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OUTLINE

OF AN

INQUIRY ON THE PATHOLOGY OF
CONSUMPTIVE DISEASES.

PART I.

By JOHN ABERCROMBIE, M. D.

FELLOW OF THE ROYAL COLLEGE OF SURGEONS, EDINBURGH.

(From the Edinburgh Medical and Surgical Journal, No. 66.)

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OUTLINE

OF THE PATHOLOGY OF

CONSUMPTIVE DISEASES.

PART I.

By JOHN ARBUTHNOT, M.D.

OF THE COLLEGE OF PHYSICIANS IN LONDON.

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OUTLINE

OF

AN INQUIRY INTO THE PATHOLOGY OF

CONSUMPTIVE DISEASES.

PART I.

DEATH from consumption in the British Islands has been estimated, on the most moderate computation, at one-fifth of the whole mortality, and there is much reason to fear that the evil is increasing.* The subject, therefore, is one of intense interest; and it seems most desirable that every effort should be made to enlarge our acquaintance with the pathology of the disease, in the hope that something may be done to diminish in some degree this frightful mortality.

The history of consumption presents a melancholy picture of the uncertainty of medical observation. While the extensive

* In great cities, the proportion is higher. In London, it has been generally reckoned about a fourth, and sometimes nearly as high as a third.

mortality excited the eager attention of physicians in every age, a great variety of remedies, and various modes of treatment, were from time to time proposed. The most flattering testimonials were given of their efficacy, and numerous cases were detailed, which, after having exhibited all the usual symptoms of consumption, terminated favourably. Yet each of these remedies, after enjoying an ephemeral reputation, has either forfeited the public confidence, or sunk entirely into oblivion. A slight review of them is calculated to throw considerable light upon this inquiry. *

The oldest, and perhaps the most extensive, treatment of consumption was upon the Tonic plan. The remedies of this kind that were chiefly relied on were, light and nourishing diet, friction, cold-bath, exercise, sea-voyages, preparations of iron, and various medicines of an astringent or stimulating kind, such as guaiacum, seneka, the balsams, and the vegetable bitters. Hippocrates seems to have relied chiefly on exercise, in regard to which he directs, that it should be gradually increased to the extent of walking ten or fifteen miles a-day. Aretæus and Celsus advise nearly the same remedies, with very particular directions about diet. Their chief dependence seems to have been on sea-voyages; but Celsus also attaches much importance to walking, friction, and bathing. Galen appears to have relied chiefly on bathing, and his directions are long and very minute, in regard to various modes of using it, adapted to different modifications of the disease, especially to the different states of hectic fever. In one case, general immersion is recommended; in another, cold water applied only to the thorax; in a third, a poultice of herbs, moistened with snow-water; and a fourth method is described with great minuteness, in which warm air is first employed, then warm water, and, lastly, cold water.

In the long period during which the opinions of Galen regulated the medical schools, the same mode of treatment prevailed; and at a more advanced period, when the pathology of the disease came to be better understood, there were added to the general plan remedies of a detergent nature, as they were called, or such as were supposed to cleanse and heal the ulcers of the lungs. Of these the most esteemed were, various preparations of sulphur, balsamic fumigations, myrrh, sarsaparilla, cinchona, preparations of mercury and antimony, balsam of Copaiva, and chalybeate waters. During the period to which this outline refers, various other remedies are mentioned by individual writers, many of them of a superstitious kind, and others altogether

* See the learned and valuable work of Dr Young

frivolous ; but, upon the whole, it appears that the prevailing treatment of consumption was upon the Tonic plan, from the days of Hippocrates to the middle of the seventeenth century ; and, about this period, the judicious Sydenham did not hesitate to affirm, that “ neither mercury in syphilis, nor bark in intermittents, is more effectual than riding in consumption, provided the patient take care to have his linen well aired, and to continue his journey long enough—the longer as he is the more advanced in life.”

About the beginning of the eighteenth century seems to have commenced that revolution in medical opinion on this subject, by which the treatment of consumption was changed from the tonic to the antiphlogistic plan. Traces of it, indeed, are found at an earlier period ; but it seems to have been about this time that it was brought into general notice, chiefly by the writings of Stahl and his followers. The remedies employed under this system were those calculated to allay vascular action, as repeated small bleedings, antimonials, and other nauseating medicines, emetics, mineral acids, nitre, cicuta, anodynes, and cool spare diet. Sea-voyages were still in repute, but their efficacy was ascribed to the slight and continued nausea. The tonic remedies and balsams, formerly in use, were now condemned, from a dread of exciting febrile or inflammatory action. The chief promoters of the antiphlogistic plan seem to have been Stahl, Dover, Huxham, and Bryan Robertson ; and of writers of a later date, we are to reckon in this class the distinguished names of Pringle, Monro, Van Swieten, and Cullen.

During the period, however, to which these observations refer, there were many physicians of no small note, who retained an attachment to the tonic treatment of consumption. Among these may be reckoned Barry, De Haen, Marryat, and others, —and among those of later date, Salvadori, May, and Rush of Philadelphia. Salvadori treated consumption by violent exercise, with a liberal allowance of salt meat and wine. May considered it as being entirely a scrofulous disease, to be treated like any other scrofulous ulceration, by tonics, and nourishing diet. Rush contends that consumption is a disease of debility, except some cases in which there are inflammatory symptoms, and his remedies are, a great deal of exercise, bathing, bark, and iron. “ The hardships of a military life,” he says, “ have effected cures in many cases of confirmed consumption, and a riding postman has been relieved more than once by a pursuit of his occupation.” Frank also was an advocate for the treatment of consumption by tonics and nourishment ; but, upon the whole, the antiphlogistic plan seems to have been the more pre-

valent, from the beginning of the last century, till near the end of it, when many of the remedies formerly in use were in a great measure lost sight of in this country, under the growing fame and indiscriminate use of digitalis. In regard to the efficacy of this medicine, there was indeed some difference of opinion among the great number of physicians who employed it, but by some it certainly was considered as nearly a specific, in the incipient stages of consumption; and by one writer it was reported, after a very long trial, to have cured forty cases out of seventy-two, taken indiscriminately at all stages of the disease. It is unnecessary to remark how far this active remedy has lost its reputation in consumptive cases. It may be given occasionally as a palliative, perhaps sometimes as a placebo, but I believe no person in the present day expects it to cure consumption.

On reviewing the mass of observations that have been transmitted to us by the various writers now referred to, we find numerous cases which terminated favourably, after they had exhibited all the usual symptoms of consumption; some of them in circumstances which appeared to be hopeless. Some of these recoveries took place under the most active antiphlogistic treatment; others under the use of tonics and nourishing diet, and not a few with little or no medical treatment, or under the employment of remedies altogether inert and frivolous. From such various and contradictory evidence, on the authority of writers of sound observation and undoubted veracity, what conclusion can be drawn by an unprejudiced inquirer, but that, under the name of consumption, there have been included affections, differing widely from each other, and requiring different, and even opposite modes of treatment;—and that there are disorders which assume many of the symptoms of this alarming disease, while they are in their nature widely different. The inquiry is extensive and most important, and it opens an interesting field of research, in which, though it may appear unpromising, there is certainly the hope of doing something that may ultimately tend to diminish the mortality from chronic affections of the lungs.

By pulmonary consumption, we understand an ulceration of the substance of the lungs of a peculiarly unhealthy character, little, if at all, disposed to heal; and the symptoms which are considered as indicating the presence of it are cough, purulent expectoration, hectic fever, and emaciation. But when we come to investigate the subject minutely, we find reason to believe that there are various affections which present many or all of these symptoms, while they are in their nature remarkably different

from consumption; and that they may even be fatal after long protracted disease, and yet the substance of the lungs be found perfectly healthy. On the other hand, we find the true consumptive ulceration running its course, with considerable varieties in the symptoms, and while some of the ordinary symptoms are entirely wanting. The subject, therefore, resolves itself into two parts:—I. The Diseases which resemble Consumption—II. The true consumptive Ulceration.

PART I.

OF THE DISEASES WHICH RESEMBLE CONSUMPTION.

When in a young person, about the age when consumption generally appears, and especially in a family which has already suffered from it, we find cough, with uneasiness in breathing, pain referred to some part of the thorax, frequency of pulse, and general weakness,—and these symptoms going on for some time, so as to assume a chronic form,—we naturally take the alarm, and dread a tendency to consumption. These symptoms, however, may arise from various other affections, some of them as untractable as true consumption, but others affording a more favourable prognosis, and frequently requiring a treatment considerably different. They may be referred to the following heads:

- I. Sympathetic Cough, (so called.)
- II. Irritation of the Diaphragm by Diseases of the Liver, Spleen, and other parts contiguous to it.
- III. Chronic Inflammation and Ulceration of the Larynx.
- IV. Chronic Disease of the Mucous Membrane of the Bronchiæ.
- V. Chronic Inflammation of the Pleura.
- VI. Disease in the Posterior Mediastinum, or the Glands connected with the Lungs.
- VII. Ulceration of a Healthy Character from Active Inflammation.
- VIII. Hæmoptysis and its Consequences.

SECT. I.—*Of Sympathetic Cough.*

This indefinite term I employ merely for the sake of a name, and to include under it certain anomalous cases, in which obstinate cough has been supposed to arise from causes seated in or-

gans at a distance from the lungs. I forbear from speculating upon the connection; some of the facts are curious. Valsalva describes a case in which the only morbid appearances were in the brain. The peculiar symptom was, that every motion of the head produced a paroxysm of cough. A case somewhat similar is described by Lechellius. Lieutaud relates a fatal case of violent cough, with purulent expectoration, in which the only morbid appearances were in the frontal and occipital sinuses, which were full of pus. Sauvages mentions obstinate cough arising from irritation of the auditory passages, especially the Eustachian tube. "I have never," says De Haen, "observed a more severe, obstinate, and untractable cough than that which affected a young woman, and, having resisted every remedy, ceased after the expulsion of a callous substance from the uterus." Worms in the intestines have been considered by many practitioners as a cause of cough. Every one is familiar with the term *nervous cough*. It is, in general, employed to express any chronic cough that is not consumptive; but of these, we shall afterwards find, there is great variety. But there is a nervous or hysterical cough, which we cannot refer to any of these causes. One of the most singular cases that I have seen of this kind occurred in a young lady, stout and plethoric. She was affected with the most violent cough I ever observed, which occurred in paroxysms, and continued for an hour or more at a time, until respiration was nearly suspended, and the attack often terminated in a state bordering on asphyxia. The paroxysms occurred only once in four or five days, and in the intervals she was in perfect health. After resisting various remedies, it was removed by full bleeding from the arm.

Cough is often supposed to arise from the *stomach*. The subject is extremely obscure, but by no means unworthy of attention.* We know, that, in persons liable to asthma, the paroxysm may be induced by indigestion; and there certainly are cases of cough, which, after resisting the usual remedies, yield to treatment directed to the stomach and bowels. A case of this kind, which had attracted much attention, has been communicated to me by a professional friend. It occurred in a gentleman between 50 and 60 years of age, and was a peculiar, loud, noisy cough, which had considerably reduced his strength,

* See the valuable work of Mr Abernethy on the Constitutional Origin of local Diseases; and Dr Wilson Philip on the Dyspeptic Phthisis, in *Med.-Chir. Trans.* Vol. VII. p. 499.

and for a long time resisted every remedy. It disappeared at last under a course of laxatives. The same kind of cough is uniformly induced in this gentleman by any inattention to diet by which his stomach is disordered, and yields only to the same treatment. A man, mentioned by Langelot, was affected with incessant dry cough, and, at length, wasting and death. The case was considered as decidedly phthisical, but the lungs were found perfectly healthy. The only morbid appearance was in the stomach, which appeared to have been affected with chronic inflammation.*

In young women, especially of the higher ranks, a state is met with which is very apt to excite the alarm of a tendency to consumption. The patient is found pale, sallow, listless, and inactive, with bad appetite, disturbed sleep, and a small, frequent pulse. There is frequently nausea, especially after eating, and a feeling of oppression or exhaustion across the epigastrium; sometimes a more fixed uneasiness in one side, about the margin of the ribs, increased by cough and by full inspiration. There is a short dry cough, and the breathing becomes quick and uneasy upon any exertion, as going up a stair or an ascent. There is a feeling of coldness sometimes alternating with the flushes of heat. The bowels are generally costive, sometimes obstinate; the menses often retained, suppressed, or very scanty; but the affection, I believe, is not necessarily connected with the state of menstruation. It is treated successfully by country air, gentle exercise, and a combination of tonics with gentle laxatives. I have found nothing more useful than sulphate of iron, combined with aloes, taken three times a-day, in doses of two grains of the former with as much aloes as shall keep the bowels fully open, without purging. The other preparations of iron, and the vegetable bitters, may be used in the same manner. The abdomen is sometimes enlarged, and the affection seems to be connected in a great measure with derangement of the muscular action of the intestinal canal, especially the colon. It is not to be removed by strong purgatives, but by the combination of gentle laxatives with tonics. Friction of the body is also useful, with warm clothing, tepid bath, or sponging with vinegar and water, at first tepid, afterwards cold.

There is also met with, especially in young females, a fixed pain in the side, about the margin of the ribs, often increased by inspiration, sometimes accompanied by cough, and occasionally by considerable oppression in breathing, occurring in paroxysms, not unfrequently with hysterical symp-

* *Miscell. Curiosa. An. 1675. Obs. 14.*

toms. It is in many cases extremely obstinate, and is apt to be referred to the liver, the spleen, or sometimes to the lungs. I have seen reason to believe that the seat of it is often in the arch of the colon; and, after having resisted a variety of active treatment, I have found it yield to the combination of tonics and gentle laxatives, as sulphate of iron and aloes, with extract of hyoscyamus.

SECT. II.—*Cough from Irritation of the Diaphragm, by Diseases of the Liver, Spleen, &c.*

Cough, and uneasiness in breathing, are frequent attendants on diseases of the liver, both acute and chronic. It is when the disease in the liver is not the prominent symptom, that the case comes to be of importance in connection with this inquiry. The cough, in such cases, is at first dry, but whenever there is a frequent irritating cough, from whatever cause, there comes to be an increased secretion from the bronchial membrane, produced by the irritation. Hence, there may be considerable expectoration, and even sometimes bloody.

CASE I.—A lady, aged 35, had severe cough, with considerable expectoration; dyspnœa, which was sometimes severe, especially in the night; pain of the chest and side; frequent pulse; restless nights, with feverish paroxysms and morning sweats. The expectoration was viscid, frequently with a mixture of puriform matter, and occasionally of blood. In addition to these symptoms, she was liable to periodical fits of vomiting, which attacked her generally in the evening, and pain, which was referred to the left side of the abdomen, about the region of the spleen; but no disease could be detected, either there or in the liver. These complaints went on for upwards of two years, without materially reducing her, or impairing her strength. But, in the third year, her strength began to fail. She had then diarrhœa, anasarca, and gradual emaciation, and died exhausted about three years from the commencement of the complaint. Towards the end of her life, the vomiting became less frequent, but the severe rending cough continued, with copious expectoration, and severe fits of dyspnœa. On dissection, no morbid appearance could be detected in the lungs, or in any part of the thorax. The spleen was enlarged and hard. On the upper surface of the liver there was a considerable tumefaction, the surface of which was studded with small hard tubercles: it protruded against the diaphragm, and pressed it upwards. But though the diameter of the liver was thus considerably increased at this part, it did not appear to project downwards from its natural situation. The other viscera were healthy.

This case is the most remarkable example of the kind that has occurred to me, and it shows strongly how much the symptoms may assume the appearance of an affection of the lungs. The only peculiarities were the fits of vomiting, the cough being louder and more noisy than the ordinary cough of consumption, and the length of time during which the symptoms continued without impairing her strength. Many cases of a similar kind are on record. In a case by Portal, similar symptoms were connected with scirrhus of the pancreas, and disease in the mesenteric glands, without any morbid appearance in the thorax. The symptoms were, frequent cough, slight fever, gradual wasting, and at length death, without any other prominent symptom. In a case by Bonetus, similar symptoms were connected with disease of the spleen; and, in another, by the same writer, the only morbid appearance was in the right kidney, the lungs being perfectly healthy,—there had been cough for two years, and gradual wasting. In a case by Morgagni, there was a tumour, which weighed lb. i. attached to the posterior part of the stomach. The symptoms were, dry cough, difficult breathing, loss of appetite, and watchfulness. A young woman, mentioned by Laennec, had cough, dyspnœa, copious expectoration, hectic fever, and great wasting. After the symptoms had gone on for some time, and she was considered as decidedly phthisical, she was seized with violent pain in the epigastrium, and soon after discharged, by stool, an immense quantity of hydatids. From that day she recovered, and was soon well.*

In the cases now referred to, the pectoral symptoms seem to have arisen from mechanical irritation of the diaphragm. But there is another way, in which an affection, resembling consumption, arises from disease of the liver. The upper surface of the liver is attacked by inflammation, which terminates in an abscess, the inflammation extends through the diaphragm to the pleura, and an adhesion takes place betwixt the diaphragm and the lower part of the right lung. The matter from the abscess making its way upwards, passes, by means of this adhesion, into the bronchiæ, and is spit up. Cough, with purulent expectoration, then continues, and may either wear out the patient with all the usual symptoms of consumption, or the abscess may gradually heal, the expectoration at the same time gradually diminish, and the patient recover. If a case of this kind be seen from the commencement, it is in general easy to distinguish the nature of it, but, at an advanced period, it has

* Laennec, *L'auscultation Mediate*, Tom. I. p. 278.

very much the appearance of consumption. This affection is illustrated by the two following cases:

CASE II.—A lady, aged 40, had been affected for some months with uneasiness in the region of the liver, when, on the 5th of October 1815, she was seized with violent pain there, and vomiting. By the usual remedies, she was much relieved, but some degree of uneasiness continued for several weeks. It then seemed to subside, but, after a short interval, returned with violence, accompanied by vomiting, and fits resembling syncope. The whole region of the liver was tense and tender to the touch, with evident enlargement. The pulse varied, being sometimes frequent and small, and sometimes quite natural. A variety of practice was now employed with little relief,—the pain was at times so violent, that, for many nights together, she was unable to lie down in bed. These paroxysms alternated with intervals of ease, but by the repetition of them for nearly three months, her strength was very much reduced. In the end of December she began to have cough, with some expectoration, which had a purulent appearance. On the 14th of January she was seized with a violent fit of coughing, and expectorated purulent matter to the amount of at least lb. ij. On the 15th, she expectorated, in the course of the day, at least lb. i., and about the same quantity on each of the two following days. The quantity then diminished considerably until the 25th, when she again brought up about lb. i., and the same quantity a few days after. The enlargement in the region of the liver then subsided, and from that time there was no great discharge, but she continued to have cough, with purulent expectoration, as in a case of consumption, with great weakness and emaciation. These symptoms continued for several weeks; the expectoration then began to diminish, and gradually ceased. She recovered her strength, and, by the end of May, was free from complaint. She has enjoyed good health ever since.

CASE III.—A soldier had an attack, which was considered as peripneumony, and was accompanied by pain in the lower part of the right side. It terminated in purulent expectoration, with wasting, and colliquative diarrhœa, and he died in three months. On dissection, there was an abscess, three inches in diameter, in the upper part of the liver, a strong adhesion of the right lung to the diaphragm, and a sinus, six inches long, passing through the substance of the lung, and communicating with the abscess of the liver. The lungs were, in other respects, sound.*

In cases such as these, it has been supposed that a diagnosis might be founded on a mixture of bile with the matter expecto-

* Edinburgh Medical Essays, Vol. I. p. 217.

torated. I observed no such mixture in the former of these cases, and I see no reason for expecting it in all cases, for if the abscess be lined by coagulable lymph, as is likely to be the case, it is cut off from any connection with the biliary ducts.

In regard to the treatment, little need be said. In the early stages, it must be directed to the inflammatory disease in the liver,—in the advanced stages, it must consist in supporting the strength, and favouring the healing of the abscess, by tonics and nourishing diet.

This affection is met with in a less active form, not advancing to suppuration, but continuing, for some time, in what is called a sub-acute state, producing symptomatic cough, and other pectoral symptoms, and distinguished by tenderness in the region of the liver. If taken in time, it yields to treatment directed to the liver, especially topical bleeding and blistering, in the early stages, and afterwards a little mercury, with opium. I have observed it chiefly in elderly people, but it is not a common disease in this country. In these and the other cases of symptomatic cough, as it may be called, the cough is generally louder, and more noisy than in a pulmonic affection, the lungs being more freely inflated than they are likely to be when the cough is connected with disease in the thorax.

SECT. III.—*Chronic Inflammation, and Ulceration of the Larynx, or the upper part of the Trachæa.*

This affection forms the laryngæal phthisis, to which more attention has been paid on the Continent than in this country. It is a disease of not unfrequent occurrence, and of extreme danger, and it presents a most important subject for investigation. The symptoms vary considerably in different cases, according to the seat and extent of the disease, but many of the cases are with great difficulty distinguished from the ordinary consumption of the lungs. There is frequent cough, with purulent expectoration, frequently mixed with blood, gradual emaciation, hectic fever, at last diarrhœa, and death, with the usual appearances of phthisis. But, on dissection, the lungs are found perfectly healthy, the morbid appearances are confined to the inner surface of the larynx, or the trunk of the trachæa, and usually consist of one or more well defined ulcers, sometimes with caries of the cartilages, and sometimes with irregular fungous elevations of the mucous membrane.

The symptoms by which this disease is distinguished from pulmonary consumption are not uniform, and are often obscure,

There is generally a feeling of irritation about the larynx, and sometimes acute pain referred to a particular spot on the larynx or the upper part of the trachæa; in some cases the larynx is painful on pressure; the voice is generally more or less affected with hoarseness, or a peculiar huskiness; in many cases it is much impaired, so that the patient can only speak in a whisper, and sometimes it is entirely lost. The cough is severe; in some cases occurs in paroxysms, almost resembling the paroxysms of whooping-cough, and sometimes it excites vomiting. The proper expectoration is purulent and in small quantity, sometimes mixed with small membranous portions, and often bloody; but it is always to be kept in mind, that when the lungs are much irritated by cough, kept up by any cause external to them, an increased secretion from the bronchial membrane is apt to be produced by the constant irritation, or even the real chronic inflammation of the membrane. Hence the expectoration sometimes consists of considerable quantities of viscid mucus from the bronchiæ, streaked with pus from the real seat of the disease. In many cases the breathing is considerably affected, and this may either be a permanent difficulty with wheezing, or it may occur in paroxysms. These attacks are sometimes accompanied by palpitation, and other symptoms so severe, that the affection has been mistaken for disease of the heart. These symptoms seem to occur chiefly when ulceration is seated in the lower part of the trunk of the trachæa, about the bifurcation; especially if it be accompanied (as it frequently is) by fungous elevation of some of the parts connected with the ulcer. In some cases there is difficulty of swallowing, the attempt exciting pain and paroxysms of cough.

The principal morbid appearances are chronic inflammation and ulceration of the inner surface of the larynx, or the trunk of the trachæa; sometimes with caries of the cartilages, and sometimes with thickening of the membrane and fungous elevations, which considerably narrow the canal. In some cases small abscesses are found. These, however, generally burst before death. In one case, which will be referred to, such an abscess burst externally, but without arresting the disorder. The disease may come on gradually in the form of chronic inflammation, or it may supervene upon an acute attack, ulceration being left as the result of it. In some cases tubercles have been found on the mucous membrane of the trachæa, and the affection has arisen from these passing into ulceration. The disease may be fatal by gradual emaciation, like a common case of consumption; or rapidly by the accession of inflammatory symptoms; or suddenly by suffocation. The prognosis is in all cases ex-

treribly unfavourable. Except the disease can be arrested in its first or inflammatory stage, it will probably be fatal. It is therefore of the utmost importance that the first appearance of it be watched with the greatest care, and treated with the greatest decision. The remedies are obvious, though they may be varied a little according to the circumstances of the case. General bleeding may often be required; topical bleeding must be used extensively and repeatedly. The other remedies are blistering, issues, antimonials, very spare diet and perfect rest, purgatives, and perhaps emetics; calomel may be useful in some cases after the first activity is subdued. When the disease has got into the state of ulceration, I cannot say what is the best treatment, or whether any treatment can arrest the progress of it. Those from which we might expect benefit are issues, emetics, opiates, antimonials, warm air, perhaps balsamic fumigations, and preparations of iron, and perhaps in some cases small quantities of mercury with opium. The French believe that the disease has in some cases a syphilitic origin.

Morgagni seems to have been the first who attended to the peculiar nature of this affection. At an early period of his life, a case occurred to him, which had been considered and treated as pulmonary consumption, by the most eminent physicians. The symptoms were cough, with purulent and bloody expectoration, and a fixed pain a little below the larynx, without fever. Morgagni considered it as a disease of the trachæa, and it got well by confinement, rest, regulated temperature, and spare diet. I suspect that the disease in a slighter form is more common than is supposed. I have repeatedly met with cases of obstinate cough which had resisted the usual remedies, and at last yielded to topical bleeding on the larynx. I have formerly described a case of this kind, which occurred in a gentleman about fifty, and was remarkable from the extreme violence of the paroxysms of coughing. They resembled the most violent whooping-cough, and sometimes continued for more than an hour without intermission, until they threatened suffocation or apoplexy. After resisting the most active treatment, the case yielded readily to two applications of leeches to the larynx.* The great importance of this subject will be a sufficient apology for adding some cases illustrating the various modifications of the disease.

CASE IV.—A man, aged 33, after sitting in a current of air when much heated, was seized with cough and pain extending from the

* *Edinburgh Medical Journal*, Vol. XV.

throat to the breast. After a short time, his voice was much impaired; the cough was violent; the expectoration at first mucous, afterwards purulent; he then had hectic paroxysms, and night-sweats; dull uneasiness of the breast, and rapid emaciation; there was a constant tickling irritation of the throat, and deglutition was painful. His voice at last was entirely lost, and he died completely emaciated in less than three months from the commencement of the disease.

Dissection.—An ulcer of the superior and middle part of the larynx, occupying half its circumference at the upper part, and extending to the epiglottis; left arytenoid cartilage ossified and carious; surface of the cricoid cartilage covered by red elevations; the membrane covering the right arytenoid was thickened and ulcerated; mucous membrane of the trachæa vascular and thickened; lungs adherent, and some small grey tubercles in them; otherwise healthy. *

CASE V.—A young man, aged 16, after exposure to cold when heated, had headach, pain of the throat, cough, fever, and epistaxis. After a fortnight, he had severe diarrhœa, and tight breathing: cough continued, with thick expectoration, and febrile paroxysms; then great debility, involuntary stools, tenderness of the abdomen, harassing cough, and he died in about a month. *Dissection.*—Pharynx and adjoining parts red; the larynx red, and an ulcer at the base of the epiglottis; the lining membrane and chordæ vocales thickened; behind the arytenoid cartilages, a small opening led into a sac, which had contained pus; lungs healthy; bronchial membrane dark-coloured; inflammation, and some appearances of ulceration of the mucous membrane of the intestines. †

CASE VI.—A man, aged 39, after pneumonic symptoms, had a tickling sensation in the throat, with constant desire to cough; alteration of voice, and hoarseness; copious expectoration of frothy mucus, with purulent particles interspersed in it; frequent pulse; lassitude; sleep nearly prevented by incessant cough; emaciation. Died in four months. *Dissection.*—Superior aperture of the larynx was diminished by thickening of the membrane; one arytenoid cartilage, and part of the other, destroyed by ulceration; trachæa healthy. ‡

CASE VII.—A girl, aged 19, had cough, difficult breathing, with a peculiar noise, somewhat resembling croup; pulse natural; no debility or constitutional disturbance; ill three months. Died unexpectedly in the night. *Dissection*—Rima glottidis contracted; posterior part of the inner surface of the larynx occupied by an ulcer; a second ulcer on the posterior part of the trachæa, a little below the larynx; and a third a little lower, which nearly embraced the cir-

* Prost. Med. Eclairée par l'observation et l'ouverture des Corps.

† Ibid.

‡ Beddingfield's Compendium of the Practice of Physic.

cumference of the trachæa, and was about one-third of an inch broad; bronchiæ and lungs healthy. *

CASE VIII.—A man, aged 34, had cough, with mucous expectoration; pain of the larynx; hoarseness. After some weeks, the cough increased, and the expectoration became purulent; fever, and some dyspnœa. Died gradually exhausted in two months. *Dissection.*—Ulceration of the mucous membrane of the larynx; arytenoid cartilages carious, and covered with pus; lungs and trachæa quite healthy. †—In another man, with similar symptoms, a tumour formed on the fore part of the neck, which suppurated and discharged matter, and left a fistulous opening, which communicated with the larynx. The symptoms were relieved for a short time; but they soon returned; his voice was entirely lost; and he died gradually exhausted. His body was not examined.

CASE IX.—A man, aged 49, after the sudden disappearance of glandular swellings of his neck and arm-pits, with which he had been affected for seven or eight months, had cough with tight breathing, and at times a sense of suffocation; frequent pulse; weakness and wasting; after some time he had purulent and fetid expectoration, which was sometimes mixed with frothy and pituitous matter; fits of coughing after meals, which excited vomiting; increasing weakness; afterwards he had habitual dyspnœa, and fits of palpitation; voice hoarse; at length orthopnœa; died in six months. The case had been considered as disease of the heart. *Dissection.*—In the inferior part of the trunk of the trachæa near the bifurcation, there was an ulcer occupying about half its circumference, and about an inch and a half in length; the cartilages denuded and eroded; the ulcer was covered with yellow pus; mucous membrane around it inflamed; some puriform mucus in the bronchiæ; all the other parts healthy, except a very small portion of the lower part of the right lung, which was slightly hepatised, but not to such a degree as to sink in water. ‡

CASE X.—A man, aged 39, had dry cough, attacking him in paroxysms, which he neglected for six months; then occasional fits of dyspnœa and suffocation, which usually continued some hours. At first they occurred seldom, but in the ninth month were more frequent. At this time expectoration began, which was glairy and ropy; voice impaired and afterwards lost. In the fourteenth month he began to waste, and had pain in the chest, behind the upper part of the sternum; hectic fever; diarrhœa; fits of dyspnœa continued; expectoration copious but without pus. Died in the last degree of

* Beddingfield, ut supra.

† Journal de Med. Tom. IX. An. xiii. New Series, p. 185.

‡ Cayol, Recherches sur la Phthisie Trachéale.

wasting after sixteen months; the fits of dyspnœa having become less frequent and less severe for some time before death. *Dissection.*—Larynx sound; two inches below it, the membrane of the trachæa became red, and the redness became more intense the lower down, until it led to a large and deep ulcer, extending half an inch into the bifurcation on both sides. Its surface was unequal, and covered with various tubercles, white, red, and brown; bronchiæ below healthy; lungs quite sound, except a slight adhesion on the right side. *

CASE XI.—A woman, aged 50, liable to dyspnœa and hæmoptysis, had constant dyspnœa and wheezing, with exacerbations, which threatened instant suffocation; feeling of heat and tightness behind the sternum; cough occurring in violent paroxysms, with viscid expectoration; voice hoarse; occasional faintings; pulse natural. After some time dyspnœa increased; face livid; was obliged to sit up in bed with her body leaning forward; violent pulsation of the heart on the least motion; expectoration streaked with pus; died suddenly after fourteen months. *Dissection.*—An ulcer two inches long, occupying the whole circumference of the trachæa immediately above the bifurcation; cartilages in some places exposed and eroded; but in other places the canal was narrowed by the thickening of the parts; bronchiæ loaded with puriform fluid, and the membrane red; lungs sound, except some small portions which were slightly hepatised; heart sound. †

CASE XII.—A woman, aged 40, after the healing of an ulceration of the pharynx, had cough with a feeling of tickling in the glottis; purulent expectoration streaked with florid blood; pulse frequent; voice altered; continued five or six months with little change, and was then cut off by a rapid inflammatory attack after exposure to cold. *Dissection.*—A circular ulcer in the upper part of the trachæa, about one-sixth of an inch in diameter; lungs sound; bronchiæ vascular and filled with puriform fluid. ‡

CASE XIII.—A man, aged 47, had violent cough; hoarseness; some dyspnœa; fever; wasting; died in three months. *Dissection.*—A small ulcer found near the larynx; lungs healthy. §

As this affection has been little attended to in this country, I have thought it of importance to refer to these examples, calculated to illustrate its various modifications, and to establish the pathology of it as a fatal disease, quite distinct from any disease of the lungs. It also occurs in combination with the ordinary

* Cayol, Recherches sur la Phthisie Trachéale.

† Hastings on Diseases of the Bronchiæ, p. 246.

‡ Badham on Bronchitis, p. 162.

† Ibid.

tubercular phthisis; and this seems to be so frequent, that from the examination of a number of cases in the French hospitals, M. Bayle supposes the larynx to be affected in one case out of six. The ulceration of the larynx seems in some of these cases to be the primary disease, and in others a secondary affection, occurring as part of that general tendency to ulceration of the mucous membranes which exists in the advanced stages of consumption. When it is the primary disease in a person in whom tubercles exist in the lungs, it is not unlikely that the constant irritation kept up by the laryngæal disease may excite the tubercles into activity, and thus prove the immediate cause of phthisis. A man, aged 30, had cough with pain referred to the larynx, and mucous expectoration, mixed with small pieces of pus; his voice was hoarse and sibilous; deglutition very difficult, the attempt exciting vomiting; hectic fever; died in five months. *Dissection*.—An ulcer nearly an inch in extent, made a free communication betwixt the larynx and the pharynx. Posterior part of the cricoid cartilage was so carious, that it projected into the pharynx at both sides. The lungs were tubercular, and abscesses had begun to be formed at the upper part of them.* A woman who had been long affected with cough and pain of the larynx, was afterwards seized with pain of the breast, dyspnœa, loss of voice, and died gradually exhausted. An ulcer was found in the larynx, and induration with abscess of the left lung.†

On the other hand, when the laryngæal or trachæal ulceration appears as the secondary affection, it seems to occur merely as a part of that general tendency to unhealthy ulceration, which exists in many of these cases, particularly ulceration of mucous membranes. This occurs most remarkably in the mucous membranes of the intestinal canal, but may also be observed in the larynx, the trachæa, the bronchiæ, the œsophagus, and even in the urinary bladder. The ulcers in such cases are small but numerous, less extensive, less deep, and more numerous than in the cases of primary ulceration of these parts.

CASE XIV.—A gentleman, aged 45, after suffering much from scrofulous tumours on the neck, which suppurated slowly, had cough with frequent pulse; night sweats; emaciation and weakness; expectoration scanty, and consisting of whitish phlegm with a small mixture of puriform matter; his voice was weak and hoarse; and the cough had a peculiar husky sound; breathing sometimes a little

* Frank, Act. Institut. Clinic. Vilmensis, An. II. p. 63.

† Bayle, Recherches sur la Phthisie Pulmonaire.

frequent, but complained of no pain, and took a full breath without uneasiness; died gradually exhausted after five or six months. *Dissection.*—Left lung sound; right extensively indurated, and full of small abscesses; mucous membrane of the larynx thickened, with some ulceration; mucous membrane of the trachæa covered through its whole extent by a succession of minute ulcers, not above the twentieth of an inch in diameter.

The only other modification of this affection which deserves to be mentioned is, when tubercular disease exists both in the lungs and the trachæa at once, and in both is brought into activity about the same time. A girl, aged eight, liable to cough and glandular swellings, was seized with dry cough, difficult breathing, and slight fever, which appeared in the evening. After five days, great oppression, more fever, great dyspnœa, and difficult deglutition; copious perspirations; pain referred to the neck. About the eleventh day, cough increased; occurred in frightful paroxysms, with puriform expectoration streaked with blood, and membranous concretions; died on the 25th day. *Dissection.*—The lungs were full of steatomatous concretions, many of which had begun to suppurate; there were similar concretions in the trachæa and the larynx, which were ulcerated, and furnished much pus.* In another case, in which an affection of the lungs terminated in nearly the same manner, tubercles and ulcers were found in the trachæa and the larynx, and an abscess, containing 3i. of matter betwixt the larynx and the pharynx; the lungs extensively tubercular and suppurated. The power of swallowing was lost in this case.†

SECT. IV.—*Chronic Inflammation of the Mucous Membrane of the Bronchiæ.*

The acute inflammation of the mucous membrane of the bronchiæ was long confounded with pneumonia. It is now perfectly distinguished from it in a pathological point of view, though it must be confessed, that in practice the diagnosis is sometimes difficult.

The disease, in its chronic form, may supervene upon one of these acute attacks, or upon a severe catarrhal affection, which, indeed, is nearly allied to it, or it may come on gradually, without being preceded by any acute symptoms. In general, however, it is preceded by an acute attack in some form, especially a

* Portal sur la Phthisie Pulmonaire, Tom. I. p. 18.

† Ib. p. 101.

severe and protracted catarrhal affection, commonly called a neglected cold.

The morbid condition which then takes place consists, in some cases, of a succession of small superficial ulcers of the bronchial membrane, which can be distinctly traced in the larger branches. In other cases it is a red fungous appearance of the membrane, with irregular granular elevations, and sometimes merely a dark-red colour, with a morbid condition of the secretion. The secretion also varies considerably in different cases and different states of the disease. In some cases it is a viscid, glairy, transparent fluid; in others, viscid and opaque; in others, yellow and viscid; in many, friable, with the sensible properties of purulent matter; and there cannot be a doubt that pus is really formed, as it can often be distinctly traced to an ulcerative process. In general, the expectoration consists of a mixture of some of these, as the opaque viscid matter, with a mixture of pus, and frequently of blood, and the blood is sometimes in considerable quantity.

The disease admits of great variety in its extent, being in some cases confined to the larger branches; in others extending into the smaller ramifications; and in some severe cases it appears to occupy nearly the whole extent of the bronchial membrane. In these cases we trace a redness of the membrane into the minute branches, but we ascertain the disease chiefly by its effects on the secretion, the bronchial tubes being nearly filled with an opaque yellow fluid, having the sensible qualities of purulent matter. When cleared of this fluid, the substance of the lungs is found quite healthy.

In an affection which admits of such variety, both in degree and extent, the symptoms must vary exceedingly, and it is impossible to describe all the modifications of them. Those cases which are of the greatest importance in this inquiry approach so nearly to the characters of consumption, that, in practice, it is often difficult to distinguish them. There is frequent cough, with some uneasiness in the chest, which is in some cases described as a tightness, in others as a rawness or soreness, giving some pain in breathing, and a full inspiration is apt to excite cough. There is considerable expectoration, which in some cases is viscid and tenacious, in others has the sensible properties of pus, and sometimes consists of small quantities of pus, mixed with white frothy fluid. The disorder may go on for a considerable time without much impairing the general health, but rendering the patient able for little exertion, from an extreme susceptibility of cold, and a tendency to have the symp-

toms aggravated by any exposure. In other cases there is, from an early period, frequent pulse, with dyspnœa, hectic fever, anasarca, perspirations, diarrhœa, and wasting, and all the usual appearances of phthisis. In this manner, it may be fatal by gradual wasting, but the fatal termination often occurs more rapidly in one of the attacks of aggravation of the symptoms from accidental exposure to cold.

The diagnosis betwixt this disease and consumption is often extremely difficult. It must depend, not so much on any particular symptom, as on a careful attention to the history of the disease, and to the character of the expectoration. The expectoration I think is generally more copious than in true consumption, and more tenacious; though it has the purulent colour, it has less friability; when spit upon water, and collected in considerable quantity, it hangs more together, part floating on the surface, and part sinking to the bottom, with viscid filaments running from the one to the other, and connecting them together; and other filaments hanging down from the floating part in loose fringe-like appendages. If examined carefully on successive days, it will be found to vary its characters considerably, being on some days more puriform, and on others more mucous and glairy. The expectoration in true consumption is more uniform in its appearance, that is, after it has become decidedly purulent. It is more apt to sink in water, and has less tenacity, in so much, that after a considerable quantity has been collected, each separate sputum may often be observed lying quite distinct from the rest, and on shaking the vessel, may be seen floating or rolling about without any cohesion. I do not say that these marks are to be relied on, but they are worthy of attention, and the subject deserves minute investigation. Something also is to be learned from the history. The cases are most likely to be this bronchial affection, which have supervened upon an acute inflammatory attack, or on severe catarrhal fever or measles; while the cases which have come on slowly and insidiously, assuming gradually a more and more unfavourable appearance, are more likely to be the true consumption of the lungs.

The prognosis is much more favourable than in the true consumption, and many cases recover perfectly, even at an advanced period, after the symptoms have assumed the most alarming appearance, and the patient is much reduced. But it is also often fatal by progressive emaciation, as in consumption, and exhibits on dissection the morbid appearances already referred to, without any disease of the substance of the lungs.

CASE XV.—A man, aged 33, after severe catarrhal symptoms with an exanthematous eruption, had cough, copious expectoration of an opaque fluid entirely resembling pus; short quick breathing; small frequent pulse; night sweats and diarrhoea. He died suddenly after indulging in wine, about a month after the attack. *Dissection.*—The lungs were quite sound without either tubercle or induration. The mucous membrane of the bronchiæ was red and thickened, and the bronchial tubes contained much puriform fluid, similar to that which had been expectorated. *

CASE XVI.—A man, aged 25, had pain of chest, with a sense of load or weight in it; difficult breathing; a hoarse cough with expectoration; frequent pulse; and strong action of the heart. After repeated attacks for two years, the disease became permanent with copious expectoration, occasionally streaked with blood; profuse perspiration; gradual emaciation and death. *Dissection.*—Heart and lungs quite healthy; mucous membrane of the trachæa and bronchiæ inflamed; the former slightly; the latter more considerably; the branches contained a great quantity of frothy fluid. †

CASE XVII.—A girl, aged 15, after a febrile attack with cough and dyspnœa, had severe cough, with copious expectoration, composed of pus and mucus, and sometimes bloody; debility; increasing emaciation; perspirations; expectoration becoming more purulent; death in two months. *Dissection.*—Lungs healthy, except a little harder and heavier than natural. Trachæa and bronchiæ full of puriform fluid. Bronchial membrane thickened and highly vascular, and small ulcers were found in various parts of it. ‡

Dr Willan frequently met with the disease in London, supervening upon catarrhal fever. There was cough, with thick viscid expectoration, often bloody, and in some cases a mixture of fetid, greenish matter, hectic fever, sweats, and diarrhoea. They all seem to have recovered by topical bleeding, blistering, and antimonials. §

There is another modification of the disease, which occurs in persons rather advanced in life. There is cough, with copious expectoration, varying in its characters, sometimes distinctly purulent; but the prominent symptom is difficulty of breathing. In some cases it is permanent dyspnœa, with suffocating cough; in others it occurs in paroxysms, like asthma, but the paroxysms

* Bayle. *Recherches sur la Phthisie Pulmonaire.* Obs. 48.

† Roberts. *Trans. of College of Physicians.* Vol. IV. p. 131.

‡ Hastings on Inflammation of the Mucous Membrane of the Lungs. p. 315.

§ Willan on the Diseases of London.

are generally shorter than in the true asthma. They are apt to occur in the morning, with long fits of coughing, and are relieved by expectoration, the bronchiæ being sometimes cleared of immense quantities of it. They have also a connection with the state of the stomach, and are apt to occur an hour or two after dinner. The disease may go on for years without materially injuring the general health; but it renders the patient extremely susceptible of cold, by which inflammatory symptoms are apt to be induced; and it is usually by one of these attacks that it is fatal. It presents nearly the same morbid appearances which have been already referred to, but generally with more induration of the substance of the lungs; and in some cases, especially those which have terminated by an inflammatory attack, cavities are observed like very small abscesses; but it is doubtful whether they are really abscesses, or whether they are merely the bronchial cells, full of purulent matter.

Chronic disease of the bronchial membrane may go on to a fatal termination, as an idiopathic disease, or it may exist in combination with other morbid conditions of the lungs. The most important of these are two. (1.) The ordinary tubercular consumption. In this combination the bronchial disease may either be the primary or secondary affection. In the former case, it is probable that, tubercular disease having previously existed, the bronchial affection may prove the immediate cause of exciting it to action; in the latter, it appears as a part of that general tendency to ulceration of mucous membranes which occurs in cases of tubercular phthisis. This combination will modify the characters of the expectoration, the proper expectoration of the tubercular disease being mixed with that of the bronchial affection. Another modification arises from combination with tubercular disease which has not suppurated. A man, aged 30, had first catarrhal symptoms, then hæmoptysis, and afterwards cough, with fever and weakness; the expectoration mucous, and in part purulent. He had afterwards night-sweats, rapid emaciation, and diarrhœa; the expectoration became purulent and copious; and he died with all the appearances of consumption. Both lungs were most extensively affected with tubercular induration, a very small part only being sound, but without any appearance of suppuration.* (2.) Chronic disease of the substance of the lungs, of the nature of chronic peripneumony; or the effect of it, simple induration, not tubercular, or hepatisation of the pulmonary substance. In every case of peripneumonia, the ex-

* Bayle, Recherches sur la Phthisie Pulm. Obs. 26.

pectoration must be derived from the bronchial membrane, except when it advances to suppuration; so that this disease is probably accompanied in all cases by more or less of the bronchial affection. The disease, beginning in this way, may pass into a chronic form, in which the chronic disease of the membrane, with its usual symptoms, is combined with induration of the lung. The expectoration, in these cases, being often puriform, and very abundant, may give the appearance of abscess of the lung.

CASE XVIII.—A man, aged 25, after acute peripneumonia, continued to have cough with copious expectoration, which was mucoso-purulent; rapid wasting, and death in two months. *Dissection.*—Both lungs were indurated like liver, in three fourths of their substance; but without any appearance either of suppuration or tubercles. The appearance of the bronchial membrane is not mentioned, but the expectoration must have been derived from it.*

In another case, the disease was found at an earlier period. A man, aged 36, had difficult breathing, the lungs being dilated with a great effort and a rattling sound; he had cough with mucous expectoration, and died in a month. The lungs were extensively hepatised, but without tubercles. The bronchial membrane below the bifurcation was red and thickened, and covered in many places by a deposition, resembling the membrane of croup. Had tubercles existed in either of these cases, they would probably have been excited into action, and would have been found in a state of suppuration. In some of these cases, however, an appearance presents itself which is apt to be mistaken for suppurated tubercles. In cutting through the hepatised portion of lung, drops of purulent matter start up at numerous points, giving the appearance of numerous small abscesses; they seem to be merely drops of the puriform secretion, discharged from the bronchial canals when they are cut across.

There is still another modification of chronic disease of the bronchial membrane, which, though of rare occurrence, deserves to be noticed. The exudation from the diseased membrane assumes a firm and membranous appearance, and is spit up in the form of polypous concretions or cylindrical tubes of considerable extent, exhibiting the ramifications of the bronchiæ. This appearance was observed by some old writers, and was then considered as an actual discharge of the vessels of the

* Broussais. *Histoire des Phlegmasies Chroniques*. Tom. I. p. 68.

lungs from extensive destruction of their substance. A young man, mentioned by Tulpus, expectorated a tubular portion of this kind, the length of a finger, and branching like an artery. He recovered at that time, but died of pectoral complaints a year after. Another patient, mentioned by the same writer, brought up, with much blood, a similar mass, branching out like the hand.* A gentleman, mentioned by Dr Nichols, after an inflammatory attack, coughed up large portions, hollow, very tough, and branching like blood-vessels. He continued to discharge them frequently for seven years, and was otherwise in good health.† A boy, aged five years, mentioned by M. Bussiere, had cough, with occasional hæmoptysis, for a year; and, about a fortnight before his death, began to spit up firm membranous substances, shaped like vessels. On dissection, the trachæa and bronchiæ, through their whole extent, even into the smallest branches, were lined by a membranous deposition, which adhered to the inner surface of these parts by very fine filaments, and was easily separated. The lungs in other respects were sound.‡ A gentleman, mentioned by Dr Cheyne, had cough, dyspnœa, hoarseness, and puriform expectoration, and occasionally brought up firm membranous portions, of a semi-cylindrical shape, which appeared to have been thrown off from a part of the trachæa, above the bifurcation. They were of a much greater density than the membrane of croup, and of a finer white; consisted of a succession of layers, and were about a line in thickness. The case was in an active form at first, and was treated by repeated bleeding; and he recovered, having continued for some time to expectorate smaller portions of the same membranous substance.§ A woman, mentioned by the German translator of Portal on Phthisis, expectorated large quantities of the same matter, very firm, in some places almost cartilaginous, and having exactly the appearance of the bronchial ramifications: they were so large, that it seemed inconceivable how they had passed through the glottis. She recovered perfectly in a few weeks.

Bronchial inflammation, in its active state, requires the most decided antiphlogistic treatment in its early stages; but the period for active practice is soon over; and if the efficient treatment has been neglected at the proper period, there is great danger, either that the disease will be fatal, or that it will pass

* Tulpus, *Observationes Medicæ*, Lib. II. cap. xiii.

† *Philosophical Transactions*, 1751, No. 419.

‡ *Ibid.* No. 263.

§ *Edin. Med. Journal*, Vol. IV. p. 441.

into a chronic state, in which it is likely to prove extremely tedious and untractable.

In the early stages of the chronic disease, or what may be termed the subacute state of it, benefit is derived from topical bleeding, blistering, issues, rest, cool spare diet, regulated temperature, mild emetics, antimonials combined with opiates, Dover's powder, and digitalis. Some rely much on calomel combined with opium. Dr Hastings recommends extract of cicuta, with small doses of ipecacuan. When the disease is decidedly in a chronic state, with general debility and wasting, it is to be treated entirely upon the tonic plan, by nourishing diet, a cautious allowance of wine, gentle regular exercise, change of air, friction of the body, sponging with vinegar and water, cold or tepid, and remedies of a tonic or stimulating kind, combined with mild opiates, as the cough may require. Of the remedies employed with this view, a great variety have been recommended; they act nearly on the same principle. The most useful are the following: bark in decoction, or in substance; strong decoctions of the vegetable bitters, with a proper proportion of laudanum, or tincture of hyoscyamus, in each glass; preparations of iron, with opiates; balsam of copaiva; myrrh; colchicum; gum ammoniac; seneka; cascarilla; lime-water; horehound. Kerckhoffs recommends the *Viscum album* as of great efficacy, either in powder or decoction; and the powdered bark of the *Salix alba*, with a sixth part of sulphur, made into an electuary with syrup of poppies.* Keeping up a pustular eruption on the thorax, by an ointment containing tartrate of antimony, is said to be sometimes extremely beneficial. It is in this affection, I imagine, that the tar vapour is useful. The paroxysms of dyspnoea, which occur in the disease in elderly people, often do not yield to the antispasmodics which relieve asthma. I have found nothing so useful in some of these cases as a moderate dose of laudanum, with a small quantity of tartrate of antimony in solution, perhaps one-sixth or one-fourth of a grain, or such a quantity as can be taken without exciting vomiting.

A leading character of this disease is a remarkable susceptibility of cold; and when it proves obstinate, a most important measure is removal to a mild and equable climate. It is probably in these cases that this measure has been chiefly beneficial.

It is highly satisfactory to know, that, upon this general plan, many cases have been treated successfully, after they had assumed an alarming appearance, and had exhibited many of the

* Trans. of the College of Physicians, Vol. VI. p. 27.

characters of an advanced stage of consumption, severe cough with purulent and bloody expectoration, febrile paroxysms, perspirations, debility, and emaciation.* In this state it is certainly a disease of great danger, but it is never to be despaired of.

SECT. V.—*Chronic Inflammation of the Pleura.*

This affection is of great importance in this inquiry, as it assumes in a great degree the characters of phthisis, and I suspect is often mistaken for it. The symptoms are cough, with some degree of pain in the thorax, generally either under the sternum, or in one side; tightness and oppression of breathing. The pain is increased by coughing, and by bodily exertions, as walking, and sometimes considerably impedes respiration. The cough is at first short and dry, afterwards there is mucous expectoration, often bloody; and in the advanced stages, it is apt to assume a puriform appearance, and is sometimes decidedly purulent. The pulse is generally rather frequent, but is sometimes very little affected. In this state the symptoms may continue for a considerable time, without producing much constitutional disturbance; but as the disease advances there is debility, with emaciation, hectic paroxysms, night-sweats, diarrhoea, and death by gradual exhaustion, in many cases with great difficulty of breathing, and symptoms resembling hydrothorax.

The morbid action which is going on during this course of symptoms, originates in inflammation, confined to a circumscribed portion of the pleura, and in general not assuming much activity. There is reason to believe that it may continue in this state for some time, and then subside, leaving perhaps adhesion at the part, but no morbid affection of a serious kind. In other cases it is more fixed, and spreads over a greater extent of the pleura, in some cases nearly over the whole of one side. It produces deposition of coagulable lymph, and effusion of

* See Richter on Mucous Consumption, Hastings, Badham, Willan, Bayle, Portal, and some very interesting cases by Dr Chapman in the Medical Communications, Vol. I. which had all the symptoms of advanced phthisis, and recovered under the use of cinchona in doses of \mathfrak{ss} . three times a-day. Is the remarkable case described by Mr Abernethy referable to this head? I am inclined to think it is. The patient had severe cough, with extreme emaciation, and a pulse at 140. She spit up in each 24 hours more than a pint of mucus, mixed with pus, and streaked with blood, and had constant diarrhoea, with black and offensive discharges. She took twice a-day a grain of opium, with gr. ss. of calomel, and recovered perfectly. The calomel affected her mouth after she had taken twelve pills. From that time the stools became of a natural colour and consistence; the other symptoms subsided, and soon ceased.

a turbid fluid, with flocculi of yellow matter; and frequently the whole assumes a puriform appearance. This effusion may either be contained in the general cavity of the pleura, or in a small portion of the cavity, forming a cyst lined by coagulable lymph, the remainder of the cavity being obliterated by adhesion. In a case by Dr Armstrong, an abscess had been formed immediately under the pleura pulmonalis, betwixt it and the substance of the lung. The quantity of fluid has sometimes been found to amount to seven or eight pounds. The lung in such cases is compressed, and has a firmer appearance than natural, in consequence of the compression; but it may be entirely free from disease, except a coating of coagulable lymph on its surface. Its appearance has been frequently compared to the lung of the foetus. It has been in some cases so compressed, and so concealed by coagulable lymph and yellow flocculent matter, that it has appeared at first sight to be wanting; and it is probably in cases of this kind that a whole lung has been supposed to be destroyed. In other cases, the inflammatory action spreads into the substance of the lung, producing induration, and the other usual consequences. The affection may also be complicated with tubercular disease, in which case the tubercles will probably be found in a state of suppuration. But the disease may exist without any such combination, and may go through its course to a fatal termination, without any disease of the substance of the lungs.

The expectoration in this disease must generally be from the bronchial membrane, as in all cases in which there is frequent irritation of the lungs, without disease of their substance. At first it is merely an increased secretion; but in the more advanced stages, it seems to amount to chronic inflammation of the membrane; hence the expectoration may assume a puriform character. But there is another source of puriform expectoration; for cases have occurred in which the puriform matter, formed in the cavity of the pleura, has found its way by a small fistulous opening through the substance of the lungs, into a branch of the bronchiæ, and has been spit up in large quantities; the substance of the lung being quite sound, except this small fistulous canal. Cases have also occurred in which the fluid has found its way outwards, by an opening betwixt two of the ribs.

The following cases will illustrate the leading phenomena connected with this most important affection. In the first of them I had an opportunity of observing it at an early period, its progress being arrested by another disease, of which the patient died.

CASE XIX.—A young man, aged 19, of a family which had suffered from consumption, was affected, in October 1819, with short dry cough; pain in the thorax towards the right side; sense of tightness in the chest; some constitutional disturbance, with restless nights; pulse little affected. The complaint had entirely the appearance of incipient phthisis. The symptoms had continued with little change for six or seven weeks, when in the middle of December he was seized with a violent pain in the right temple, and fell down suddenly, deprived of sense and motion. He soon recovered his recollection, but was affected with hemiplegia of the left side, and his speech was very inarticulate. He then lay with very little change for several weeks; during which time he was entirely free from his pectoral symptoms. In the middle of January he began to improve a little in his paralytic complaints, and as this took place his cough began to return, with pain in the right side. For three or four weeks he continued to have cough, sometimes severe, but his speech was quite distinct, and the motion of the left leg was greatly improved; the arm continued completely paralytic. On the 15th of February, he was again suddenly attacked with loss of speech, preceded by pain in the back of the head; and he lost the power of swallowing, which he never recovered. His speech returned in a very short time. From this time, the pectoral symptoms again disappeared and never returned. He was fed by means of an elastic gum tube till the 20th of March, when he died gradually exhausted.

Dissection.—On raising the dura mater, a remarkable depression appeared, on the right hemisphere of the brain, on the anterior part of the middle lobe. This was found to arise from an extensive portion, which was broken down into a soft pulpy mass, without distinct suppuration and without setor; it extended nearly the whole depth of the hemisphere. Adjoining to it, there was a small abscess, no larger than a bean, lined by coagulable lymph. There was a small quantity of fluid in the ventricles. On raising the brain a remarkable appearance was observed in the basilar artery. It appeared externally to be very much enlarged, but when cut into was found to be solid, its cavity being completely filled up for about an inch in length, by a firm white substance. Anteriorly to this portion there was a coagulum of blood in the artery. The other parts of the brain were sound. In the thorax there were extensive adhesions; and at the lower part of the right side, betwixt the lung and the ribs, and extending down upon the diaphragm, there was a considerable deposition of coagulable lymph, which was soft and transparent. The lower part of the right lung was rather firmer than usual; the substance of the lungs in other respects was quite healthy.

CASE XX.—A man, aged 22, had been long in hospital affected with cough and slight mucous expectoration; a fixed dull pain in the left side of the thorax; and frequent pulse. He had afterwards diarrhœa, and died after a long illness in the last degree of emaciation.

Dissection.—The left cavity of the pleura was full of a grey ropy

fluid, the pleura was thickened, red, and covered with a white friable exudation two lines in thickness. The lung was compressed, and its substance rather fleshy, but not otherwise diseased. *

CASE XXI.—A young man had cough and pain of the right side, which was not severe but never gone; increased by exercise; febrile paroxysms. The cough was chiefly troublesome in the night; afterwards diarrhœa; wasting; anasarca; and death in three months, with extreme emaciation. *Dissection*.—Left lung quite sound; the right was attached to the ribs by recent adhesions, except at one place, where it was free from adhesion; and a circumscribed cavity was left betwixt the two pleuræ, which was lined by a thick coating of coagulable lymph, and contained about lb.iss. of purulent matter. The substance of the lung was a little firmer than natural, but crepitating. †

In the following case, the disease was complicated with tubercles:

CASE XXII.—A man, aged 22, had severe cough, at first dry; afterwards with thick and white expectoration; general undefined uneasiness across the thorax. When he lay on the right side, his breathing was oppressed, when on the left, he was harassed with cough; so that he was generally obliged to sit up; frequent pulse; wasting; died in five months. *Dissection*.—Right lung much diminished in size, and full of tubercles with some abscesses; the cavity of the pleura full of a milky fluid, and the pleura covered with a thick exudation. Left lung hepatised, and with some tubercles not suppurated. ‡

CASE XXIII.—A man, aged 30, after a pneumonic attack had cough, with white opaque expectoration; short oppressed breathing, and pain in the left side of the chest, which disappeared on the 28th day of the disease. The cough continued, and the expectoration became purulent and fetid, with night-sweats, emaciation, diarrhœa, and death in four months. *Dissection*.—Right lung adhering extensively, but healthy, except a small part of the inferior lobe, which was firm, with one or two tubercles. In the left cavity of the pleura lb.iss. of greenish fetid pus; pleura thickened and covered with a thick albuminous layer, with albuminous bands which crossed from one pleura to the other. Superior part of the left lung perfectly sound. The inferior lobe was compressed and flattened, but not otherwise diseased, except that two fistulous openings passed through it, and made a communication betwixt the bronchiæ and the collection of matter in the cavity of the pleura. §

* Broussais, Histoire des Phlegmasies Chroniques. Tom. I.

† Ibid.

‡ Ibid.

§ Bayle. Obs. 43.

CASE XXIV.—A man, aged 62, had pain in the chest and right side; oppressed breathing; frequent pulse and cough with expectoration, which was first mucous, then bloody, and then purulent; wasting; diarrhoea; and death in five or six weeks. *Dissection*.—Right lung adhering, except at one part on the right side, where there was formed by the two pleuræ a cavity lined with thick flocculent matter, and full of pus; pleura forming this cavity was in some places covered with an adventitious membrane a line and a half thick. Two thirds of the lung sound. The lower third was compressed and firmer than usual, and a fistulous opening three inches long passed through it, which admitted a female catheter, and made a communication betwixt the bronchiæ and the collection of matter in the cavity of the pleura.*

In a case mentioned by the Italian translator of Portal, after symptoms similar to those in the above cases, a tumour formed externally on the right side of the thorax, which burst and discharged abundance of pus, and in a fit of coughing air sometimes passed through it. There was hectic fever and great wasting, but the man gradually recovered. In a case mentioned by Dr Ayton Douglas, a tumour appeared in the same circumstances under the left scapula, which, during violent fits of coughing, was sometimes distended to the size of a quart bottle, and suddenly diminished again. The man had cough, with copious expectoration, which was purulent and fetid. The tumour subsided gradually, and disappeared after two years, and the man recovered.†

In the diagnosis betwixt this disease and phthisis, we must be chiefly regulated by the acute fixed pain, referred to a particular spot. But it must be confessed that the diagnosis is sometimes difficult, and must depend more upon minute attention to the history and phenomena of the case, than upon any particular symptom. When it assumes considerable activity, the diagnosis will be the easier; but as the pulse is often little affected, there is danger of mistaking the pain for a muscular affection, and thus allowing the period to go by, when it may be treated successfully. It is only in its early stage that it is the subject of active practice; in the advanced stages it is probably irremediable. The remedies are few and simple. General bleeding is often required; large and repeated topical bleeding, blistering, issues, rest, and cool spare diet, are the leading articles, with the aid of antimonials, opiates, &c. If the dangerous nature of the disease be overlooked at the commencement, and the case be injudiciously treated by tonics

* Bayle, Obs. 44.

† Edin. Medical Essays, Vol. VI. p. 127.

and exercise, the error is likely to be fatal. A young lady, mentioned by Dr Rush, had pain in the right side, with frequent chills and feverish paroxysms. She recovered by repeated small bleedings. Next summer she was seized with the same symptoms, but put herself under the care of another physician, who recommended country air and exercise. Under this plan she got gradually worse; in autumn was confined to bed; and continued during the winter affected with constant pain in the right side, with inability to lie upon it, and died in May. A remarkable circumstance in the case was, that she had neither cough nor frequency of pulse, until a month before her death. On dissection the left lung was sound, the right adhered extensively; and in separating the adhesions, a sac was discovered containing half a pint of matter. * In some of the cases, the paracentesis thoracis would afford the only chance of relief, but the remedy is very precarious, and the relief at best might be but temporary. †

SECT. VI.—*Disease in the Posterior Mediastinum, and of the Glands connected with the Lungs.*

These affections deserve to be shortly referred to in connection with this inquiry, though they are of much inferior importance in a practical point of view, to the diseases mentioned in the preceding sections. They produce dry cough, with some uneasiness in breathing, and various anomalous symptoms; sometimes pain, referred to the back, so fixed and severe, that it is apt to be mistaken for disease of the spine. A girl, mentioned by Bayle, had dry cough, with wasting, and afterwards severe diarrhoea; she died at last of a short pneumonic attack. There was ulceration of the mucous membrane of the bowels. The lungs were sound, except the appearances of recent inflammation. The only other disease in the thorax was enlargement of the glands at the root of the lungs. In another case by the same writer, there was suppuration in the anterior mediastinum, complicated with disease of the lungs. In a case by Laennec, there was a cyst full of hydatids compressing the lung; and in one by Avenbrugger, there was a solid organized mass behind the left lung. In a case by Bayle, in which the lungs were extensively tubercular, there was also a tubercular mass

* Rush's Medical Inquiries, Vol. II. p. 112.

† See an important case by Dr Henderson, in the last number of this Journal, with most interesting remarks by Dr Hennen.

behind the lungs, and in contact with the vertebræ, several of which were carious from the pressure. I have seen, in a case to be mentioned afterwards, an extensive abscess in the posterior mediastinum, with caries of the vertebræ; but it also was complicated with disease of the lungs. In the first volume of the Medical Communications, a singular case is mentioned, in which ulceration of the lungs had passed backwards, and formed a communication with the œsophagus. I saw lately a man, aged 58, who had a mass of diseased glands on his neck, pain under the sternum, difficult breathing, and an acute pain referred to a small spot about the middle of the spine. After three months he had attacks of headach, with loss of speech, which at first occurred once in two or three days, and continued about fifteen minutes; afterwards they occurred every day, and continued longer; the longest was six hours. He had then double vision and numbness of the right arm. His breathing became more difficult, so that he often could not lie down, and he died suddenly in a fit of suffocation, about three weeks after the appearance of the head symptoms. The lungs were loaded with fluid, but otherwise sound. A chain of diseased glands passed down from the glandular mass on the neck, behind the trachæa and the lungs; the largest were behind the division of the bronchiæ. In the anterior part of the right hemisphere of the brain, there was a tumour the size of a nut, of a reddish brown colour and very firm. No other morbid appearance.

SECT. VII.—*Ulceration of the Lungs, of a healthy character, from Active Inflammation.*

Active inflammation in lungs otherwise healthy, frequently terminates by the formation of an abscess in the substance of the lung. The abscess, in such cases, is distinctly circumscribed, and the matter is contained in a soft sac of coagulable lymph. The pulmonic substance around the abscess is, in some cases, hepatised, in others quite healthy. Such an abscess may burst into the bronchiæ, or into the cavity of the pleura, and, in either case, if the collection be extensive, it may be speedily fatal. But it may also be spit up, and has frequently been so, to the extent of lb. i. or more, in a very short time after the first bursting. There is thus left a cavity like that of any other abscess, which may then take on a healthy action, and gradually heal. In this case, cough continues, with purulent expectoration, for a longer or shorter time, according to the circumstances of the case, but the expectoration gradually diminishes in quantity, and at last disappears, the cough also ceasing along with it.

The healing of such an abscess may be retarded by a variety of causes, and if the disease has been extensive, or the strength of the patient much reduced, he may sink under it, with all the usual symptoms of consumption. But it is a disease quite distinct from consumption, and one which, in a great proportion of cases, we may hope will terminate in recovery. I shall afterwards have occasion to refer to this subject, and to investigate, by examples, the difference betwixt this affection and the unhealthy ulceration which constitutes consumption.

SECT. VIII.—*Hæmoptysis and its Consequences.*

Facts and minute observations are wanting on this important subject, but, from the whole phenomena of the disease, it is probable that hæmoptysis ought to be viewed under several aspects, differing considerably from each other.

I. In such an organ as the lungs, in a great measure composed of vessels, it is not wonderful that derangements of circulation should take place, and that a vessel should occasionally give way. This may occur from general plethora, from occasional changes in the general circulation, as in women from suppression of the menses; and it may arise from causes affecting more immediately the lungs themselves. The most obvious and intelligible of these is, any obstruction to the return of the blood from the lungs to the left side of the heart. Such an obstruction existing while the full quantity is sent into the lungs from the right ventricle, a state of the lungs takes place, in some degree analogous to that of the brain in simple apoplexy, and we readily conceive how a branch should give way. The principal causes of this condition are diseases of the left side of the heart, and induration of a part of the lungs. Whatever other causes give rise to it, may prove causes of hæmoptysis, but in these there is considerable obscurity. We call it congestion, but this merely expresses the fact, without explaining any thing; the question immediately recurs, Whence this congestion, except from the organic causes referred to? It seems to proceed from a certain inflammatory state of the substance of the lungs. Hence arises the genuine acute hæmoptysis, which is nearly allied to peripneumonia, and requires the same treatment in the most decided manner. Under this treatment we expect it to terminate favourably, in a great proportion of cases. The breach of continuity which has taken place is equivalent to a wound; this may either heal, or may advance to suppuration, and pro-

duce purulent expectoration. If this take place in lungs otherwise sound, it may terminate favourably, like the healthy ulceration already referred to; if it take place in unsound lungs, the ulceration will be unhealthy, and will probably lead to consumption.

II. There seems to be a modification of hæmoptysis, differing materially from the former, though assuming an active form, in which the hæmorrhage is from the vessels of the bronchial membrane. It appears to be preceded and attended by less dyspnœa and oppression of the thorax than the former, and rather by rawness and tenderness, with a sharp irritating cough, having the characters of the catarrhal or bronchial inflammation, as the former has of the peripneumonic. The blood is generally in smaller quantity, and mixed with frothy fluid in the early stages; afterwards with the expectoration proper to the inflammation of the bronchial membrane. In several of the cases formerly described, we have seen it combined with the disease of the bronchial membrane; and a case, described by Portal, fixes still more distinctly the existence of this source of the hæmorrhage, without connection with any disease of the lungs. A young man was liable to attacks of hæmoptysis, which occurred generally several times every month. After this had continued for two years, he died of an affection of the brain. The lungs were found perfectly sound; some of the bronchial glands were much enlarged, and covered with blood-vessels. Some of these vessels were distinctly traced terminating by open extremities on the surface of the bronchial membrane, and appeared evidently to have been the source of the hæmorrhage. This bronchial hæmoptysis is nearly allied to, and perhaps usually accompanied by, the inflammation of the bronchial membrane, and may be followed by the symptoms of that affection in its chronic state, with puriform expectoration, and many of the appearances of consumption. But it is an affection quite distinct from consumption, and affording a much more favourable prognosis.

III. The two former affections are more or less acute diseases. There seems to be a third modification of hæmoptysis, which is not in any degree acute. It appears to arise from the immediate rupture of a vessel, in consequence of disease of its coats, without the peripneumonic congestion of the first species, or the bronchial disease of the second. The patients are generally pale, feeble, and scrofulous-looking, and the pulse weak and slow. It may probably arise either from the pulmo-

nary vessels, or from the bronchial membrane, and, in both cases, seems to be connected with tubercular disease. In the former case, therefore, it is very likely to be followed by consumption; in the latter, by the chronic disease of the bronchial membrane in its most unfavourable form.

IV. A fourth modification arises from a vessel giving way from previous ulceration in a case of true consumption. It is distinguished by being preceded by purulent expectoration. It is often immediately fatal, and at best admits only of palliative treatment.

To the various affections resembling consumption, which have been referred to, we ought, perhaps, to add some remarkable cases, in which similar symptoms were kept up by extraneous substances lodging in the bronchiæ. A man, mentioned by Mr Howship, had violent cough, with copious expectoration, and frequent hæmoptysis; constant fixed pain in the right side of the thorax, and extreme emaciation. After four months, when his case was considered as hopeless, he brought up, in a violent fit of coughing, a small nail, $\frac{7}{8}$ of an inch in length. Eleven or twelve years have elapsed since this event, during which he has enjoyed tolerable health, though liable at times to cough and hæmoptysis. He was sensible of the nail slipping down his throat, while he held it in his mouth when at work, immediately before the commencement of his illness. * A man, mentioned by Mr Arnot, after suffering severely from cough and dyspnœa for more than a month, brought up a spongy piece of bone, the size of a hazel nut, and got well speedily. † In the London Medical Journal for 1786, Mr Holman mentions a man who had severe cough, purulent expectoration, mixed with blood, hectic fever, profuse night-sweats, and diarrhœa. After these symptoms had continued till he was reduced to a state resembling the last stage of consumption, he one day spit up a pint of blood, and soon after coughed up a piece of bone, measuring $\frac{6}{8}$ of an inch in length, and weighing six grains. His alarming symptoms ceased almost immediately, and he was soon in perfect health. He remembered having swallowed a piece of bone fifteen years before, which stuck in his throat, and was pushed down by a probang. From that time he had been subject to cough, which had gradually increased. A woman, mentioned by Bartholinus, brought

* Howship's Obs. in Surgery and Morbid Anatomy, p. 222.

† Edinburgh Med. Essays, Vol. VI. p. 115.

up, under similar circumstances, a small kernel of a nut, and got well immediately. The German translator of Portal mentions a woman, who, after being considered as phthisical for some time, brought up, in a violent fit of coughing, a stony concretion, half an inch long, and soon after got well. In several cases referred to by Laennec, hydatids were expectorated, with relief of pectoral symptoms of some standing; and Borelli mentions a gentleman, who recovered from a state of extreme danger, by coughing up a small piece of nutmeg, which had slipped into the larynx, and had been the cause of complaints, which were considered as consumptive.

These observations, on *diseases resembling consumption*, I submit as a slight and imperfect outline of a most extensive subject, in the hope that they may serve to show the importance of it, and to direct to it the attention of those better qualified, both to correct the outline, and to fill up the details. The whole is at present in the most rude and imperfect state, and that most important branch of it, the diagnosis, is entirely in its infancy. But it is one of the most interesting subjects that can occupy the attention of the British practitioner, and his utmost exertions will be amply rewarded, if any degree of precision can be introduced into the pathology of consumption. At present, it is certainly vague and unsatisfactory in the greatest degree, while, in the British Islands alone, the annual mortality from consumptive diseases is from fifty-five to sixty thousand.