ART. XVII.—*Hæmoptysis*. By J. W. W. NASON, M.D., Univ. Dub.; late Resident Clinical Assistant, Hospital for Consumption, Brompton.

HÆMOPYSIS, signifying hæmorrhage in general from the lungs, is an incident fraught with so much vital importance as generally, and frequently justly, to excite the gravest feelings of apprehension, not only in the patients themselves, but also among their several friends and attendants. It is in the popular mind almost invariably associated with consumption of the lungs, and not unnaturally, since it is one of the most common complications of phthisis, few cases, comparatively speaking, of pulmonary consumption being wholly free from it; and it is often the first symptom occurring prior or during the course of that disease which, awakening people as it were from a lethargy of listless apathy, brings the hitherto latent disease under their notice. Advice is at once sought, and their fears and forebodings are but too often sadly confirmed. Its occurrence must always prove of deep import to the physician, and his prognosis in the case, especially if unaccompanied by any physical signs, demands careful consideration, and the imparting his opinion to patients requires both caution and circumspection. Perhaps in no other profession are words lightly spoken more liable to misinterpretation. Passing over the obloquy, disparaging comments, &c., which a man throws himself open to by an unguarded expression, the import drawn from it, if unfavourable, can have anything but a beneficial effect on the patient. How often have I heard hospital patients, particularly hysterical young females, who had perhaps on one or more occasions expectorated blood, some coming long distances from the country, seriously and in good faith assert that they were in decline—one lung completely gone, the other affected, and such to have been the opinion of their medical attendants, many of whom physical examination and subsequent treatment proved to labour under no organic disease of the lungs whatsoever. Erring in the other extreme may be attended with still more pernicious consequences. A patient often rendered fool-hardy by the too favourably expressed opinion, emanating perhaps from the certainly judicious desire to keep up his spirits, all misgivings are banished, and with cheerful indifference he again devotes himself to pursuits which originally were the exciting causes of his malady;

hæmoptysis again takes place, and decided consumption of the lungs supervenes. By the term phthisis, or pulmonary consumption—in other words, wasting, or destruction of the lung tissue, I do not wish to be understood necessarily to imply pulmonary tuberculosis. By many, in an indiscriminate manner, these terms are used synonymously, and indeed some, still adhering to the doctrines of Laennec, recognize but one form of consumption, *i.e.*, the tubercular form. Now, in many *post-mortems* of those whose deaths had been the result of wasting and destruction of lung tissue, we find no tubercle, and still it is an undoubted case of phthisis. One case to illustrate the above.

R. S., female, aged thirteen, admitted into the Brompton Hospital March the 29th; mother said to have died of phthisis; had been always delicate; never, however, seriously ailing until four months ago, when her present illness commenced with a cough.

Physical Signs on Admission.—*R.* Bronchial respiration both anteriorly and posteriorly in upper third; harsh and puerile respiration below. *L.* *Bruit de pot fêlé* between first and second intercostal spaces; pectoriloquy with gurgling extending down as far as fourth interspace; bronchial respiration below.

Physical Signs, April 25.—*R.* Gurgling at and above clavicle; amphoric respiration below; humid clicking about third interspace; harsh respiration below. *L.* Those on admission much increased, with the addition of moist sounds at the base. Died May 3rd.

Autopsy.—*R.* Several cavities in superior lobe, surrounded by pneumonic consolidation, containing greenish fluid pus; middle lobe in a state of red soft hepatization breaking down, several small cavernuli having already formed; inferior lobe quite recent; pneumonic consolidation; the colour of the superior lobe being pale, middle brick colour, and inferior deep red. *L.* In a state of thorough excavation, portions at the base being in a somewhat similar condition to the middle lobe of right lung. Both right and left lungs considerably retracted; numerous and very friable pleuritic adhesions; no tubercular deposit discoverable.

The above rather imperfectly quoted case of wasting of the lung, to which one could with difficulty deny the term phthisis, can hardly be qualified as being of tubercular variety. Pneumonic phthisis would be its proper designation. I, for my part, cannot understand why tubercular consumption should monopolize the term pulmonary consumption, when we have other diseases besides

tuberculosis which, when they occur, may cause waste of lung tissue to an equal or greater extent than tuberculosis. Tubercular phthisis, though undoubtedly forming a large proportion of cases of consumption of the lungs, since it does not embrace all, ought to be universally used only as a name signifying a subdivision of pulmonary consumption, and not as one necessarily connected with every phthisical case.

Returning from this discussion, we will resume our subject. The fact that hæmoptysis is not constantly prior or subsequent to any organic disease of the thoracic viscera has been frequently substantiated. Many people during puberty having suffered from repeated attacks of hæmorrhage from the respiratory organs, still arrive safely at the goal of ripe old age, leaving at their death no appreciable pathological signs of their ever having suffered from it. Though such is sometimes the case, we should still regard every case of hæmoptysis coming under our notice with suspicion, and endeavour to arrive at a knowledge of its direct cause. The more obscure this is, the less we should relax in our attempts to discover its origin. Hæmoptysis through mere exsanguinification, except, of course, such a hæmorrhage as would result from either a wound or the bursting of an aneurismal sac, is seldom directly dangerous to life. Though it may occur, as above stated, in persons whose lungs during life afforded no physical signs indicative of its origin, or after death exhibited no traces of its ever having taken place, and though, as several well authenticated cases prove, it may but supplementalize suppressed menstrual, hæmorrhoidal, or other hæmorrhagic discharges, still it must never be looked on with unconcern.

Hæmorrhage from, if we may use the term, healthy lungs, even though it may sometimes relieve nature of a surplus of blood, must, however, have a deleterious effect on the system. In large quantities, and of frequent recurrence, it tends to produce anæmia, one of the most favourable fields for the development of diseases of the chest. Mechanically it at times causes more or less local injury. The extravasated blood in hæmorrhage from the respiratory organs is not always immediately expectorated; the retained portions may form into clots, which act as foreign bodies on their surrounding walls, having quite as great an irritating effect on the parts in their vicinity as a coagulum in a vein would have on the vascular tissue. This I have seen verified by some *post-mortems* of those who had suffered from hæmoptysis a short time previous to

death, in which coagula bearing an apparently complete resemblance to old thrombi of the veins were discoverable in the bronchi. In addition to these circumstances, supposing after one single moderate attack of hæmoptysis, the lungs are completely freed from the presence of extravasated blood, the very process necessary to healing of the blood-vessels from which hæmorrhage has taken place, if similar, as we have good reason to suppose it is, to that which occurs in the large blood-vessels, namely, adhesive inflammation, though for manifest reasons necessary to the vessels themselves, cannot but be sympathized with by the surrounding parts, and often to no good purpose.

Hæmoptysis, as the result of disease, is said to be most constant in its attendance on heart disease, especially that of contraction of the mitral orifice, accompanied by valvular insufficiency. In this form of heart disease more than any other we have the lungs often subject to a considerable pressure of blood, which, in addition to the, in this disease, usual quality of the latter, the relaxed condition of the system in general render the walls of the blood-vessels unequal to the task imposed on them. Hæmoptysis dependent on disease of the heart, though perhaps for the first time of no great importance, and is, as Trousseau expresses it, "less fulminant than bronchial hæmorrhage occurring in phthisis of tuberculous origin," still has a tendency to increase both in volume and frequency as the heart disease approaches its fatal termination. Repeated attacks of hæmoptysis resulting from disease of the heart, in addition to, by depravation of the blood, favouring the production of anasarca and other complications, is, particularly in chronic cases, which cases of mitral valvular disease mostly are, sometimes followed by pulmonary consumption. One case of this kind I remember. The patient, a woman aged twenty-three, with no traceable phthisical hereditary predisposition, had, when thirteen years of age, rheumatic fever, followed by disease of the mitral orifice, for which she had been in hospital, when about twenty-one years old, affording at that time no physical signs of any organic disease of the lungs; had experienced several moderate attacks of hæmoptysis, and during the time I was acquainted with the case softening of the middle lobe of right lung took place with the formation of cavities.

In chronic cases of phthisis pulmonary hæmorrhage is more frequently followed by immediately fatal consequences. Here the circumstance of the often extremely limited area of healthy lung

tissue, capable of oxidizing the blood, being interfered with to any extent, must terminate life. This happens most commonly in either of two ways, viz., either simply direct suffocation from the mass of extravasated blood occupying the air passages and cells of what remains of healthy lung tissue, which does not possess sufficient power to reject it, or else through secondary inflammation in that part, occasioned by retained portions of blood acting as foreign bodies.

Besides the many exciting causes for hæmoptysis in phthisis commonly given by authors, I am convinced that it is often the effect of (if such an expression is allowable) the too rapid improvement of patients, the making more blood than the limited space of the breathing surface is sufficient to ærate, thus effecting an hyperæmic condition of the lungs, which relieves itself by hæmoptysis. This is of common occurrence in hospital patients, who, on their entrance into such an institution, especially into one devoted to diseases of the chest, often change for a generous nourishment, for an equable temperature, for a life for the time being devoid of many of the petty cares of this life, an abode little better than a cabin, with all its concomitant miseries. As bearing this out I call to mind two cases, one a fine young unmarried woman, with upper portion of both lungs in the third stage of phthisis, who had been an inmate of the Brompton Hospital for three months, whose chest symptoms had during that period been sensibly ameliorated, and whose weight had in that time been increased by 24 lbs., and who had herself felt so much improved that she doubted of many of her friends being able to recognize her on her return home. With but little warning hæmoptysis set in, followed in the course of thirty-six hours by an acute attack of capillary bronchitis, which put an end alike to her doubts and existence. The other, a married woman, also with the superior portions of both lungs excavated, intended to have left hospital the next day, with chest symptoms greatly improved, no moist sounds, and weight considerably increased, was suffocated by a sudden attack of hæmoptysis. In these cases, no doubt, the weakened or diseased blood-vessels, unable to support the additional strain imposed upon them by the increased quantity of blood, gave way, and were followed by fatal consequences. However, cases of hæmoptysis during phthisis occur, both frequent in repetition and large in volume, without having any very apparently immediate deleterious effects on the patients, except that of weakening them for the time. One case

with an enormous cavity in left lung, who for three months out of three consecutive years had been an inmate in Brompton; expectorated during those nine months about 5 pints of blood. The first year her weight was 128 lbs.; the second, 125 lbs.; the third year, 124½ lbs., and physical examination showed during those several years but slight increase in the disease of her lungs.

The portion of the respiratory organs from which hæmorrhage in hæmoptysis takes place has been frequently the subject of dispute. Dr. W. Hayle Walsh denies that bronchial hæmorrhage is common, and he asserts that in the majority of cases, when blood in any quantity has made its way into the bronchial tubes, even when heart disease is present, it will be found that the parenchyma of the lung, and not the mucous membrane, has given way molecularly. Niemeyer, on the other hand, states that bronchial hæmorrhage is by far the most common, while Trousseau, taking a middle course, considers that hæmoptysis in phthisis occurs ordinarily from the surface of the bronchi, but that hæmoptysis in heart disease is more generally parenchymatous, viz., taking place first in the air-vesicles of the lung.

That it is generally parenchymatous, accompanying heart disease, is but natural to suppose; but occurring independently of that disease from the lung substance, must but very seldom be uncomplicated with organic disease of the pulmonary tissue.