CLINICAL LECTURE ON A CASE OF PHTHISIS TREATED BY ANTISEPTIC INHALATIONS.

By I. BURNEY YEO, M.D., F.R.C.P.,
Physician to King's College Hospital.

THERE is a little patient of mine in the Twining ward, who is about to leave the hospital, and there are some interesting points in her case to which I wish to call your attention before she goes. Her case will also serve as a text for some further observations on the antiseptic treatment of phthisis, which I am glad to have an opportunity of putting before you.

During the past year, several patients with phthisis have been received into the wards of this hospital, and several have been treated as out-patients, in whose cases the more or less continuous use of antiseptic inhalations has formed a principal part of the treatment. Most of these cases, as some of you have been able to observe for yourselves, have derived great benefit from this mode of treatment, and many of them have mended in quite a remarkable manner. A month or six weeks ago I could have shown you several cases where this disease had been arrested in its course, and the patients restored to comparative health; but when this occurs amongst persons of the class from which hospital-patients come, they naturally desire to return to their several occupations, and so we often lose sight of them.¹

But it so happens that we have been able to keep this little girl almost constantly under observation in the hospital for nearly a year, and we have watched the lung-disease both through its development as well as its arrest and decline. This patient, who is now thirteen years of age, first appeared as an out-patient about a year ago (June, 1882).

She then complained chiefly of diarrhoea and abdominal pain—two symptoms from which she has continued to suffer, more or less, ever since; much less, however, latterly. She was also said, at that time, to have a slight cough, to have lost her appetite, and to be suffering from langour, sleepiness, and frequent perspirations. The persistence of the diarrhoea and the abdominal pain induced Mr. St. Clair Thompson, who had been seeing her, to call my attention to the case. I pointed out, at the time, the well marked phthisical type this girl presented; red hair in profusion, large grey eyes with long lashes, a bright clear complexion readily flushing, with somewhat clubbed fingers and incurved nails.

The tongue was clean, and there was no sign of primary digestive disturbance, no history of improper feeding; but there was almost constant pain in the centre of the abdomen, with three or four loose stools daily. The pulse was quickened, and the temperature in the axilla 100.6°. There were no signs whatever at that time of disease within the chest, which was very carefully examined by Mr. St. Clair Thompson, with whose skill as a clinical observer you are well acquainted, and by myself. I observed to Mr. Thompson at the time, that it appeared very like a case of chronic intestinal tuberculosis (there was some tenderness on pressure over the umbilical region), and that, judging from the girl's personal appearance, I thought it extremely likely that she would develop lung-mischief later on. This was at the end of June, 1882.

I did not see her again till after the vacation—viz., in October—when Mr. Thompson again called my attention to the case, and reminded me of what I had predicted in June, which had now actually taken place. She was still complaining of diarrhoea and abdominal pain. She had a pulse of 124, and a temperature of 101°. On examining the chest, we now found well-marked evidences of infiltration of the apex of the right lung. There were slight flattening and diminished movement in the infraclavicular region on the right side; the percussion-note was decidedly dull from the clavicle to the upper border of the second rib; the respiration and voice were bronchial, and moist crackling *râles* were heard at the end of inspiration; and vocal fremitus was increased. We admitted her

¹ One of these patients, who presented signs of a considerable diffused infiltration in the right lung, with subcrepant *râles* nearly all over the back on that side, and bacilli in the sputa, has reappeared this afternoon (after a few weeks spent in a convalescent home) to say that he is about to return to his occupation as a "bus-conductor." He had been treated with antiseptic inhalations in the hospital for three or four months with great benefit.

into the hospital, as I thought the case an interesting one to watch—to observe the course of the intestinal and pulmonary lesions.

In a young girl of her age—the age of rapid growth—with a peculiarly florid complexion and red hair, with combined intestinal and pulmonary disease, we had most of the conditions which point to a probable rapid development of tubercular mischief.

We obtained from her mother the following family history. She stated that, when she was about the same age as our patient, she was threatened with consumption, and was treated with iodine and cod-liver oil, and recovered. Three brothers and sisters were living and healthy. Her father was living, but was intemperate. Three children were dead—one of "congestion of the lungs;" and two, in infancy, of hydrocephalus. Two cousins died of consumption.

For a great part of the time she was first in the hospital, her complaint of intestinal pain was almost constant, as was the diarrhoea, in spite of various remedies that were administered for their relief. For the first fortnight, we found the bowels acting sometimes four times, three times, twice, once a day; then, the next fortnight, three times, four, and even five times a day—loose greenish motions. Occasionally they would go twenty-four or thirty-six hours without any action. Bismuth, kino, hæmatoxylon, opium, creasote, perchloride of iron, etc., had little or no effect on the diarrhoea. Towards the end of her first stay in hospital, a few doses of sulphate of copper and opium certainly diminished the frequency of the action of the bowels; and quite recently we have succeeded in controlling it completely by small doses of nitrate of silver and opium, continued for about a fortnight.

The temperature during her first stay in the hospital was characteristic of tubercular disease; wide daily oscillations, commonly of over three degrees, often four, and sometimes five and six degrees. For example, on November 16th we find the morning temperature 97.4°, and the evening temperature 101.6°; the morning temperature the next day 97.6°. Then on November 20th we have, morning temperature 97.4°; evening temperature 101.6°. On the 25th of the same month we find, morning temperature, 96.8°, and evening temperature 103°! At this moment there was some acute swelling of a gland at the angle of the jaw. The next three days the temperature was subnormal. Then we observe the daily oscillation beginning again, and on December 4th the morning temperature was 97.8°, and the evening temperature 100.8°; and on December 7th, the morning temperature was 97.6°, and the evening temperature 102.3°. On the 18th we find a morning temperature of 98°, and an evening temperature of 102°; and this kind of daily oscillation went on, not always to the same extent, till the first week in January, when the temperature fell below normal, and remained so for the rest of her first stay in the hospital. Occasionally during this period, she would have profuse night-sweats.

During a greater part of this period she was using antiseptic inhalations, by means of the little inhalation-respirator, with which you are now familiar, and which I devised last year.²

We were soon gratified to observe that, notwithstanding the continuance of the intestinal pains and diarrhoea, and the maintenance of this sub- hectic temperature, the lung-mischief made no advance, and we soon were able to satisfy ourselves that its progress was arrested.

She was discharged on January 10th, 1882, with the "physical signs of lung-mischief much improved." There was some dullness over the right apex in front, with bronchial voice and breath-sounds; but the faint crepitant *râles* had disappeared; the area of dullness was diminished. The intestinal pains continued, but the relaxation of the bowels had greatly diminished. She continued the inhalations for several weeks as an out-patient, and improved considerably. She went to Dover for a few weeks, continuing the inhalations; and on her return was readmitted, on April 6th, for the purpose of still keeping her under observation, and maintaining the treatment.

Mr. St. Clair Thompson made the following note of her condition on readmission, and I am glad to have this opportunity of thanking him for the great interest, care, and skill, with which he has carried out this mode of treatment in many cases in the hospital during the past year.

"Has gained considerably in weight; looks well nourished, florid, clear skin; feels very well, and complains only of slight, dry cough and stomach-ache; has spat up a little blood occasionally. Chest-expansion good, no apparent flattening; slightly diminished expansion, dullness and tubular respiration under right clavicle; no moist sound on coughing. Cough very slight; never any expectoration; no night-sweats; fair appetite."

² These are made by Messrs. Corbly, for 3d. a piece, and a very neat improved one by Messrs. Squire, in Oxford Street, for 4d.; instructions for making them will be found in my *Lectures on Consumption and its Antiseptic Treatment*.—Churchill.

Since she has been in the hospital this second time she has had no return of fever; her temperature has been normal; once only the diarrhoea and abdominal pains became troublesome, and the diarrhoea was arrested, as I have already said, by small doses of nitrate of silver and opium.

She is now to all appearance well. The lung-mischief is arrested for the time, though the physical signs of injury to lung-tissue at the right apex are obvious enough—*i.e.*, dulness, very slight retraction of the upper part of the subclavicular region, and blowing breath-sounds. The diarrhoea is no longer troublesome; but she has never been entirely free from some abdominal discomfort, though she makes no complaint of this unless questioned. There is, however, some tenderness on pressure in the umbilical region.

There is one feature in this case to which I wish to call your special attention. This patient has had *little or no cough, and never any expectoration*. She has occasionally spat a little blood, but never any mucous expectoration. We have, therefore, never been able to search for bacilli. Now, I have seen reason to believe that this is not a very unusual circumstance—*viz.*, that tubercular infiltration begins and goes on in the apex of a lung without the development of any catarrhal symptoms; and that is one reason why the earliest stage of pulmonary phthisis is so frequently overlooked and neglected. This patient did not come to the hospital complaining of chest-symptoms, but of abdominal pain and diarrhoea. Cases such as these—which, I repeat, are not very rare—offer a striking reproof to that pathological doctrine which has referred cases of localised apical disease to the creeping on of a catarrhal inflammation from the air-passages into the air-cells. I have always felt that this “catarrhal” doctrine was inconsistent with the phenomena of the earliest stage of pulmonary phthisis, and I fear it has had much to do with preventing us from apprehending aright the true nature of this malady. I have again and again been struck with the number of cases that come before us in which, on careful inquiry, we find that loss of health has long preceded any evidences of pulmonary catarrh; and I have again and again found considerable infiltrations of the upper parts of the lung without any catarrhal symptoms. I have often seen phthisis develop in a catarrhal lung, and I have seen catarrhal symptoms arise necessarily as a consequence of phthisical infiltration and injury to lung-tissue; but I have also often seen phthisical infiltration commence and advance to a certain extent without the appearance of any sign of catarrh of the air-passages, as in the case before us. In this case, which you have been able to watch for yourselves, which has been in the hospital since October last, there has never at any time been any catarrh of the air-passages, though the evidence of lung-infiltration has been obvious to all who have seen the case; and, as the little patient is now before you, you can satisfy yourselves of that fact.

Now this is a case in which we have had the advantage of being able to deal with the pulmonary lesion almost from the moment of its onset, and the result is before you. But it is not only in the early stage of phthisis that the value of antiseptic inhalations is so striking; they will be found of use in every stage of that disease, and as palliatives, most remarkably so in advanced cases. Let me call your attention to a case of this advanced kind which was under my care in this hospital at the same time as the patient of whom I have just been speaking. In this case, antiseptic treatment modified the course of the disease in a most striking manner, and produced a state of well-being and comfort in the patient, which was in great contrast with the vast amount of lung-mischief that existed.

This patient, a girl, fifteen years of age, was admitted into the hospital on the 5th of last October. Her personal appearance was that of what I have been accustomed to call the “refined” type of phthisis, in contradistinction to a more common type, the “coarse” type. I have again and again pointed out to you the frequency of the latter type; enormous projecting ears, coarse large features, abundant coarse hair, and not very shapely limbs, large hands and feet. This girl was of slight build, delicate refined features, small ears, large dark grey eyes, long eyelashes, small hands with rather long tapering fingers and filbert nails. Her family history was significant; she had lost her father at thirty-two years of age of phthisis, and she had lost three brothers and one sister of the same disease. She had been complaining of a cough for two years, and had been losing flesh for a year. On her admission she was very ill, and complained of constant cough, dyspnoea, emaciation, loss of appetite, and night-sweats. Evening temperature 102°; morning, 99°. Rapid pulse and respirations; tongue coated. She was suffering also from diarrhoea. Physical examination revealed the existence of extensive infiltration and disorganisation of both lungs.

On the right side, there was dulness in front to the lower border

of the third rib, with moist clicks at the end of inspiration, and tubular respiration over the whole of the upper lobe behind.

On the left side, the disease was much more advanced. There was dulness all over the upper lobe in front, with cavernous respiration, and moist gurgling *râles*. Behind, there were cavernous breathing and gurgling above the spine of the scapula, and blowing respiration and crepitant *râles* all over the lower part of the lung.

Her treatment consisted in the almost continuous use of an inhalation, at first, of eucalyptol and spirits of chloroform, subsequently of creasote and spirits of chloroform. She also had a mixture containing two minims of creasote, and two grains of quinine, with glycerine and mucilage three times a day. After about three weeks in the hospital, the improvement in her symptoms and general condition was remarkable, while the physical signs remained much the same. The night-sweats had disappeared, the appetite was completely restored, the bowels were quiet, and the cough very much better. After a few more weeks of this treatment, she felt so well, that she begged to be allowed to return to her home, which was a comfortable one. Now, I do not think any one, nurses as well as doctors, who saw this girl when she came into the hospital, thought she would leave it alive. She appeared to be sinking from rapidly advancing disorganisation of the lungs, and attendant constitutional disturbances. The effect of the antiseptic treatment in this case was not to cure the disease, or to restore the destroyed and broken down lung-tissue. To perform what, to our constant experience, seems impossible, is to perform a miracle, and we do not claim miraculous virtues for antiseptic inhalations. But what I claim for them, in this case, is, that they not only prolonged life, but that they quieted, in a remarkable way, the often most distressing advanced stage of this malady. By allaying all the most distressing symptoms, this patient's condition, which at the beginning of the treatment was a very miserable one, became a comfortable one. You might have seen her going about the ward quite cheerful and happy.

Now, this quieting, ameliorating effect of antiseptic inhalations in advanced stages of this malady has been noticed by many observers, and it is largely dwelt upon by Professor Oertel in his recent work on *Respiratory Therapeutics*.

Two objections have been made to the use of antiseptic inhalations, which are in singular opposition one to the other.

The first is, that the vapours given off from the fluid which we drop on the sponge of the respirator are so strong and irritating, that they excite inflammation of the pulmonary tissues, and thus do injury; indeed, I have seen the antiseptic treatment of phthisis referred to in a medical journal as “homicidal.”

The other objection does not accuse of homicide, but is content with pointing out that we are very foolish people to imagine that any useful or appreciable amount of our antiseptic substances reaches the lung at all! I do not know which of these objections is least in accordance with experience.

With regard to the first objection, I can state most positively that I have never seen any symptoms of irritation set up by antiseptic inhalations when properly applied. With sensitive persons, it is desirable to begin by at first dropping a very few drops of the inhalant on to the sponge, and slowly increasing the quantity; by that means, you will avoid all risk of irritation.

The second objection scarcely needs answering at all; to some extent, it is a resurrection of the old dispute as to the use of topical remedies (in the form of vapours and sprays) to the respiratory surface, which was agitated fiercely many years ago, and the affirmative view thoroughly established by most elaborate and careful experiments by a number of observers in every country in Europe. The dispute and its results are fully related by Oertel in the work already referred to, and also by Dr. Solis Cohen of Philadelphia, in his work *On Inhalations*.

I thought it had been pretty generally known that, by the combined use of dry inhalations and inhalations of the steam-spray, symptoms of carbolic acid intoxication had been produced.

But there is an irritation in the minds of some with regard to the use of these inhalations, which it is difficult to understand. I hear of patients being “forbidden” to use them! Another curious circumstance is that this “irritation” only refers to their use in phthisis. I have never heard any one dispute their value, their very great value, in cases of putrid bronchitis, bronchorrhœa, and bronchiectatic dilatation. Now, in cases of advanced phthisis, there are many conditions existing in the lungs and air-passages absolutely identical with those that occur in the diseases I have just named, and for the control of which antiseptic inhalations afford the most reliable therapeutic resource.

In conclusion, let me advise you, above all things, to keep your

minds free from prejudice in such matters; and, when you hear any method of treatment, which has been tested by experience, assailed by arguments which are absolutely inconsistent with one another, let me, slightly altering the scriptural injunction, say, "Go thou and do otherwise."^{*}

MALIGNANT TUMOURS AND PARASITISM.

By HENRY T. BUTLIN, F.R.C.S.,

Assistant-Surgeon and Demonstrator of Diseases of the Larynx,
St. Bartholomew's Hospital.

At a meeting of the Pathological Society, I expressed the opinion that, not improbably, many of the malignant tumours are due to the presence of micro-organisms; in other words, that malignant tumours are of parasitic origin. The theory of parasitism, applied to tumours, has during centuries been more or less popular with surgeons; for in no other way can some of the most complicated processes of malignant tumours be so well explained, as by assuming that the tumours or their elements are parasitic. But of late years the parasitic theory has been discredited by the discovery that the elements of even the most malignant tumours are derived more or less directly from the natural tissues of the body, and that they differ only in degree, and, perhaps, in certain properties which they have acquired from the natural elements. It is quite clear, therefore, that the view, formerly maintained, that malignant tumours are actually parasites is incorrect. But the recent discoveries of micro-organisms, and of the part they play in relation to certain diseases, have led me to consider whether the theory of parasitism may not again be applied to malignant tumours, with this difference, that the tumours are no longer now conceived to be the parasites, but to contain them. I am perfectly aware that all the evidence which can at present be adduced is only indirect or circumstantial; for, so far as I am aware, no parasites have yet been proved to exist in the malignant tumours of the human subject. But there are two, if not three, directions in which circumstantial evidence may be employed.

First, there is the resemblance of the processes of malignant tumours to those of certain diseases which are due, or are reputed to be due, to micro-organisms.

Thus, the group of infection-tumours,¹ which have lately been attributed to the action of micro-organisms, contains examples of growth which resemble in their processes many of the malignant tumours. Of these diseases, tubercle is so closely allied, in some of its important properties, to sarcoma and carcinoma, that it is difficult to discover any essential difference between many cases of tubercle and many cases of sarcoma and carcinoma originating in the same part of the body. Virchow, in a masterly summary of the characters of tubercle,² has admitted this similarity, and has expressed the opinion that tuberculous is a malignant tumour-disease. Infiltration of surrounding parts, affection of the neighbouring lymphatic glands, dissemination in other organs and tissues, are the characters which are common to malignant tumours and tubercle. Certainly, the small size of tuberculous tumours, the frequency with which they are associated with inflammation, and their tendency to caseation, distinguish most cases of tubercle from most cases of malignant tumour. But large tuberculous tumours, with which neither inflammation nor caseation is associated, are not by any means unknown. During the past few years, actinomycosis,³ which was formerly regarded as a sarcomatous disease, has been added to the number of the infection-tumours, chiefly, if not solely, on account of the discovery in the large tumour-masses of what appears to be a micro-organism. Until this discovery, actinomycosis appeared to be a sarcomatous disease, as surely as any other well recognised sarcoma of the lower animals.

Second, in order to explain the glandular affection and dissemination of malignant tumours, the presence of an infective agent has been assumed by many pathologists.

^{*} In a recent contribution to a contemporary, Dr. L. Kay-Shuttleworth of San Remo states: "I was much struck with the fact that, in the great majority of cases, where carbolic inhalations were used with an oro-nasal inhaler in sufficient quantity, a great diminution in the number of bacilli took place; and that, though from time to time fresh crops appeared, these, when the inhalations were continued, regularly but gradually diminished, both in frequency of occurrence and in the relative number of bacilli." These valuable observations of Dr. Kay-Shuttleworth accord with my own experience and that of many other observers who have diligently and carefully followed this method.

¹ The infection-tumours include leprosy, lupus, syphilis, tubercle, glanders, and actinomycosis.

² *Krankhaften Geschwülste*, Vol. xxii.

³ Virchow's *Archiv*, Band lxxxiv, p. 303; *Breslau, Zeit. f. d. Naturh. u. Med.*, 1880, No. 12.

This agent has been supposed to be cells, or nuclei of cells, derived from the primary growth. It has been thought to be a fluid; and more than once, of late years, the term *seminum* has been employed to denote this unknown infective agent. Many reasons render it improbable that the infective agent, or *seminum*, is, in all instances at least cellular: the large size of the cells in some carcinomata, for example; and the fact that neither cells nor nuclei, both of which are easily recognisable, are discovered in the blood or lymph. Reasons equally strong may be adduced against the theory that the infective agent is a cancerous fluid; among them are the large dilution to which such a fluid would be subjected, and the probability that general dissemination would be produced by a cancerous fluid quite as often and as early as glandular affection.

Evidence has of late been forthcoming which leads to the belief that the infective agent or *seminum* is, perhaps, molecular or granular. Clauzel⁴ has shown that blackish and brown granules occur in the blood, the urine, and the vomit, of persons who are suffering from disseminated melanotic cancer. These granules are found in the colourless corpuscles and serum of the blood, and in epithelial cells in the vomit.

Chlorosis, or green cancer, a round-celled sarcoma, characterised by its green colour and rapid dissemination, is said to contain, either in or between the round cells of which the growths consist, large numbers of minute and highly refractile molecules.⁵

Gussenbauer,⁶ in an excellent paper on glandular affection, attributes the infection of the tissues of the lymphatic glands to the presence of vast numbers of molecules derived from the primary disease. These molecules, according to the author, are easily distinguishable from the fatty molecules contained in cancer-cells. They are very small, rounded, and pale, and do not take up the staining fluid well. They are found in the lymph-paths, in the reticulum, in the lymph-cells, in endothelioid cells and muscle-cells. In glands secondarily affected by melanotic sarcoma, the molecules are, for the most part, of the typical melanotic colour. To Gussenbauer, these molecules are the fructifying germs (*befruchtende Keime*), the *seminum* of the carcinoma or sarcoma.

The molecules described by Clauzel, Hubert, and Gussenbauer may, of course, be merely products of degeneration of cells of the individual tumours, or of the tissues in which they grow. They appear, however, to differ in certain respects from the degeneration-products, as has been shown. Their abundance; their appearance, not only in cells, but in other structures; their occurrence in the fluids during the dissemination of melanosis, render it not improbable that they are in some way connected with the dissemination, or are, indeed, the means by which the disease is disseminated through the body. The size and shape of the molecules induce one to advance one step further, and to wonder whether they are the individuals, or, perhaps, the spores, of a tumour-micro-organism. The manner in which they penetrate into the interior of cells and other solid structures favours this view. And the colour of the tumours in chlorosis and melanosis may be, perhaps, explained on this hypothesis better than on any other, for the colour-producing properties of certain of the micro-organisms are now well-known.

Third, certain circumstances relating to the localities in which malignant disease is prevalent, may perhaps have some bearing on this question.

Mr. Haviland⁷ has shown that the mortality from cancer is highest in those districts which are high and dry, and geologically composed of non-retentive soils.

In his *Statistische Mittheilungen über den Brustkrebs* (Breslau, 1879), Dr. Arthur Henry, speaking of the endemic and telluric conditions which appear to influence the occurrence of cancer of the breast in the region around Breslau, says that it is a striking circumstance that in the Upper Silesian mountain-works the disease is exceedingly rare.

A still more singular circumstance has lately been noted by Dr. Hesse, who relates that the men who work in the cobalt-mines of Schneeberg are subject to lympho-sarcoma affecting primarily the lungs.⁸ The disease attacks men who have been working in the pits for a certain number of years, and few escape when the term of years has been reached. The persons, on the other hand, who reside in the neighbourhood of the pits, but are not employed in them, are not more liable to primary malignant disease of the lungs than are

⁴ *Thèse de Paris*, 1874. See Schmidt's *Jahrbücher*, 1880, Band clxxxv, s. 100.

⁵ *Archiv der Heilkunde*, 1878, Band xix, s. 129 (Hubert).

⁶ *Zeitschrift für Heilkunde*, 1881, Band ii, s. 17.

⁷ *Journal of the Society of Arts*, No. 1367, vol. xxvii, 1879.

⁸ *Archiv der Heilkunde*, Band xix, p. 160; and Eulenberg's *Vierteljahrsschrift*, Band xxx, p. 296, Band xxxi, p. 102.