoration; the fetor of the breath has been agreeably modified.

This method is so new, and, so far as this country is concerned, so untried, that you will not expect me to express at present any very positive opinion as to its value, based on my own observations; but I will tell you what I have been able to gather from trustworthy observers. I will state to you Dr. Bergeon's own testimony, and put before you the results of our own observations so far as they have gone.

And, first, as to Dr. Bergeon's own testimony. He has stated that by this method phthisis, asthma, and chronic bronchitis can often be cured and nearly always alleviated. For more than two years he has been applying this method in cases of chronic diseases of the lungs and throat—more than two hundred in number—with an astonishing amount of success. In cases of early phthisis, he says, the disease is usually arrested in two or three weeks, and in a few months cured; and considerable amelioration is obtained in advanced incurable cases. It lowers the pulse, reduces temperature, checks the night sweats, restores appetite, diminishes greatly the amount of expectoration, and removes its purulent character, while the cough is greatly relieved. In advanced laryngeal phthisis he has observed rapid benefit when all other treatment has failed to give relief. Paroxysms of asthma are relieved more effectually than by any other means. Such is the testimony of the inventor of this method—testimony advanced not hastily, but as the result of two years of careful observation.

Dr. Chantemesse reports that he treated "nine patients in his wards presenting the general and local signs of pul-

¹ Those used in King's College Hospital were prepared by Messrs. Bell of Oxford-street.

monary tuberculosis with characteristic bacilli in their sputa, by Dr. Bergeon's method, and they obtained very great benefit. The increase of body weight was rapid—a pound and sometimes a kilogramme a week. Cough and expectoration were considerably diminished. The sputa, however, continued to present the characteristic bacilli of tubercle. They were under treatment for six weeks. One gained nine pounds in weight in that period." He also applied this treatment to two cases of very violent spasmodic asthma. He injected carbonic acid gas mixed with vapour of bisulphide of carbon. Half an hour after the first injection there was a very notable relief of the dyspnoea, and, the treatment being continued, the breathing became free and the paroxysms did not return during the whole course of the treatment. Commenting on the clinical observations of Dr. Chantemesse, Professor Cornil remarks: "So far we may say that rectal injections of carbonic acid and sulphuretted hydrogen gas constitute an excellent therapeutic method in phthisis as well as in asthma, and we ought to accept it all the more readily seeing how powerless are the therapeutic resources which we oppose to phthisis."

Dr. Morel,² alluding to the continued presence of the bacilli in the sputa of those restored to health by this method, suggests that their injurious influence is probably neutralised and their infectious properties destroyed by this mixture of gases; but he points out that unless this treatment be maintained in some degree, even in those restored to health, there can be no sense of security against a relapse so long as the characteristic bacillus appears in the expectorations.

In Geneva Dr. Bennet testifies he found several physicians adopting this method of treatment last September with "apparent benefit." He also states that in a case of very advanced phthisis under his own observation this treatment was "attended with an un hoped-for rally," and in a case of obstinate asthma he observed most remarkable alleviation.

Dr. Bardet, reporting the results of the observations at the Hôpital Cochin in Paris, says, "so far our results accord entirely with those announced by Dr. Bergeon. A rapid and constant sedative effect ensues, the cough diminishes rapidly, the patient sleeps much better, and the expectoration tends to disappear. These effects are very remarkable."³ in Paris they were disposed to regard the carbonic acid itself as a valuable and important remedial agent.

As at present, we have only tried this method in this hospital for five or six weeks, and on a very limited scale, we have not been able to do more than corroborate some of the preceding statements. There is certainly no difficulty or danger in the operation, and we have not found it objectionable to the patients. We have observed a gain in flesh and strength, and an expression of general amelioration; the pulse, temperature, and respiration have fallen, and the expectoration has been diminished; rest at night has been improved. Beyond these statements of general improvement our data at present will not allow us to go. I have been much indebted to the co-operation of our excellent house-physician, Dr. Ewens, and particularly to my clinical clerk, Mr. Verdun, without whose valuable help it would have been impossible for me to have carried out a method of treatment requiring such constant personal supervision.

If bisulphide of carbon be the agent employed in Dr. Bardet's apparatus, it is necessary to empty the "barboteur" after each injection and wash it out with alcohol, and afterwards open the tap, and by means of the elastic ball (P) drive air through the tubes so as to get rid of all the vapour of the bisulphide, otherwise it will rapidly make the apparatus unserviceable. I saw one case in Paris, a young girl in the cavity stage of phthisis, who had benefited much at first from this treatment, but subsequently it had to be discontinued on account of the difficulty she experienced in expectorating, so greatly was the expectoration diminished in quantity. Another patient also in advanced phthisis, in an adjacent ward, was clamouring for a renewal of the injections (which had been suspended) on account of the benefit he had received from them. No doubt the trouble attending this method of treatment will tend to render it unpopular with hospital attendants, and we must therefore be on our guard how we allow it to be discredited from interested motives. Dr. Bergeon maintains that when this method has failed it has failed because of a faulty or insuffi-

cient mode of application, and that if it is to be fairly tested it must be on the conditions he has laid down.

It must be admitted that new methods of treatment of phthisis are often submitted—and by those who should know better—to most improper and unsatisfactory tests. If the treatment we have been discussing, or any other treatment, were absolutely curative of phthisis, it could only be so under certain definable conditions. We may go further, and assert that if we possessed at this moment a certain cure for tuberculosis, it would of necessity leave a great proportion of existing cases of phthisis incurable. We should endeavour to realise this fact clearly, and to clearly comprehend what is the problem involved in the "cure of phthisis." To cure phthisis, we must begin to treat the disease before it has led to its most common result, the extensive destructive disintegration of lung tissue. No doubt local ulceration and loss of substance may occur, and cicatricial contraction and arrest of disease follow, when the surrounding lung tissue is sound; but this can only take place when the lung destruction is circumscribed and limited. Unfortunately, we too frequently have cases brought to us for treatment when all chance of curative treatment has passed away, and no matter what remedies we might have at our disposal, we could not work with them impossibilities. Yet we find experienced physicians testing "cures" of phthisis on advanced and hopeless cases of this kind, and reporting that the remedies are useless because they do not cure cases which are by no possibility curable. If the morbid changes which take place in the lungs in phthisis were actually open to our inspection, if we could see them instead of having them concealed from us, the idea of local medication of the lungs in the treatment of phthisis would, I feel sure, make rapid progress. The modification of the ulcerative, decomposing, and disintegrating changes, and tendencies to change, in phthisical lungs by antiseptic agents, which, in whatever form administered, have a local action, would appear to us imperative. Whether our antiseptic influences take the form of the pure aseptic air of the open sea, or of elevated mountain regions, or of pine forests, or of the inspiration of antiseptic vapours in well-ventilated apartments at home, or of antiseptic agents administered by rectal injection, or by hypodermic injection, which latter method is being largely employed in Paris at this moment, the principle is the same—viz., to exert an antiseptic and aseptic influence on the pulmonary or other affected tissues.

It is untrue to state, as some physicians have not hesitated to do, that the idea of antiseptic medication in phthisis has failed to be of much benefit. On the contrary, it has been productive of enormous benefit; and when the professional mind has overcome some of its prejudices and its narrowness of view and mode of thought, it is destined, I feel certain, to be of the greatest possible service. In connexion with this subject I was struck with the report by Dr. Neale in the *British Medical Journal* of Dec. 4th, 1886, of the excellent results he had obtained from what he called the "open-air treatment of phthisis." But what else had the patient besides a freely ventilated apartment? "Iodine is freely distributed about the apartment, and a pad of terebene placed under the chin when the patient is in bed. Food is pushed, cod-liver oil, with iodoform pills, and iron and belladonna, and oxide of zinc to control the night perspirations." I congratulate Dr. Neale on the signal success of his vigorous antiseptic medication. I could not wish a more thorough application of its principles: iodine vapour and terebene vapour to the respiratory passages; iodoform internally; fresh air always.

About the same time that Dr. Neale was pushing antiseptic treatment in the case he has reported, Mr. Pollard, of Queen Anne-street (in October last), brought a young gentleman to see me whom we both thought had but a very short time to live. He presented an aspect of marked cachexia, a temperature of 103° F. at midday, and rising even higher in the evening; physical signs of infiltration of the upper part of the left lung, with patches of dullness over both lungs behind, accompanied with blowing respiration and a pleuritic friction here and there. It is true the disease was of comparatively recent date, and there was no evidence of extensive destruction of lung tissue, but the fever was so considerable, the cachexia so marked, and the infiltration apparently so diffused, that we arrived at a very unfavourable prognosis. We declined to sanction his leaving home, and I pointed out to my friend Mr. Pollard that I considered the only chance of improvement, and that but a faint one,

² Nouveau Traitement des Affections des Voies Respiratoires par les Injections Rectales Gazeuses. Paris, Masson, 1886.

³ Les Nouveaux Remèdes, November, 1886, p. 506.

rested in antiseptic medication. We gave him, internally, four minims of creasote in two teaspoonfuls of cod-liver oil three times a day, and prescribed the continuous inhalation of equal parts of terebene and eucalyptol. He had also a quinine and strychnine mixture as a general tonic, and some powders at night of bismuth and oxide of zinc to check the night sweats and tendency to diarrhoea. About three months afterwards I own I was somewhat surprised to see Mr. Pollard reappear with his young patient, and transformed. The results of this treatment had been most remarkable. Beyond the continued existence of the physical signs of some infiltration at the left apex, and some irregularity in the inspiratory expansion of the chest, as though from pleuritic adhesions, his condition was most satisfactory. He had gained much flesh; he had no fever, no night sweats, no dyspnoea, and not much cough. The cachectic appearances had vanished. I asked Mr. Pollard how he had contrived to obtain so striking a result. He replied that it was by a most thorough, painstaking, and conscientious adherence to all the details of the treatment we had agreed upon. When, gentlemen, we encounter such results as these from a method of antiseptic medication rigorously carried out, I think we are justified in saying, in the words of Dr. Leudet, "There is something in it."

Clinical Lectures ON DISEASES OF THE EYE.

*Delivered at the Nottingham and Midland Eye Infirmary,
December 9th, 1886,*

BY C. BELL TAYLOR, M.D., F.R.C.S.,
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LECTURE V.

EYE TROUBLES IN GENERAL PRACTICE.

GENTLEMEN,—I see no reason to doubt, and there is every reason to believe, that the operations you have just seen will end in the restoration of sight; and to restore sight to the blind has ever, and justly, been considered one of the grandest of human achievements. Brilliant and gratifying, however, as undoubtedly are the results of our most frequent ophthalmic operations, they are, after all, but as dust in the balance compared to the vast amount of human misery which is alleviated and the sum total of blindness which is prevented by the judicious treatment of the most common maladies to which our patients are subject, and which invariably in the early and most curable stages come under the notice of the general practitioner. Take, for instance, that most frequent of all the causes of blindness, the purulent ophthalmia of infants. There is no disease so easy to prevent, there are few diseases so easy to cure, and there is not one so fatal in its effects. If you will look over this work by Professor Corradi, entitled "*La Cecité en Italie*," you will find that there are upwards of 300,000 blind persons in Europe alone; and if you will glance at this graphic representation of the causes of blindness prepared by Dr. Magnus of Breslau, you will see at once that the purulent ophthalmia of infants stands at the head of the list; while if you will study, as I have done, the reports of the various blind asylums throughout Europe, you will find that from 30 to 46—ay, and 50 per cent.—of the inmates of these institutions owe their misfortunes to this terrible disease. Gentlemen, just consider what this means: it does not mean blindness coming on after a long life of usefulness or pleasure; it does not mean dimness of vision, admitting of more or less hopeful treatment; it does not mean damaged sight or blindness of one eye; it means blindness of both eyes—total, irreparable, coming on in the very earliest days of infancy, and lasting throughout the whole of many a long, weary, tedious, desolate life. Now this disease is not caused, as many have believed and taught (Stellwag), by cold, by a draught, or by sudden exposure to concentrated light. It is caused, as was first pointed out by our distinguished countryman Gibson, of Manchester, by the direct inoculation of the child's eyes with the

secretions of the mother's vagina, and may be prevented as easy as easy can be by curing the leucorrhoea of pregnancy, by disinfecting or wiping away the discharge even so late as during the progress of labour, by insisting upon the most scrupulous cleanliness on the part of the attendants, so that their hands may not communicate infection, and by taking care that the child's face is not washed in the same water which is used for its bath, and that its eyes are not wiped with the same sponge that is used for its person. Gentlemen, if these precautions were thoroughly carried out in every case of midwifery, I venture to affirm that there would not be another case of bacterial purulent ophthalmia in the universe. Even if a little matter should have got into one or other of the child's eyes, it may be destroyed at once and *in situ*, before any harm is done, by a drop of a 2 per cent. solution of nitrate of silver;¹ and if one eye should unfortunately have become infected before you see the case—and, mind you, it is seldom that both eyes are struck at once²—the sound eye may be protected and sight assuredly preserved by the use of this little simple contrivance, this sticking-plaster shield, which I regard with parental, and I trust with pardonable, pride, since I am sure that I have saved many an eye by its use.³ (Fig. 1.)

FIG. 1.

Gentlemen, I said the disease was easily cured, and so it is. Let me quote a little evidence on this point. Mr. (afterwards Sir William) Lawrence, late surgeon to St. Bartholomew's Hospital, whose work I have here—and I can cite no higher authority,—writing in 1833, says: "There is a singular contrast between the virulence of this inflammation of the eyes of newly born children, and the serious consequences to which that inflammation so rapidly leads, and the readiness with which it yields to suitable treatment; hence, if we see a case of purulent ophthalmia before any injury is done to the cornea, we may assure the parents, and it gives us great pleasure to be able to do so, that sight will not suffer. Even the most violent form is very manageable, and will do well when properly treated."⁴

Again, Professor Knapp of New York, another eminent ophthalmologist, whose archives I here commend to your notice, tells us, half a century later, that "no child need lose its eyes from ophthalmia neonati, and no child does if

¹ This is Credé's much-vaunted method: a solution of nitrate of silver, eight grains to the ounce, is dropped into each eye of every child born, "dans les services d'accouchement," and Dr. Kalténbach, in a recent communication to the Congrès Allemand de Gynécologie declares that the cases of purulent ophthalmia have in consequence diminished from 15 per 100 to 0 per 100.—(See *Recueil d'Ophthalmologie* for August, 1886.)

² The ophthalmia almost always appears at first in one eye alone, the other being affected some days after. The transference of the secretion from one eye to the other seems to be the usual origin of the disease in the second eye.—(See *Treatise on Diseases of the Eye*, by Carl Stellwag, von Carrion Professor of Ophthalmology in the Imperial Royal University of Vienna, p. 317.)

³ The shield is merely a piece of sticking-plaster with a hole in the centre, cut to correspond with the pupil; the aperture is filled by a piece of gauze. The baby depicted in the figure, whose left eye was attacked with a virulent form of purulent ophthalmia three days after birth, had its right eye protected in this way upwards of a fortnight.

⁴ Lawrence on Diseases of the Eye, p. 171.