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DISEASES
OF THE
HEART AND LUNGS,
THEIR PHYSICAL DIAGNOSIS,
AND
HOMŒOPATHIC AND HYGIENIC TREATMENT.

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P R E F A C E.

PRACTICALLY—homœopathy consists in the treatment of diseases by medicines *directly specific* to the diseases treated, and given in doses which experience proves to be sufficiently large for the chronic or acute affection present, yet sufficiently minute not to cause any injury to the vital force, functions, or organic tissues of the subjects under treatment.

The two great barriers to the universal acceptance of homœopathy have been, 1st, over-enthusiastic *theorizing* regarding “the law of cure,” and 2d, the too prominent assertion of the exclusive and absolute sufficiency of the infinitesimal dose.

For while there is no homœopathist who does not believe that the rule *similia similibus curantur* has a wider application than any rule ever given for the administration of drugs, or who does not *know* that the infinitesimal dose will often succeed in effecting cures after both minute and large doses of *crude* drugs have failed; yet there are few who are not aware that the converse of this is equally true, and that doses extremely minute, as compared with allopathic doses, yet sufficiently large to be cognizable by the senses, have

often cured diseases which have apparently been unaffected, or it may be aggravated, by high infinitesimals.

From these facts I conclude, that although it is our duty to use such doses as we believe to be best for the case in hand, yet if we can conscientiously use doses palpable to the senses, we shall, by so doing, remove the main obstacle to the universal acceptance of a system of *gentle medication*, as opposed to that violent or coarse treatment recommended in the schools, and—to the infinite injury of the human race—almost universally practised in the world.

In England and America there are probably not fewer than two thousand educated medical men practising on the homœopathic method. This is a proof, not only of the substantial position to which our system has attained, but it would seem also to indicate that the time has now arrived when homœopathic practitioners should take up, and as far as possible render themselves masters of, specialities.

Homœopathic literature contains a multitude of domestic and other guides to the practice of the system, but, so far as I know, it does not contain any work specially devoted to the consideration of the diseases of the Heart and Lungs, although we have special treatises on various other diseases. Yet about one-third of the inhabitants of Europe and America die of diseases of the heart and lungs,—a fact which renders it not unfitting that an attempt should be made to supply this deficiency.

The following table will show the numbers who have

PREFACE.

died from the diseases treated of in this volume in England in 1854,* and in London in 1858 and 1859.

Deaths—England and Wales, 1854.		London, 1858.	London, 1859.
Hooping-cough	11,200	2,700	1,741
Croup	3,660	557	396
Diphtheria	(?)	(?) 1,200	(?) 1,200
Bronchitis	22,391	6,388	4,974
Pleurisy	856	138	147
Pneumonia	24,098	4,150	3,076
Asthma	5,143	586	517
Phthisis	54,918	7,369	7,670
Pericarditis	561	122	117
Aneurism	315	86	94
Diseases of the Heart . .	12,869	2,313	2,468
Total deaths from diseases of the Heart and Lungs . . }	136,011	25,609	22,400
Total deaths from all diseases .	437,000	63,882	61,617

There are no diseases in which the opinion of a second physician is more frequently sought than in diseases of the chest; and I believe every practitioner of homœopathy has often regretted that he had no access to

* Being pressed for time, I have not been able to ascertain the returns from England and Wales later than 1854. The above table is compiled direct from the Registrar-General's reports; it is, therefore, quite reliable. The mortality from phthisis is shown to be 12 per cent. of the total annual mortality; not 20 per cent., as *quoted* in the body of this book. If, however, all scrofulous diseases be added together, viz., phthisis, tabes, hydrocephalus, &c., the mortality from this order of diseases is about 17 per cent. of the total mortality.

Diphtheria is marked (?), as the Registrar-General, in his annual report, classes this disease with scarlatina, and does not state the annual mortality from diphtheria.

"chest doctors" of the opposition school, from whom he might have an opinion, not as to drug treatment, but as to the pathology and prognosis of difficult cases. It is well known, however, that physicians of the old school, full of "pomp and circumstance," will not meet us in consultation, even although the question be one purely of pathology. These men appear sadly to neglect the object of their calling, and prefer standing to their order, to bending to listen to or instruct those of their brethren who, differing from them in the principles of medicine, yet seek the aid of their enlarged pathological experience, drawn from hospitals or other sources.

No doubt the day is not far distant when this illiberal and purblind policy will be despised by all good men; but in the meantime the prejudice and the exclusiveness exist, and it therefore becomes the imperative duty of every practitioner of homœopathy so to master his subject as to render himself independent of the so-called "scientific" consultation physicians.

Some years ago I sought the opinion of a physician of high standing, in a matter of prognosis, in the case of a relative of my own, then on her death-bed; but this physician, although personally we had been long known to each other, declined to assist me with the result of his knowledge and experience. To this same physician I some years afterwards sent a poor woman for his opinion. She, a dying woman, staggered up to him in the wards of the hospital; but no sooner had she mentioned that she had been under homœopathic treat-

ment than he laughed her to scorn, before his whole class of students, calling out their laughter also, and turning on his heel, refused to ask her one single question. If this was not barbarity, what is? And yet this was one of the first physicians of the day, and one of the most enlightened.

It was this conduct which first suggested to me the necessity of rendering myself, as far as I possibly could, master of the physical diagnosis and history of diseases of the chest; and this book is the result: and I repeat, homœopathists must in the meantime render themselves independent of such men, by devoting themselves more than they have hitherto done to specialities, and by endeavouring as far as possible to master given subjects.

While on this matter, I may suggest that there appears to be a want of a work on the physical diagnosis and homœopathic treatment of organic diseases of the abdomen.

In this volume I have given for each disease a brief outline of the old-school treatment, drawn from the most recent authorities. I have done this for two reasons; 1st, to show what that treatment really is, as there exists often much ignorance on this head, it being almost invariably replied to us when we denounce severe measures, "Oh, such practices have long been given up." It is true that homœopathy has most materially modified the practice of medicine generally, and especially because most allopathic patients, knowing something of homœopathy, positively refuse to swallow all which their medical attendant would thrust upon

them. Still I confess, I was not prepared to find that, even in the most recent and "scientific" works, *heroic* measures are still quite in vogue. 2d. While the mere enumeration of the drugs given by the allopathists may occasionally suggest a remedy to be tried on a different scale, the description of the remedies recommended will generally tend still further to confirm the homœopathist in his safer, milder, and more searching medication; a confirmation which he might not at all times find, if, in his ignorance of modern practice, he suspected that there were in the possession of the opposition school possibly some good remedies, with which he was unacquainted.

In treating of the physiology of the Heart and Lungs, I have ventured to express opinions differing from those generally taught as to the office the heart performs in circulating the blood, and the office the lungs perform in the acts of respiration.

I have given in the appendix my reasons for advocating the use of the Turkish bath in health and disease; especially in reference to the diseases of the heart and lungs.

I have entered minutely and fully into the principles of physical diagnosis—without an exact knowledge of which no one can pretend to give a trustworthy opinion in any obscure case of chest disease.

I have devoted much space to the subject of the prevention and cure of disease by hygienic means.

It is a disgrace to this country that there exist no chairs of hygiene in our schools of medicine. Did such

exist, there can be little doubt that, long ere this, the attention of medical men would have been drawn to the powers of nature, and of mild remedies, in the cure of the most acute diseases ; and much of that atrocious practice, called active treatment, would have been long since universally condemned and abolished.

The highest destination of medicine is not to *heal diseases*, but so to instruct the world that disease may become not the rule, but the exception, and that many of those diseases which now either kill or maim for life may become extinct.

The homœopathic practitioner may be disappointed in finding the list of medicinal remedies here recommended so limited, and in the absence of minute rules for their administration. But, in the first place, the diseases treated of are not of that class which calls for a wide range of remedies ; and, in the second place, the minute rules for the administration of the remedies (even if I fully relied on the possibility of attaining such) are given in our works on *Materia Medica* with a minuteness which it would be impossible in the limits of this volume to emulate.

I have endeavoured to give the fullest information regarding the diseases treated of, in the fewest possible words—more in the form of an epitome than an extended treatise ; and consequently the reader may often find the style, if not obscure, at least somewhat cramped and unpolished. As there exists no homœopathic work devoted especially to diseases of the Heart and Lungs, I have not had the advantage of any homœopathic

model to guide me. The execution of this volume—in which extreme accuracy has been attempted, has not been an easy task. No one can be more aware of its imperfections than myself; and no one will more cordially welcome any criticisms which—administered with the intention of giving light, may enable me to render some future edition less imperfect.

I have only to add, that in the composition of this work I have been much indebted to information derived, especially, from the justly celebrated Laennec, the analysing and inexorable Louis, the practical and sensible Stokes, from the broad views of Sir James Clarke and Dr. Combe, and especially from the exact and minute information conveyed in the work of Dr. Walshe, and also from the numerous excellent papers scattered through the 'British Homœopathic Journal' and the 'American Quarterly Homœopathic Journal.'

12, GREAT CUMBERLAND STREET,
HYDE PARK.

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ERRATA.

Page 8, line 31, <i>read</i> Constrictive disease.
„ 11, „ 11, „ First sound of heart is best heard <i>below</i> <i>and within</i> left nipple.
„ 11, „ 17, „ <i>third</i> interspace.
„ 18, „ 24, „ <i>prominently</i> (not promptly).
„ 81, „ 16, „ <i>syncope from</i> .
„ 81, „ 25, „ Dr. Hering.
„ 75, „ 23, „ Thin blood.
„ 91, „ 12, „ Diet <i>attended</i> to.
„ 91, „ 22, „ <i>Drugs</i> (not drops).
„ 115, „ 23, „ Laennec died 1826.
„ 136, „ 4, „ Entire lungs.
„ 143, „ 1, „ <i>Ekouchus</i> (not bronchus).

DESCRIPTION OF DIAGRAM, &c.

THE drawing and diagram on the next page represent a man in whom the clavicles and the abdominal arch are well pronounced, and in whom the lungs are moderately inflated; and are meant to show the form and position of the lungs, heart, blood-vessels, and main bronchi; the position of the valves of the heart, and also the relative position of the stomach and the liver to the heart and lungs.

The position of the heart and lungs in health, varies somewhat with full inspiration and expiration, the heart being pressed somewhat downwards on full inspiration.

The heart is about two thirds covered by the lungs.

The base of the heart lies behind the *third* cartilages, and posteriorly corresponds with the sixth vertebra.

The apex points below the fifth left rib, below and within the nipple.

The greatest width of the heart lies in a line beginning below and within the left nipple, and extending to a finger's breadth on the right of the sternum.

The right auricle *a* lies below the third and fourth cartilages.

The left auricle *b* a trifle higher on the left side.

The pulmonary semilunar valves *c* lie opposite the inner edge of the *third* left cartilage.

The aortic valves *e* a little lower on the right side, and about half an inch further inwards.

The tricuspid and mitral valves *d* lie side by side at mid-sternum on a line with the third interspace, the tricuspid being in front of the mitral valve.

A half-crown piece would by its circumference cover portions of all these valves, which are mainly opposite the mid-sternum, occupying a position which may be called the centre of gravity of the heart.

The ascending aorta *e* crosses the trachea at its bifurcation, viz., behind the sternum, on a line with the second intercostal spaces.

The transverse portion of the aorta lies behind the sternal notch.

The right bronchus *h* lies deep-seated below the second cartilage.

The left bronchus *i* lies somewhat lower on the other side.

The aorta reaches the spine at the third dorsal vertebra.

The pulmonary artery *f* bifurcates opposite the second cartilages.

The innominate artery lies behind the innominate veins, and bifurcates at the right sterno-clavicular joint.

The aortic valve sounds are distinguished best at *e*, viz., at the second right cartilage.

The pulmonary valve sounds are distinguished best at *f*, viz., at the second left cartilage.

The second sound of the heart, viz., the united sounds produced by the closing of the pulmonary and aortic valves, is heard best at mid-sternum, viz., on a line with the third intercostal spaces.

The morbid tricuspid valve sounds are distinguished best a little below *d*, viz., a little above the ensiform cartilage.

The morbid mitral valve sounds are distinguished best near the left apex of the heart.

The sub-clavian arteries and veins lie at *gg*.

The superior vena cava *i* lies close to the ascending aortic arch, viz., close to the right edge of the upper third of the sternum.

The apices of the lungs on full inspiration reach a little above the inner third of the clavicles, and are in juxtaposition with the sub-clavian arteries and veins.

The base of the lungs anteriorly is on a level with the sixth rib.

The base of the upper lobe of the left lung anteriorly is on a level with the fourth rib.

Posteriorly the bases of the lungs reach the eleventh ribs, below which, on the right side, lies the liver; on the left side, posteriorly, the intestines; and laterally, the spleen.

The main bronchi and bronchial glands lie posteriorly between the scapulae.

The ductus arteriosus existed at *s*, viz., opposite the second left cartilage.

The foramen ovale existed about mid-sternum, viz., a little above the auriculo-ventricular valves at *d*.

The chest is for facility in description usually divided into the following regions, viz., the anterior, posterior, and lateral, comprehending the sup-a-clavicular, the clavicular, the sub-clavicular, the mammary, the upper, middle, and lower sternal, the axillary, the sub-axillary, the upper, middle, and lower scapular, the inter-scapular, and sub-scapular.

THE HEART AND ITS FUNCTIONS.

THE human heart of each individual, in size, and in shape also, has a considerable resemblance to the closed fist of that individual. In woman, it weighs from eight to ten ounces, and in man, from ten to twelve ounces. It is suspended by the aorta, which, running up the left side of the spine, arches forwards and to the right. It is enclosed in the pericardium, which above is attached to the aorta, and below is broadly attached to the diaphragm. The pericardium is a fibrous bag, with a serous lining, and serves the purpose of supporting, keeping in its place, lubricating and protecting that vital organ, the heart. The heart rests on its posterior flat surface on the diaphragm.

Anatomically, the heart occupies a position between the right and the left lungs, as near to the *centre* of the chest as the form of the lungs and its own liberty of action will permit. Poetically, the heart is the central organ of the affections, emotions, and passions of man. Philosophically, the action of the heart is the type of the universal law of creation—in *attracting* and *propelling*, viz , *in circulating* the *vital* blood.

The right side of the heart has to deal only with venous blood ; the left side with arterial blood.

In the early embryo, the heart is merely a pulsating dilatation of the vascular system.

- In the matured heart, the right side may be regarded as a development of the venous system, and the left as a development of the arterial system.

The pericardium is the correspondent of the cellulo-fibrous sheath of the blood-vessels ; the endocardium corresponds to their lining membrane, while the muscular tissue of the heart is represented by the elastic quasi-muscular coat, common to both arteries and veins, although only moderately developed in the veins.

The muscular fibres of the heart are said to be involuntary, yet striated imperfectly, like voluntary muscles ; but is the heart totally an involuntary muscle, or is its action not considerably under the control of the will ?

Although Servetus (who was martyred by Calvin, in 1553) appears to have believed in the circulation of the blood through the lungs, yet the entire mechanism of the circulation of the blood was discovered and demonstrated for the first time by Harvey, in 1620.

Physiologists teach that the ventricles, by the power of their *contraction* (systole, συστέλλω, to contract) alone are the efficient causes of the circulation of the blood. This doctrine has always appeared to me to be most erroneous. The ventricles have a power of dilatation (diastole, διαστέλλω, to separate), even out of the body, so powerful, as to overcome forcible manual pressure. The ventricles, after having expelled the blood into the arteries, immediately begin to dilate, and thus form two vacuum-cavities, when, according to the law of hydraulics, the blood in the veins is drawn through to

fill up the vacuum ; while the blood will pass through the capillaries by virtue of capillary attraction, aided no doubt, by the suction power of the diastole. To assert that the systolic action is sufficient to propel the blood through the capillaries, and thence up the ponderous ascending vena cava, and also sufficient to propel the blood of the portal vein through the liver, and thence up into the ascending cava, is manifestly, to my mind, a singular hallucination. The circulation of the portal blood through the liver must be aided by the suction power of the diastole ; but I also believe that the liver and other organs have their independent vital attraction for the blood, irrespective of the action of the heart.

Can the advocates of the propulsive power of the heart as alone sufficient, assert that this power is sufficient to drive the maternal blood through the placenta and along the tortuous umbilical cord ; and that the fœtal heart has power to return this blood, not only through its own venous system, but back again to the mother by propulsion only ? Or can it be for a moment granted that, in extraordinary cases, such as the one mentioned by Dr. Stokes, p. 153 of his work on ‘ Diseases of the Heart,’ where stricture of the aortic valve was carried to an extent so great, that the stricture could admit only a small probe—the systolic power alone is sufficient to complete the circuit of the general and hepatic circulation ?

The hissing rush and instantaneous death resulting from the accidental entrance of air into an opened vein, is, no doubt, caused by the right ventricle being filled with air, and thus ceasing to be a suction pump, so that death results from syncope. The further fact that, after

death, the main arteries are found more or less empty, giving rise to the idea among the ancients, until the days of Galen, that they were air-vessels, hence the term arteries, while the veins are gorged with blood, is to my mind an absolute proof that the arteries have been emptied, not by the *vis à tergo*, but that the veins are gorged by the *suction* (diastolic) power of the heart.

The auricles may be regarded as dilated pouches, or supply cisterns for the ventricles.

The left ventricle, having the chief labour of sustaining the circulation, contains about three times the bulk of muscular fibres possessed by the right ventricle.

The valves of the heart are of a tendinous structure, and covered with duplicatures of the endocardium.

The inner walls of the ventricles are braced or composed of columnæ carneæ, from which arise the papillary muscles, from which again arise the tendinous cords, which brace the great auriculo-ventricular valves. The tricuspid valve prevents regurgitation into the right auricle, the bicuspid or mitral valve prevents regurgitation into the left auricle, while semi-lunar valves, each composed of three lips, prevent regurgitation from the aorta and the pulmonary arteries.

The heart in its action produces two sounds; the first synchronous with the pulse, and therefore with the contraction of the ventricles, the closure of the bicuspid and tricuspid valves, the rush of the blood along the vessels, and the beat of the heart against the chest walls, and the tightening and vibration of the chordæ tendinæ attached to the bicuspid and tricuspid valves; the second sound immediately follows the first, and is, therefore, synchronous with the closure of the valves of

the aorta and the pulmonary artery, with the recoil of the column of blood from the aorta and pulmonary artery on the aortic and pulmonary valves, together with the fall of the auricular blood into the ventricles; and, notwithstanding the mystery sometimes made in this matter, it must be evident that the two sounds cannot be from any other causes than the phenomena just described, as synchronous with these sounds. Broadly speaking, the first is a sound of propulsion—the second, a sound of arrestment.

Physiologists teach that the tilting up of the heart's apex, synchronous with the contraction of the ventricles, arises from the manner in which the fibres of the heart are arranged,—a singular theory, which, if true, would hold good if the heart were artificially suspended out of the body, so long as the ventricles contracted. To me it has always appeared manifest, that the tilting of the heart arose from the propulsion of the blood against the elastic roof of the aortic arch, when, according to the simplest mechanical contrivance, the tilting of the heart must follow—the object, on nature's part, evidently being to bring the long axis of the left ventricle into an approaching parallelism with the aortic arch, so as to present the least possible resistance to the flow of the blood.

The frequency of the hearts' action gradually diminishes from the commencement to the end of life. Müller states it as follows:

In the embryo the number of beats in a	
minute is	150
Immediately after birth	130 to 140
During first year	115 — 130
During the second year	100 — 115

During the third year	90 to 100
About the seventh year	85 — 90
About the fourteenth year	80 — 85
In the middle period of life	70 — 75
• In old age	50 — 65

In those of an excitable temperament the pulse is more frequent than in the phlegmatic, and more frequent, perhaps somewhat in the ratio of 80 to 70, in the female. It also has increased frequency if the individual be in a rare atmosphere, as on high mountains.

Dr. A. T. Thompson was in the habit of stating in his class that the habitual pulse of Napoleon the First was only 40. This was, however, I suppose, only during his lethargic life at St. Helena, and after the heart had become fatty.

In hysteria the pulse, in relation to the number of respirations, may be as 5 to 1, or the reverse, as 1 to 5; and in pneumonia there may be five respirations to each pulsation.

THE PHYSICAL EXAMINATION OF THE HEART IN HEALTH AND DISEASE.

By the above title is meant that examination of the chest by *inspection*, *touch*, *auscultation* and *percussion*, by which processes, singly or collectively, we can ascertain the size and position of the heart, and the position and sounds of the valves in health and in disease.

In the first place, it is necessary to know the exact normal position of the heart, and this I have endeavoured to delineate and describe in the diagram and letterpress at the beginning of this volume.

In the normal condition of the heart and of the

chest, there is no external indication of the locality of the heart, except the beat of the apex below the fifth left rib, both sides of the chest being symmetrical in form. In health, the beat of the heart, below the fifth rib, may be imperceptible to the eye or to the hand, in quiet action or in the corpulent. The position of this beat may be raised by flatulent distension of the stomach, pregnancy or ascites, or concealed or altered by emphysematous lungs, hydrothorax and pericardial effusion, altering the position of the heart upwards or downwards. Also in enlargement of the heart the apex beat is lower than normal. Muscular action and mental excitement much increase the force of the beat; and that mental excitement especially, which more or less is experienced by all patients who present themselves for examination of the chest, must of course be borne in mind by the physician.

The cardiac region is bulged forwards in hypertrophy of the organ, in pericardial effusion if to a considerable amount, and mediastinal tumours may also cause bulging. On the other hand, the region may become depressed after pericarditis, owing to subjacent fibrous contractions and adhesions.

The normal position of the nipples of the breast is symmetrical, but bulging in the cardiac region will to some extent alter the *relative* position of the left nipple with reference to the sternum or the clavicle, such differences being more appreciable to the eye than by tape measurement. But this alteration in relative position can be produced by spinal curvature or inequality in the form of the ribs, or by mere unsymmetrical muscular development.

Occasionally a wavy sensation is produced by the

systolic action of the heart in copious pericardial effusions, while a pseudo wavy sensation may be produced by that kind of flabby enlargement in which the heart loses that compact control over itself and over its contained blood which exists in the healthy organ.

A heart much dilated, but not sufficiently hypertrophous to cause energetic contraction, or a large fatty heart, will not beat against the fifth rib, but merely with a lethargic movement rise bodily against the chest-walls. That double systolic impulse sometimes occurring when the organ is much dilated, appears to me to arise from a renewed effort of the ventricles to expel their contents—an act which must be difficult where we have a large cavity contracting on a limited bulk of blood.

So also in incompetency of the mitral valve and regurgitation into the left auricle, the left ventricle often makes double contractions, from what appears to me to be a quasi-instinctive knowledge on the part of the organ that sufficient blood has not been propelled into circulation. This double contraction on the part of the ventricle also may occur in aortic regurgitation, from a like desire to propel forwards that blood which has regurgitated from the aorta.

But irregularity in the rhythm and in the force of the heart's contractions is a frequent occurrence in dyspepsia, flatulence, hysteria, or mere nervousness.

A vibratory tremor may occur, if the force of the heart be in excess of the facility with which the blood can escape on ventricular contraction; hence, it is a frequent occurrence in aortic constructive disease.

In sthenic palpitations, occurring in those whose blood is what is called thin (spanæmic or anæmic), this

vibratory thrill may occur. In mechanical motion, we have a frequent illustration of this vibratory tremor in the instance of small steamboats, propelled by engines disproportionably strong, or when steamers make head against strongly opposing currents of water. •

PERCUSSION OF THE HEART.

By *percussion*, the size and position of the heart can be determined with much nicety. The normal position is given in the diagram at the beginning of this volume; and in percussing, it is necessary to keep in mind the position of the aorta, so as not to include dullness produced by that vessel in delineating the size of the heart. The diagram shows the position of the aorta, and also to what extent the heart is overlapped by the lungs, the percussion over which must be somewhat more emphatic, in order to bring out the dullness produced by the subjacent heart.

Where exactness is required, the patient should be in the recumbent position, and the extreme limits of the dullness can be, for convenience in measuring the size, marked lightly on the chest with a pen and ink.

The diagram shows the position of the heart in relation to the stomach and the liver. The liver of the adult, if much enlarged, may extend as far as the heart. The stomach, if indurated by cancerous deposit, or distended by gas, by encroaching on the precordial region, may interfere with the percussion sounds at the heart's apex. An emphysematous state of the lungs, causing much overlapping, or, on the other hand, condensation of the edges of the lungs, with or without retraction of the lungs, may also inter- •

fere with the easy delineation of the limits of cardiac dullness. The presence of aneurism of the aorta, or of mediastinal tumor, or fatty deposit, may also mislead.

- The main object of percussion in the cardiac region, is to ascertain the presence or absence of hypertrophy of the heart; or of pericardial effusion. The history of the case will usually be sufficient to enable us to distinguish between these two diseases, when increased precordial dullness is discovered. The dullness should be increased in the lower part of the region when the patient sits up, if from the gravitation of fluid—although a considerable accumulation of fluid, and an enlarged, flabby, and weak heart, will furnish closely approximating physical signs. The fact that, of all percussion sounds, that produced over fluid is the most dead, while it is less resistant than that experienced over solids, will aid in cases of difficult diagnosis. Time or successful treatment may further be expected to diminish the extent of fluid percussion dullness, but not, except in rare cases or after a long time, that of dullness from excentric hypertrophy.

Further, a large, flabby heart will yield a very imperfect first sound, but if the presence of effusion be the only abnormal condition, the first and second sounds, although somewhat obscured, it may be, by the fluid present, will yet be pure in character.

AUSCULTATION OF THE HEART.

Auscultation of the heart, when minuteness is necessary, must be performed with the stethoscope, as

the ear cannot be immediately applied with that exactness as to locality which is necessary in making examinations as to the condition of the different valves. It may be necessary to cause the patient to hold his breath where there are abnormal lung sounds, which might interfere with an exact appreciation of the character of feeble heart sounds.

I have already given the cause of the two sounds of the heart. The first sound has a prolonged, booming, vibratory character, and is best heard above the fifth rib, in a direct line below the nipple (see diagram), viz., over the left ventricle, which is the stronger in action—the right ventricular sound being better heard at the end of the sternum.

The second sound is shorter and more abrupt, and is best heard at mid-sternum, viz., on the level of the second intercostal space—over the seat of the valves of the aorta and pulmonary artery.

As a rule, the sounds of the heart are clearer in character in women and children than in men, and are evidently clear in proportion to the compact vigour and tonicity of the organ. Inflammatory, but especially *hysterical* and nervous excitement, by increasing the rapidity and force of the heart's action, sometimes greatly intensify the first sound, and hence the necessity of deliberation and quietness of observation. On the other hand, general debility, or weakening organic diseases, or fatty degeneration, or a flabby condition of the organ, or dilatation, all weaken the *first* sound especially—and in cases of excessive debility, it may be necessary to excite the patient, so as to rouse up the heart into an audible expression of its sounds.

General hypertrophy, and excentric hypertrophy also, so long as with the last there be, with increased ventricular cavity, sufficient contractile force in the ventricular walls, yield increased sounds.

But in concentric hypertrophy, the ventricular cavity may be so small and contain so little blood, and there may remain so little room for ventricular contraction, and so little blood to propel, that both sounds may be much reduced in intensity—and even in extreme cases, become almost inaudible. In general hypertrophy also, where the valves participate in the general thickening, there must be less vibratory action, and therefore both sounds are proportionably blunted. Hypertrophy, by lowering the apex will alter the position of maximum first sound; so also will pleuritic effusions. Fluid or gas in the pericardium will obscure the heart-sounds, and fluid, by floating up the heart, will alter the normal locality of the sounds; but agglutination of the pericardium to the chest-walls, by bringing the heart nearer to the surface, or induration deposits, by increasing the power of transmission, will tend to intensify the sounds. The stomach distended with gas has been known to echo the heart's sounds.

Soft thickening of the aortic valves will diminish the clearness of the second sound, and so also will any loss of elasticity in the aorta, by closing the aortic valves less sharply.

As the ventricles instinctively wait until sufficiently filled with blood before they contract, any impediment to their filling, as sluggish circulation, or mitral obstruction, will delay the contraction. If this hold true, and if there were mitral obstruction, but *not* tricuspid

obstruction, then theoretically there should be a want of unison in the contraction of the right and left ventricles; but I am not aware that observation has ever verified such a coincident result.

Slight "murmur-like" sounds may be produced by any temporary vascular roughening of the valvular orifices, as may occur in acute rheumatism not proceeding to permanent valvular deposit.

In a state of peaceful quiescence of mind and body, a strong heart may contract so quietly and deliberately as to yield very little first sound.

The pulse at the wrist should be synchronous with the contraction of the ventricles, but it may be behind time if there be incompetency of the aortic valves, or perhaps if there be a flabby, inelastic condition of the aorta, or the heart's propulsive power be feeble. There may also be instances of two beats of the heart to one at the wrist, the first contraction of the ventricle being feeble, or if there be regurgitation by the mitral valve, or if the ventricle at the first beat contain little or no blood.

Irregularity or intermission in the contractions of the heart, may be from an hysterical or nervous habit; it also exists with a feeble heart or fatty heart. The character of the contractions may be that of a delayed, lazy, action, or there may be *two* or three slow contractions, and then perhaps three galloping contractions to make up, as it were, lost way. In merely nervous irregularity, the sounds should be nearly normal, but in irregularity from softening or weakness, the sounds will have a corresponding deficiency in clearness. Further, if there be mitral obstruction to the circulation, there will be intermissions and variations in fulness

in the pulse, as the ventricle will sometimes, but not always, wait, as it were, on its proper stimulation to contraction, viz., its being *filled* with blood.

Reduplication, or repetition of the first or second sound, or of both, is occasionally observed; that is, each sound is supplemented, as it were, by a minor repetition of itself. It has been suggested that reduplication of the first sound may arise from a want of synchronism between the contractions of the left and right ventricles. It appears to me that it may also sometimes be caused when the first contraction of the ventricle, not having succeeded in expelling all its contents, a supplemental contraction is excited; in this case there would also be a repetition of the second sound; or, as the second sound is caused by the closure of the valves of the aorta and pulmonary artery, if these do not close simultaneously, there will be a repetition of the second sound.

The sign has no clinical or pathological interest, being of a temporary nature, and generally removable by a little exercise, changing position, or by full inspiration.

ORGANIC MURMURS.

By this term is meant those murmurs which are substituted for the normal sounds of the heart or accompany these sounds, and are caused by organic changes in the valvular orifices. These organic changes are generally produced by inflammatory diseases of the endocardium, and especially by acute rheumatic endocarditis.

Endocardial murmurs have a blowing, rushing, hissing, or cooing character.

If a vulcanized india-rubber tube be attached to a

water-tap, and a current of water passed through, and then a constriction be made by pressure on some point of the tube, murmurs result more or less loud in proportion to the force of the current of water and the amount of constriction employed, and such affords a very fair illustration of the rationale of all murmurs produced by roughening or constriction of the valvular passages, as from inflammatory deposits, rigidity of valvular orifices, excrescences or puckering of the valves rendering them incompetent.

Further, hypertrophy of a ventricle without a corresponding enlargement of the valvular outlet, converts that outlet virtually into a constriction, and a murmur will result.

Organic disease may exist in a valve, and yet no murmur be discoverable if the action of the heart be quiet. Hence sometimes the standing position, by increasing the action of the heart, will call out murmurs unheard in the recumbent position; while, on the other hand, the recumbent position, by sometimes labouring the heart, or perhaps by throwing the current of blood somewhat obliquely instead of directly through an orifice, will evoke murmurs unheard while the patient is standing or sitting at his ease. Hence slight murmurs may escape detection, unless examination be made while the patient is in different positions.

The loudness of a murmur is usually in proportion to the force of the blood-current, and the extent and roughness of the obstructive disease, and the denseness of the tissues, and the smallness of the aperture through which the blood is forced; but such loudness is no trustworthy measure of the seriousness of such disease.

For instance, a hard constrictive obstacle at the aortic orifice will produce a much louder murmur than mitral incompetency, and yet the latter is a far more serious disease than the former; and so also, a strong current of blood passing over rough surfaces will produce a loud murmur, while a flabby heart slowly propelling blood over soft diseased orifices may produce no murmur whatever, and yet the patient may be in the first instance in a good and safe state of health, but in the second instance in hourly fear and danger of death. Further, if there be a spanæmic condition of the blood, an organic lesion of inconsiderable importance may produce a loud murmur. Atrophy of the valves, or of the chordæ tendinæ have been described as occasionally occurring without previous inflammatory disease, and such a condition of things may be the cause of organic murmurs.

INORGANIC MURMURS.

Inorganic murmurs are loud in proportion to the thinness of the blood and the force of the heart's action, and are such as are heard in chlorotic females. Such murmurs are also heard after fevers, or in the impoverished and low-fed, or in cachectic diseases, as cancer, or after loss of blood from disease or the lancet.

Such murmurs are produced almost exclusively at the valves of the aortic and pulmonary arteries. Murmurs of this kind usually coexist in the same person with venous hum, which is a corroborative testimony in favour of their inorganic origin.

Inorganic murmurs may also occur with normal blood in the hysterical, or under strong excitement, or in

spasmodic action of the heart, forcing an impetuous current through the aortic orifice.

It may be occasionally difficult to distinguish an organic from an inorganic murmur; but the general aspect of the case, its history, the presence or absence of venous hum, the presence or absence of the rheumatic diathesis, and the persistence or otherwise of the murmur under changed bodily circumstances, should be sufficient evidence in almost every case on which to form a conclusion. However, it must not be taken for granted that, because a murmur disappears under treatment, that therefore that murmur was functional; for, as we have seen, organic murmurs may disappear, or at least become of questionable existence when the action of the heart is quiet.

Further, a murmur found in a chlorotic female is, in the great majority of cases, of blood origin, but still such a murmur might be structural, and indeed it may sometimes demand a knowledge more subtle than can be conveyed by mere rules to distinguish the one from the other in obscure cases.

Organic murmurs, as we have already observed, arise from an abnormal condition of the valvular orifices, and are distinguished as obstructive murmurs and regurgitant murmurs; or, in other words, murmurs arising from obstructions to the free current of the blood, or murmurs from incompetency of the valves, permitting regurgitation of the blood. Such murmurs occur at the aortic, pulmonary artery, mitral and tricuspid orifices.

Mitral regurgitant murmur occurs when the left ventricle contracts, and the mitral valve from insufficiency permits a portion of the blood to be driven back

into the left auricle. This insufficiency of the valve may have been the result of acute or chronic endocarditis, rupture of one of the chordæ tendinæ attached to the valve, a patulous condition of the valve from an enlargement of the orifice, or contraction of the columnæ carneæ, or growths on the valves. This murmur is heard best at a little above the left apex. (See diagram.)

Mitral obstructive murmur is to be heard at the same locality as regurgitant murmur; but with obstructive disease at this valve there may not be heard any murmur, the passage of the blood from the auricles into the ventricles being of a passive character as compared to the rush with which it is driven out of the ventricles into the arteries.

Tricuspid regurgitant murmur is heard best at or near the ensiform cartilage (see diagram), but regurgitation may here exist, and yet escape observation, not only because it may be covered by the far louder mitral regurgitant murmur, but because in itself it is but a feeble murmur as compared with mitral murmur. As in tricuspid regurgitation, the blood is drawn back into the right auricle, the jugular veins become distended and pulsate, but more promptly so in the left than in the right jugular; and tricuspid and regurgitant murmur may occur without perceptible jugular pulsation—probably from the vena cava and innominate yielding so much as to render jugular dilatation unnecessary.

Tricuspid obstructive murmur; that is, a murmur produced by an impediment to the passage of the blood from the right auricle to the right ventricle, is rarely met with. *Aortic obstructive* murmur is heard best about mid-sternum, opposite the third interspace (see dia-

gram). It is the loudest, shortest, and most common of all cardiac murmurs. It may be necessary to remember, that murmur from the passage of the blood through the foramen ovale, as in cyanosis; and aneurismal murmurs, are best heard also at mid-sternum.

Aortic regurgitant murmur is also heard best at mid-sternum, and is caused by the elastic contraction of the aorta forcing back a portion of its contents through the aortic valve, which may be patulous from puckering, rupture, or inflammatory deposit.

Pulmonary artery obstructive murmur is heard best at the sternal end of the third cartilage; it is a murmur of rare occurrence, and still more rare is regurgitant murmur at this orifice.

Aortic, mitral, and tricuspid murmurs are the most frequent; and especially aortic and mitral; as might be anticipated, murmurs belonging to the powerful, viz., the left, arterial side of the heart.

Tricuspid regurgitant disease tends to produce congestion on the brain and liver, while mitral regurgitant disease tends to produce congestions on the lungs; both mitral and aortic regurgitation tend to produce syncope. These are the three most serious valvular diseases; and of the three it may, perhaps, be said that tricuspid regurgitation is the most serious; mitral the next, and that of the aorta the least so. But of this, more afterwards.

PERICARDIAL FRICTION SOUNDS.

These friction sounds are produced during the action of the heart, when, instead of the normal lubricating surfaces, there is some roughness present, which,

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in almost every case, is the result of inflammatory action, producing a deposit of lymph. The sound produced may be grazing, rubbing, creaking, squeaking or whistling, or clicking, in character, according to the softness, roughness, dryness, or stickiness of the deposit.

Such sounds are best heard usually with the systole, and during strong action of the heart.

These friction sounds may appear and disappear within six hours—the sudden disappearance of a mere grazing friction may be from the mere subsidence of an inflammatory injected state of the surfaces, or the disappearance of a certain dryness of the surfaces—but where loud friction suddenly disappears, it must be owing, in most cases, to the occurrence of sufficient pericardial effusion to separate the two surfaces, and thus prevent friction; six ounces of fluid is said to be sufficient to effect this.

In rare cases, it may be difficult to distinguish pleuritic friction in the cardiac region, from pericardial friction produced on a pleural surface; but pleuritic friction confined to this region is rare; and the one is produced by respiratory movement only; while the other, viz., the friction of a healthy pericardium on a rough pleura, will be produced both by the movements of the heart and the respiration.

It may also be sometimes difficult to distinguish pericardial friction from endocardial murmur, but the former is more superficial, and is increased by the patient bending forward, and thus bringing the pericardium nearer to the chest wall; also by pressure with the stethoscope occasionally, and its having a more rubbing character.

PHYSICAL SIGNS OF THE ARTERIES AND VEINS.

The arteries may be perceived to pulsate with abnormal distinctness in aortic regurgitation, not only because there is usually in such cases hypertrophy of the left ventricle, but, as it appears to me, because the regurgitation permits a more complete rebound to be made by the artery. In the thin and aged, where the vessels are, as is often the case, turgid, the arterial pulsations are also abnormally distinct.

The pulse is an index to the condition of the heart in structural disease. It is hard and full in hypertrophy; feeble, and soft, and intermittent in fatty degeneration; small and hard in aortic constrictive disease, full but abruptly short in hypertrophy with aortic regurgitation, and it may be full, but soft, and melting, and intermittent in mitral regurgitation. An intermitting pulse occurs in feeble, fatty, or nervous heart, and in mitral regurgitant disease.

Percussion furnishes no sign as to the position of the aorta when normal; and aneurisms, being generally globular and touching the chest walls only at a tangent, may present but a very small surface for percussion, and yield but a very small space of dullness; and, therefore, their diagnosis will be readier made out by the pulsation or thrill they may furnish, and there may be considerable dilatation of the aorta or its arch, furnishing no signs on percussion.

The sounds of the heart are carried by conduction along the arterics to some distance, but when arterial sounds are heard as far from the heart as the popliteal artery, the sounds are probably merely local friction sounds, and are heard with distinctness in proportion

to the force of the heart's action, a thin condition of the blood increasing the intensity of the sounds. Aneurismal dilatations, by breaking the even flow of the blood, or arterial contractions, or puckering, or roughness, produce arterial murmurs, which may be heard over the lesion, or may be transmitted along the arteries.

A murmur at any point in the aortic arch, harsher than that found at the region of the aortic valves, may be inferred to be a sign of some morbid condition in the arch, or of pressure on the arch.

If there be a spanæmic murmur in an artery, pressure of the stethoscope, or by a tumour, or by any other means, will convert the blowing inorganic murmur into a sharp "whipping" murmur.

Venous system.—Congested or enlarged veins generally indicate an obstruction somewhere to the circulation.

Congestion of the jugular veins may indicate obstructive pressure on the descending vena cavæ, as from a tumour, or aneurism, or tricuspid regurgitation; but in this last case there is usually pulsation in the jugulars.

Emphysema, some forms of spasmodic asthma, bronchitis, or congestion of the lungs, by impeding the flow of blood, also tend to produce a swelled condition of the jugulars and other veins of the neck.

Full inspiration, by increasing the lung space, tends to withdraw the blood from the jugulars; and, therefore, in cases of difficult diagnoses as to tricuspid regurgitation, it may be necessary to suspend the breathing for a few seconds, otherwise the jugular pulsations may not appear.

Venous murmurs, humming, blowing, or buzzing, are

intensified by rapid respiration, increasing the rapidity of the flow of blood. They are much more frequently met with in the female than in the male, the female being more liable to anæmic diseases. These murmurs are heard best over the jugulars and the superior longitudinal sinus, viz., over the vertex, but "especially at the trocular Herophili, where opposing currents meet," viz., at the occipital protuberance. Pressure by the stethoscope over the jugulars is apt to create murmur; but this source of fallacy from pressure cannot take place over the longitudinal sinus.

This venous hum is often to be heard in children and in others in perfect health; but is usually in the adult a sign of poverty or deficiency of blood, and is distinguished from arterial murmur by being continuous, and not rhythmic, as arterial murmurs are.

The sign is one more of curiosity than of clinical interest, the visible signs of anæmia being much more certain.

Should a lateral communication exist between an artery and a vein, there is a whizzing murmur synchronous with the systolic action of the heart.

DISEASES OF THE HEART.

Diseases of the heart are functional and organic. Palpitations or over-action, irregularity of action causing fluttering, excessive slowness of action, excessively weak action, temporary stoppage, causing syncope or swooning, may be caused by dilatation, atrophy, fatty degeneration, flabby heart, valvular disease, or by the quantity or quality of the blood;

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but they may likewise all arise from hysteria, nervous excitement, depression, dyspepsia, and especially flatulence, bodily excitement or exhaustion, or mental excitement or depression.

- If excentric hypertrophy or valvular disease exists, such are usually readily recognised ; but the existence of concentric hypertrophy and fatty degeneration are not so easily proved, while even excentric hypertrophy may be concealed by an emphysematous expansion of the lungs. Further, as we have seen, organic murmurs may be only pronounced during strong action of the heart, while a congested state of the heart may simulate hypertrophy.

A puffiness about the eye-lids or the ankles may give rise to a suspicion of organic heart disease, but such symptoms may arise from mere debility, from a spanæmic condition of the blood, or after the patient has taken arsenical medicines.

The absence of pain is no proof of the non-existence of organic disease, while the presence of excruciating agony, as in angina pectoris, may furnish, on *post-mortem* examination, no mechanical explanation whatever.

A certain undefinable aspect and expression, connected with prominence, anxiety, restlessness and glistening of the eye—an aspect often present in the gouty or rheumatic—is not unusual with those who have organic disease of the heart.

The general condition of the body, and, I think, especially the texture and quality of the hand, will be occasionally found to be to some extent an index to the textural condition of the heart.

PALPITATIONS.

Palpitations, and especially hysterical palpitations, which are sometimes more intense than any other form, may be so strong as to shake the patient and the bed he lies on, and may produce sounds which are heard, not only by the patient himself, but by those near him, especially those who may be in or on the same bed; and, if the ear or stethoscope be applied to the chest, the sound heard may be loud and ringing. Nervous palpitation lasting some time, and accompanied by anæmic murmurs, might deceive the physician into the belief that organic disease was present.

Palpitations may be caused by hypertrophy of the heart, or one form of palpitation, where considerable palpitation is immediately followed by an almost imperceptible pulsation, may be caused by fatty or flabby heart; however, palpitation is usually an affection depending on the condition of the brain or spinal and pneumogastric nerves, and may arise from an excitable condition of the heart; nervous debility; hysteria; the result of the excessive use of tea, coffee, or alcohol; or from late hours; novel, or other exciting reading; constipation, flatulence, indigestion, torpid liver; or a gouty condition; over-bodily exercise, especially in growing young men; and with such, especially, probably a frequent cause is masturbation.

With nervous palpitations there is often hurried or difficult breathing—in the female, especially, a tendency to syncope; in both sexes, flushing, giddiness, headache, the fear of death, and a desire to press upon and control the heart, as it were, with the hands.

TREATMENT.

The treatment of organic palpitations will be considered with the treatment of those diseases producing it. The allopathic treatment of nervous palpitation consists chiefly in the use of Assafœtida, Musk, Valerian, Hyoscyamus, Hydrocyanic acid, Camphor, the shower-bath, &c.

The homœopathic remedies chiefly administered in functional palpitation of the heart are Aconite, Aurum, Digitalis ferrum, Musk, Lachesis, Cobra, Pulsatilla, Nux Vomica, Coffea, Ignatia, Lobelia.

The homœopathic treatment of nervous palpitations has this advantage over the allopathic treatment—That we never, as from a false diagnosis, prescribe depleting remedies; nor can we ever interfere injuriously with the digestive organs; that palpitations arising from constipation does not necessitate the administration of exciting or weakening purgatives; that in the use of Nux Vomica and Pulsatilla we possess two remedies, the first acting on the digestive and spinal system of the male, and the second on the digestive and uterine system of the female—which I believe to be more successful than any remedies possessed by our opponents. In the employment, also, of Lachesis and Cobra, especially in that form of nervous palpitations accompanied by flatulence, we possess two other remedies totally ignored by allopathists, and yet in our hands generally producing most satisfactory results.

The specific use of Coffea and Camphor are also very useful remedies; while, the employment of camphorated spirit—one, two, or three drops on a piece of sugar—is often successful as a temporary

palliative. In cases sufficiently severe to call for immediate relief, a strong cup of tea or coffee is usually immediately successful; but it is a remedy which should be had recourse to as seldom as possible, as a large proportion of cases of palpitation in the female especially arise from the abuse of tea. Strong tea, and especially green tea, are totally inadmissible in cases of habitual palpitation, and it must often become a question whether tea and coffee must not be entirely discontinued. Occasionally fits of most intense palpitation have resulted from the excessive use, especially, of *green* tea, in which case wine or brandy-and-water may, as an extemporaneous remedy, be necessary.

The following also are to be considered—Palpitations from debility, *Veratrum album*; in plethora, *Aconitum*; from loss of fluids, *China*; *Colchicum* in gouty cases; and *Cocculus* often in dyspeptic cases.

The hygienic treatment will consist in taking gentle exercise in the open air in proportion to the strength; moderation in diet, the very sparing use of stimulants, the quiet performance of daily duties, and the keeping of early hours, the employment of the cold or tepid sitz-bath, according to the reactive power of the patient, every morning, for about five to eight minutes. In exacerbations, the tepid sitz-bath, or tepid fomentations over the spine or over the region of the heart, are generally soothing; but in exacerbations a readier, and frequently a very gratifying result, will immediately follow the gentle, yet firm application of the right hand of the physician or a friend over the region of the heart, while the corresponding spinal region is pressed with the left hand.

In those subject to nervous palpitations, much good will often result from the exercise of that moral control

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over the selfish gratification of the mental and bodily affections and passions ; the cultivation of which power of control every human being should consider as his high privilege. And when we reflect that the *habit*, so to speak, of palpitations, is like other habits, often to be eradicated by self-watchfulness ; while, on the other hand, like other bad habits, it grows on what it feeds on, and in time produces actual organic disease, there exists a very powerful motive to self-control. This self-control is not to be confined to the control over what are called the evil passions, but control over all inordinate desires ; for instance, the midnight student of divinity, preparing either for honours or for the pulpit, and unnaturally, night after night, stimulating his mental energies at the expense of his after-life, by strong tea or green tea, is alike a trespasser against God's law, although in a less gross manner, with the sot, who stimulates his lower passions with alcohol.

SYNCOPE.

Syncope, fainting, or swooning, is an event much more frequent with the female than the male, and is much more frequently the result of nervous derangement than of organic disease.

A habit of fainting is a common occurrence with the hysterical, and instances appear where, without the presence of hysteria, swooning fits occur in individuals from the age of puberty to seventy years of age.

Weakness of the heart, flabby heart, fatty heart, and valvular disease, acute softening of the heart in typhus fever, pericardial effusion, nervous hysteria, violent emotions, fright, pregnancy, amenorrhœa, disappoint-

ments, especially in love, sudden fits of joy or grief, anæmia, loss of fluids by diarrhœa, or flooding or other hæmorrhages, and tapping, are all frequently followed by syncope.

In cases of feeble heart, syncope may occur, if the individual from the sitting rise suddenly to the erect position; and, in cases of chronic diarrhœa, flooding and other debilitating disease, death has often resulted from this accident.

Syncope is usually preceded by anxious sensations and stricture about the chest, and is accompanied by a death-like pallor.

The cause of syncope is deficient action of the heart, by which there is the absence of a sufficient circulation of arterial blood in the blood-vessels of the brain; and is, therefore, the reverse of that form of coma which often closely simulates syncope, that is caused by pressure on the brain, but it closely resembles that form of coma which results from the prostration of brain power.

In some forms of hysterical syncope the face is rosy, and the pulse even full. It may be questioned whether this is true syncope, in which the face has a death-like paleness, and the pulse is either exceeding faint or quite imperceptible; the action of the heart, as learned by auscultation, being excessively feeble and slow, and even for a brief space apparently stopped.

The respiration also may be so feeble as to be imperceptible, and only to be demonstrated by the vapour condensed on a mirror held to the mouth.

Recovery is accompanied by yawning, gasping, slow, heavy breathing; it may be by hysterical crying or vomiting.

Coma is to be distinguished from syncope by the presence of a pulse, natural, or full and laborious.

Trance, either spontaneous or mesmerically produced—(and in passing, I may observe how strange it is that all medical men believe in somnabulic trance, and yet stubbornly refuse to credit what is called mesmeric trance)—may simulate syncope exactly, and often has simulated fatal syncope, and the most horrible results have ensued, the victims having been buried alive. According to Dr. Willan, as quoted by Dr. Elliotson, lethargy or trance is occasionally met with among the Jews, lasting days and even weeks. In trance, the body is not absolutely cold, and the thermometer placed in the mouth or in the anus will indicate the presence of life-heat. Hot wax dropped on a dead body will cause no blister, but a blister will arise under this treatment in trance. As, however, decomposition is the only infallible sign of death, accidents so dreadful as those referred to are not now likely to occur in any civilised country.

Dr. Elliotson, in writing on trance, in his 'Practice of Physic,' gives the history of two sisters who died in trance fits; and recently, the case of a young lady came under my notice, in whom death was the result after three months of trance; the patient taking small quantities of food, and occasionally shedding tears during the period.

The Treatment of syncope must be much the same under all systems of medicine. In moderate cases, the patient, if placed in the horizontal position and left alone, will soon recover; in more acute cases, the patient should be laid with the head low, the cravat, shirt, stays, or dress, should be loosened, cold water

sprinkled in the face, and the windows thrown open, to get all the air possible ; the curious should avoid crowding round, and no violence should be used. The Marshall Hall method for the restoration of the partially drowned may be employed in extreme cases ; viz., dashing the body with cold water, and working on the body, so as alternately to compress and dilate the chest, and slowly rolling the patient from his side to his face ; the prone position being more favorable than the supine for the efforts of respiration.

Smelling salts or brandy are not so efficacious as the above treatment ; but frictions over the heart, with or without the external and internal use of brandy, would be useful.

I do not find that means are perseveringly attempted to restore those in whom syncope for organic heart disease passes on to death ; but if apparently still-born children, or the apparently drowned, have been recovered after efforts perseveringly employed for one or two hours, why should the same not be attempted in the above instances ? Bleeding from the arm or the jugular vein, in such cases, seems to be almost the only means attempted by medical men.

In the cases of swooning after excessive eating, instanced by Dr. Herring in one of the numbers of the ' British Journal of Homœopathy,' tickling the fauces with a feather or the finger, by producing vomiting, at once restored the patients to consciousness—bloodletting having in one of the instances been previously perpetrated by an heroic practitioner !

In threatened syncope from weakness, or in actual syncope from weakness or loss of fluids, wine or brandy and water must of course be used ; China being afterwards useful in such cases.

If there be a tendency to syncope from uterine or intestinal irritation, or mental emotions, the employment of Pulsatilla, Sabina, Nux Vomica, Ignatia, the sitz-bath, &c., would be found very serviceable; while if the tendency be from weakness of the heart, Digitalis, Aurum, Lachesis, or Cobra, will often relieve pressing symptoms. But the mild bracing treatment of free air and the tonic action of the cold water appliances, are more to be depended on for a cure; but of syncope from weakness of the heart, we shall speak further when treating of the organic diseases of that organ. Much may be expected from hygienic treatment in a tendency to nervous or dyspeptic syncope; viz., from gentle exercise on foot, horseback, or in an open carriage; suitable clothing; abundance of fresh air, avoiding coddling, or an over-indulgence in tea, coffee or wine, crowded or over-heated rooms, late hours. The absence of gas, or its thorough ventilation in sitting rooms is an important consideration. Finally, that moral discipline which is so essentially necessary in the treatment of hysteria, must not be forgotten.

ANGINA PECTORIS.

The symptoms of this terrible disease, which I have often painfully witnessed in the person of a much-esteemed friend, and who ultimately died in a paroxysm, may be taken as a generic history of such cases. T. G—, a retired East Indian surgeon, was of the gouty diathesis, but, up to the age of sixty-five, although latterly of an indolent habit of body, enjoyed robust mental and bodily health. His wife, who had for years suffered acutely from spinal irritation, died suddenly. On this intelligence being given to Mr.

G—, he was at once seized with intense agony in the heart ; and, for the three remaining years of his life, at intervals varying from twenty-four hours to several days, he was seized with agonising pains in his heart, generally beginning by numbness in the jaw and left arm. During the fits he would stand pressing his hands against the precordial region, or stand pressing his heart against the mantel-piece or a field-gate, or any other object which came conveniently to hand. During the paroxysms, the expression became stern, but fortunately the agony lasted only one or two minutes ; and when gone, he became again at once cheerful, although he always told me that he felt convinced he would one day expire during a paroxysm. The fits usually came on after any mental or bodily excitement, even of the most trivial kind. During a paroxysm the pulse beat regularly and moderately, and no murmur or any abnormal sign could be detected in listening to the heart. His death verified his own prediction, and he was found one morning by his man servant half out of bed, and heaving his last gasp.

The nature of this disease is not less obscure than that of neuralgia generally. The fact of the pneumogastric nerve being implicated, will explain some of the secondary symptoms. The doctrine of spasm explains nothing, and in the case of my friend there was no evidence of spasm. Dr. Stokes says that weakness of the heart is a common accompaniment, and Dr. Walshe says he has never met with true angina in the possessor of a strong hypertrophous heart. Old writers assign ossification of the coronary arteries as one great cause, but add that post-mortem examination often furnishes no explanation of the cause of the agony or of death. Dr. Stokes believes that some form of

organic alteration exists in all cases ; and Dr. Walshe believes that in some six or seven cases which have come under his inspection, flabby dilatation existed in all. But this fact furnishes no explanation of the cause of the agony ; and a flabby condition of the heart is not unlikely to be the *result* of that impaired nourishment which long-continued suffering in the organ might be expected to produce ; this at least will be allowed, that angina pectoris does not accompany flabby heart in the majority of cases.

Of eighty-eight cases collected by Sir John Forbes, eighty occurred in males, and seventy-two had passed their fiftieth year ; age being thus shown to be, in the great majority of cases, an element in the disease, might indicate the probable existence of structural change as an element in the disease. But the sudden appearance of the disease, and the fact of its being rare among the poorer classes, is adverse to this theory. Flabby heart, however, is not so likely to occur with the working man as with the indolent.

Death, when it occurs in this disease, is usually from syncope.

TREATMENT.

Allopathic treatment has consisted in bleeding, cupping, blistering, issues, setons, galvanism, tonics, arsenic, nitrate of silver, sulphate of zinc, belladonna plasters, and much stress has been laid by Dr. Elliotson on prussic acid, and by Latham, on opium, in doses of sixty drops of laudanum ; chloroform has been recorded, internally, and externally applied.

Homœopathic treatment, so far as I know, although it has avoided the worse than useless barbarity of much

of the Allopathic treatment—and must always seek to discourage the use of remedies like hydrocyanic acid and opium, at the discretion of patients, in whom the intense agony must sometimes tempt to suicide—cannot yet claim many triumphs in the treatment of acute angina pectoris. But *Nux Vomica*, *Spigelia*, *Aurum*, *Lachesis*, *Bryonia*, *Rhus tox.*, and *Belladonna*, are some of the remedies to be kept chiefly in view.

Mesmerism, also, is most worthy of a trial; and if the paroxysm can be traced to have any connexion with the state of the digestive organs, we may congratulate ourselves that our remedies will be of much service.

Neuralgic pains in the stomach, especially as such often extend to the shoulder and arm, or gouty pains in the heart, or pains of a rheumatic origin in the heart or in the precordial muscles, may simulate angina pectoris of a mild type. Such pains are apt to show themselves in chlorotic girls, and also in “fast young men” and boat racers. This spurious angina is much more under our control by the employment of remedies for the male, such as *Nux Vomica*, *Bryonia*, *Rhus*, and *Arnica*; or *Ferrum* and *Pulsatilla*, for the female.

It is scarcely necessary to add that both for true and spurious angina, a mild diet, and a regular and moderate mode of living are essentially necessary.

ACUTE PERICARDITIS.

The most acute instances of this disease are met with in *men* from the age of twenty-five to forty. Inflammation in the pericardium produces on the surfaces of that membrane, redness, congestion, and

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vascular roughness, beyond which the disease may not proceed, in which case it is styled *dry pericarditis* ; but, under Allopathic treatment generally, and often under Homœopathic treatment, this stage is succeeded by a plastic exudation, and this is followed by serous or other effusion more or less. As the disease declines, the serous effusion becomes absorbed, the plastic exudation disappears slowly, but the pericardium may become permanently attached to the heart by strong fibrous adhesions, in bands or over the entire surface.

The plastic exudation, as exhibited in the post-mortem examination, is yellow or reddish-yellow in colour ; it sometimes resembles in colour, consistence, and papillary form, two buttered surfaces which have been separated. Sometimes it covers the heart with a deposit resembling lace-work, and may be found from the thinness of tissue paper to the thickness of orange peel, and from the softness of butter to the hardness of cartilage.

The effusion, generally purely serous, may be sero-sanguineous, sero-purulent or sero-fibrinous, and the quantity is from one or two ounces to half a pint, although in extreme cases, three or more pints have been found.

Serous effusion is readily reabsorbed ; but a sanguineous or purulent effusion disappears with much more difficulty ; while in that residuum which may chronically remain from plastic exudation, calcareous and fibrous pseudo tissues may become formed as permanent deposits, although generally all traces of exudation disappear, so far as physical signs are concerned.

Pericarditis may appear after wounds in the chest, or owing to pus in the blood, after any extensive sloughing has taken place ; as after an untoward ampu-

tation, especially in those given to dram drinking. Typhus fever, tubercle, cancer, delirium tremens, pneumonia, or pleurisy, are also occasionally accompanied by pericarditis; but the great majority of instances in which we meet with it, is during attacks of acute rheumatic fever.

Physical Signs.—At the first onset of pericarditis, there is only an excited action of the heart; and Dr. Walshe advises that, at this stage, the point of the apex beat of the heart be marked, in order that the amount of any subsequent displacement by effusion may be noted.

When exudation has taken place, there is friction sound; and if murmur also be heard, this may be from a simultaneous attack of endocarditis, although the murmur may be from former affection of the valves.

If effusion be only to the extent of a few ounces, there may be no extension of precordial dullness discoverable by percussion; but if the effusion be extensive, there is not only an increased surface of dullness, but also precordial bulging, and a certain undulatory motion with each systole of the heart. Before copious effusion, there will be found friction vibration; but after copious effusion, on application of the hand, the impulse of the heart may be imperceptible or fluttering. An emphysematous condition may exist over the region, in which case no vibratory action may be perceptible even before effusion. If the pericardium be not filled with effusion, the region of dullness on percussion will somewhat vary with the erect, recumbent, or lateral position of the patient. In cases of copious effusion, the cardiac sounds may be entirely obscured, except over the base of the

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heart, and the friction sounds become inaudible ; or, indeed, friction may be prevented under such circumstances. As absorption advances, the beat and friction sounds will again gradually reappear.

If adhesion take place between the heart and the pericardium, friction sounds must of course be absent, unless we admit the possibility of friction between the external surface of the pericardium and the walls of the chest or pleura ; and if no observations have been made until this condition of things has taken place, there may be some uncertainty in the diagnosis.

A certain amount of difficulty may sometimes exist in distinguishing friction from valvular murmurs ; but friction sounds are frequently heard with both the upward and downward motion of the heart—and they are generally heard with increased intensity on pressing firmly with the stethoscope. Friction sounds may disappear, from the disappearance of all roughness, the absorption of the exudation, or from effusion coming on, or from agglutination of the pericardial surfaces ; but, if friction sound should suddenly disappear while the disease is still active, and when there is no increased dullness on percussion, indicating copious effusion, the presumption is, that the then inflamed serous surfaces having become adherent, friction has ceased, owing to the agglutination of the pericardial surfaces.

Symptoms.—The chief symptom is pain in the region of the heart, but this pain, as in pleurisy, may vary from a mere sense of uneasiness to acute agony—a fact not readily to be explained—although we know that in some individuals, pain, caused by disease, seldom exceeds mere discomfort, while in others even slight

ailments are often accompanied by almost unendurable agony.

This pain, in the region of the heart, may shoot up to the shoulder, or down the brachial nerves.

The patient usually has an anxious expression, and generally prefers lying on his back. The ankles are often œdematous, but this is most frequently caused by the presence of the rheumatic affection in the feet. If the effusion be great, there may be lividity of the face and neck. There is usually a dry, short, irritating cough. The pulse is that of fever, but if the heart be hampered by effusion, the pulse will be irregular.

Hysterical, delirious, tetanic, and even maniacal symptoms may show themselves in certain constitutions, or in extreme cases. Temporary hemiplegia may also appear, and also a tendency to syncope—from the exhaustion of the heart, laboured as it is by excitement, by effusion, or, it may be, by adhesions; and if death be the final result, it is usually by syncope.

Risus Sardonius and clammy perspirations are generally fatal symptoms. Pericarditis may rapidly destroy life; while in cases which recover, the duration of the acute symptoms is from *two to three* weeks—the friction sounds remaining often for months.

Pericarditis, more than any other acute inflammation, is apt to recur; a fact sufficiently explained by the other fact of its being chiefly the result of acute rheumatism, viz., exacerbations of a constitutional condition.

The *Diagnosis* is, in the great majority of cases, quite simple, and is formed from the presence of fever, pain at the heart, extension of dullness on per-

cussion, and friction sounds. If rheumatic fever be present, the diagnosis will be more certain. But, in exceptional cases, there may be so little fever that the attention of neither the patient nor the physician is directed to the heart. The friction sounds, if heard, may be considered pleuritic; and endocardial murmurs may cover *pericardial friction sounds*, while the exudation matter may be so soft that no friction sounds are audible; or the roughness may be on the posterior surface of the heart, in which case no systolic friction sounds might be produced; further, if the pericardium were partially agglutinated to the heart from former disease, there might be no friction sounds, and no effusion thrown out, sufficient for external measurement.

On the other hand, enlarged heart, with friction from old exudation, accompanied by an attack of general fever and pain at the heart, might mislead into the diagnosis of pericarditis.

In illustration of this last source of fallacy, I find recorded in my notes, the history of a case in University College Hospital, in 1850, where a most acute and accurate physician spoke of the advisability of performing "paracentesis to draw off the immense accumulation of fluid," but the post-mortem examination showed only enlarged heart and a great accumulation of deposited fat.

Lacnec also confesses that he has sometimes suspected pericarditis when it did not exist; and has, on the other hand, failed sometimes to detect it until the post-mortem examination.

Pericarditis occasionally appears in a latent form, and producing at first no prominent symptoms, may escape notice unless revealed by the physical signs.

The *Prognosis* is unfavorable, if pericarditis supervene on chronic Bright's disease; but, even under what we must consider as deleterious heroic treatment, uncomplicated pericarditis is not a very fatal disease.

Dr. Walshe says he has never known recovery take place, if in the patient highly marked choreal symptoms have occurred in childhood; and that he considers the whole class of reflex phenomena, viz., hysteria, mania, or convulsions, as of very bad augury, when occurring in pericarditis.

If the pericardium become agglutinated to the heart, the action by that organ must become greatly laboured, and more or less hypertrophy must, according to Dr. Hope, ultimately be the result. Dr. Stokes, however, and other writers believe, on the other hand, that agglutination of the pericardium more frequently leads to atrophy of the heart; on the principle that the heart becomes cramped in its action, and like other muscles under such circumstances, ceases to be healthily developed. Acute pericarditis occasionally sows the seeds of degeneracy in the texture of the heart. Endocarditis also occasionally supervenes on pericarditis, thus implicating the valves.

TREATMENT.

Allopathic treatment consists in the usual antiphlogistic routine. Dr. Hope recommends "immediate and copious bleeding from a large incision; and, if necessary, repeated two, three, or more times, followed by from twenty to forty leeches to the precordia." Others recommend "moderate venesection." It is confessed that "raving madness" has followed copious bleeding in this disease. "Mercury is next in importance

to bloodletting," but Dr. Taylor's evidence is against mercury.

Colchicum, opium, blisters, purgatives, diaphoretics, and diuretics, are also recommended.

The celebrated allopathist, Dr. Stokes, wisely says: "boldness of treatment in this disease often indicates the timidity of the practitioner;" and, I may add, much more frequently shows his ignorance.

In the 49th and 50th Nos. of the 'British Homœopathic Journal,' will be found two papers by Dr. Russell, on "Some diseases of the heart." With reference to bloodletting, he quotes (No. 50, p. 555,) the history of a case treated by the celebrated French physician, Andral, and which I have abridged as follows:—"A patient, æt. 31, had suffered for a fortnight from rheumatic pains in the joints, with redness and fever, and at last was twice bled. Next day there was no improvement, and he was bled again. On the next day he was bled a fourth time. On the fourth day, the joints remained swelled and painful; twenty leeches were therefore applied to the knee. On the sixth day, there being no improvement, he was bled a fifth time. He then seemed much better; the redness, pain, and swelling in the joints had subsided, and at *six* in the evening the pain was entirely gone; but at *ten* o'clock he was suddenly seized with pain in the left side. In the following morning, this poor man was screaming with pain in the region of the heart, but the pulse was soft and compressible; the face pale, pinched, and anxious; the extremities were cold. It was not thought prudent to bleed him again (!) but thirty leeches were applied to the precordial region (!!) and the patient died that evening." It is impossible

to read this history without horror, for the conviction forces itself on the mind, that this poor man was—in deference to most stupid and absurd theories—actually bled to death ; and can we speak of such proceedings in milder language, than that they are blood-thirsty and atrocious.

Still, even the thoughtful and moderate Dr. Stokes recommends the usual antiphlogistic treatment of bleeding and salivation, &c., but not so far as in pleurisy.

Homœopathic treatment is surely better than the above. No “raving madness” ever results from homœopathic treatment ; and those cases where tetanic spasms show themselves and lead to such fatal results, are chiefly in those who have been profusely bled ; and rarely, I believe, occur under homœopathic treatment. I further believe, that friction sounds—that is, fibrinous exudation, is much more rarely met with under homœopathic than under heroic treatment. Fatal syncope, under the old system, is often to be dreaded in severe cases of pericarditis ; and yet it is just in such cases that copious bloodletting is recommended, than which nothing could be devised more likely to bring about the fatal result.

During the first symptoms of pericarditis, the allopathic practitioner, obeying Dr. Hope’s instructions, or the impulses of his own fear, has often put antiphlogistic treatment into full force ; and has thus run the double risk of treating as pericarditis that which was not so, or of treating as a violent attack what might have been only a mild form of the disease.

Homœopathic treatment never causes death in this disease ; but allopathic treatment, I am convinced, has often been the cause of a fatal result.

It is not to be pretended that this disease is so markedly under the favorable influence of remedies as some other forms of acute inflammation; but by the judicious use of the following remedies much alleviation may be looked for.

Aconitum (Bismuth?) Bryonia, Rhus tox., Colchicum, Arnica, Spigelia—and, after effusion, Arsenicum. In the acute stage, Aconite will be found the most serviceable; the frequency of the dose being in proportion to the urgency of the case. The medicines chiefly employed should be given in the second or third decimal tinctures; but, as acute rheumatism generally lasts from three to six weeks, and pericarditis, more or less intense, may exist from two to three weeks, much patience is required both on the part of the sufferer and the physician.

In exacerbations, hot fomentations over the precordia will afford much relief. Mesmerism also will often soothe the patient, and procure sleep in that restless wakefulness which is often so distressing a symptom. I will not assert that full doses of opium may not, in some instances, where the pain is excessive, and when sufficient relief cannot be otherwise obtained, and where there is not copious effusion, afford an amount of relief and rest which will be found almost necessary, yet, in any heart disease with a tendency to syncope, there is danger from the administration of opium, as the following case will illustrate:

Mr. S—, æt. 60, but of a vigorous habit of body, was often troubled with severe palpitations; there being present considerable enlargement of the heart, but no murmurs. Lachesis and other remedies were

usually given with satisfactory results ; but an unusually severe exacerbation having supervened on great mental excitement, in connexion with a certain love affair, I found mesmerism on this occasion more successful than any other remedy in allaying the excited and tumultuous action of the heart. Mr. S—, being apprehensive of a fatal result, called in a clergyman for spiritual consolation. This gentleman, having no knowledge of homœopathy, immediately took upon himself, unknown to me, to send in a surgical friend of his own, who at once administered thirty drops of laudanum, with the apparently satisfactory result of a good night's rest, followed by much composure of mind. I confessed, next day, that the result appeared very satisfactory ; although, for myself, I confessed that I should have been afraid, under the circumstances, to have given so strong an opiate. The day following, all the excitement of heart and mind returned, to be again set at rest by thirty drops of laudanum. Sleep quickly followed ; but this time it was “that sleep which knows not waking ;” and a few hours after the dose had been given, my friend was dead.

In the treatment of this disease, where there is any tendency to syncope, the nurses and attendants must be cautioned against either permitting or assisting the patient to rise abruptly from the supine to the sitting position, fatal results having sometimes followed the neglect of this precaution.

In the treatment of acute pericarditis, with accompanying rheumatic fever, I believe that hot water fomentations and other water appliances may be relied on with great confidence ; and this, conjoined with the appropriate homœopathic remedies, may well be considered

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a far more rational, and a much safer and a more expeditious course to pursue, than the Colchicum, salivation, and bloodletting of allopathy.

The hot air bath, I also believe, would often be of the greatest service in acute rheumatism of the heart; the drops of sweat thus extracted from the body, on evaporation, often leaving a residuum of uric acid.

CHRONIC PERICARDITIS.

Chronic Pericarditis, so called, is that sequel which succeeds the acute disease, especially in those of a low power of constitution, or in spirit drinking, and I believe more especially in those who have been "half bled to death."

In such cases, besides adhesions, a certain amount of softening, or more correctly, a certain softness and weakness of the heart may have supervened, and be accompanied by palpitation and shortness of breath; or purulent secretions may exist in the pericardium.

For the treatment of this sad state of things, Allopathy recommends "Iodurated applications," and "Mercurial inunction," Digitalis and purgation, &c.; and if these means fail, and there be much effusion, "paracentesis may be considered."

But as what we are dealing with has been induced by depravity of constitution, or perhaps by excessive medication, surely nothing could be more irrational and contrary to common sense, than to attempt to saturate the poor victims with more iodine, mercury, or digitalis, and to drag them down by purgation. What is required is not depletion, but strengthening, such as may be got by long-continued daily frictions over the precordium

with oil, good simple food, and, perhaps, wine; abundance of gentle, warm and pure air: perhaps change of climate may be necessary. In short, every hygienic and invigorating treatment, and for Homœopathic remedies, Arsenicum, Aitrum, Silesia, Calcareo, and Sulphur, may be administered with a certain measure of success; and in such circumstances I should prefer the 6° or 12° centesimal dilutions.

The *Preventive* treatment of pericarditis is worthy of some consideration on the part of medical men, and especially of those who consider preventive medicine and general hygiene as the most important function of the physician, and by those who do not look on patients as *conditions* to be experimented with, but as human beings to be preserved from evil and disease.

Typhus fever, to a limited extent, being one source of pericarditis, we may reasonably and hopefully trust that, in the progress of sanitary works, this source of the disease will become still more limited. Excessive spirit-drinking is another source, which the growing temperance of the age is gradually diminishing. Of rheumatic fever, which is the chief cause of pericarditis, we cannot speak so confidently; but this at least we know, that pericarditis occurs chiefly in those who have a strong constitutional tendency to rheumatism; and with such, a simple, temperate, unstimulating diet, especially with reference to animal food, abundance of fresh air, the free use of cold water, the very sparing use of alcoholic stimulants, the avoidance of over mental and bodily straining, and especially carefulness with regard to damp houses, or sitting with wet feet or wet clothes, should be closely attended to.

ACUTE ENDOCARDITIS.

Acute Endocarditis is a disease which, like pericarditis, often accompanies rheumatic fever, and consists in inflammation of the lining membrane of the heart, followed by redness, vascularity, a general loss of smoothness, or patches of effused lymph, or a general greyness over the lining membrane, from infiltration of exudation matter. This physical result may implicate the chordæ tendinæ and valves, thereby impeding the free action of these parts, or by a thickening of the edges of the valves, or by puckering of such, render the valves incompetent. The valves also may be softened and enfeebled, or destroyed by inflammatory action. Pus may be formed, and patches of exudation may become detached, and both may circulate in the blood, and being arrested by the lungs, liver, spleen, and kidneys, set up suppurative disease. This is, however, happily, a very exceptional result. Coagula also may form in the cavities of the heart; but this, I believe, will be found to be almost entirely confined to such cases as have been profusely bled.

The left, that is, the arterial division of the heart, is much more frequently the seat of inflammation than the right side.

Physical signs.—The heart being in a condition of inflammatory excitement, beats rapidly and abruptly; and the organ being more or less turgid with blood, some increase of percussion dullness may sometimes be made out; but this is a sign of not much diagnostic importance.

When the valves have become subject to soft deposit,

or congested thickening, or the chordæ tendinæ have been shortened by inflammatory deposit, there will be found a soft, blowing murmur, almost entirely confined to the aortic valve or the mitral valve, existing during the systole, and therefore indicative of aortic obstruction and mitral regurgitation. This soft murmur will become loud and harsh if the deposit be hard, and the action of the heart strong.

If the circulation through the heart be seriously impeded, either by coagula or valvular disease, the action of the heart will become embarrassed and irregular.

The *Symptoms* are those of inflammation—pain at the heart, palpitation, dyspnœa, anxiety of expression, headache, excitement, and perhaps a dry cough—but, as in pericarditis: *latent* endocarditis sometimes occurs, with scarcely appreciable symptoms.

If the circulation be much impeded, there may be a tendency to syncope, which may be fatal, or coma may result from congestion of the brain. In extreme cases, the blood may be poisoned from the products of the inflammation, and rigors, clammy sweats, and diarrhœa be the result.

This disease is not often fatal, even under heroic treatment, but a certain amount of implication of the valves, proved by the presence of murmurs, is under allopathic treatment a frequent result, and especially, I believe, if bloodletting has been extensively practised, the almost invariable result—and such murmurs once established, almost always remain during the life of the patient.

The valves may be subject either to deposit, rendering their free edges irregular, or to puckering, and they occasionally become agglutinated to the walls of the heart.

If the mechanical alteration in the valves be slight, there may be no further evil results, and the patient may live and act with almost as much freedom as if no endocarditis had ever existed. If the implication of the valves be more serious, there will be occasional palpitations, especially during periods of excitement. But if the alteration in the valves be such as to cause considerable obstruction, or considerable regurgitation, then serious palpitations take place, and the extreme danger of a gradually increasing hypertrophy of the heart becomes established.

Diagnosis.—If there be fever, and especially if there be rheumatic fever, with pain at the heart, and this be followed by murmurs, the disease is in all probability endocarditis: but it must not be forgotten that pain at the heart, with excited action, may be accompanied by murmurs, either hysterical or anæmic, or possibly murmurs may arise from spasmodic shortening of one of the chordæ tendinæ, causing valvular regurgitation; further, the murmur heard may be of old standing—but this is not usually so soft and blowing in character as murmur recently produced. Further, if the deposit on the valves be soft and smooth, there may be no appreciable murmur, or the murmur may be hidden under much pericardial effusion.

Endocarditis is to be distinguished from pericarditis by the murmurs *not* being increased by pressure with the stethoscope, by the pain being less acute, and not increased by pressure, and by the absence of friction sounds. On the other hand, endocarditis and pericarditis more frequently coexist, as endopericarditis, and loud pericardial friction may cover

and obscure valvular murmurs, which murmurs it should be remembered are to be listened for chiefly over the aortic and mitral valves.

TREATMENT.

The *Treatment*, both allopathic and homœopathic, of this disease is exactly the same as that for pericarditis, and I have no further observation to make, than that I believe the formation of coagula in the heart, secondary diseases in the lungs, liver, spleen, and kidneys, met with under allopathic treatment, are not, except in cases of a debased constitution, to be looked for under homœopathic treatment; and further, that, especially under the use of Aconite, valvular disease of a serious nature, the result of endocarditis, is quite an exceptional result.

The treatment of valvular disease, as a result of endocarditis, will come under the treatment of hypertrophy of the heart.

In the 15th number of the 'North American Journal of Homœopathy,' it is stated that out of fifty-seven cases of endocarditis, treated by Dr. Fleishman, there was only one death, and Spigelia was the only remedy used.

ACUTE CARDITIS.

Acute carditis may be surmised more or less to accompany every case of pericarditis and endocarditis; but idiopathic inflammation of the heart itself is so rare a disease as to have come under the observation of very few pathologists. Theoretically, the disease might lead to general softening of the heart and local abscesses.

The treatment would be the same as for pericarditis.

CARDIAC HÆMORRHAGES.

Cardiac hæmorrhages, in the form of minute specks over the surface of the heart, have been observed. In some cases of pericarditis the effusion is sero-sanguineous; but this is chiefly in a scorbutic or debased condition of the blood. Cancerous disease may be a cause of hæmorrhage into the pericardium. Rupture of the coronary arteries, or the rupture of an aneurism, or of the heart itself, may cause rapid hæmorrhage and instantaneous death.

The treatment of hæmorrhagic pericardial effusion, would be the same as for serous effusion, there being no means of determining, during life, the nature of the effused fluid, except by paracentesis,—an operation of too serious a character to be undertaken experimentally.

DROPSY OF THE PERICARDIUM.

Dropsy of the pericardium, apart from the acute dropsy of pericarditis, may be a result of chronic pericarditis, or Bright's disease, or general organic debility, or from the mechanical obstructions of tumours or ulcerations, cancerous or otherwise, or as a termination of general dropsy.

Dropsy of the pericardium will furnish extended dullness on percussion, and produce a sensation of weight. If the dropsical effusion be considerable, there will be a proportional bulging of the precordial region.

The treatment of pericardial dropsy will be the treatment of the disease from which it proceeds; but gene-

rally, blisters, cupping, salivation, diuretics, and purgatives are the allopathic resources.

The homœopathic practitioner, while he recognises in pericardial dropsy a symptom often of fatal augury, must yet necessarily reprobate the above treatment as in direct violation of common sense. General debility, or debilitating disease, being the main cause of pericardial dropsy, the only true treatment must be either that which is homœopathic to the disease present, or such general hygienic treatment as may enable the powers of nature to overcome the disease.

Arsenic, Lachesis, Cobra, Digitalis, and Sulphur may be used with advantage; but I believe Arsenicum in dilutions, rising from the 3^d decimal to the 12^d centesimal, is the remedy from which most is to be expected. The question of paracentesis will be considered, in extreme cases, as an expedient for temporary relief.

If the dropsy is not the result of some incurable organic disease, homœopathic and general hygienic treatment may not only be pursued with confidence, but will contrast very favorably with the result of all depleting measures; while, even in hopeless cases, life—which is certainly often manifestly shortened under depletion—is under homœopathic treatment sometimes prolonged beyond the expectation even of the most sanguine practitioner.

ATROPHY OF THE HEART.

Atrophy of the heart, in which the organ is diminished in size and weight, occurs in wasting diseases, such as phthisis and cancer. It is also frequently a result, more or less, of adhesion of the pericardium after pericarditis.

In such cases, there will be diminished percussion dullness, and weakness of cardial action, with occasional palpitations.

For this condition of things, the only line of treatment that can be hopefully suggested is, to be as much in the open air as the strength of the patient or the condition of the atmosphere will permit, with gentle horse or carriage exercise, and a nutritious but not a stimulating diet.

HYPERTROPHY OF THE HEART.

The heart may be enlarged symmetrically in all its parts, or the walls may be thickened, whereby the cavities are diminished in capacity, or the cavities may be distended, having walls of a normal thickness, or the cavities may be enlarged with thickened walls, or the heart may be enlarged in one part only; and when this is the case, the left ventricle is the usual seat of such hypertrophy.

The heart may be enlarged to double or treble its normal cubic capacity, and may be found to have increased from eight to twelve ounces; its normal weight to twenty or thirty ounces.

Percussion may sometimes, in extreme cases, find the boundary of the heart to extend from the *second* inter-space to the eighth rib, and from two inches to the right of the sternum to two inches and a half to the left of the left nipple.

The cause of muscular hypertrophy of the heart is—like that of other muscular development—excess of action; and the following may be enumerated as causes of heart hypertrophy. Nervous palpitations; the over stimulation of a full animal diet; the free use of

33, 3.

alcoholic stimuli; and here we remark, that a gouty habit often accompanies hypertrophy. Chronic bronchitis, emphysema of the lungs, or obstructive or regurgitant valvular disease, demanding extra action to overcome obstruction, or to supply sufficient blood to the circulation.

Further, heart hypertrophy is frequently begun at school or at the university, by over-indulgence in all athletic games, but especially at foot-ball, hare and hounds; and, perhaps, most of all, by boat-racing.

Those mechanical occupations also, which call for laborious and powerful action of the arms, as with paviors, often lead to hypertrophy.

But, of all causes, rheumatic fever, as leading to valvular disease, must be accounted the chief cause in leading to hypertrophy of the heart.

In this chapter, however, by hypertrophy, I mean simple hypertrophy, independent of valvular disease; viz., a form of hypertrophy of rare occurrence, as compared with that ensuing on valvular disease.

Physical signs.—If the hypertrophy be considerable, there is bulging of the pericardial region, and increased impulse against the chest walls. The impulse may be so strong as to cause the stethoscope to bound forward as it were, and to shake the patient, and even the bed he lies on. The percussion dullness may extend to two inches on each side beyond the normal measurements. (See Diagram.)

I have recently met with two cases of hypertrophy of the heart—one was general hypertrophy, producing dullness over the entire middle posterior region of the lungs; the other hypertrophy chiefly of the right

ventricle, from emphysema, accompanied with dullness of the base of the right lung, probably the result of habitual congestion.

If the walls be hypertrophied while the cavities remain normal in size, the first sound will be full, and it may be murmurish from the violence with which the blood is made to rush through the orifices. If, however, the walls be hypertrophied and the cavities diminished, there being but little blood to propel, the first sound may be nearly inarticulate. If the cavities be enlarged, and the walls hypertrophied or vigorous, the clearness of the sounds will be increased; but enlarged cavity, without proportionally vigorous walls, will furnish feeble, dull, or muffled and prolonged sounds.

In short, the clearness and *force*, so to speak, of the sounds, have more relation to the excitement or vigor of the organ, than to the size of its parts. The left ventricle is the chief seat of hypertrophy; but, in emphysema, the right ventricle only may be hypertrophied, producing a tendency to congestion of the lungs from engorgement, and lividity of the face from the consequently retarded flow of venous blood.

In such cases the extended dullness on percussion should be chiefly to the right, although this is uncertain, as hypertrophy of the right ventricle may push the heart to the left; but if there be a strong impulse, and yet no correspondingly strong pulse—in the absence of valvular disease—there is then ground to suspect hypertrophy of the right ventricle.

Symptoms.—If the heart be hypertrophied and active, and there be no obstructive or regurgitant disease, the pulse will be strong. The visage is often full; the

complexion red; the eyes protuberant and lustrous; the animal spirits active; and, I think, the temper often quick, and the general character energetic.

There may be throbbing headache; and, from the propulsive action of the heart being sometimes, as it were, in advance of the capillary circulation, there may be a tendency to brain and lung congestions, with dyspnœa on sudden exertion. The liver, during such exacerbations, especially as are caused by the obstructive operation of a supervening attack of bronchitis, is liable to temporary engorgement and enlargement.

The pulsation of the carotids, and sometimes also of the smaller arteries, may be visible.

Palpitation also is a frequent symptom, and what is called "a tendency of blood to the head;" this being occasionally relieved by epistaxis.

But there may be considerable hypertrophy, and yet, under a quiet and temperate life, all unpleasant symptoms may be habitually absent.

A short sympathetic or irritative cough is often habitually present in hypertrophy, especially when the individual takes exercise.

Prognosis.—Simple hypertrophy is a much more manageable disease than dilatation or flabby or fatty heart, and in cases even of considerable hypertrophy, without valvular disease, if a quiet temperate life be led, few unpleasant symptoms may show themselves, and life is not threatened with abbreviation. But irregularity of life, indulgence in alcoholic stimuli, or incautious mental or muscular excitement, will be apt to call out aggravated symptoms.

In any derangement to the circulation from over-

exercise or from an attack of acute bronchitis, there will be danger of brain and lung congestions, and, if the attack be severe, dropsical swellings, beginning about the feet, may show themselves.

TREATMENT.

Allopathic treatment recommends blistering, bleeding, cupping, or leeching in aggravation; also *Digitalis*, *Belladonna*, and *Aconite*, together with purgatives.

The Homœopathic treatment in this disease has this decided advantage over the allopathic—1st. That it totally ignores bloodletting; and, as an anæmic condition of the blood, such as bloodletting is apt to produce, is one of the worst evils which can accompany hypertrophy, and is itself sometimes a cause of hypertrophy; this abstaining from bloodletting is a great gain. 2d. No homœopathic treatment, such as the *Digitalis* and purgation of allopathy, can ever cause that nervous weakness, which is both an occasional cause and a frequent encouragement of hypertrophy, by inducing nervous palpitations. 3d. I conceive our remedies not only act with more success in the treatment of nervousness, indigestion, and constipation, all tending to the increase of hypertrophy, but the homœopathic use, especially of *Aconite*, *Digitalis*, *Aurum*, *Lachesis* and *Cobra*, have specific effects, which I believe act with better results than any allopathic medicines.

Aconite, *Arsenic*, *Aurum*, *Belladonna*, *Bryonia*, *Coffea*, *Digitalis*, *Hyoscyamus*, *Ignatia*, *Lachesis*, *Nux*, *Rhus*, *Spigelia*, are the chief homœopathic remedies to be considered in the treatment of the various symptoms which

may arise in this disease, and such may often be administered with most satisfactory results; *e.g.* Coffea or Aconite, in excitement; Bryonia or Rhus after over-exertion, or if there be pain about the heart; Nux, Bryonia, Sulphur, &c., in constipation, forcing at stool being very injurious.

Hygienic treatment, however, is in this affection of the first importance.

The diet must be simple and non-stimulating, all excess must be avoided, animal food should be taken as sparingly as the strength will permit; also all food causing flatulence must be avoided. Alcoholic stimulants, tea and coffee, must be very sparingly used.

All excess in mental emotion must be guarded against, and excessive bodily exercise must be carefully avoided; and, although hypertrophy, once established, can probably never be eradicated, yet by a patient and watchful control over the appetites and passions and general conduct, hypertrophy, unless of great extent, may become, as a disease, virtually non-existent.

The youth of Great Britain are the finest specimens of juvenescence in the world; and much of the manly beauty of their youth and the vigorous judgment and sterling qualities of their manhood, are owing to the love and laboriousness with which the boy, the youth, and the man, cultivate all the active sports of the field, the river, and the mountain heath. But, on the other hand, few sessions pass over at our great universities, in which some have not sowed the seeds of incurable diseases of the heart, from that excessive tension put on the heart which inordinate boat-racing, especially, produces; and I think it may well be asked why the noble athletic emulation of our youth should not be

guided by men qualified to move and direct such operations in accordance with the laws of human anatomy and physiology? To direct the training of the body in accordance with the laws of human development, and in such a manner that robust health and manly beauty might be best secured, would surely be an avocation not *second* in dignity or usefulness to that of grinding into the brain the routine of Latin verses or Greek verbs.

DILATATION OF THE HEART.

By this term is meant enlargement in the measurements of the heart, with walls, it may be, of normal thickness, but attenuated in relation to the extra size of the cavities. Sometimes the walls may be actually thinner than in the normal condition; and, on the other hand, the walls may be thicker than natural, although still thin in relation to the size of the cavities.

The auriculo-ventricular valves may be rendered incompetent by the enlargement and stretching of their surrounding parts; and in dilatation of the heart the texture of the organ is usually of a deteriorated quality, thus yielding to the pressure of the blood; and hence, resulting sometimes in aneurismal distension of parts of the heart. Valvular obstruction may be a cause of dilatation, but probably not unless the organ have a flabby, inelastic texture,—true hypertrophy, not dilatation, being the usual result of valvular disease.

DISTENSION OF PARTS OF THE HEART.

Physical signs.—In dilated heart, the form is generally altered from the pyriform shape to one more square,

and the percussion dullness is therefore altered both in outline and in extent.

The beat of the heart against the side is less definite than either in health or in hypertrophy ; and the organ, not having muscular power in proportion to its size and weight, the action is more sluggish, and, as it were, of a swelling character.

The sounds of the heart are usually feeble, and sometimes so indefinite, that it requires considerable care to distinguish the first from the second sound. In all feeble action of the heart, the first sound, as it depends chiefly on muscular force, is more impaired than the second sound, which depends chiefly on the closing of the semi-lunar valves.

The absence of murmur is no proof that valvular disease does not exist, because the heart may be too feeble to produce a murmur even with aortic obstruction.

Symptoms.—The symptoms of æsthenic dilatation are those of deficient power in the heart ; viz., an uneasy sensation in the chest ; palpitations ; a feeble pulse, which sometimes lags behind the systole of the heart ; a dusky or patchy complexion ; blueness in the lips, tongue, and fingers ; a general feebleness both of mind and body, and disinclination to action and adventure ; dull headache and drowsiness ; constipation of the bowels ; watery look about the eyes. There is dyspnœa, especially on ascending stairs or hilly roads, and there may be a tendency to syncope ; a cough is usually present, at first dry, but apt to be accompanied by expectoration, and often resulting in bronchial flux, from retarded circulation through the lungs ; and, as all retardation through the lungs necessarily leads to conges-

tion in the liver, this again becomes enlarged, especially during paroxysms of dyspnœa.

The kidneys also become congested, and the urine may be scanty, or even albuminous.

The ankles easily become œdematous, as during a catarrh or after fatigue.

The diagnosis, from physical examination, between hypertrophy and mere dilatation, may present some difficulty; but in hypertrophy there is generally more vigour of constitution, more vigorous propulsion of the beat against the chest-walls, and a stronger pulse; although in both forms of disease the first and second sounds may be very ill defined, and both present extended percussion dullness.

Pericardial effusion will cause bulging and dullness; but percussion over fluid is more absolutely dull than over solids, and, unless the pericardium be quite filled with fluid, the region of maximum dullness will gravitate according to the position of the patient. Fluid also tends to raise the apex of the heart; but in dilatation, the apex is lowered.

The prognosis in dilatation of the heart is unfavorable in proportion to the extent of the dilatation, the feebleness of the heart's action, and the amount of congestion, habitual or occasional, which occurs in the lungs and the liver.

The termination is usually, in exacerbations of dyspnœa, accompanied by bronchial flux, and followed by hydrothorax, or general dropsy, ascending from the extremities—or death may be by syncope.

TREATMENT.

Allopathic drug treatment recommends the use of iron as a general tonic, and Opium, Belladonna, and Aconite in cases of excitement ; and Dr. Stokes highly lauds the use of small doses of mercury in all cases where the liver becomes congested. Taraxicum is also given for the liver ; while ether and other diuretics are given, if general or local dropsical symptoms supervene.

The Homœopathic treatment will embrace the use of Aconite, Arsenicum, Cobra, Bryonia, Coffea, Digitalis, Ignatia, Lachesis, Lobelia, Lycopodium, Mercurius, Nux Vomica, Phosphorus, Pulsatilla, Rhus, Silicea, Spigelia and Sulphur, Plumbum (in constipation). Of these remedies, Arsenicum, Cobra, Digitalis, Lachesis, and Nux Vomica, I believe, will be found most beneficial. Cobra, Digitalis, and Lachesis, will exercise a specially specific action over difficulty or excitement about the organ.

Bryonia, Digitalis, and Arsenicum, will also be useful in those bronchial difficulties which are so apt to arise ; on the whole, I believe Lachesis, Cobra, and Arsenicum must be most trusted to.

No doubt the mercurial action on the liver, so strongly recommended by Dr. Stokes, must often afford striking relief in cases of exacerbations accompanied by liver congestion. Yet the slower, but more enduring action of Nux Vomica and Mercurius, is more to be recommended, because the frequent use of mercury must exhaust the energies of the liver, and ultimately hasten that which it is meant to retard, by irrecoverable liver congestion, with general embarrassment of the circulation, and its consequent dropsical effusions.

In the regulation of the condition of the stomach and

the intestinal canal, I feel confident that the methods practised by the homœopathic practitioner will give him a great advantage over those who rely on mercurial and purgative medicines.

The Hygienic treatment of this disease must be at least not second in importance to the medicinal treatment. The hygienic treatment aims at retarding the progress of the disease, and at the prevention of exacerbations. The medical treatment chiefly endeavours to alleviate exacerbations when they occur.

An individual afflicted with dilatation of the heart, should, if possible, live in an elastic and moderately warm atmosphere. He must keep himself warm, more by climate and clothing than by active exercise. His diet should be nourishing, digestible, and not large in bulk; he should avoid copious draught of fluid, and he should never make a full meal. In cases not much advanced, horse exercise may be advantageous, but in severe cases, even carriage exercise may be found too rough.

The position assumed in bed should be that which is felt to be most comfortable, but the patient should not rapidly rise from the recumbent to the erect position.

The bowels should be kept moderately open, if possible, by home-made brown bread, and all mental and bodily excitement, and over-labour, must be avoided.

Shampooing and friction over the body; viz., passive exercise, will often be found refreshing and invigorating, and will assist the circulation of the blood. And the right hand of the medical man, or the hand of a friend, pressed firmly, yet gently, over the region of the heart, will sometimes relieve either occasional palpitations as they occur, or relieve the general feeling of uneasy

oppression in the chest. The patient should cultivate a quiet and peaceful life, and bear, with as much patience and self control as possible, the afflictions put upon him.

The *hot-air bath*, carefully taken, will be especially useful, affording great relief to internal congestions, and yielding that relief to the skin which, under the circumstances, cannot be obtained by *active* exercise.

Under circumstances as favorable as the above, considerable dilatation of the heart may be followed by very few dangerous, or even painful symptoms; and a peaceful and prolonged life be enjoyed.

SOFTENING OF THE HEART.

Softening of the Heart may be the result of endocarditis or pericarditis, or general inflammation (a very rare form of disease) of the heart, or typhus fever, scorbutics, or fatty infiltration.

Softening of the heart is a general forerunner of dilatation.

A soft or flabby heart will present weak and uncertain pulsations and sounds.

The symptoms will resemble those of dilated heart, with this chief exception, that, whereas excited action must labour and distress a dilated heart, and aggravate the symptoms; where the heart is merely soft and weak, excitement will often relieve the symptoms.

TREATMENT.

The treatment of flabby heart will be much the same as that of dilated heart.

The various symptoms must be treated as they arise. The general treatment will consist in gently bracing the system, by being as much in the open air as possible, gentle pedestrian or horse exercise, especially in a hilly country with bracing air, avoiding over-stimulation, and partaking of a diet moderate in bulk, but chiefly consisting of animal food and stale bread.

The cold shower bath, while the patient stands ankle deep in warm water, and this followed by active dry friction.

Sea-bathing, if it can be borne, but in all diseases of the heart swimming must be hazardous, and it is scarcely necessary to remind the practitioner of the danger in such cases, accompanying the use of ether, chloroform, and other powerful excito-soporifics.

Calcarea, Silicea, Arsenicum, Nux Vomica, and Sulphur may be employed with the view of giving increased tone to the heart. With this view I should prefer the 6° centesimal dilution, and administer the remedies nightly, for weeks at a time; not, of course, neglecting that remedy, which may be homœopathic, to any intercurring symptom which may present itself.

INDURATION OF THE HEART.

Induration is a rare form of disease; which, if it occurred in any of the papillary muscles, might so contract them, as to cause mitral incompetence.

Theoretically—Calcarea, Silicea, and Sulphur, might be used under such circumstances.

Chalky deposits may be lodged in the tissues of the heart, interfering more or less with the free contraction

of the heart ; and, if deposited in the coronary arteries, may interfere with the nourishment of the organ.

Should such be the case, the disease must be obscure ; but fortunately, it is a result of extremely rare occurrence.

Theoretically, the treatment which is worthy of a trial would consist in the use of Calcareo and Silicea, and the use of a vegetable and oil diet.

FATTY ACCUMULATIONS.

Fatty accumulations under the pericardium, or among the fibres of the heart are, on examination, frequently found in those whose bodies generally have much fat deposited.

Such accumulations are said to be found chiefly on the right side of the heart, and certainly the liver and venous system, more than the lung and the arterial system, is connected with the formation of fat.

Accumulations of fat in particular regions, or generally over the surface of the heart, may mislead to the idea of the presence of tumour or hypertrophy.

Except, however, in the aged, or when carried to great excess, fatty accumulation does not appear to disturb or labour the heart's action ; and this fact is quite in accordance with what we observe in other instances ; viz., that the presence of a decided tendency to the accumulation of fat, does not, in the youth of either sex, seem to interfere with vigour of action ; but, on the contrary, seems often to accompany a more than usual vivacity of disposition.

The treatment for fatty accumulations about the heart would be the same as for general obesity.

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I believe Calcarea, from the 6° to the 12° centesimal dilution, is almost the only homœopathic remedy which has been persevered in with the object of reducing fat.

In my paper on the "Liver," in the 'London Journal of Medicine,' for 1851, I attempt to prove that the liver is the great creator of fat in animals; and, if this be so, then Mercurius, biline, cod-liver oil, and other remedies acting on that organ, might be worthy of a trial, theoretically.

But, as a tendency to the formation of fat is more a constitutional result, and a sign, so to speak, more of excessively good health than of weakness, the cure of this tendency must be—by the use of medicinal substances—not an easy matter. Still, the substitution of water, as the only true stimulant to the liver, for the use of alcoholic fluids, viz., the artificial stimulants of the liver, is well worthy of persevering trial.

Lean meats also, such as fish, hare, wild game, with cabbages, cauliflower or asparagus, together with the sparing use of puddings and butter; and the substitute of brown, oat, or barley bread, for white bread.

An active life in the open air, especially in keen climates, such as that of Scotland, is advisable, as there seem to be fewer instances of fat individuals in such climates.

Theoretically, the more elastic the air, the more active will be the individual; and, therefore, the more oxygen must be breathed, and the thinner therefore should be the individual.

The sweating processes of the water cure, as illustrated, especially in the successful action of the water-belt in fatty abdomen, should be considered.

The hot air bath also controls very actively the accumulation of fat.

FATTY DEGENERATION OF THE HEART.

In *Fatty Atrophy*, as distinguished from fatty deposit, the muscular tissue is oily under the finger, and a granular texture and oil globules are detected by the microscope.

The texture of the heart appears pale, oily and mottled. It may be normal in size, or smaller or larger than natural, and in such hearts there is a tendency to aneurismal dilatations.

Fatty atrophy is often found in phthisis, renal disease, paraplegia, and other debilitating conditions, but it also appears without other co-existing degenerations.

Albuminous urine is often present, and the patient may be mis-treated for kidney disease.

This is a disease which attacks all classes, the over-fed and the under-fed, and it is said to have a preference for the male, and that after middle-life. This, again, may be because the liver and kidneys of such are most liable to disease.

All that is known of its pathology is, that it is a disease of degeneration of muscular tissue; yet, why that degeneration should be fatty, or why attack of all muscles, almost exclusively the heart, is not known. The liver and kidneys are also often fatty; and it appears to me that the term "*degeneration*" is not purely correct, the truth rather being that the vital powers do not appear to possess sufficient ability to convert the pabulum furnished into a higher organization than oil.

The heart is more or less fatty in a large proportion of all debilitating heart diseases.

It is a disease which furnishes no physical signs peculiar to itself, but the heart so affected acts languidly and produces sounds more or less inarticulate. It must be a difficult matter to distinguish between flabby heart and fatty heart; possibly the co-existence of degenerate kidney and enlarged liver, and especially the presence of oil in the urine, might aid the diagnosis in favour of fatty heart.

The symptoms are those of languid circulation, dyspnœa, viz., a sensation of feebleness and faintness about the heart, and a tendency to sighing, and to "sighing respiration," and even syncope, especially on the patient rising abruptly from the recumbent or sitting to the erect position.

The pulsations, in extreme cases, may be as few as thirty in a minute; but fatty disease may exist to a considerable extent, and the pulse be quick, with a tendency to irregularity.

Those afflicted with fatty or other feebleness of the heart should be watched, while labouring under diarrhœa or other debilitating losses of fluids; as fatal syncope has often resulted from the patient himself abruptly rising up or being abruptly raised by the attendants at the bed-side.

A tendency to congestive headaches and somnolency may accompany fatty atrophy of the heart.

The Prognosis in fatty heart, if suspected, it being a disease which does not admit of certainty in diagnosis, must depend chiefly on the nature and extent of the symptoms. A feeble pulse below 50 will require watching.

No doubt, as in atrophy of the heart, and much more so than in dilatation of the heart, the disease may exist to a considerable extent ; and yet, with carefulness, not be productive either of much inconvenience or danger. There must be, however, in advanced cases, a tendency to syncope, more or less serious and complete. The fear of sudden death sometimes accompanies this disease ; and death itself, either from syncope or from aneurismal rupture, is sometimes the result. Still this fatal result, in most recorded cases, does not appear to have happened till advanced age, sixty-seven being the average age of the cases recorded by Dr. Stokes.

TREATMENT.

The treatment of this disease must be much the same as that for softening of the heart ; viz., a quiet life, with a steady following up of a mild tonic and bracing treatment ; and in a life spent much in an elastic atmosphere, if the temperature be agreeable to the patient. The chief reliance is to be placed in free oxydation of the blood. Tunbridge Wells or Malvern, or the Yorkshire or Surrey hills might be suitable residences.

Gentle horse, carriage or walking exercise also is to be recommended. But the laborious climbing of hilly roads must be avoided.

Theoretically I should employ *Calcarca*, and very minute doses of cod-liver oil,—cod-oil not only being, in a sense, homœopathic to the disease, but fatty heart being itself often a disease of weakened nutrition, there is a double reason for making a trial of these remedies.

Ferrum, *Arsenicum*, *Baryta Carbonica*, *Manganese*, and *Phosphoric Acid* are also recommended in both fatty and flabby heart.

TUBERCLE IN THE HEART.

Miliary tubercular deposit has been found below the cardial surface of the pericardium, and such may produce friction sounds and pericardial effusion. The occurrence is extremely rare, but it is easy to conceive the irreparable mischief which active allopathic treatment might produce, if put into force on the mistaken view that the pericardial signs indicated a threatened inflammation in that region.

Allopathic treatment recommends blisters, purgation, diuretics and iodine; but surely the treatment for such would be that of tuberculization generally, viz., a total absence from depletion, and the use of cod-liver oil, Calcareo and Phosphorus.

CANCEROUS INFILTRATION.

Cancerous infiltration, or encephaloid formation, either primary or secondary, may attack the heart.

If primary, pain may be the only symptom present; if secondary, and failing any positive signs; the peculiar cachexia of the disease will have shown itself beforehand.

ENTOZOA IN THE HEART.

Entozoa have very rarely been found in the substance of the heart; but the existence of such, and the local destruction of the heart's walls, followed by rupture and instant death, although not beyond the limits of recorded experience, is yet nearly unknown.

DISEASES OF THE VALVES OF THE HEART.

Diseases of the Valves of the Heart either directly obstruct the free circulation of the blood by constriction of the outlets, or indirectly impede the circulation, by permitting the regurgitation of the blood, the result of incompetency of the valves.

Obstructive disease may arise from deposits in the margin of any outlet, or from contraction of these outlets, or from external pressure constricting the outlet.

Regurgitant disease may result from that incompetency of the valves, which is produced by deposit on their free margins, or by puckering of the valve, or agglutination between the valve and its attachments, or by hypertrophy of a cavity, causing a patulous state of a valve, or by the shortening of a papillary muscle; while all the above-mentioned causes of valvular disease may directly or indirectly be produced by the effusion of plastic lymph, the result of endocarditis.

Mitral regurgitation murmur is heard during the systole, and best at the left apex; and, if a murmur be heard here, and not at the aortic orifice, we may be certain that it is an organic murmur, and does not arise from thinness of blood.

It is necessary to remember, that valvular disease may be productive of no murmur during the quiet action of the heart; and Dr. Stokes mentions a case in which post-mortem examination revealed the substitution of a smooth ring for the mitral valve, in which case no murmur had been detected during the latter period of life—the smoothness of the walls of the opening being the probable explanation.

The regurgitation of the blood from the left ventricle demands extra work from that part of the heart to supply the circulation, and hence hypertrophy of the left ventricle is the result to be anticipated. If this hypertrophy has taken place, the apex beat will be carried somewhat outwards and downwards, increasing the area of percussion dullness, and yielding an impulse stronger than natural.

The pulse may be nearly natural, but there is generally an irregularity both in its rhythm and force; it is also compressible. The pulsation is, at intervals, sharp and quick—indicating a vigorous effort of the ventricle to propel its contents, but the absence of power to force the blood in a full current; and cases have occurred, in which sixty pulsations at the heart have only produced thirty pulsations at the wrist.

Mitral regurgitation must more or less obstruct the flow of blood from the lungs—causing pulmonary congestions, cough, dyspnoea, and bronchial symptoms, with wasting expectoration; and sometimes, also, the expectoration of red blood.

Mitral obstruction may be followed by no murmur, the *flow* of blood into the ventricle being a quiet process, as compared with the *rush* of blood during ventricular contraction.

It may lead, however, to hypertrophy or distension of the auricle; and, like regurgitant disease, tend to produce pulmonary congestions; but, unless it co-exist with mitral regurgitation—a frequent combination—it is by no means so serious an affection as regurgitation.

Tricuspid regurgitation will be heard best at the right apex; viz., close to the ensiform cartilage. It is softer in character than mitral regurgitant murmur; and is,

indeed, frequently inaudible, owing to the comparatively feeble power of the right ventricle; and, as the left ventricle is much more frequently the seat of endocarditis, valvular disease of the right side is proportionably rare.

In this disease the jugular veins are often turgid and pulsating, and there is a tendency to congestions of the brain, and a condition of things favorable to apopleptic symptoms. There is also the tendency to liver congestion, and dropsical effusions may take place from this cause, although no tricuspid murmur has been detected, and thus the primary cause of the dropsy may be undiscoverable.

Tricuspid obstruction is of rare occurrence, and when present is seldom followed by any perceptible murmur.

Aortic obstruction. If the action of the heart be strong, aortic obstruction produces a loud murmur, and a thrilling sensation during the systole—this thrill being conveyed along the carotids, the murmur itself having been heard, according to Dr. Stokes, as far as the tibial artery.

This is the chief seat of their blood murmur, but the absence of murmur at the mitral orifice will be an evidence in favour of the murmur being organic—however, even at the aortic orifice, a feeble heart and a smooth orifice may fail to produce murmur, although obstruction be present.

Hypertrophy of the left ventricle is the anticipated result. The pulse may be normal, but is inclined to be hard and sharp; and, especially if there be hypertrophy, the blood being squirted, as it were, with much force

through a constricted orifice, will appear jerking at the wrist.

Theoretically, obstruction at the aortic orifice should produce a general retardation of the circulation, and its consequent congestions; but, practically, this position of valvular disease is much less injurious than mitral regurgitation,—probably because, although the circulation be obstructed, yet the supply of blood is regular and steady, and the bodily organs accommodate themselves to the condition present. The ultimate result, however, is the danger of an ever increasing hypertrophy of the left ventricle. Still, with carefulness, many years may pass over without any serious result, or even œdema of the ankles supervening, and sudden death from aortic obstruction is the exceptional termination in this disease.

Dr. Stokes gives the extraordinary history of a gentleman up to a certain period enjoying good health, *post-mortem* examination revealing an amount of aortic constriction which admitted of the passage only of a probe.

Aortic regurgitation, from incompetency of the valve, will be followed by a murmur during the diastole, from the contraction of the aorta, aided by the suction power of the left ventricle, causing the aortic blood to rush backwards.

Under these circumstances the action of the ventricle must be laboured, and hypertrophy will be the result.

When hypertrophy exists the pulse will be strong, but abruptly short from the falling back of the current, and thus jerking pulse is produced.

The symptoms will be analogous to those following mitral regurgitation; viz., pulmonary conges-

tions; and the hypertrophy produced will sometimes cause mitral regurgitation, from stretching of the attachments of that valve.

Pulmonary artery. Obstruction at this orifice is of rare occurrence, and obstructive murmur of still rarer occurrence,—should it appear, it will be distinguished from aortic obstructive murmurs by not being transmitted along the aorta.

Theoretically, such an obstruction should produce imperfect oxygenation of the blood—with blueness of the skin, and coldness of the skin and breath—hypertrophy of the right ventricle, and an obstacle to the venous and hepatic circulation; but the fact itself being rare, and when present, of difficult diagnosis, the positive data in connection with this form of disease are few, and clinically not very important.

Regurgitation from the pulmonary artery, during life, is a fact which post-mortem examinations would seem to have frequently indicated the probability or reality of, but it is a fact which would seem scarcely to have been indicated by any positive signs during life.

The reason why murmurs have rarely been discovered at the orifice of the pulmonary artery are: 1st, That inflammatory alteration of the pulmonary valves is comparatively rare; 2d, That the propulsive power of the right ventricle is generally insufficient to develop murmur, unless the blood be either thin, or the surface over which it is propelled is hard and rough.

GENERAL DIAGNOSIS OF VALVULAR DISEASE.

In the diagram at the beginning of this book, I have indicated the position of the valves of the heart, but as valvular disease naturally tends to produce various hypertrophies, and consequent displacement of the normal position of the valves, the position where the murmurs will be best heard, will not exactly correspond with the position of the valves during health.

It is necessary also to remember, that loudness of murmur is no certain index to the extent of the disease, but depends more on the force of the heart, the thinness of the blood, the thinness of the individual, or the hardness of the obstructive deposits.

One murmur may cover or obscure another murmur ; for instance, aortic constrictive murmur may cover mitral regurgitant murmur, and render much carefulness necessary on the part of the stethoscopist.

Dr. Elliotson calls attention to the fact, that murmurs sometimes vary in intensity, according to the position of the patient favouring or impeding the action of the heart, and also to the fact of a murmur being louder, after tapping for dropsy, whereby the heart acted with greater freedom.

The intensity of the symptoms will depend chiefly on the extent to which the circulation is interfered with ; and this, again, may depend on the seriousness of the valvular disease ; or on the powerlessness of the heart to contend with the valvular difficulties ; or on the condition of the other organs of the body ; or on the mode of life of the patient.

The chief symptom, viz., derangement of the circula-

tion, will show itself in dyspnœa, palpitations, a tendency to syncope, startings on falling asleep; various congestions of the head, lungs, and liver; puffiness about the eyelids, œdema about the ankles, an anxious expression about the eyes; or a peculiar complexion, either mottled or having patches of fixed red.

Dr. Walshe places the danger of fatal results of valvular disease in the following order:—1. Tricuspid regurgitation. 2. Mitral regurgitation and constriction. 3. Aortic regurgitation. 4. Aortic obstruction.

In this arrangement, it is worthy of remembrance that tricuspid regurgitation is placed as the most dangerous form of valvular disease; while we have seen that disease of this valve is frequently productive of no murmur, jugular pulsation being the only sign it may furnish. Fortunately, tricuspid regurgitation is a rare disease, as compared with mitral or aortic disease.

Theoretically, I should suppose coma, more than syncope, the result of tricuspid regurgitation, and syncope the result chiefly of mitral regurgitation; and hence I should have concluded that mitral regurgitation was a more serious disease than tricuspid regurgitation, syncope being a more rapid and less remediable cause of death than brain-congestion or coma,—at least under homœopathic treatment.

Further, as disease of the mitral orifice is of more frequent occurrence than disease of the tricuspid orifice, we may suppose a larger number fall victims to the former disease.

The general prognosis of valvular disease will depend more on the urgency of the symptoms and the character and life of the individual than on the loudness of the murmur.

No form of disease, one might *à priori* suppose, should be more inimical to long life than severe chronic dyspepsia—that is, deficient nutrition of the body ; and yet it is proverbial that habitual dyspeptics are often long lived—and why ? Because dyspeptics are compelled to live quiet and steady lives, and to practise great abstemiousness in eating and drinking. So also, to a great extent, should it be with those having various forms of disease of the heart.

These individuals are incapable of rashness in bodily exertion, or of enduring excessive fatigue, and are predisposed to quietness and temperance of life ; and there exists no reason why the life of a quiet man with considerable valvular disease should not be as good as that of the average young and middle-aged men of this rapid age ; and it appears to me that this view of the case is not sufficiently considered by the medical officers of our Insurance Companies.

The medical officer of an Insurance Company will in the most summary manner reject the proposal, on ordinary terms, of any man or woman in whom he can detect the slightest organic heart murmur, but will accept with avidity the offer of a robust fox-hunting, or dashing and speculating City merchant, whose whole character and life are *fast*, and whose chances of long life may be very inferior to that of the temperate man, whose heart is permanently affected by a long since passed rheumatic fever.

It is true that valvular disease may be followed by sudden death from syncope, but it is equally true that the strongest and healthiest man on the earth may die suddenly from apoplexy ; and every medical man must have met with cases where habitual invalids, having

been refused at Insurance Companies, have yet long outlived the active, sanguineous, and rollicking young friends of their early days.

This, at least, is certain, that it is a hard case that those who have heart-disease should be precluded from the comfort resulting from life-assurance on reasonable terms; as the rejection, by acting with depressing effect on the mind of the individual, must tend to hasten any unfavorable result which may be consequent on the disease.

The question is a difficult one; but no body of men should be more capable of solving the difficulty than the medical officers of Insurance Companies, with the most valuable statistical materials in their possession.

THE TREATMENT OF VALVULAR DISEASE.

The treatment of valvular disease is the same as that of other heart diseases; viz., *first*, the general restraint and precautions to be practised by all in whom there is any evidence of the existence of such disease.

Regurgitant disease must be a more serious affection than obstructive disease, and must almost inevitably lead, sooner or later, to hypertrophy somewhere.

Hypertrophy, indeed, in cases of valvular affection, in one sense, cannot be so much called a disease as a remedy for a disease,—that is, the heart having extra work to perform, nature bestows upon her extra power; the misfortune being, that such extra power can scarcely be attained except at the expense of extra bulk. But, so long as this extra bulky organ does not interfere with surrounding organs, or become tumultuary in its action,

thereby disturbing the general harmony of the system, little, if any, inconvenience will ensue. It therefore becomes of the highest importance that no extra strain be laid upon the heart by excesses, either of muscular movements, of the table, or of other appetites or passions.

Further, the quiet life demands so much less blood circulation than the excited life, that normally incompetent valves may yet scarcely be reckoned as incompetent in relation to the work demanded of them by the individual leading a placid life.

By these observations it is not, of course, meant to be denied that the presence of disease in the heart is a condition, which the supervention of other diseases, such as bronchitis or congestion of the liver, or the accidental occurrence of sudden emotions, may not call into serious, and even fatal prominence.

Allopathic treatment recommends, in cases of excitement, occasional leechings and even bleedings; but as any approach towards an anæmic condition of the blood must be a serious aggravation of the disease, demanding extra work from the heart, and causing palpitations, it follows that all bloodletting, if a substitute can be found, must be strictly forbidden; and it is sufficient to add that Homœopathy, in the use of Aconite, has more than a substitute for bloodletting.

So, also, with reference to emetics, sometimes recommended in derangement of the stomach, Homœopathy, in the use of her numerous medicines, having control over stomach derangements, must surely possess great advantages over the coarse, and even dangerous action of emetics. Although it is not denied that vomiting produced, if possible, by tickling the fauces,

may occasionally be necessary in cases where the individual has grossly overloaded his stomach with food or drink, and immediate relief is demanded.

The mild laxatives recommended by Allopathy do not, at first sight, appear so objectionable; but, as all laxative medicine is followed by reaction, it must be a great advantage if the Homœopathic practitioner can keep the bowels regular by the use of a suitable diet, and his ordinary remedies for constipation, and this he can do in the majority of cases which come under his treatment.

In cases complicated with anæmia, allopathic doses of iron are said to be "imperatively called for;" but can such be given without the danger of producing that congestion of the brain and constipation of the bowels which, under Allopathy, calls for purgation, and perhaps cupping? I believe not; and therefore anæmic palpitations must be controlled by avoiding all over-excitement of mind or body, and the administration of such homœopathic remedies as act on the nervous system, the stomach, the bowels, or the uterus, according to the symptoms present.

Issues and Setons are even recommended, and that even by the mildest of allopathic practitioners.

It is scarcely necessary to enter into the consideration of remedies so gross and barbarous, the application of which can only be followed by that distress and excitement of the system which, of all things, is to be avoided.

The diet to be avoided is, all food likely to cause flatulence, such as fat, new potatoes, bottled beer, soups, or any other thing which the experience of the patient may have discovered to be indigestible.

Attention, more to simplicity and moderation than to monotony and total abstinence, is to be cultivated. Tea and coffee excite the heart through the nervous system, and must be avoided if experience shows them to be prejudicial—yet the moderate use, especially of tea, is on many occasions soothing, refreshing, and salutary.

As climbing stairs labours the action of the heart more than almost any other moderate exercise, a system of pulleys has been recommended to hoist those who have palpitations up to the bed-room floor. Very few houses, however, admit of any such arrangement; and, besides, the nervous excitement accompanying the suspension in the air I should suppose would cause palpitations equally severe. It is better, when the climbing of stairs is severely felt, that the patient should, if possible, either be carried up-stairs, or rather that he should sleep on the first-floor—that is, if the ground-floor is felt to be dull and depressing.

The special homœopathic remedies recommended, are the same as those mentioned under the treatment of hypertrophy, dilatations, palpitations, &c.; and any one practically acquainted with homœopathy well knows the invaluable services rendered in such aggravations of heart disease as bronchitis, pulmonary congestions, head congestions, palpitations, œdemic swellings, constipation, and nervous excitement and palpitation, by the employment of such remedies as Aconite, Bryonia, Arsenicum, Belladonna, Coffea, Digitalis, Ignatia, Pulsatilla, Lycopodium, Nux Vomica, Mercurius, Opium, Phosphorus, Spigelia, Lachesis, and Cobra.

But especially, so far as my experience goes, in the

use of Arsenicum, Phosphorus, Nux Vomica, and more especially still in Cobra and Lachesis.

CYANOSIS.

Cyanosis, (*κναιος*, blue,) or “the blue disease,” may be caused by any anatomical conditions which prevent the blood from being sufficiently oxygenated, as in stricture of the pulmonary artery, or the aorta arising from the right ventricle, or communicating with the pulmonary artery, or ulcerative communication between the right and left ventricle, whereby the arterial and venous blood are mixed in the circulation. The common cause, however, is the fœtal mechanism of the foramen ovale remaining permanently open, and the blood of the general circulation being mixed venous and arterial.

It is said that *post-mortem* examination has been made to reveal open foramen ovale, and yet no blueness was discovered during life. In such cases the foramen ovale was most probably either almost closed or protected in some manner during the contractions of the ventricles. Indeed, it is easy to conceive that, owing to the construction of the ventricles adapted to propel the blood along the aorta and pulmonary artery, very little mixture of blood between the two ventricles might take place.

The symptoms are blueness or darkness of the skin, and especially of the face, tongue, and lips—a tendency to œdema of the feet—dull congestive sensations in the head—a general lethargy of habit—coldness of the surface and of the breath—liability to dyspnœa, especially during mental emotion or over exertion—a tendency to syncope and semi-coma.

Of seventy-one recorded cases, it is said, that the symptoms of only forty were manifest at birth; and the explanation given is, that the patency of the foramen ovale increased with years; or that the blueness did not result until, with advancing years, the circulation, from chronic bronchitis or other causes, became more and more embarrassed.

Cyanotic blood would appear to offer some protection against the growth of tubercle. Of this we shall speak further in treating of phthisis; but, as a disease existing in the adult, and leading to blueness of the skin, it is certainly not often met with, if one may trust to casual observation in *millions* of cases in the streets of London.

The treatment of this disease will consist mainly in the patient's living a quiet life, in keeping the body sufficiently warm by clothing, and in avoiding any overloading of the stomach. But, mainly, where practicable, in the patient living almost entirely in the open air, of a mild climate, whereby the blood may become as much oxygenated as possible.

The liver, head, and lung congestions, which are apt to arise in this disease, must be treated by the appropriate homœopathic remedies, of which it may be sufficient to enumerate—*Bryonia*, *Carbo Vegetabilis*, *Lachesis*, *Nux Vomica*, *Mercurius*, *Opium*, and *Phosphorus*.

RUPTURE OF THE HEART.

Rupture of the Heart and fatal hæmorrhage into the pericardium, is that terrible catastrophe which has occasionally followed softening of the heart, fatty infiltration, aneurismal dilatation, or ulceration.

The left ventricle, as might be presumed, from its

superior force of action, is the part which has furnished most cases of this kind, and such have been chiefly in advanced age, and during fits of passion, or, while lifting heavy weights. A blow has also caused the accident.

Death is usually either instantaneous, or within a very brief period of the accident; but Dr. Walshe narrates the painfully interesting case of a man, aged forty-eight, with hypertrophy of the heart, &c., who was seized with sensations of extensive restlessness and anxiety, cold, clammy sweats—gradually increasing faintness, and dyspnoea and coldness, and ultimately death in thirty-six hours. The post-mortem examination revealed about two ounces of blood in the pericardium, which had escaped from an opening not bigger than to admit an ordinary sized pin. This is a singular case—the smallness of the fissure is singular, and death resulting after the loss of only two ounces of blood is more so. Indeed, the suddenness of death resulting from rupture is not altogether accounted for—as the pericardium being of limited extent the mere loss of blood cannot be the chief cause, the shock to the system must be equally important.

I am not aware that any case is recorded where rupture of the heart has terminated otherwise than in death; although, it does not seem impossible that with perfect quietness, the employment of Aconite internally, and, perhaps ice externally, over the heart to allay excitement of that organ, together with the use of Arnica, might not lead to the fibrinous closing of a small aperture.

The chances of so happy a result would, however, be greater in traumatic rupture or wound, than in rupture from ulcerative or fatty disease.

The sudden rupture of the chordæ tendinæ, papillary muscles, or of a valve of the heart, has occurred during violent passion, or extreme muscular exertion.

The immediate result is pain, palpitations, a tendency to syncope, with coldness, pallor, and deep mental anxiety. Under this circumstance, a patient of Dr. Stokes exclaimed, "my heart has broken." Sudden death has also resulted from the accident. The reason why at one time there is merely an aggravation, it may be, of the previous symptoms of hypertrophy, and at other times, sudden death, must probably come under the category of "accidental." The result is the sudden production of that which, in other cases, is produced gradually, viz., patency of the valve affected, and consequently regurgitant disease. In almost all cases it is the papillary muscles attached to the mitral valve which give way. Atheromatous deposit being often found in the broken papillary muscle.

The sudden appearance of a murmur following the above symptoms should be conclusive proof of the nature of the accident.

The treatment of symptoms as above, would be to place the patient in a comfortable bed, to soothe as much as possible by quieting the mental anxiety, and by gentle frictions over the region of the heart.

Aconite, Lachesis, and Arnica, are the medicines which would be considered.

ANEURISMAL DILATATION OF THE HEART.

Aneurismal dilatation of the heart is an occurrence confined almost entirely to the left ventricle. In some cases it may be regarded in the light of local hyper-

trophy; but it usually arises from a soft and yielding condition of the heart's substance,—being, however, sometimes more properly aneurismal; that is, arising in the first place from ulceration of the endocardium.

It occurs in males chiefly; and the first indication of it is frequently found after violent bodily and mental action.

If the dilatation be small, the signs and symptoms may be unmarked; but if considerable, they will be those of ordinary dilatation.

Death may result suddenly from rupture; but more generally the patient suffers from a gradual wasting, as in ordinary dilatation of the heart.

The treatment is the same as for dilatation; viz., great carefulness and prudence, and the employment of such remedies as have been recommended in exacerbations, viz., palpitations or mental excitement, attention being paid to the condition of the stomach, bowels, and liver.

COAGULA IN THE HEART.

Coagula are sometimes formed within the heart in pneumonia and cholera, but chiefly in endocarditis, and such may cause murmurs, by preventing the closure of the valves.

I believe, however, as I have before observed, that such coagula are frequently the result of depleting measures, and that, under homœopathic treatment, their occurrence must be extremely rare.

DISEASES OF THE AORTÆ.**PULSATING AORTA.**

As we have nervous palpitations of the heart, so also we meet with inorganic abnormal pulsations in the course of the thoracic and abdominal aorta. We occasionally find such in cases of anæmia, hysteria, spinal irritation, ovarian disease, hæmorrhoids, nervous debility, dyspepsia, and flatulence; and also in cases of pressure on the artery, from tumors and enlarged organs; and also in the neighbourhood of inflamed parts.

The sensation is extremely disagreeable to the patient, and may mislead the medical attendant into the belief of the presence of aneurism.

Like nervous palpitations of the heart, it has often a close connection with the action of the sympathetic nerve.

The pulsations may produce sensations of faintness and sickness, and they are visible in the epigastrium and at the umbilicus, synchronous usually with the action of the heart, and usually unaccompanied by any murmur.

The diagnosis from that nervous fluttering, at the epigastrium and elsewhere, so frequent in nervous patients is not difficult; but it may be difficult to distinguish inorganic pulsations of the aorta from aneurismal pulsations; and especially if the aorta be pushed forward by any sub-latent tumor, or if any soft tumor lie on the pulsating artery. We may be assisted by the fact, that aneurism is more common in the male, pulsating aorta in the female; the pulsations

of aneurism are also more heaving in character, while pulsating aorta is more liable to interruptions. There is often, also, an aspect of organic disease in aneurism, and of nervous excitement in pulsating aorta.

Allopathic treatment recommends Assafoetida, Conium, Hyoscyamus, Lettuce, Hydrocyanic Acid, leeches, dry-cupping, Belladonna plaster, and Morphia endemically, &c.

The homœopathist will employ chiefly Aconitum, Aurum, Belladonna, Hyoscyamus, Ignatia, Barytes, Coffea, Nux Vomica, Pulsatilla, and Lachesis.

The diet must also be alluded to ; tea and coffee had better be discontinued for a time, and sponging or the shower bath be put in operation. The sitz bath will also, especially in cases of liver congestion, hæmorrhoids, or uterine irritation, be very useful. The smoking of tobacco must be discontinued.

As this is a disease mainly depending on some derangement in the digestive system, the homœopathist may well anticipate a success more flattering to his system, than the allopathist with his stomach-deranging drops is likely to meet with.

ACUTE AORTITIS.

Acute Aortitis is a form of disease not often met with, but when it occurs is ushered in with rigors and pain in the course of the artery. If lymph be deposited, there will be a murmur produced ; but it must be remembered that a murmur heard in the course of an artery may be by *conduction* from the heart, and it is said such may be heard even as far as to the popliteal artery.

The symptoms of acute aortitis are said to resemble those produced by an animal poison; viz., great fever and restlessness, œdemic swellings, a dusky complexion, and a general cachexia, together with pain in the region of the spine, over the aorta.

Allopathy recommends active general bleeding or cupping in the course of the artery, and blisters, followed by the endemic application of mercury or morphia.

Homœopathy will trust to Aconite, Arsenicum, Cobra, and Lachesis, with hot water fomentations down the spine.

As acute aortitis is a disease which must be of difficult diagnosis, especially in its early stages, which may be simulated by neuralgic affections; it is evident that the heroic practitioner, by over anxiety to follow the routine of the schools, might very easily be led into an activity fatal to his patient.

Chronic Aortitis is a name given to explain that which is sometimes met with in post-mortem examinations; viz., vascularity or fibrous contractions, or roughness of the lining membrane of the aorta, or puckering of the aorta itself.

But no records of the treatment of such a disease during life are given, and it is somewhat singular that so active an inflammatory agency should occasionally be at work without producing symptoms of a correspondingly acute character.

ATHEROMATOUS DEPOSITS IN THE AORTA.

Atheromatous and chalky deposits may take place in the aorta; and although such, of themselves, will produce neither symptoms nor physical signs, unless carried

to the extent of producing constriction of the aorta, which again would be followed by murmur—yet, in relation to the liability to the formation of aneurism, such deposits are deeply important.

CONSTRICTION OF THE AORTA.

Congenital constriction of the arch of the aorta, at the part where it is joined by the ductus arteriosus, has been observed after death in a small number of cases ; and it is a most extraordinary fact that almost total closure of the aorta at this position has existed, and yet produced no appreciable clinical signs. Dr. Stokes, p. 153, narrates an extraordinary case, where, up to the period of a fatal illness, a gentleman enjoyed good health, and yet post-mortem examination revealed a constriction at the aortic valve, so great that it could admit only a small probe.

Cases of this kind are in one sense very encouraging, as they prove how wonderfully nature may accommodate herself to circumstances ; and also that good general health may be enjoyed, notwithstanding an extraordinary amount of heart disease. As quoted by Dr. Walshe, "Of sixteen persons dying with such stricture, two were under ten years of age, eight between ten and forty, five between forty and sixty, and one between sixty and seventy."

But although good health has been enjoyed under such circumstances, and the condition of the lower part of the body and the lower limbs not materially affected, yet rupture, we may suppose, might readily take place at the stricture on violent action of the heart. Excessive pulsation in the carotids—enlarged from the

extra stress put on them—might be anticipated, and a murmur and thrill having their maximum over the seat of the stricture, viz., at the second right cartilage.

Stricture of an inflammatory origin may occur at different parts of the aorta. The aorta in its entire length may be much reduced below its nominal calibre, by any cause diminishing the bulk of the blood circulated, as mitral or aortic valvular constriction ; or as in phthisis and other debilitating diseases.

ANEURISM.

Aneurism (*ανεγγισμω*, to dilate) signifies a local dilatation of the artery, occurring either at one side of the vessel or in its entire circumference. This dilatation may implicate all the coats of the artery, viz., the internal coat, the middle elastic coat, and the external fibrous coat ; or it may be, that a perforation of the inner, or inner and middle coats has occurred, through ulceration, or calcareous or atheromatous weakness, whereby the blood escapes and dilates the external coat by the direct pressure of the blood ; or, indirectly, by successive deposits of coagulated blood in the sac of the aneurism.

Anatomists have given several ambiguous names to characterise aneurisms, according to the form and method of the dilatation, or the coats of the artery implicated ; but, for all practical purposes, aneurism in the thorax is a dilatation of the aorta, which, if it remain small, may furnish neither physical signs nor pathological symptoms ; but which, if it go on enlarging, must ultimately kill the patient, either by its pressure preventing the circulation in the surrounding parts ; or

by the general cachexia produced by continual irritation ; or by rupture of the aneurism itself.

Aneurisms of the arch of the aorta may vary in size from a filbert to a cocoa-nut ; and are usually filled, more or less completely, with laminated coagula.

An aneurism may grow inwards, viz., concentrically ; or outwards, viz., excentrically. Excentric aneurisms are usually the largest, as time is given for their growth. Concentric aneurisms generally in a shorter time terminate fatally by pressure on vital organs.

Aneurism of the arch may cause pressure on, or detrusion of, the trachea, or œsophagus, or of the heart itself ; bulging of the sternum, or of the clavicles, or of the ribs ; pressure on the vena cava, or on the pneumogastric nerve, or on the lungs, or the thoracic duct ; or pressure on the main bronchi.

Physical signs.—There may be very great enlargement of an aneurism without much external bulging, the enlargement being chiefly lateral ; but excentric pressure will cause a gradually increasing local bulging of the chest, which bulging ultimately, if the pressure be great, becomes red and shining. The pulsations of a large aneurism are easily felt and seen ; and, if thick laminæ do not lie between the blood and the finger, externally applied, a wavy sensation will be communicated.

The percussion dullness will be found over the arch in front, and between the shoulders ; but the superficial extent of this dullness is not always a measure of the amount of dilatation, as a large globular aneurism may only touch the chest-walls over a small space.

Dr. Walshe records his having diagnosed, by percussion, an aneurism as small as a walnut ; but this was a suc-

cess much beyond what can be calculated on in the case of tumors so small.

In percussing over aneurism, gentleness and carefulness must be observed.

Auscultation.—The sounds heard over aneurisms are manifold. Generally two sounds are heard, like the two sounds of the heart, viz., synchronous with the propulsion of blood into the sac, and with the exit of a portion of that blood when, from its elasticity, the sac contracts. A rough “hoarse” murmur is heard, if the blood is propelled into the sac with force through an aperture moderate in size, or rough. This murmur will be louder if the heart be hypertrophied or the blood anæmic. On the other hand, if the heart be feeble, and the entrance to the sac smooth, the murmur may be scarcely, if at all, audible; the entrance to the sac may be also temporarily closed, in which case there will be no murmur; or the sac may get so filled with coagula, that no murmur or sound may be heard.

Pressure on a main bronchus may diminish or suppress all respiratory sounds in the lung communicating with that bronchus; and a portion of a lung may collapse, from the obliteration by pressure of its bronchi.

Turgescence of the veins of the face and neck may be caused by pressure on the descending cava, and the brain thus become congested.

Stridulous breathing may also be caused by pressure on the main bronchi, and aphonia has occasionally been produced; but both these symptoms may appear and disappear within twenty-four hours,—a result which could not occur if the symptoms were from cancerous pressure.

Symptoms.—If the aneurismal tumor cause no pain, and do not by pressure interfere with the action of the veins, arteries, thoracic duct, or bronchi, there may be little or no derangement to the general health.

But pressure on the spinal cord or the intercostal nerves, will cause a wearying pain ; while pressure on the vena cava must cause liver and other congestions. Pressure on the bronchi may cause much dyspnœa ; and pressure on the thoracic duct may interfere with the nourishment of the body, and cause emaciation.

In fits of dyspnœa the patient instinctively raises his shoulders, so as to lift the tumor, as it were, from off the trachea or bronchi ; and, as in disease of the heart, this mechanical cause of dyspnœa will cause the sleep to be fitful and restless ; but even during sleep the patient will assume that position most convenient for respiration.

As in heart-disease, the expression is anxious ; and if there be pain from the pressure on any nerves, the temper may be irritable ; and during fits of extreme dyspnœa, the expression is most anxious and imploring.

Dysphagia will exist if there be pressure on the œsophagus ; but the amount of this difficulty will often depend on the amount of irritation it causes, more than on the amount of pressure. “ A slight pressure will produce greater difficulty with some, than even perforation will with others.

Phlegm, white, yellow, or muco-purulent, will be expectorated if there be bronchial pressure.

Phlegm and blood will be brought up from the stomach or the lungs, if there be perforation of the trachea or œsophagus, and blood may pass by the stools.

The cough will be loud and clanging, with or without

expectoration, if there be pressure on the trachea, bronchi, or on the pneumogastric nerve ; while the voice may be coarse and rough ; or aphonia may be produced. The cough is often most severe in the morning ; viz., after the nightly accumulation of phlegm. It may be short, dry, and irritating ; or paroxysmal. Blood may occasionally appear with the cough, either by direct exudation from the aneurism or from congestions of the small vessels. Blood in large quantities may come suddenly with the cough, and may produce syncope, while the aperture may for a time become closed by a clot.

Pain down the back and arms, with tingling in the fingers, will follow pressure on the spine or brachial nerves.

Ulcerative absorption may take place in the vertebræ or in the chest-walls ; and paraplegia has been the result of vertebral injury.

The sensation of dyspnœa is a very general symptom, and is referred by the patient generally to the position below the sternal notch.

In what is called desiccating aneurism, viz., when the inner coat of the artery is suddenly ruptured, blood may be forced out between the inner and outer coats of the artery. Sudden faintness, and perhaps syncope, will result without any visible cause ; but the most unfavorable prognosis would be justified.

The prospects of the unhappy individual afflicted with aneurism are of a character peculiarly solemn. The course the disease naturally takes, is slowly and steadily to expand until rupture finally takes place. But aneurisms may be more or less latent ; that is, from their smallness, or from the direction of their growth, they may not interfere with surrounding organs, so as to

cause any marked inconvenience. Such aneurisms may suddenly expand, from the giving way of one of the coats, and the worst symptoms become suddenly developed.

Death may result from the gradual wasting of the system, from loss of sleep, irritation, and cachexia; or from pericarditis, bronchitis, pneumonia, or gangrene; or from asphyxia,—all the result of pressure; or from rupture of the sac. In twenty-four cases out of twenty-five, rupture, when it takes place, is internally—either into the trachea, œsophagus, or mediastinum.

In rare cases, aneurism has burst into the vena cava, or into the heart itself. Death has also resulted from syncope, without rupture.

Aneurisms, like heart hypertrophy, occur chiefly in robust muscular subjects; and, according to Roketansky, Walshe, and others, those liable to tubercle are only in a small proportion of cases amenable to aneurism. Dr. Stokes, however, says that tubercle is frequently met with in those who die of aneurism.

This partial incompatibility between phthisis and aneurism, may possibly result from a certain antagonism between the causes which lead to these two diseases; but it may be no more than an illustration of the fact that two different organic diseases seldom coexist in one subject. In further explanation appears the fact, that sixty-three per cent. of phthisical cases perish before their thirtieth year, while in aneurism eighty-seven per cent. die above their thirtieth year.

The lifting of heavy weights is not an uncommon cause of the sudden rupture of aneurism; and the lifting of heavy weights, blows on the chest, or violent exertion, has been sometimes supposed to *originate* aortic aneu-

rism by rupturing one of the coats of the artery, or originating local strain and weakness.

The diagnosis of aneurism of the arch of the aorta will be chiefly in the existence of pains in the thorax, and dyspnœa (the heart and the lungs being sound), or a pulsating tumor in the thorax. The pulsation may be scarcely perceptible, or it may be very evident, with or without signs of pressure. Cancer is the most probable cause of thoracic tumor; and cancerous, tubercular, or any other tumor, lying in contact with the heart or aorta will pulsate; abscess in the mediastinum will also pulsate; localized empyema, if near the heart, may pulsate; and, being fluid, may closely resemble aneurism. Abscess of the liver may also pulsate, and the possibility of highly pulsating aorta from functional causes must be remembered; also, that in aortic regurgitation there is a jerking action of the aorta.

But the pulsations of an aneurism will generally, especially if there be laminae, be more distinct and regular than those from collections of fluid; and solid tumors will yield a less putty-like percussion dullness than aneurisms yield.

Further, over aneurisms we may often find the double murmur of the entrance and exit of the blood, synchronous with the heart's action.

The history of the case will also assist in forming an opinion as to the presence or absence of tubercle or cancer; and tubercle, if in the mediastinum, may be also expected at the apex of one or both of the lungs. The difficulty will be great, if, from the smallness of the aneurism and its silence with reference to murmurs, there be no physical signs present; but perhaps only persistent anomalous sensations or symptoms in the

chest,—while aneurisms have burst and instantaneous death has followed, there being no previous suspicion of aneurism.

Hypertrophy of the heart, or fluid in the pericardium, may produce symptoms like aneurism, but will not yield dullness in the position of aneurism of the arch, nor the murmurs of aneurism. Murmur heard with greater clearness between the scapulæ than over the thorax, is probably aneurismal.

A currant-jelly-like expectoration or hæmoptysis accompanying a pulsating tumor, is in all probability a proof of aneurism, especially if no malignant cachexia exist.

It must not be forgotten that, from fibrous or other plugging of the entrance to the aneurism, there may be for a time no pulsation or murmur present.

The comparative latency of some aneurisms, and the anomalous circumstances sometimes attending it, were painfully illustrated ten years ago, in the illness and death of Mr. Liston, the surgeon. This gentleman one morning suddenly brought up about a quart of blood, but in a few days afterwards resumed his usual avocations, and subsequently performed, on horseback and otherwise, some of those athletic exercises for which he was famous; and his death, which followed in a few weeks, was not from a second rupture, but from gradual prostration of strength.

Dr. Stokes, p. 582, gives the wonderful history of a supposed aneurismal tumor, which often bled externally and profusely, and at the end of a year the patient was lost sight of. In two other cases there were, at intervals of several days, successive gushes of blood before the fatal ultimate result.

Aneurism of the innominate artery will occupy a position behind the inner end of the right clavicle; and, being nearer to the surface of the thorax than aneurism of the arch, will generally be recognised earlier.

Aneurism of the descending aorta, if of sufficient size, may be recognised by percussion in the region of the spine, where also the murmur may be heard, and where may be experienced a throbbing, gnawing pain, if the pressure be considerable. Dysphagia also will be present, if there be pressure on the œsophagus.

Hypertrophy of the heart is a condition furnishing physical signs analogous to those of aneurism in this position.

Aneurism of the pulmonary artery has been observed, producing prominence, pulsation, and thrill between the second and third cartilages on the left side; but aneurism of the transverse part of the arch, or hypertrophy of the left auricle, or other tumor in this region, may furnish like signs.

Aneurisms pointing externally are not, as a rule, so quickly fatal as concentric aneurisms, because the vital organs are not so much interfered with; and also because, by careful external pressure, the growth of the aneurism may be to some extent controlled.

An aneurism once formed must always subject the patient to the imminent risk of sudden death; yet, by a very careful and quiet life, and by thus inducing a slow and moderate action of the heart, the fatal day may be long averted.

I well remember, some years ago, watching, with painful interest, a poor man in the University College Hospital, in whom an aneurism of the arch had, by absorption, penetrated through the sternum and ribs,

and pulsated as a shining red tumor, with walls apparently as thin as parchment.

The hourly death of this poor man was looked for, but he lived for months under the above circumstances, and had lived for three years since the first manifestation of the disease. I omitted to ascertain the manner of this man's death, but I believe it was *not* by *external* rupture.

TREATMENT.

The *Treatment* of aneurisms of the thoracic aorta can be only palliative.

Valsalva recommended full and repeated bloodlettings, with starvation; but, although modern medicine has abandoned this method as one from which humanity revolts; and as, in a scientific point of view, useless or worse, yet leechings and occasional bloodlettings are still sometimes recommended. But, surely, the practice of a strict diet and regimen must be infinitely superior to that bloodletting, which is so apt to produce anæmic or nervous palpitations of the heart, besides being inimical to the formation of those fibrinous deposits, by which process mainly can the final rupture of the aneurism be delayed.

The same objections, I think, hold good against the exhibition of those purgatives and diuretics which are also recommended. The treatment of this disease will be much the same as that for dilatation of the heart, viz., great carefulness of life—an abstemious diet, with regular but very quiet exercise, consisting in either slow walking, or very gentle carriage exercise.

A gutta-percha compress might be worn over

excentric aneurism, and gentle, yet firm, pressure from the hand of a friend, will, at all times, afford a sensation of pleasing support.

The stomach must be attended to, and all forcing at stool must be avoided.

Aconite, Bryonia, Nux Vomica, and Lachesis, are the four homœopathic medicines which will be most frequently employed.

Dr. Stokes, writing on the treatment of aneurism, most truly observes (p. 590): "It often happens that a patient who has not been interfered with, will continue with unimpaired health and strength for a great length of time, until he is so unfortunate as to be placed under treatment for the cure of his aneurism. Then the evils which have been pointed out as occurring in cases of indolent diseases of the heart, when injured by ignorant treatment, are induced. The patient's mind becomes excited and apprehensive. His system is weakened by depletion, and his digestive functions ruined by starvation. The forces by which he can resist disease are broken down, his blood becomes uncoagulable, his tissues unresisting; and the disease, which might have endured for years, is turned into a rapid and destructive malady." Again: "It is too evident that, as the lesion cannot be cured, the system should not be tampered with." In these observations, equally, as in very many others which continually occur in the writings of Dr. Stokes, the homœopathist must fully agree; and ardently hope that an equal measure of philosophy with regard to the treatment of all other diseases, may, at no distant day, animate universally the old school of medicine.

ABDOMINAL ANEURISM.

Aneurism of the abdominal Aorta does not come to be considered in treating of diseases of the chest, further than that, by pressure on the diaphragm, it may influence the position of the heart and lungs, and may yield also a percussion dullness in the thorax.

Abdominal aneurism may increase to a great size before attracting attention; as, from the yielding nature of the abdominal organs, little constitutional or sensational symptoms may appear. But the lumbar vertebræ may become more or less absorbed from pressure, and intense pains be the result.

Much erosion, however, has sometimes taken place in the lumbar vertebræ, and yet the patient has suffered so little inconvenience, as to be able to ride on horse-back and take delight in the hunting field. Dr. Stokes gives the history of a case of this kind. Again, the severe pains produced by pressure may sometimes be relieved by the patient altering his position, as by his resting on his hands and knees.

Death is said to result from abdominal aneurism, in an average of from six months to three years.

The Diagnosis will consist in distinguishing it from water in the kidney or enlarged kidney, cancer or tubercle of the mesenteric glands, fibrous tumor, enlarged vertebræ, lumbar abscess, or hard accumulations of fæces—all of which have simulated aneurism, and all produced pulsations synchronous with the heart's action. Also from pulsating aorta, and from the fluttering actions common in nervous dyspepsia or hysteria. Hard accumulation of fæces can usually be distinguished by its knotty form and putty-like consistence;

yet I remember seeing a case, where one of the most acute hospital physicians of the day, after long and laborious examination, diagnosed "pulsating abdominal aneurism"—while the post-mortem examination, which followed after a few days, revealed only an accumulation of hard fæces.

One assistance to the diagnosis of this disease lies in the fact that it seldom, if ever, produces ascites, or even puffiness about the ankles, as occurs from malignant tumors. Those friction sounds, the result of inflammatory or fibrinous exudation, connected with the viscera, are also wanting.

It may be remarked, that tumors in the neighbourhood of large arterics, if the vessel be thereby irritated, will often call forth strong pulsations in the offended artery; and it is here, probably, that an explanation of false diagnosis may sometimes be accounted for.

The obstinate perseverance of lumbar pains, not to be explained by the condition of the kidneys, the presence of piles, or the condition of the uterus, may justify the suspicion of abdominal aneurism.

RECAPITULATION.

With regard to chronic diseases of the heart, it may not be unuseful briefly to remind the physician, and to assure the patient—

1. That sudden death is the exception, not the rule, in heart disease.

2. That as, in habitual dyspeptics, by the careful regimen of the patient, life is usually prolonged beyond the period enjoyed by fast-living, strong men; so in many diseases of the heart, by proper treatment and

regulations, a fair average duration of life may be attained.

3. That loud organic murmurs are often indicative of a smaller amount of danger than excessive weakness of heart, although the former is generally regarded with extreme apprehension, while the latter may often be comparatively disregarded.

4. All irregularity or violence of mental and bodily action, and all severe medical treatment, are alike injurious in diseases of the heart.

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THE LUNGS AND THEIR FUNCTIONS.

THE form of the chest containing the lungs and heart may be regarded as a somewhat flattened cone. The lungs and heart fill this chest accurately. The lungs are suspended by the trachea and bronchi, and by the arterial and venous trunks which proceed to and from the right side of the heart, and they rest on the diaphragm.

The right lung is divided into three lobes, the left lung has only two; the position occupied by the heart to some extent occupying the space of the absent third lobe.

The chest is lined with the pleura, a serous membrane, which covers also the entire free surface of the lungs and the surface of the pericardium. The pleuræ, being smooth and moist, admit of the soft gliding of the organs over each other.

If the lungs weigh forty ounces, the right will weigh about twenty-two and the left eighteen. The lungs of the male are not only actually but relatively larger than those of the female. This may be partly because the female chest is often more compressed than that of the male; but I believe the female has naturally less lung action; and that, on the other hand, her liver will be found to be relatively larger than that of the male (see my paper on the "Liver, the Hydrogenitor in Animals," *London Journal of Medicine*, 1851).

The substance of the lungs is composed of the

innumerable subdivisions of the bronchi and of the pulmonary artery and vein, together with its own air-cells and intermixed cellular tissue.

The bronchia divide and subdivide, but do not anastomose. Rings of involuntary muscular tissue surround the bronchi and bronchia, contracting and dilating with the expiration and inspiration of the lungs, but this muscular tissue does not exist in the ultimate bronchia. The larger are kept open by cartilaginous rings; these rings break up, as it were, becoming fewer and fewer as the tubes diminish in size; and when the bronchia become very minute, no cartilages exist. The ultimate divisions of the bronchia are about the $\frac{1}{30}$ of an inch in diameter, and are surrounded by, and terminate in clusters of the true air-cells of the lungs.

The air cells are, like the ultimate bronchia, lined with squamous epithelium, and supported by fibres of elastic tissue; they are from the $\frac{1}{70}$ to $\frac{1}{200}$ of an inch in diameter; but in asthma and often in old age they are much larger. They are composed of very fine thin membrane, closely covered over by a net-work of capillaries, viz., from the subdivision of the pulmonary artery and vein. These air-cells, if spread over a surface, would occupy a space about the extent of the floor of a moderate-sized room, viz., about twelve feet square, and must be about *one hundred millions in number*.

The bronchia are nourished by arteries of their own, which also secrete the mucus of the bronchial tubes.

The lungs are also furnished with lymphatic vessels and glands, especially in connection with the large bronchia, which glands are prone to become the seat of calcareous and carbonaceous deposits.

The nerves of the lungs are from the anterior and

posterior pulmonary plexuses of the pneumogastric, joined by others from the sympathetic and fine nerves, follow the air tubes as far as the air-cells.

At birth, the lungs are of a fine light pink colour ; but, as age advances, they become of a dark grey, from the deposit of carbon in the intercellular tissue. The grand function of the lungs is to bring the venous blood into contact with the atmospheric air. When this is done, the purple blood sent to the air cells from the right side of the heart by the pulmonary artery, is immediately converted into bright red blood, which returns by the pulmonary vein to the left side of the heart, and is from thence sent all over the body.

Atmospheric air is composed virtually of seventy-nine parts nitrogen and twenty-one parts oxygen, by measure. When this is breathed, it will be found that a certain amount of oxygen disappears, and a certain amount of carbonic acid gas is expired in its place.

It would appear, from quantitative calculations, that the province of the oxygen chemically is more to take up the effete carbon presented to it by the venous blood of the lungs, than itself to unite with other compounds, and pass into the circulation. Still oxygen must act positively on the iron, that is, on the red globules, in the blood ; and it is impossible not to believe that it has, beyond its depurating effect, by its action on effete carbon also a positive and *vital* action on the arterial blood itself.

It is generally believed that the nitrogen of the air has only the negative property of diluting the oxygen ; and this is the more believed, as frequently there is no diminution in the amount of nitrogen in *expired* air ; but sometimes there is a diminution ; and, for myself, I cannot believe in the merely negative action of so

important an element as the nitrogen in the air we breathe.

By an ordinary respiration, the lungs take in about twenty cubic inches of air. In easy breathing, we inspire and expire about fifteen times in a minute; in disease and in hysteria the respiration may fall to eight in a minute, and may be as many as eighty in a minute. We therefore inhale 300 cubic inches of air in a minute, or about 432,000 cubic inches a day; that is, about 1500 gallons of air in twenty-four hours.

About sixteen ounces of watery fluid are given out by the lungs in twenty-four hours.

In the respiration of an ordinary individual, about 40,000 cubic inches of oxygen disappear; and a like quantity of carbonic acid gas is thrown out in twenty-four hours; that is, about nine ounces of solid carbon is expired by each individual daily.

Atmospheric air contains only about 3 parts in 10,000 of carbonic acid gas; and as the presence of a very small increase of this gas in the air of a chamber is sufficient to render that room unwholesome, and as an individual expires about a cubic foot of carbonic acid gas in an hour, it follows that, without sufficient ventilation, an ordinary sized chamber must very soon become an unwholesome and even a dangerous residence.

Pure air is the very life of the blood, and more disease is induced by bad air than by any other known cause; and, as I pointed out in a paper on the "Ventilation of Dwellings," in the 'Transactions of the Social Science Association,' vol. 1857, it is quite as much the duty of the State to see that buildings are properly constructed in reference to ventilation, as to compel builders to construct water-closets and house-drains.

The heat of the body, that is, the heat of the blood, is from 96° to 98° . It is only one degree higher in the tropics than in temperate climates. In cyanosis it has been known as low as 78° , and in fevers as high as 105° . It is believed that the heat of the blood is caused by the chemical union of the oxygen of the air with the carbon and iron of the blood.

There can be no doubt that heat is evolved under this chemical action ; but every action in the body, and every mechanical, chemical, vital, and mental change must be productive of a change in the temperature of the *living* body. Dr. Wilkinson pithily observes, " Take the *soul* out of the body, and you may indeed roast it or boil it, but you cannot warm it with one ray of *animal heat*."

The air expelled from the lungs is usually more or less hot. It is hotter in the young and vigorous, and in fever, than in the old or lethargic, and may be nearly cold in cyanosis, and quite cold in cholera. In health the breath should be odourless ; but as it contains ammoniacal excretions, it becomes putrid if retained, and hence adds to the offensive odour of a bed-room ill ventilated.

In saccharine diabetes, the breath has a mawkish, sweet odour. In other kidney disease it may be urinous. In phthisis it has a sickly odour ; and in dyspepsia it is sour or foetid.

Physiologists teach that the act of inspiration is caused by the depression of the diaphragm, and by the muscles of the thorax elevating the walls of the chest, by which a vacuum is caused, which the air rushes in to supply ; and that expiration is caused by the collapsing again of the walls of the chest, and the elevation of the dia-

phragm, whereby the air is expelled from the chest; which last act, it is admitted, is *aided* by the contraction of the muscular tissue of the bronchia.

I confess that it appears to me that this explanation is quite fallacious, and I believe that the *entire* acts of inspiration and expiration are caused by the lungs themselves.

It is admitted that the act of expiration is partly caused by the contraction of the muscular tissue of the bronchia. Now that tissue is an involuntary muscular tissue, and the act of respiration proceeds day and night as regularly as the actions of the heart.

When the muscular tissue of the bronchia contracts, the air contained in the bronchia must be expelled; and when that tissue is relaxed, or, more properly speaking, when it becomes dilated, there must occur a vacuum, and the air must, by an absolute necessity, rush in to supply that vacuum.

If any one will watch the action of respiration in his own person he may convince himself that the muscles of the thorax are not those which *cause* the expansion and contraction during inspiration and expiration, but that the walls of the chest rise and fall entirely owing to the internal forces operative in the lungs themselves; and it is only in forced inspiration, when the individual forces up his shoulders and endeavours to expand his chest, that the muscles of the thorax supplement the action of those of the lungs.

In treating of the circulation of the blood, I endeavoured to show the fallacy of the doctrine that the contractive power of the left ventricle is sufficient to complete the circulation, without the aid of the *suction* power of the heart; and it appears to me to be as sin-

gular a fallacy to suppose that the lungs themselves have not sufficient power to carry on their own special function, viz., to aerate the blood by their incessant action, day and night, of alternately expanding and contracting.

When we consider the extraordinary refinement of texture, the thinness of the cell-walls, the broad exposure of the capillary system, and the wonderful functional powers of the lungs, we cannot be surprised that in a changeable climate like that of Great Britain, diseases of these organs should be so frequent and so fatal. On the other hand, how much must we not admire that wonderful conservative power of nature, which can enable the masses, especially in our great manufacturing towns, to enjoy a tolerable measure of health, surrounded as they generally are by, and breathing as they do—that is, subjecting the brain and blood to the influence of—so much that is impure and contrary to man's mental and bodily welfare.

THE PHYSICAL EXAMINATION OF THE LUNGS IN HEALTH AND DISEASE.

By the term *physical* examination of the lungs, is meant that examination of the chest by the hand, the eye, and the ear, by which the physician is enabled to ascertain the physical condition of the lungs in health and disease.

From the days of Hippocrates downwards, physicians had a certain amount of loose knowledge of both auscultation and percussion. They knew, for instance, that tympanitic percussion sound over the abdomen indicated flatulence, and that fractured bones, on being

moved, furnished crepitation. They were also in the habit of feeling and listening to the force of the heart's action; and Hippocrates mentions that "a sound resembling boiling vinegar could be heard if the chest contained water,"—probably the bubbling crepitation of bronchitis. But since the works of Avenbrugger and Laennec were first published, the art of auscultation and percussion has become more exact, and to these men, physicians of the present day are almost entirely indebted for all that is valuable in the art itself.

Percussion (*percutio*, to strike), as a means of diagnosis in diseases of the chest, was first systematised by Dr. Avenbrugger, and given to Vienna, after eight years' labour, in 1761. It was, however, neglected by physicians until introduced into Paris, by Corvisart, in 1808.

Auscultation (*ausculto*, to listen,) was first systematised by Dr. Laennec, and given to the medical world of Paris in the year 1815. This celebrated man, whose work is the basis of almost all works on diseases of the chest which have since appeared, was born in 1781, and died in 1816, of consumption.

By auscultation and percussion, the physical condition of the lungs and heart can generally be ascertained with the utmost exactness, and thus, in many ambiguous cases, not only is the aid thus obtained as a guide to right medical treatment most important, but knowledge is often obtained, which, leading to the altered conduct and circumstances of the individual concerned, may be of more value than even life itself.

The general symptoms of a disease must generally be of more value than the physical signs, and yet,

without a knowledge of auscultation and percussion, symptoms may, and often do, mislead into fatal error.

For instance, all physicians must have met with cases where medical men, mistaking organic palpitations of the heart for mere nervous affection, have recommended wine, beef-steaks, and vigorous exercise, to the imminent risk of the patient's life. Again, in many cases, long-continued cough, with expectoration, and, it may be, wasting and hectic, has been set down as consumption, and the patient banished to a foreign land, while all the time not a trace of tubercle existed in the lungs.

On the other hand, there is certainly a danger of falling into one-sidedness and pedantry on the part of those whose minds, dwelling it may be, too exclusively on physical signs and pathological anatomy, are apt not only to under-estimate the value of general symptoms, and the constitution and individuality of the patient, but the value of medical treatment altogether.

Were the science of medicine as exact and certain as that of auscultation, it would, indeed, be an easy thing to heal all manner of diseases. But, inasmuch as most diseases are either directly or indirectly brought upon man by his evil deeds, it would be but a doubtful boon to humanity, were the science of healing, *from without*, to become absolute and unconditional.

The principles involved in auscultation and percussion are purely mechanical.

Percussion over confined air, as over the intestines, will yield the most acriform or elastic sound, percussion over confined water, as over the bladder, will yield the densist sound; and so percussion, over good

lungs, will yield a clear sound—that over consolidated lungs, will yield a dull sound.

So also the heart and lungs, when healthy, yield to auscultation certain pure sounds; but, when these organs become the seat of disease, the sounds are either abnormally weak or loud—impure, muffled or coarse, &c.

In order to afford facilities of description, the chest has been divided into certain somewhat arbitrary regions, for a delineation of which, and the normal position of the contained organs, I refer the reader to the diagram and description at the beginning of this volume.

INSPECTION OF THE CHEST.

Although Lacunec was inclined to regard the facts gathered from inspecting the chest as of little value, yet more recent writers on physical diagnosis regard the operation of inspection as of considerable value. When an individual desires a thorough examination of the chest, it is certainly advisable that an inspection should be made of the figure nude to the waist, because, although auscultation and percussion can be performed often with sufficient accuracy through a flannel or a cotton shirt, yet, when minute differences in the form and moving power at different parts of the chest require to be ascertained, this can only be done with exactness when the naked thorax is exposed. There are, however, many cases which do not call for so minute an inspection.

Inspection.—The patient being quietly seated, we ascertain whether the chest is large or small, fully developed or contracted, symmetrical on both sides, or otherwise. Whether the body is emaciated or not,

and whether there exist any local bulgings or depressions of a suspicious characters; also, whether the chest expand freely and symmetrically on full inspiration; and lastly, information is to be obtained from the colour, texture, and condition of the skin.

The perfectly formed chest is rarely seen among civilised nations, except in marble, the controlling influences of dress, occupation, or habits, causing more or less deviation from perfect symmetry. But in relation to actual disease, beyond such violent distortions as result from the scrofulous deformities of the spine, sternum, or ribs, what has chiefly to be observed is the presence or absence of abnormal local bulgings or local depressions.

Bulgings may arise from fatty deposit, from abnormal muscular development, from fibrous, cancerous or tubercular tumours, from abscesses in the mediastinum, or elsewhere, from enlargement of the heart, spleen, or liver, from fluid in the pericardium, or in the pleural cavities, from emphysema of the skin or of the lungs, from air in the pleural cavity, or from aneurism of the aorta, &c.

Depression may be local or general. In excessively thin individuals there is usually much depression below the clavicles, or, if the clavicles are more than usually arched, the depressions are often very deep. The evil habit of stooping may carry general depression of the chest to the extent of deformity. One lung may be compressed by pneumothorax, or pleuritic effusion may cause it to be bound down by fibrous bands, or cause local contractions—pneumonia may render the lung in part permanently impervious to air, in which case there will be a corresponding depression—pressure

on a main bronchus, by diminishing or preventing the entrance of air, will be followed by depression. Cancerous deposit will cause contractions and depressions; but the great pathological cause of local depression is the presence of tubercle in the lungs, and that especially in the sub-clavicular regions. If one lung be much depressed the chest-walls, by falling in, must more or less distort the spinal column and the sternum, and also the clavicle, the shoulder, and the ribs of the healthy side.

The amount of general expansion of the chest, on full inspiration, is no infallible test of the presence or absence of disease. An individual of a nervous, sanguine, or energetic temperament, will generally be able to expand his lungs much more than an individual of a lymphatic temperament, and yet, in the first case, there may be tubercles in the lungs, and none in the second instance.

Many individuals appear scarcely capable of expanding their chests, while others have great power. The average difference of circular measurement between full inspiration and full expiration, is about one and a half inches; but some can expand their chest to three or four inches above the minimum measurement.

In calm breathing the movements of the diaphragm, and consequently of the abdomen, are more marked than those of the upper part of the chest, but this observation refers to males more than to females, in whom the thoracic breathing is, under all circumstances, more marked, the "heaving of the female bosom" being a proverbial expression. The reason for this difference is not fully explained on any mechanical principles. This, at least, is certain, that the lower

part of the female chest is often confined by stays, while the ribs and sternum of man are stronger, and therefore more unyieldingly fixed than those of woman. Still the difference exists to some extent between male and female children who have never worn stays. Further, according to Boerhaave and Haller, nature may have made some provision against abdominal breathing in women, as the existence of pregnancy would be too considerable a hindrance to its freedom.

In forced breathing the chest-movements in the male and female are much alike in mechanism; the chest-movements in both much predominating over the abdominal.

The expansion of the chest will be interfered with, if there be any pleuritic or intercostal pain of an inflammatory or neuralgic origin, checking full inspiration, and in such cases, the respiration will be chiefly abdominal. Or, if the lung be inelastic, from the effects of former pleurisy, pneumonia, or foreign deposit; or, if the bronchial passages be impeded by mechanical or by spasmodic stricture.

On the other hand, in hysteria, or in the forced inspiration of the asthmatic, the expansile heaving may be very great.

In calm normal breathing, if we assume for the sake of illustration, that the entire act occupies a period equal to eleven, then inspiration will occupy a period equal to about six, the turning point one, and expiration four.

But this rhythm is altered in different diseases; in asthma the inspiration is much prolonged, and in emphysema the expiration is impeded and prolonged.

If any cause impede the free respiration of one

lung the movement of the other lung will most likely be exaggerated.

In the event of pleuritic or intercostal pains the breathing will be chiefly abdominal; on the other hand, when pains exist in the diaphragm or intestines the breathing will be chiefly confined to the upper part of the chest.

THE APPLICATION OF THE HAND.

By the application of the hand to the walls of the chest—or rather by gently yet firmly applying the pulpy ends of the fingers—the expansile power, as distinct from the mere elevating power of the subjacent lung, may be in a measure judged of. Also when the individual experimented on speaks, what is called the *vocal vibration* or *fremitus* is perceived. In dry pleuritic effusion, what is called *friction* fremitus, accompanies the movements of respiration, from the rough surface of the costal and pulmonary pleura rubbing over each other.

The intensity of vocal vibration will be in proportion to the firmness, graveness, and force of the voice, existing but little in children or in voices of a high pitch. It is felt much more strongly in the thin than in those thickly clothed with muscular tissue or fat, and is often not to be found at all. Vocal fremitus being caused by the vibration of the bronchial tubes, it follows that it is most prominent over the upper and middle part of the chest, in the region of the main bronchi.

Enlargement of a bronchus will yield an increase of vibration over the seat of the enlargement, and any tumor communicating with a bronchus and thus

bringing that bronchus virtually to the surface, will be followed by abnormally increased vibration. Hence also tubercular, cancerous, or pneumonic consolidation furnish abnormally developed vibrations. But the amount of cancerous or other consolidation may be so great as to fail to respond to the vibrations of the bronchus communicating with it. If the lungs be separated partially or entirely from the chest walls by water or air the vibration is weakened or destroyed.

The right bronchus being larger than the left, is accompanied by proportionately stronger vibration.

Bronchitic rhonchi may cause vibrations of the bronchi, extending to the walls of the chest.

MENSURATION OF THE CHEST.

Mensuration of the chest by means of callipers or a tape is a method a good deal employed by some physicians, in order to ascertain the amount of expansile power and the different size of each side of the chest.

It has always appeared to me that the educated eye and hand are, however, not only better means of judging, but that they are actually much more *exact* means of measuring the normal and abnormal developments of the chest, while the general play of the chest can be judged of by the eye much better than by any other instrument. By a tape the difference of the circumference of a chest, after full expiration and full inspiration, can be easily measured, but this measurement will afford no *certain* evidence of the condition of the lungs, the expansile power of which will often

depend on the flexible condition of the ribs and muscles, and especially on the energy of the individual. The bulgings from tumors, emphysema, aneurisms, &c., are much easier to measure by the eye and hand than by tape, and, in short, he who practises the eye and hand, and relies upon tact, penetration, and judgment, can, with much profit, dispense with many *minute* contrivances offered in aid of diagnosis.

To the eye, the right side of the chest, in *right-handed men* especially, is larger than the left. The right lung is itself somewhat larger than the left, and the right bronchus is therefore also larger than the left, and thus the respiratory movements are on the right side somewhat greater than on the left side.

The spirometer is an instrument invented by Dr. Hutchinson, which measures the number of cubic inches of air which, after a full inspiration, an individual can expire without drawing extra breath.

Like the power of expanding the chest, the amount of air expired will depend, of course, on the size of the individual, and of his chest; but it will also depend more on the energy, determination, and endurance of the individual. The instrument cannot, therefore, be regarded as any trustworthy means of measuring the amount of pulmonary disease, and, of course, has no power of indicating the nature of that disease which may be present.

By the daily practice of full inspiration and expiration, together with the practice of such gymnastic exercises as expand the chest, any individual whose lungs are not actually diseased, may increase his respiratory powers, on the same principle that he may increase the size and power of his arms by the use of

arm-gymnastics. Such gymnastic exercises as expand the chest walls, especially if accompanied by the daily periodical practice of full inspiration and expiration, habitually followed night and morning for years, must, as an exercise for the lungs, be a preventive of debilitating, and, I believe, to a considerable extent, of tubercular disease. Reading aloud, free and bold declamation, and singing, and loud laughter, must also be very salutary practices. The practice ladies have of walking with the arms crossed must tend to contract the chest, while the free swinging of the arms must expand the chest.

The round backs and hollow chests of the indolent, the weak, and the sedentary, must naturally interfere with the free oxydation of the blood; and so also I believe do, not only *tight* cravats, but the modern practice of the male throat being covered by shirt collars, cravats, and coat collars.

A cricketer, or any man wishing freedom of action or ease, if not under the constraint of society, removes his shirt collar and cravat, and surely that which is free and comfortable must be in relation to health that which is good and right. It has always appeared to me that the cravat and collar question was one which demanded more consideration than it has received either from the public or the physician. Many men have told me that they had become less liable to sore throat the less they over-clothed their throats, and why the tender female should have a free throat while the muscular man has his throat incased in coat collars, shirt collars, and cravats, common sense and physiological laws would find some difficulty in answering.

Freedom of respiration is, in health, aided by exer-

cises, especially sweating exercises ; and in many diseases by sweating, viz., skin expiration, produced artificially, as by the hot-air bath.

PERCUSSION.

By *percussion*, a knowledge of the elasticity, or resonance, or the reverse of the subjacent tissue, is to be obtained.

This resonance is in direct relation to the aeriform nature of the organ percussed.

If the bowels inflated with air be percussed, the sound elicited is tympanitic. If the healthy lungs be percussed, the sound elicited is sonorous and clear ; if the region over the heart be percussed, the sound elicited is dull and solid ; if the chest filled with water be percussed, the sound obtained is a dead sound.

And thus, if we percuss over tubercular or other deposit, sounds, more or less dull, are obtained in direct relation, *cæteris paribus*, to the solidity and bulk of the deposit.

Percussion of the chest may be performed either immediately or mediately.

Immediate percussion is performed by striking the surface of the chest with the tips of the fingers, and Avenbrugger followed this method.

Mediate percussion, introduced by M. Piorry, is, however, now almost exclusively employed ; *first*, because the shock and pain are less to the patient ; *second*, because we can strike with more precision, and reach the part percussed more intimately.

Some physicians, especially on the Continent, employ a piece of ivory, called a *pleximeter* (a foolish word, lite-

rally a measurer of percussion), as a medium on which to strike, and as a striker employ a little hammer with a vulcanised india-rubber point; but all extra instruments used in manipulatory medicine, if not necessary, must be worse than useless, tending, as they do, to weaken general precision and expertness,—the good workman being known not by the number of his tools, but by the good use he makes of those he has.

For percussion, no tools are equal to the fingers of the right and left hands.

The middle finger of the left hand is the best medium to strike on, and should be placed closely and firmly on the place to be percussed.

As a striker, the first two or three fingers of the right hand should be held closely together, with the tips on the same plane; and more freedom of striking is obtained, I think, if the thumb and little finger be kept loosely apart.

For percussion, I repeat, no instruments are equal to the human hands; for by them not only can the sounds be elicited most naturally, but by the intimate *handling* of the patient truer and closer knowledge is obtained than that to be felt second-hand, through pieces of wood or ivory.

Light and localised percussion, by the middle finger of the right hand only, may be useful in eliciting slight superficial sounds; and, on the other hand, when broad general percussion-sounds only are wanted, it may be sufficient to place the palmer surface of the left hand on the chest, and to *palpate* with the palmer surfaces of the fingers of the right hand.

In percussing, the blow should be given from the wrist, and not from the elbow or the shoulder; and,

simple as the process may appear, yet *dexterity and precision* in this, as in all other manipulations, is an art only to be obtained by practice, and is by many apparently unattainable.

By gentle percussion, the superficial condition of the lungs may be obtained ; by strong percussion is to be obtained the more deeply-seated conditions. Both light and strong percussion are generally advisable in the same case. If the individual percussed be very fat or very muscular, gentle percussion will not generally elicit any useful information ; and indeed, if the individual be exceedingly fat or muscular, even strong percussion has often considerable difficulty in eliciting the information required.

The patient, when under examination by percussion, should, unless confined to bed, sit on a chair. When the front of the chest is being examined the arms should be drawn slightly back, so as to relieve the chest of flabbiness ; and when the back is being percussed, the patient, by slightly stooping forwards, renders the back smooth. The patient must sit with the shoulders on the same level, otherwise an appearance of want of symmetry is given to the chest ; and if the muscles over one part be in a state of greater tension than over another, a slight modification of percussion-sound will be produced.

When it is necessary to compare the percussion-sound of one side minutely with that of the other side, the operator must be sure that he percusses not only with equal force, and in the same corresponding place, but with the pleximeter finger applied at the same angle ; for instance, he should not lay the finger across the ribs at one part, and parallel with the ribs on the other.

There is one other observation which it is necessary to make, viz., that in acute disease, where there is debility, it is important to remember that no further percussion should be used than is necessary. I am much inclined to believe that I have often seen serious mischief result to the patient from over-percussion by the physicians and pupils at our public hospitals.

The texture of the true substance of the lungs is the same throughout; but percussion yields very different sounds, according to the region percussed.

Such portions of the lungs as are in juxta-position with the heart, liver, diaphragm, spleen, and with the stomach when filled with food, will yield a sound modified by the proximity of such solid parts. Percussion also over the chest, for instance below the clavicles, will be very clear, as compared with percussion through the thick muscles over the supra-scapular regions, or over the spinal regions. Percussion, again, in the region of the large bronchi, or near the stomach, when filled with air, will yield sounds proportionally clear.

In the diagram at the beginning of this book, the reader will observe the relative position and extent of surface presented by the different organs, and be able to judge better than by written descriptions of their modifying influences.

When the lungs overlap solid organs, light percussion will yield clear sounds, while strong percussion will yield sounds modified by the subjacent solid organ, *e. g.*, as over the heart and the liver.

The extra thickness of the right pectoral muscle, in muscular right-handed men, will cause an increase of dulness in the percussion-sound of that region.

Full inspiration will increase the amount and extent

of clearness on percussion. First, by increasing in the lungs the proportion of air in relation to the solids ; second, by depressing the diaphragm and liver, and overlapping the heart by the expansion of the lungs ; and therefore, in percussing, where much minuteness is necessary, both sides must be tested when, as much as possible, the same amount of air is present in the lungs. This is most readily secured after a full inspiration, when the patient should be directed to hold his breath until the percussion-sounds of both sides are compared.

Percussion-sounds are clear, *cæteris paribus*, in proportion to the youthfulness and thinness of the patient, but unusual clearness or unusual dulness is often met with in healthy subjects, it being often difficult to give a satisfactory reason for the difference. It may sometimes be, that the cellular tissue predominates naturally over the vascular, and, in other cases, the vascular over the cellular. If so, the first will yield abnormally clear sounds ; the second abnormally dull sounds. This is a suggestion which I throw out, and which seems to have some confirmation, from the fact of the vascular system increasing with age, while clearness of resonance is usually in the direct ratio of youthfulness.

The more solid the organ percussed, the greater is the sense of resistance on percussion ; hence, clear percussion sound obtained by percussing gently over a tumor, which communicates with a large bronchus, although, perhaps, tympanitic in sound, will be resistant in sensation.

Abnormal dulness on percussion may arise from the

following causes:—Tubercular, cancerous, or fibrinous deposit or tumors—congestion, pneumonic induration, serous infiltration, or chronic consolidation—abscess, gangrene, hydrothorax, hæmothorax, pleuritic effusion, empyema, muco-purulent accumulations in the bronchi, enlargement of the heart, aneurism, enlarged bronchial glands, and also from any other mechanical or spasmodic cause, hindering the full inflation of the lungs.

Abnormal clearness on percussion, under the name of tubular, *amphoric* or large tubular, or tympanitic percussion, may arise from pneumothorax, emphysema, a dry cavity filled with air, dilated bronchi; and, possibly, when owing to pleuritic effusion occupying the lower part of the lung the upper part is, in compensation, more fully inflated; also in one lung, in compensation, if the other lung has been temporarily or permanently rendered incompetent, or, if tumors or solid deposit communicating with a *large bronchus*, bring that as it were to the surface of the chest.

One form of hollow percussion sound has been called the “cracked metal” sound. It resembles the sound produced when the clasped hands are struck on the knee, whereby the air contained between the palms is suddenly expelled.

In the lungs, this sound is produced when the air by percussion is driven suddenly out of a cavity.

Dr. Walshe has shown that it is not produced if the mouth and nose of the patient be closed during the percussion.

A sound analogous to it is sometimes produced, especially in children having bronchitis, probably,

because from the elasticity of their chest-walls, the incarcerated air of the larger bronchi is, by percussion, readily and rapidly driven out.

If the dull percussion sound arise from the presence of fluid, the region of dulness may often be altered, on the patient assuming another position, the fluid gravitating accordingly; but the fluid may be so great, that no alteration can take place in its position, or it may be incarcerated locally by pleuritic adhesions. If tumors be moveable—a rare occurrence in thoracic tumors—the position of the dulness will also be moveable.

If tubercle be thinly scattered say over the upper part of a lung, full inspiration by expanding the lung will theoretically separate the tubercles, and yield percussion sounds less dull than after full expiration, when the tubercles are more closely packed; but as full inspiration itself, independent of the presence of tubercles, causes increased clearness on percussion, the value of this test must be difficult to define.

Emphysema should be more easily detected on full expiration, the emphysematous condition being thereby, as it were, exaggerated in relation to the other parts of the lung.

AUSCULTATION.

Auscultation (αυσκulto, to listen), with reference to the chest, is the act of listening to the sounds produced by the action of the heart and lungs in health and disease.

Auscultation may be performed *immediately* by applying the ear to the chest, or *mediately* by the use of the *stethoscope* (στεθος, the chest; σκοπεω, to examine).

By immediate auscultation it appears to me that the

natural sounds of the chest are heard not only easier, but with more truthfulness, as they come direct to the ear, and are not modified in character by the interposition of a piece of inanimate wood. But as in auscultation it is often necessary to ascertain the *minute* differences existing often in circumscribed parts which the unassisted ear has difficulty in reaching—as at the region immediately below the clavicles—it is only by the stethoscope that this can be done with exactness; further, it must sometimes be inconvenient or unpleasant to both parties to apply the naked ear to the chest.

The stethoscope should be a hollow cylinder of wood, from five to seven inches long, with one end made to fit the ear closely and comfortably, the other end made to rest on the chest closely and comfortably, and beyond this it appears to me that all learned dissertations on the true form of the stethoscope are pedantic and useless. Practically, I have not been able to distinguish any difference in the sound-transmitting powers of the various forms of this instrument; and when I find that with any ordinary stethoscope I can detect sound if the distal end be merely touched with the end of a fine human hair, it seems to me that for all practical purposes this must be more than sufficient. It is often well to listen both with and without the stethoscope in the same case.

In performing careful auscultation, it is necessary:

1. That the chest should be bare, or if this is inconvenient, then it should be covered by a thin shirt only, or a towel.
2. The stethoscope must be applied firmly, closely, and accurately but not heavily to the chest.
3. The ear-piece must be accurately applied to

the ear. 4. All friction from the clothes, &c., of the patient, and the hair and hands of the operator, must be guarded against. 5. The patient should be placed in a position most comfortable to himself and convenient to the operator. The sitting position is usually the best, the arms and muscles of both sides being kept arranged symmetrically and in complete repose. When examining the front of the chest, the arms should be crossed in front. When examining the lateral regions, the hands should be crossed over the head. The auscultator must place himself in an easy position, and avoid stooping with his head as much as possible. The kneeling position, one or both knees on a hassock, will often be found convenient. 6. The sounds produced by ordinary breathing and forced breathing should both be listened to. 7. Be careful not to mistake sounds produced by external frictions, or sounds produced by the muscles, or in the throat, nose, or stomach of the patient for the pulmonary sounds. 8. It will often be found necessary to listen again and again, and for a considerable time, before the truth is arrived at, and this especially with females, or with the nervous, or where there is spasmodic disease. 9. In many cases it may not be necessary, but it is generally advisable, and in doubtful cases it is necessary, that all the regions of the chest should be examined. 10. Neither in chronic nor in acute cases is it generally necessary to make a *minute* examination each visit, unless the changes in the general symptoms are such as to call for this examination.

The sounds produced by ordinary respiration during health are caused by the passage of the air through the larynx, the trachea, the bronchial tubes, and finally into

the ultimate cells. These sounds will vary according to the size of the passages, but during health it is with the sounds produced in the ultimate bronchial tubes and the air-cells that we have to treat of.

The sound produced by ordinary respiration in health is called sighing, or breezy, and resembles the gentle sighing of the wind in a forest of trees. But I may observe, as this sighing sound in a forest of *pin*es is different from that produced in a forest of *bee*ches, so in different individuals there are often modifications in the clearness, sharpness, and softness of the respiration sounds.

These variations, like the variations in the pitch and quality of the voice, are manifold, depending probably on the size and degree of tonicity of the ultimate texture of the lungs.

The respiration sounds are caused by air passing through the ultimate bronchiæ, and into and out of the air-cells, and probably also by the *expansion* of the cells in *inspiration*. They are divided into those of inspiration and expiration. The sounds of inspiration are normally more prolonged and more audible than those of expiration, indeed, the sounds of expiration are often nearly inaudible. In certain diseased conditions of the lungs, to be treated of afterwards, as in incipient tubercle, the passage of the air out of the minute bronchia would seem to be hindered, rendering sounds of expiration prolonged. The same occurs in old age from the inelastic nature of the lung tissue.

In children the respiratory murmurs are more sharp and clear than in adults, partly owing, probably, to the more perfect texture, and higher vibratory quality of the lung tissues, but also, I think, to the act being per-

formed with more rapidity, abruptness, and completeness, and because, as Laennec observes, children breathe with more fulness, requiring, as they do, more oxygen than adults. The sounds produced by women generally, but especially by nervous or hysterical women, resembles or surpasses infantile breathing in sharpness. Those of the sanguine temperament generally give clearer sounds than the lethargic, and as a rule clearness of sound decreases with advancing years.

The sounds are obscured more or less in proportion to the thickness of the fat and muscle covering the chest.

As in percussion some healthy chests are unusually dull, and others unusually clear; so in auscultation, the respiratory murmurs of some, especially nervous, individuals, are clear and sharp, and even puerile, and that to old age; while in others, and these may be strong individuals, the respiratory murmurs are, even on full inspiration—in some cases only occasionally, in other cases habitually—nearly inaudible.

This weakness of respiratory sound may be owing sometimes to a laxity and want of elasticity in the quality of the lung tissue, but it seems to me as if it also were sometimes caused by a certain stiffness of the parietes of the chest, or lethargy of the individual, and also, at least when the patient is under examination, by the *habit*, as it were, of bronchial instead of vesicular breathing; further, a certain amount of nervousness during examination may possibly cause, from spasm in the minute bronchia, a want of vesicular breathing. Sometimes the respiration is not heard, because the patient makes abortive efforts when desired to breathe. In such cases, if we desire him to cough or to count

twenty aloud and quickly, he will instinctively afterwards take a full and free inspiration. From the above it will be perceived why weak respiration over the entire lung is generally a less important sign than local weakness in the respiration. It is important to know of this habit of weak breathing. A young gentleman, a patient of mine, was, against my protestations, some years ago banished to Australia, chiefly because a physician found his respiration sounds very weak !

RESPIRATION SOUNDS IN DISEASE.

Exaggerated respiration may arise from a nervous or spasmodic condition, or from the rapid breathing of inflammation, or from one lung, or part of a lung, being impervious, thereby throwing extra labour on the other lung, or on the parts adjoining the impervious parts. The lung tissue (the muscular tissue of the lungs ?) may be hypertrophied and produce exaggerated respiration.

Weak respiration may be local or general from nervousness, debility, or paralysis, or from some obstruction in the bronchia of a tubercular, cancerous, or inflammatory nature ; or from pressure on a bronchus—as from a tumor or an aneurism.

Suppressed respiration may result locally from emphysema—tubercular, or other infiltration, hydrothorax, pneumo-thorax—but some nervous individuals while under examination, may have, within one quarter of an hour, harsh respiration, weak respiration, suppressed respiration. Forced inspiration often produces no *vesicular* sound, and many patients when requested to draw a full breath, produce only bronchial sounds. If

such individuals be desired to count up to 100 rapidly, they will get out of breath, and then draw a full vesicular inspiration.

Jerking or broken respiration, in which there is a series of divisions in the inspiration, may exist throughout the lungs in hysteria, spasmodic affections, spinal irritation, intercostal neuralgia, incipient pleurisy, or it may be found locally in tubercular or other infiltration, and in pleuritic adhesions.

Divided respiration signifies that lengthened interval between the end of inspiration and the beginning of expiration, instead of that almost imperceptible interval which exists in normal breathing.

The sign occurs in emphysema or in an inelastic condition of the ultimate tissue of the lungs, and in tubercular infiltration.

Deferred inspiration is said to occur when the "closing instants" only of inspiration are audible. It may occur in emphysema. Is this when the fine vesicular tissue existing at the final termination of the bronchia is opened up, viz., after the larger bronchia have become filled with inspired air?

Unfinished inspiration—viz., when the chest continues to expand after the inspiration sounds have ceased—is said to occur in consolidations of various kinds. Is this from an instinctive effort to obtain more air after the limited vesicular tissue is supplied?

Prolonged expiration. — Instead of the expiration sounds being shorter in duration than those of inspiration, as is usually the case, they may be much longer. This may arise from tubercular or other obstructions, or from bronchitis, but more frequently in emphysema, viz., from a want of contractile power in the lungs.

This phenomenon is said to exist normally in some individuals, and especially in females, and at the right apex.

“*Cogged wheel*” respiration resembles jerking respiration, and is supposed to indicate the action of the air breaking through interruptions to its progress, caused by the agglutination of the minute bronchia by tenacious mucus. It is often found in the neighbourhood of tubercular deposits.

Harsh respiration, as a substitute for the breezy respiration of health, occurs chiefly in inspiration in a dry state of the mucous membrane of the fine bronchia, or in vesicular emphysema, or in pleurisy, or the resolution stage of pneumonia; or if there be tubercular, pneumonic, or other deposit in the finer tubes and air-cells, as in incipient phthisis; and in cases of consolidation of portions of the lungs, from whatever cause.

Harsh respiration is closely allied to bronchial respiration.

Blowing, or bronchial respiration, may be regarded as a further development of harsh respiration. Harsh respiration, as we have seen, depends on dryness, or roughness, or impediments in the minute bronchia and cells, &c.; blowing respiration is an advancement of this, viz., when these ultimate tubes and cells having become blocked up, the respiration is restricted to the larger bronchi. Accordingly, blowing respiration is heard best in pneumonic hepatization and abscesses of the lungs.

There are two varieties, *diffused* and *tubular*. The diffused occurs, probably, when the occlusion of the bronchia is incomplete; the tubular, when respiration is entirely confined to the large bronchi.

Tubular breathing has a hard, metallic quality of

sound, and the sensation to the listener is as if the air, during inspiration and respiration, were being drawn away from and being puffed back again to the ear.

Dilatations of middle-sized bronchia will produce the diffused variety of blowing respiration. Laennec says this breathing is one of the earliest signs of tubercular accumulation; and Dr. Walshe draws attention to the important fact that, owing to the condensation around a cavity, blowing respiration may be produced, masking the true cavernous breathing, which may not be detected unless carefully sought for. In certain cases of enlarged bronchia, or of tumor connected with a large bronchus, or of pneumonic consolidation near a large bronchus, blowing respiration may simulate cavernous breathing. In the first instance, because a large bronchus is analogous to a cavity; and in the second case, because a tumor in connection with a bronchus will in certain cases intensify the bronchial blowing sound, or bring the respiration of that bronchus, by conduction, closer to the surface of the chest.

Pleuritic adhesions and effusions, by preventing the expansion of the cellular tissue, may produce diffused blowing respiration, and mislead into the idea of hepatisation.

Cavernous breathing resembles the tubular, the air being as it were drawn from and driven into the ear of the listener, with distinctness in proportion to the proximity of the cavity to the surface. But, as a cavity is not often so smooth or elastic as a bronchus, the sound is less ringing and metallic, but more hollow. A cavity may exist, and yet if there be no large bronchus opening into it, or if the bronchus opening into it be temporarily closed, no cavernous breathing will be found. If the

bronchus opening into it be filled with pus, the respiration will produce cavernous rhonchus.

A dilated bronchus, surrounded by dense tissue, may simulate cavernous breathing.

Tuberculous excavation is the chief cause of cavities, such being comparatively rarely the result of cancer, abscess, gangrene, or pulmonary apoplexy.

Amphoric breathing (*αμφορεὺς*, a hollow measure) is the name given to the breathing sound produced in a very large cavity,—so large as rarely to occur in the lungs, but is sometimes produced by a tubercular fistulous opening from a good-sized bronchus into the pleural cavity, which becomes more or less hollow from the entrance of air,—hydro-pneumothorax being its usual anatomical cause. The sound resembles that produced by blowing into an empty glass or other bottle.

Rhonchi, *rattles*, or *râles*, are the names given to the abnormal sounds produced in the bronchia during respiration.

They are dry or moist, and depend on alterations in the calibre of the bronchia or,—and this is the chief cause—in alterations in the amount or quality of the fluid contained in the cells and bronchia, or it may be in certain cavities.

The moist sounds are produced by the bubbling of air in the fluid contained in the bronchia, or in certain vibrations caused in the bronchia by the bubbling of fluid, or from strictures in the bronchia of a spasmodic, mucous, or permanent nature.

Whispering, or *sibilant rhonchi*, may be imitated by blowing through the nearly closed lips with saliva interposed; and, conjecturally, sibilant rhonchi are pro-

duced in the fine bronchia, owing to the presence of viscid mucus.

Coughing, by displacing the mucus, may cause this sound to disappear.

Sonorous rhonchi are grave in tone and dry in character; of various degrees of loudness, and may be snoring, rubbing, or cooing in character. They are caused by the presence of viscid matter in the large tubes; although they may also be caused by spasms, or by constriction through pressure on the tubes. The cooing musical sound sometimes heard is caused by the *vibration* of the bronchia, called into action, probably, by the unequal calibre of the tube, from the presence of stricture caused by tenacious mucus.

Crepitant rhonchi are, as Dr. Williams observes, exactly like the sounds produced by rubbing between the finger and thumb a lock of the hair close to the ear, they may be likened to the sound produced by effervescing of aerated waters.

They are heard best on inspiration, as in the early stage of pneumonia.

One theory is, that crepitant rhonchi are produced by the bursting of bubbles of air through fluid; another theory is, that they are caused by the air expanding, and thus separating the lightly agglutinated ultimate tissue of the lungs.

The second theory seems to me the more probable:—1. Because a sound closely resembling it may be produced by separating any thin membrane from a sticking surface. 2. Because it is heard chiefly on inspiration, viz., when the lung tissue expands, and therefore the walls of the ultimate bronchia and cells are separated. 3. Because it sometimes occurs in pure

œdema of the lungs, viz., in a state which must tend to compress the lung tissue, and in which no adventitious fluid is present.

Dry crackling rhonchi are heard entirely on inspiration, and may be characterised as an exaggeration of the crepitant just described; but producing only a few large cracklings, instead of an infinite number of small ones, as in effervescence.

This rhonchus is heard often at the apex of the lungs, "on the eve of the softening process in tubercle," in which we may suppose the presence of a glutinous exudation, which causes the minute walls of the tubes to adhere, and which must be separated by the entrance of air.

Moist crackling or clicking rhonchi is a further development of the above, and in which the exudation of viscid matter has become more copious. This also is heard in the incipient softening of tubercle.

Bubbling rhonchi may be small or large, according to the calibre of the bronchi, through which the air-bubbles, in passing through mucus, pus, or blood, as in bronchitis, tubercle or pneumonia.

If the sound be heard at the bases of the lungs, it is most probably from capillary bronchitis; if at either apex, it is most probably from tubercular bronchitis; if at one base, most probably from pneumonia.

Hollow bubbling rhonchi are heard in dilated tubes, or in tubercular or other cavities containing fluid.

But they will not be heard in cavities, if these contain no fluid; or, if the cavity contain so much fluid that air cannot enter; or, if the bronchus enter the cavity above the level of the fluid, or, if the bronchus itself be plugged up.

Coughing and expectoration may cause this bronchus to disappear for a time, or, as in the case of plugged bronchus, coughing may cause the rhonchus to reappear.

This rhonchus, if it proceed from a cavity, and the cavity be smooth and compact, produces an echoing sound in the cavity.

A dry crackling sound has been occasionally heard, giving the idea of air distending dry emphysematous tissue.

Pseudo rhonchus is a name given to the sound occasionally heard on full inspiration at the bases of the lung, and probably produced by the expanding of air-cells, which are not expanded by ordinary breathing. It may occur in cases where the bases of the lung have been compressed by abdominal tumors. It disappears after a few full inspirations, thus distinguishing it from *crepitant* rhonchus.

I have already described the vibratory sensations communicated to the walls of the chest by the action of the rhonchi—vibrations much in proportion to the size of the bronchia implicated.

The indications furnished by rhonchi are evidently sufficiently clear, viz., for the most part the presence of adventitious fluid of variable quality, and existing in variable quantity in the cells, or in bronchial tubes of all sizes, or in cavities.

Pleural friction sounds.—In health the costal and pulmonary pleuræ being lubricated by a serous fluid, glide noiselessly on each other, during the rising and falling action of inspiration and expiration. If, however, there be any roughness caused by inflammatory or other deposit, a friction sound is produced—loud

in proportion to the roughness of the surfaces ; sometimes resembling the rubbing of the finger over bone, at other times resembling the creaking of leather.

Slight grazing friction may be heard in the early dry stage of pleurisy, but most frequently in tubercular pleuritic affections, and is usually of only short duration, soon giving place to rougher sounds.

Pleurisy is the great cause of friction sounds, but no friction is heard so long as the fluid effused is sufficient to separate the pleural surfaces. However, in some instances, the pleural surfaces may be locally attached by adhesions, and, in such cases, friction is compatible with extensive effusion. Friction sounds are usually best heard on inspiration. They are frequently heard on both inspiration and expiration, and occasionally on expiration only.

Laennec believed that interlobular emphysema sometimes caused friction sounds. Most subsequent writers have denied this. Dr. Walshe is inclined to believe that occasionally interlobular emphysema does produce friction sounds, especially at the posterior base of the lungs ; but it seems to me that this can only be, if some roughness, dryness, or vascularity accompany the emphysema ; and doubtless, if an emphysematous bladder be large, it is likely to be ill supplied with vessels, and therefore *dry*, and hence friction may be produced.

Friction sounds produced by inflammatory exudation may rapidly and permanently disappear, or they may remain permanently ; in which case there is also sometimes a permanent local dulness on percussion ; and as this state of things may be found in individuals perfectly healthy, it may be necessary, on making the dis-

covery on examination to question the patient as to any former attack of pleurisy; although, as in the instance of latent pleurisy, the patient may be quite unable to afford any information.

Sounds may be heard on auscultation simulating friction or pulmonary sounds, but arising, it may be, from the movements of the muscles, the movements of the scapulæ, the cartilaginous joints of the ribs, or from gurgling of the stomach or in the throat; or from hairs of the body rubbing on the stethoscope; and in disease, from the stethoscope pressing on an emphysematous or anasarctous skin. But a little attention only is sufficient to detect the source of such sounds.

VOICE RESONANCE, AS HEARD IN THE LUNGS DURING HEALTH.

If the stethoscope be applied over the larynx or trachea, and the individual speak with a distinct voice, the sounds heard are loud and buzzing, and are called natural laryngophony and natural tracheophony ($\phi\omega\nu\eta$, the voice, or sound). If the stethoscope be applied over the upper middle part of the sternum, or between the scapulæ, the bronchial voice sound, or bronchophony, will be heard, and so on, the further we listen from the main bronchi to the sound of the voice, the weaker the vibratory sounds appear, until at the circumferential parts of the lungs there is heard only a distant buzzing sound.

The deeper and stronger the voice, the greater will be the resonance, and hence it is much stronger in the male than in the female, while in individuals having small voices little or no resonance may be heard at a

short distance from the main bronchi. Vocal resonance being generally greater on the right side, this must not, if found, be mistaken for a morbid sign, and it is greater in the aged than in the young, owing to the harder and more vibratory nature of the bronchial tubes.

One authority says there is no explanation why the vocal resonance should be louder below the right than the left clavicle, but I would ask, are the facts of the right bronchus having a larger calibre, and being higher up than the left, not a sufficient explanation?

As in respiration and percussion sounds one individual may produce much clearer sounds than another, although both lungs are equally healthy, so in voice sounds two individuals with equal health and equal voices may yet produce vocal resonance the one greater than the other.

Vocal resonance in disease may be locally or generally weakened or suppressed by the presence of mucus, or a tumor, or anything which will interfere with the transmission of vocal vibrations through the trachea or bronchi.

Vocal resonance will generally be impaired by the presence of emphysema, or pneumothorax, or copious pleuritic effusion.

Increased resonance, or morbid *bronchophony*, will be heard if the lung-tissue be condensed from the presence of tubercles or inflammatory deposit, or if compression has resulted from pleuritic effusion, or if a tumor communicate between the stethoscope and a bronchus, or if there be enlargement of a bronchus, also in some cases of cavity.

If the *lower* part of the lungs be compressed during pleuritic effusion, the upper part of the lungs may yield

increased bronchophony, and, what may appear a contradiction, increased bronchophony accompanies some cases of emphysema, perhaps from enlarged bronchia, or, it may be, from increased consonance.

Increased resonance would appear to be chiefly caused by condensed tissue transmitting the laryngeal vibrations better than aëriform tissue. Increased resonance occurring at the upper part of the lungs when the lower part is compressed by pleuritic effusion, seems to me to be because the voice sounds are thus cut off, as it were, from being dispersed.

Increased resonance, in some cases of emphysema, is accounted for by what is called "unison resonance," just as the tones of a fiddle or a guitar are increased by the air-box to which the strings are fastened. Hence the bronchophony, it is said, may be louder than the sound heard over the larynx itself.

Skoda denies that bronchophony is heard owing to the *conducting* power of the walls of the bronchial tubes, or of condensed tissue, and says it is rather owing to *consonance*, or reproduction of sound in the tubes communicating with the laryngeal voice; as an instrument, standing by, although not struck, may consonate with the voice or with another instrument, when struck.

The dispute is not pathologically or clinically of much importance, but it seems to me unquestionable that condensed tissue will transmit sounds better than aëri-form tissue, and also that tubes surrounded by dense tissue will yield louder vibrations than if surrounded by loose tissue, just as a tuning-fork vibrates *louder* on a hard board than on a soft board. But for a long and learned discussion on this subject, I can refer the reader to Dr. Walshe's book 'On the Chest,' pp. 142—53.

Pectoriloquy (*pectus*, the chest, and *loquor*, to speak) is the term given to the distinct voice sound which is heard through the stethoscope if a tumor communicate between a large bronchus and the chest walls, or if a bronchus open into a cavity. It resembles the sound heard over the larynx.

A large cavity may exist, but, if deeply seated, or if it have soft walls, or if it do not communicate with a bronchus of some size, no pectoriloquy, even with loud speaking, may be heard. On the other hand, if the walls of the cavity be compact, and the cavity near the surface, with a bronchus opening into it, the merest whisper will be heard, and sometimes with startling distinctness.

If the cavity be very small, or if it be very large, or if the bronchus communicating with it be plugged up, or if the cavity be filled with pus, or if there be many bronchial communications with it, there may be no pectoriloquy. The absence of this sign is, therefore, no proof of the absence of the cavity; while, as a tumor may cause it, pectoriloquy is no proof of a cavity. But whispering pectoriloquy—that is, pectoriloquy heard on the patient merely whispering—is nearly an absolute proof of the existence of a cavity.

Œgophony, or goat voice (*αιξ* and *φωνη*), or Punch-like voice sound, is occasionally heard through the stethoscope as the patient speaks, when, as is supposed, a *thin* layer of dropsical or pleuritic fluid intervenes between the pulmonary and costal pleuræ. It is probably caused by certain vibrations of the lungs being interruptedly broken by the layer of fluid, or perhaps by certain vibrations caused by the concussion of air displacing the fluid.

Amphoric echo is a sound somewhat like that produced by blowing into an empty decanter—Laennec says like the echo in an empty cask.

Metallic tinkling is like the sound produced by striking a large glass vessel with a pin.

The echo occurs with coughing or speaking, and is supposed to be owing to a large cavity—it may be to pneumothorax—echoing with the neighbouring bronchus, or with a bronchus opening into the cavity; and the tinkling is supposed to be owing to the concussion of the fluid in that cavity, or the echoing of exploded bubbles of air.

The heart sounds are generally transmitted with increased distinctness to different parts of the lungs if there be tubercular or other condensation, and the reverse in emphysema.

If a patient having a large cavity containing fluid, or having pneumo-hydrothorax, be shaken by coughing, riding, or walking, or by another person, a splashing sound has sometimes been heard by the observer, and even by the patient himself. This is a fact which was known to Hippocrates.

GENERAL SUMMARY OF PHYSICAL EXAMINATION OF THE LUNGS.

In the foregoing pages I have endeavoured, as briefly and as closely as possible, to enumerate the physical signs furnished by the lungs in health and disease, and to explain the mechanism or cause of these signs, and their relation to diseases. But it may be well to endeavour to give a more summary view of these signs, in

order to enable the mind to take a concentrated, yet comprehensive, grasp of the subject.

Inspection of the naked chest shows size, form, symmetry, texture and colour of skin, expansive power, bulgings, depressions; from which we form opinions as to the presence or absence of general health, tubercle, aneurism, emphysema, tumors, &c.

Application of the hand enables us to judge of the amount of vibration which takes place when the patient speaks or coughs, and may afford some information as to the presence or absence of tubercular or other deposits, enlargement of bronchi, pleuritic friction, expansive texture of the lungs.

Mensuration of the chest by a tape will give the difference of circumference between full expiration and full inspiration, but much less instructive information than that furnished by inspection.

Percussion, in health, yields sounds tympanitic over the intestines; clear over the lungs; duller over solid organs, as the heart and liver; and dead over water, as over the chest in pleuritic effusions or hydrothorax. In disease, percussion sounds are either abnormally clear or abnormally dull, in direct relation to the amount of air, solid matter, or water present, and thus afford us information as to the presence or absence of, *e.g. air plus*—emphysema, enlarged bronchi, (tumors communicating with bronchi,) pneumo-thorax; *e.g. solids plus*—tubercle, cancer, tumors, enlarged solid organs, aneurisms, pneumonia; *e.g. fluid plus*—hydrothorax, pleuritic effusion, abscess, empyema.

Auscultation of the lungs, in disease, furnishes information as to the sounds during respiration, and during speaking or coughing, arising in the cells, in

the bronchi, and in cavities; also over tumors or consolidations communicating with bronchi or cavities; also information as to friction sounds.

Respiration sounds, in disease, may be increased, diminished, or absent, locally or generally. They may be jerking, divided, prolonged, "cogged-wheel," harsh, blowing, cavernous, crackling, rattling, snoring or bubbling, wheezing, whistling, or cooing.

Respiration sounds are exaggerated in hysteria, in asthma, or if one lung has extra work, the other being idle.

Harsh (may be) in vesicular emphysema, pleurisy, resolute stage of pneumonia, incipient phthisis.

Weak from debility, paralysis, or obstruction, or idiosyncrasy.

Suppressed, locally, from emphysema, tuberculous or other deposit; general, from hydrothorax, pneumonia, pneumothorax, or obstruction in main bronchus, or by phlegm in bronchitis, or from tumors.

Jerking, hysteria, spasm, pleurisy, tubercle, &c.

Cogged-wheel inspiration—tubercle, viscid mucus.

Divided, that is, an interval of rest between inspiration and expiration, in emphysema, or want of elasticity in lungs, or tubercle.

Deferred inspiration, viz., when the terminal part only of inspiration is heard—emphysema (?)

Unfinished inspiration, viz., when the chest continues to expand after inspiration sounds have ceased—tumors (?)

Prolonged expiration—bronchitis, tubercle, emphysema, deficient elasticity.

Blowing or bronchial respiration indicates blocking up or destruction of the vesicular tissue, as in pneumonia, abscess, &c.

Cavernous respiration, like bronchial, but more hollow,

indicates cavity, enlarged bronchus, or tumor intervening between bronchus and chest-walls.

Rhonchi or *rattles* are fine, or dry, or moist, or coarse, according to the quality or quantity of the fluid in the bronchi; and are whispering, crepitant, or crackling, sonorous, cooing or bubbling, &c.; they indicate the presence of fluid (or œdema rarely) in the cells, or fine or large bronchi, and are found in tubercle, pneumonia, capillary or other bronchitis, and in cavities.

Pleural friction sounds, varying from the "rustling of silk" to the "creaking of a saddle," indicate the presence of roughness from dry surfaces, or from congestions or exudations.

Vocal resonance, viz., natural bronchophony—

Weak or suppressed, locally or generally, from obstruction, solid or fluid, in the bronchi or the main bronchus, in emphysema, pneumothorax and hydrothorax.

Increased resonance, or morbid bronchophony, from enlarged bronchus, tubercular or other condensation of lung, a tumor communicating with bronchus.

Pectoriloquy is the name given to the bronchophony furnished by a cavity; but may be heard if a tumor communicate between a large bronchus and the chest-walls.

Egophony, or *Punch-like voice*, indicates usually the presence of a thin layer of fluid in the pleura, thrown into vibrations when the patient speaks.

By the study of the above abstract it will be seen that any one given sign may indicate more than one disease, and that almost every chest disease furnishes several signs.

For example, pectoriloquy is a sign of cavity and of its opposite tumor.

Jerking inspiration is a sign of incipient tubercle or of mere nervousness.

Prolonged expiration is a sign of tubercle, and of what may be called, pathologically and anatomically, its opposite—emphysema.

It therefore follows, that all the signs, in all their bearings, must be well understood, and that no disease can be diagnosed from one sign ; further, that it may mislead the mind to trust too confidently to the diagnostic evidence furnished by physical signs only ; because man, when diseased, must be considered in all his relations as a human being, and not merely as a cunning musical instrument, more or less out of tune.

DISEASES OF THE LUNGS, &c.

PLEURODYNIA.

Pleurodynia (*πλευρα* and *αδυνη* pain), “false pleurisy,” viz., rheumatic or neuralgic darting or gnawing pains in the muscular and fibrous tissue of the walls of the chest, is usually, except in nervous females, unaccompanied by fever, but by acute pain on motion of the arms or body, sometimes pain on pressure, and generally also during the respiratory movements. In consequence of this pain in breathing, the patient draws his breath very carefully, and hence there may be little audible vesicular respiration. It is distinguished from pleurisy by the absence of dulness on percussion or friction sounds, and also by the absence of rigors and of an inflammatory pulse, this last symptom being, however, often absent in pleurisy of the passive kind.

The pains may extend to the abdominal walls, and may give rise to a suspicion of peritonitis, especially as there may be tenderness on pressure, but the absence of rigors, fever, and of the suspicious, anxious expression of peritonitis, &c., will enable us to distinguish the disease.

Cold caught by exposure to damp, or sitting exposed to draughts, whereby the perspiration may become checked, is the usual cause of the attack.

The Allopathic treatment recommended is cupping, rubefacients, Colchicum, &c.

The Homœopathic treatment will consist in the use of Aconite, Arnica, Bryonia, Nux Vomica, Pulsatilla, and Rhus. Tox. Bryonia, I believe, will be found the most usually serviceable, especially in robust men. Pulsatilla will often respond, especially in the case of nervous females. Homœopathic writers appear, generally, to prefer Arnica to other remedies.

The hot bath, or the hot-air bath, and frictions with the hand and *warm* oil, will also afford much relief. In some cases, the "wet sheet pack" may be advisable. The patient should be kept comfortably warm, and the diet should be simple and generally unstimulating, although, in cases of long standing, accompanied by debility, a generous diet may be serviceable.

In the treatment of pleurodynia, I should usually prefer the 3d centesimal dilution, and in doses of a tea-spoonful every one, two, three, four, or eight hours, according to the intensity of the pain.

INTERCOSTAL NEURALGIA.

Intercostal Neuralgia resembles pleurodynia in its symptoms, but the pain is more in the lines of the

intercostal nerves, and more especially, it is said, at the beginning, middle, and end of these nerves, viz., near the spine, below the axillæ, and near the sternum, thus distinguishing it from pleurodynia and pleurisy. It is often in the female found associated with neuralgia of the mammæ, and is frequently coexistent with phthisis.

Intercostal, like other neuralgia, is found chiefly in the debilitated, although also in the plethoric.

The Allopathic treatment consists in leeches and blisters, followed by Aconite, Belladonna, and Morphia, endermically applied; or the internal use of Quinine, Arsenic, or Iron.

The Homœopathic treatment will consist in the use of one or more of the following remedies: Aconite, Arnica, Belladonna, Arsenic, Bryonia, China, Colocynth, Ignatia, Nux Vomica, Pulsatilla, Spigelia, Staphysagria, Sepiæ. In the dilutions used the preference, in many cases, will be for the higher ones, viz., the 6², 12⁶, or 30⁰ centesimal.

The medicines selected will depend a good deal on whether the patient is of a debilitated or plethoric habit. In the first case, Arsenic, China, Sepiæ, &c.; and in the second case, Aconite, Bryonia, Arnica, &c., will suggest themselves.

As in pleurodynia, much relief will often result from manual frictions, in the direction of the nerves, from the spine to the sternum.

Pulvermacher's galvanic chains have often been worn with advantage.

NEURITIS.

Neuritis, or inflammation of the intercostal nerves, will, in its symptoms, resemble intercostal neuralgia, but the pain will be more constant and less acute.

Aconite, Bryonia, and Belladonna, are the remedies to be employed in neuritis.

ACUTE BRONCHITIS.

Acute Bronchitis is undoubtedly the most frequently occurring acute disease of the lungs which appears in this country, and the annual mortality from this disease, especially among the aged, is very great.

Acute bronchitis may supervene on tuberculous or cancerous deposit, or on typhus fever, or in suppressed eruptive diseases, or in whooping-cough, &c. ; but the majority of the cases met with are purely idiopathic, and generally ascribed to exposure to cold or wet.

It is a disease which frequently begins with catarrhal symptoms, and passing down the bronchial tubes, first shows itself in the large bronchi, from which it may descend to the capillary bronchia.

The tongue is white and coated, or brown and foul. Exacerbations are apt to occur during the night, from the accumulation of phlegm.

The mucous membrane of the bronchi is congested, and epithelial desquamation takes place in patches.

The cough is generally very violent, and blood may be mixed with the sputa, varying from a few blood-discs to streaks of blood.

The sputa are generally white and frothy, but they

may be bluish-black, thick and tenaceous, or mucopurulent.

If the disease be confined to the larger bronchi, it is comparatively an unimportant affection, but if it descend to the minute branches, then the oxygenation of the blood becomes imperfect, the symptoms being those more or less of suffocation, with dusky face, and, in fatal cases, the gradual progress of coma from brain congestion, or of asphyxia, from the blocking up of the minute bronchia. It may be very insidious in its attacks on young children and the aged, and in such cases is often fatal.

“In capillary bronchitis the lungs are generally distended with air, and sometimes acutely emphysematous; hence there is a general increase of bulk, but here and there the surface is the site of collapsed lobules, airless, and quasi solid.”

The respirations are hurried, and may be 50 in a minute, while the pulse may be as high as 150.

The paroxysms of dyspnoea may be most acute, and, if the patient be not relieved, he gets more and more asphyxiated, and weaker and weaker; the skin becomes cold and clammy, the eyes suffused, the lips purple, the breath cold, and the patient passes away in drowsy fits or in low delirium.

The Physical Signs.—In the dry stage the breathing sounds may be sonorous or sibilant, but this stage is usually so brief in duration, that dry respiration sounds are seldom heard. Rhonchal fremitus is produced. The rhonchi are generally bubbling; but locally, the respiratory sounds may be absent, from the complete blocking up of the tubes with phlegm, the ronchi reappearing probably after expectoration.

Contrary to what might be anticipated from the immense amount of phlegm present in the bronchi, the percussion sounds are as clear as in health, probably because so much air is held imprisoned in the phlegm.

Should the bronchitis result from tubercular or other deposit, the local percussion sounds will of course be dull. Should there be any portion of the lungs clogged up with phlegm, and the air be thus excluded, the percussion is dull, especially about the base of the lungs, which may be clogged up from the gravitation of fluid.

Fine bubbling rhonchi, confined to the apices or to one base, is generally tubercular, but it may be emphysematous.

This disease can scarcely be mistaken for pneumonia, owing to the general absence of dulness on percussion, the absence of tubular breathing, and the absence of the rusty sputa. As young children, however, generally swallow their sputa, this last sign will be wanting in their case. Bronchitis may assume a typhoid character, but this must be distinguished from that bronchitis which often supervenes on *typhus* fever.

The mortality occurring in the acute bronchitis of the larger tube is, even under the heroic treatment of the old school, very small, unless in infants, old individuals, or in those worn out by disease.

Treatment.—One modern allopathic writer of celebrity says, “The treatment of acute bronchitis is perfectly simple; we have only to bleed generally and locally, and give mercury”! Another high authority says, “Bleeding to twelve or fourteen ounces is advisable;” but adds, “The patient will require all his strength to carry him through the asphyxiating stage.”

The same author recommends "cupping to six or eight ounces, or the application of twenty leeches as a beginning;" and says, "Tartar emetic is the most efficient agent known in controlling acute bronchitis, but not so demonstrably efficient as in pneumonia." We shall afterwards see that the tartar emetic treatment of pneumonia *produces*, or is followed by, a mortality of *twenty per cent.* in the cases. How injurious, then, according to our author, must it be in bronchitis.

If there be depression, instead of tartar emetic, calomel and opium are recommended; but surely this must be bad treatment, for although calomel, by purging the liver and bowels, may relieve the chest, yet it has no specific action on the lungs, and is besides a depressing medicine. As for opium in full doses, it is difficult to see what it can do more than still further depress the patient, and add to the danger which already threatens him, viz., an inability to dislodge the phlegm; and further produce a tendency to congestion of the brain. Concerning the use of diaphoretics, expectorants, and mustard poultices, this at least can be said, that they cannot do so much mischief as bleeding or tartar emetic.

The heroic system, however, is not only recommended in books, but put into active operation up to the present day, as the following history will show:

Mrs. C. B—, æt. 78, had at intervals been for years under homœopathic treatment, from which system she invariably derived relief to exacerbations which occasionally supervened on a condition of congestive chronic bronchitis, but getting impatient of the continuance of her congestive symptoms, she placed herself

under her former allopathic treatment. Shortly afterwards, one of her usual exacerbations of suffocative bronchitis appeared. The general practitioner, fearing the result, called in a "noted London physician," who immediately ordered cupping between the shoulders to fourteen ounces. The suffocative symptoms were thereby relieved, but next day the physician, finding his patient "sinking through the bed" from prostration of strength, ordered brandy to be freely "exhibited." Finding in the afternoon of the same day that the pulse was again up and the suffocation returning, and fearing a second bleeding, he ordered blisters to be applied. The patient "responded rapidly," but not successfully, to this treatment, and next day she was dead.

I have entered thus particularly into the question of the allopathic treatment of this disease, because the arguments of the homœopath against active treatment are continually being met by the assertion that the old school does not now practice heroic treatment as that was exploded long ago.

The above history is a demonstration to the contrary, and although I believe it is very probable that the old lady alluded to would have succumbed under any treatment to the attack which terminated fatally, yet I cannot but believe that her death was very materially hastened by "the scientific and legitimate" operations put in force *against* her.

The *homœopathic treatment* of acute bronchitis may be regarded as most successful. If there be no organic disease—except in infants, or the old and infirm—the mortality probably does not reach *five per cent.* of the cases attacked, even with the most acute capillary bronchitis, while death from pure idiopathic bronchitis of the large

tubes may be regarded as under homœopathy almost unknown.

According to Dr. Walshe, from 50 to 75 per cent. of these cases of acute capillary bronchitis attacking young children and aged persons prove fatal, generally from the eighth to the twelfth day.

Homœopathy does not possess any extended statistics of this form of disease, but if we may judge from the information supplied by our statistics of pneumonia, the mortality from acute idiopathic capillary bronchitis occurring in young children and aged persons under homœopathic treatment should not exceed from 15 to 20 *per cent.*

In the acute bronchitis of the larger tubes, I believe no remedies are superior to the alternate use of Aconite and Bryonia, of the 3d decimal dilution chiefly. Phosphorus, Tartar Emetic, and Ipecacuanha, I believe, are more suitable to the capillary form of the disease. Arsenicum, Nux Vomica, and Lachesis, are also good remedies in this form of the disease, and Sulphur after the acute symptoms are past.

Further, Belladonna, Chamomilla, Hepar Sulphuris, Mercurius, Pulsatilla, and Spongia, are recommended in books. The dose should be repeated every half hour, or one, two, or three hours, according to circumstances.

In place of the blisters of the old school, manual friction with brandy and oil, or oil and turpentine, applied over the chest and between the shoulders, may afford great relief in suffocative bronchitis, with debility. Stimulating rubefacient action, produced by manual friction, must be very far preferable to the depressing and painful operation of mere blistering. Hot fomentations will also be useful.

In the old and feeble, brandy and water, or gin and water, may sometimes be given with advantage.

The inhalation of the fumes of ammoniacal solutions, by stimulating the bronchi, will act as a useful expectorant, especially in debilitated cases. The use of Junot's Boot is worthy of consideration, as a relieving pump in paroxysms of suffocation.

The inhalation of oxygen gas should also be considered with reference to the asphyxiating stages of the disease.

Vomiting, induced by tickling the fauces with the finger or a feather, may relieve the chest of much phlegm, when coughing fails to produce this desirable result.

The patient should be kept in a bedroom in which the temperature is regulated according to his sensations, and as the disease is one which hinders the free oxydation of the blood, a good circulation should be kept up through the room by a fire burning in cold weather, and by the door and windows being kept open in warm weather, the danger of an ill-ventilated room being greater than even a draughty room, although cold draughts of air must, if possible, be avoided.

The burning of feathers or other pungent substances in the air will sometimes be found agreeable by the patient, and the smell of turpentine, ether, or coal-tar, will also be sometimes relished.

CHRONIC BRONCHITIS.

Chronic bronchitis is a disease which carries off a very large number of aged people in this country.

It interferes with the oxydation of the blood, causes a waste of the tissues, and exhausts the vital energy.

It is often a sequel to acute bronchitis or influenza, or it may result, in the aged, from a general decay of nature and relaxation of the lining of the bronchial tubes.

It frequently exists in knife-grinders, mill-workers, masons, and miners, from the irritation caused by the fine particles of dust which such individuals are continually inhaling.

Secondary syphilis, kidney disease, cancer, tubercle, aneurism, whooping-cough, scarlatina, emphysema, and asthma, are also occasional causes. Organic diseases of the heart are also, sooner or later, almost invariably accompanied by chronic bronchitis.

It is accompanied by habitual cough, sometimes loose and easy, at other times violent and spasmodic.

The sputa may be white and frothy, or thick, yellow, green, or bluish black, and mucous, muco-purulent, or pus-like. Sometimes, from the violence of the cough, minute blood-vessels are ruptured, and the sputa is streaked with blood. The sputa may be inodorous and tasteless, or mawkish, or even fetid.

The breathing is usually difficult, especially during exercise. The aspect is often anxious and distressed, and the complexion dusky; the eyes are often blood-shot, from congestion or the violence of the cough.

The brain is often more or less congested, so also is the liver. The tongue may be white and creamy, or coated and brown, and the breath is often foul.

Blueness and coldness of the surface and lethargy of mind are frequently present, from the deficient oxydation of the blood.

The sleep is fitful or laboured, and, unhappily, is often followed by an exacerbation of the cough, from the accumulation of phlegm which takes place.

Syphilitic bronchitis often disappears on the breaking out of secondary or tertiary symptoms. On the other hand, it may first appear on these eruptions being driven in by external applications. Enlargement from syphilitic periostitis, yielding dull percussion, may, with the accompanying bronchitis, be mistaken for tubercular disease.

When chronic bronchitis terminates fatally, it is by the gradual wearing out of the vital strength, by dropsics, or by gradual asphyxia, or coma.

The physical signs of chronic bronchitis are usually sufficiently intelligible, but there can be no doubt that formerly, before auscultation was practised, and even now, many cases of chronic bronchitis are set down as cases of consumption—leading to very serious consequences to the patients.

In chronic bronchitis the chest is often prominent and bulging, from the presence of emphysema or general enlargement of the bronchi—results which may follow the excessive action of the bronchi and from the pneumatic straining produced by the constant endeavour to expel the accumulated phlegm.

The respiration may be harsh, sonorous, whistling, cooing, bubbling or gurgling—or tubular or cavernous, over an enlarged bronchus. The voice in such instances yielding bronchophony, the auscultator may be misled into the belief of tubercular excavation.

The respiration may be suppressed locally if the bronchi are plugged up with tenacious phlegm, and at

the base the respiration may disappear, owing to the *gravitation* of bronchial fluid.

The percussion sounds are usually normal, but they may be abnormally clear if emphysema exist, or if percussion be performed over an enlarged bronchus.

Enlarged bronchi are, however, often thickened in their walls, and surrounded by tissues rendered dense by inflammatory exudation, in which case there may be a diminution of normal clearness, or positive dulness.

Dulness on percussion at the base may be mistaken for pleurisy, but pleurisy is generally confined to one side, while bronchitic dulness exists generally at both bases; and in bronchitis there is vocal fremitus, but in pleuritic effusion none.

Phthisis and chronic bronchitis often present many signs and symptoms in common—for instance, dull percussion, pectoriloquy, pus-like sputa or blood-stained expectoration, hectic sweats, and general wasting. But in phthisis the dulness on percussion, if anywhere, is usually to be found at one apex, while in chronic bronchitis the dulness is usually at both bases, from the presence of gravitated phlegm, or at the supra-mammary region, viz., over the condensed tissue surrounding the bronchi.

The hæmoptysis occurring in phthisis is usually free or frothy, while that of bronchitis is usually mixed with tenacious phlegm, difficult to expectorate.

The age, also, will assist the diagnosis, and where as in phthisis, the visage is generally transparent and the spirits elastic, in chronic bronchitis the visage is thick or cloudy, and the temper irritable.

Chronic diarrhœa often accompanies phthisis, but the reverse is usually the case in chronic bronchitis.

Phthisis and chronic bronchitis may, however, it must be remembered, coexist in the same subject.

Allopathic treatment.—Occasional cupping, “flying blisters,” counter-irritation by croton oil, tartar emetic, or turpentine, inhalations of tar-vapour, Iodine, Creosote, and Chlorine. Internally—Ipecacuanha, Colchicum, Hydrocyanic Acid, Squills, Ammoniacum, Opium, Copaiba, Iodide of Potassium, Quinine and the mineral acids, Sesqui-carbonate of Ammonia, &c.

The *homœopathic treatment* of chronic bronchitis will possess this advantage over the drugging system—that besides the specific action of the remedies, the vital forces of nature will never be weakened, a manifest advantage in all cases of chronic disease arising from general debility.

In bronchitis from heart disease, Lachesis, Cobra, and Digitalis, will be useful. In syphilitic bronchitis, Nitric Acid, Guaiacum, Aurum.

In emphysema, Ipecacuanha and Hyoscyamus, &c.

In gouty cases, Nux Vomica, Bryonia.

In green-sputa cases, Cannabis and Mercurius.

In cases in which the digestive organs are much disturbed, Nux Vomica, Bryonia, and Pulsatilla, will be useful.

In congestive cases, Phosphorus or Tartar Emetic.

Arsenicum will be one of the most useful remedies in all cases of chronic bronchitis, and Sulphur in many cases of long standing.

Hepar, Stramonium, and Baryta Carbonica are also to be considered.

The inhalation of stimulating vapours, as of Ammonia or Turpentine, will often be serviceable.

The inhalation of oxygen gas is often especially useful in asphyxiating cases.

Manual frictions with camphorated oil, and various stimulating liniments, will also frequently afford an increase in vigour and comfort.

The air-bath, viz., the sitting in a chamber of condensed or attenuated air, will be useful in some cases of chronic bronchitis, arising from relaxed bronchia, and so also, in such cases, will the inhalation of oxygen be often very invigorating.

The hot-air bath, by producing copious perspiration, will afford immediate relief to the overcharged bronchial tubes.

Those who are liable to attacks of bronchitis will find the unshaved beard a considerable protection and the most natural of respirators.

Of all remedies for obstinate chronic bronchitis, a change of air is the most truly homœopathic and the most successful.

No rule can be set down absolutely about the choice of a climate, except the rule of present experience and preference. But a balmy, yet mildly bracing and dry climate will generally be the best, and mountain air, if it can be got without risk of gusts of *chilling wind*, is especially serviceable in gouty cases, while a warm, dry air, like that of Africa or Australia, may be preferable in other cases.

But on the subject of climate I shall enter more fully when considering climate in relation to phthisis.

As chronic bronchitis is frequently united with a dyspeptic and gouty habit, the "water cure" will be a great auxiliary to homœopathic treatment.

Great attention to diet is very essential in chronic

bronchitis ; the food must often be nourishing, but not stimulating, and never loading. Water, I believe, is the best beverage ; but if stimulants are found advisable, weak spirits and water, or claret, or vin-ordinaire, are to be preferred to malt liquors or strong wines. Fine bitter beer in *draught*, and in moderation, may, in certain cases, not be unadvisable.

Gentle horse-exercise, in many cases, will be highly beneficial, relieving local congestions and eliminating accumulations of phlegm.

Many cases of chronic bronchitis are complicated with congestion of the liver, foul tongue, deranged digestion, and piles. Chronic bronchitis may induce these symptoms, from long congestion and general poisoning from insufficient oxydation of the blood. Such cases, if they resist the ordinary homœopathic treatment, may often derive the greatest possible benefit from a course of water treatment.

HAY ASTHMA.

Hay asthma is an affection which seizes on some individuals during the hay season, and is caused, probably, by the pollen of the hay floating in the air. London is surrounded on all sides by hay-fields, the sweet smelling of which is often so strong as to be quite perceptible in the densest parts of the town, especially at night, the fires being out and the wind blowing from the north.

Accordingly some individuals, especially among the aristocracy, cannot stay in town during that season, but are obliged to go to the seaside.

The symptoms are those of acute, sneezing catarrh.

Allopathy recommends the shower-bath, tonics, and Creosote and Chlorine inhalations.

Homœopathists have often considerable success in this disease by the administration of Arsenicum, Ipecacuanha, Assafœtida, Nux Vomica, Lachesis, Musk, and Sulphur, or from the inhalation of Camphor or ammoniacal vapours.

INFLUENZA.

Influenza, the Italian word for "influence," is an epidemic catarrh, and appears to me to arise manifestly from a certain poison existing in the air.

It is recorded of the chemist Berzelius, that he suffered from symptoms exactly analogous to acute catarrh from accidentally inhaling a bubble of seleniuretted hydrogen, and if such a gas could be applied homœopathically, I believe it would be found to be a valuable specific for this disease. Some years ago I prepared a trituration of Silenium, and have occasionally used it with good effect in catarrh, but seleniuretted hydrogen would most probably be much more effective.

Dr. T. Thompson has written the "Annals of Influenza" in one of the volumes of the Sydenham Society; and the theories of its connection with telluric exhalations, earthquakes, comets, volcanic eruptions, and ozone, are discussed, but the inquiry fails to throw any light on the subject.

It has for many years appeared to me to be not improbable that the *influence* is from certain atmospheres, it may be, of exploded planets, which the earth in her solar circuit occasionally passes through. To attribute

catarrhs or influenza to mere change of temperature has always appeared to me quite untenable. Cats, dogs, and horses, are often affected in epidemics of influenza.

The symptoms are those of severe catarrh, accompanied with fever, rigors, bruised pains, sneezing, bronchial cough, sometimes intense headache, and sensations as if poisoned, while extreme prostration of strength generally accompanies the attack.

Treatment.—Acute influenza is, especially under what is called active treatment, one of the most fatal diseases among debilitated old people.

Although it is almost incredible, yet there are physicians who have recommended bloodletting in this disease, and that although the disease is essentially one of prostration of strength, as from an irritant poison. "The less active practitioners" employ tonics and diaphoretics, &c.

Homœopathy is decidedly successful in the treatment of this disease.

Aconite, Nux Vomica, Bryonia, Phosphorus, Ipecacuanha, Hyoscyamus, China and Veratrum, Camphor and Sulphur, are all good remedies, but probably Arsenicum is the most important of all our remedies in this disease.

Camphorated Spirit is the best remedy in the incipient stage; Nux Vomica is one of the best remedies in the congestive stage; and Arsenicum in the sneezing, or debilitated stage.

The patient should be kept in an equal and moderate temperature, and fed on slops, or on beef tea and wine, according to the condition of fever, or of depression. The great danger from the disease, with old people, is from the prostration of strength. In such cases,

Arsenicum, from the 3d decimal to the 12th centesimal, is the best remedy. Wine, or brandy and water, may also be advisable.

HOOPING-COUGH.

Hooping, or *whooping-cough* is so named from the sounds produced during the spasmodic cough, with its succeeding spasmodic inhalations. It is essentially a spasmodic disease, implicating the pneumogastric nerve, generally accompanied by more or less bronchial flux, and sometimes by congestion of the lungs and pneumonia.

It is divided into the catarrhal, spasmodic, and terminal stages.

The catarrhal symptoms may last a few days, or even weeks, accompanied by a short cough, sneezing, and redness of the eyes, before the true hooping, spasmodic cough appears. The spasmodic cough may be slight, comparatively, or so violent that the head of the poor child requires to be held, while blood may come from the nose and mouth, or even from the eyes and ears.

A paroxysm consists generally in five or seven violent coughs, by which the air is almost entirely expelled from the lungs; this is immediately followed by a long and painful inhalation, with more or less spasm of the glottis, and a look, sometimes, of intense anxiety on the part of the poor child, who appears almost asphyxiated—the eyes starting from the head, and the face deep red or purple; and this may be repeated three or four times, with almost equal distress to the observer as to the little patient. Although, however, the paroxysm is so intense as apparently to

threaten the life of the child, yet immediately after it is over the child may be quite cheerful and happy.

During the paroxysm the child often vomits, especially as paroxysms are apt to occur shortly after meals.

Paroxysms may occur only two or three times a day, or almost every hour.

The disease may be so slight as to raise a doubt whether it is whooping-cough or not, and yet this slight attack would appear to afford ample protection against all future infection from this disease. On the other hand, the cough may last from a week or two to eight months or even last until, or reappear after twelve months from the occurrence of the first symptoms.

Any mental excitement is apt to bring on a paroxysm ; and as the child is generally peevish, much kindness and forbearance are necessary on the part of the mother or nurse. Sometimes, after the disease may be regarded as cured, a slight cough may occur nightly for weeks, at the same hour—a singular manifestation of periodicity, occurring as it does during sleep. Death occurring in a paroxysm is an extremely rare result. It has yet happened, and so also has rupture of the air-cells and of the pleura.

Whooping-cough is certainly one of the most singular diseases which afflict humanity, and as almost all disease can be directly or indirectly traced to misconduct on the part of man ; so perhaps it may be one day discovered that whooping-cough and measles, when they attack children, may arise from some error in management. So far, however, as our present knowledge goes, this cannot be traced ; and all, with rare exceptions, whether among the rich or the poor, the

carefully watched or the neglected, are amenable to this disease.

If, however, the child have a good constitution, and be well treated, the disease is rarely very serious. It is often very different with children of a scrofulous habit, and with the lungs or the brain predisposed to weakness. In such cases, tubercle often begins to be developed, and the little patient sooner or later falls a victim to lung or brain disease.

Treatment.—The allopathic treatment is usually mild; but blisters, emetics, purgatives, Hydrocyanic Acid, and “Belladonna, pushed to the verge of poisonous effects, is sometimes (says the allopathist) a justifiable remedy.”

The *homœopathic treatment* of this disease is not only very successful, but it has this very manifest advantage over allopathic treatment—that it never can excite spasmodic pneumogastric action by the administration of drugs repugnant to the taste and stomach of the child, and this alone, in a negative point of view, is a most material advantage, to begin with.

The remedies most used are Belladonna, Bryonia, Nux Vomica, Ipecacuanha, Ant. Tart.; Chamomilla, and Hyoscyamus. Bismuth, Drosera, Arnica, Arsenic, Hepar Sulph., Cina, Sulphur, and Carbo Veg., are also enumerated.

In very mild weather, when there is no wind, the child should, as a rule, go out daily, in all ordinary cases. But in cold, or windy weather, the child must be kept in the house, and it will be found a great advantage to have two nurseries, and change the room several times a day, the rooms being alternately

ventilated by the windows of the one room being opened when the children are in the other, a fire being kept burning in each room, if the weather is cold or damp.

Should the disease become chronic, no remedy is equal to a change of air—sea-air, for those who live in inland places, being best.

The food must be very simple, and generally very little animal food should be given. The food given should be small in bulk, and not hot.

Frictions with oil, or oil and Ammonia, down the sides of the spine, will do good in severe cases, and also in debilitated conditions resulting from the disease.

It is a happy coincidence when the disease appears in mild weather instead of in winter or spring; and in cases where there is a likelihood of danger from the delicacy of the child, it might sometimes be advisable to remove at once to a mild locality on the first appearance of the disease.

Hooping-cough is pre-eminently contagious, and if it once show itself in one child, there is little need to remove the others who may have been in the same room, although only for an hour; and yet, strange to say, Lænnec writes, "There is scarcely any proof that the disease is contagious." The disease has been known to be contagious, although no *hoop* has been heard; but it would appear not to be contagious after the disease has fully, and for some time, declined, even although an occasional hoop may still be heard.

ASTHMA.

Asthma (*ασθμα*), or dyspnœa, signifies difficult breathing; and this may arise from either organic or spas-

modic causes. It may arise from corpulency, from hysteria, enlarged bronchial glands, or from phthisis; from weakness of the heart, viz., insufficient circulation; from the reverse, viz., hypertrophy of the right ventricle, causing congestion of the lungs; from valvular disease, and especially tricuspid regurgitation, resulting in insufficient blood being driven through the lungs; from emphysema, impeding the circulation through the lungs and diminishing the amount of oxygen taken up by the capillaries; from chronic bronchitis, acting in like manner; from thoracic effusions, with emphysema, or from a tendency to lung congestions (mere plethora may sometimes be a cause); from "anæmia," or deficiency of redness, that is, deficiency of oxygen, in the blood; from tumors pressing on main bronchi. Deficient contractile power of the muscular tissue of the bronchia is said to be occasionally a cause, but the chief cause of chronic spasmodic asthma is the occurrence of spasm in the muscular tissue of the bronchia. Spasm of the bronchial muscular tissue is much under the influence of the pneumogastric nerves, that is, under the influences of the brain, spinal cord, stomach, liver, bowels, or uterus. Hence a paroxysm may arise from flatulence, indigestion, the inhalation of cold air, mental irritation, or uterine disturbance, &c.

In spasmodic asthma, a paroxysm may last from half an hour to two or three hours. It may come on without any assignable cause, as during sleep, awaking the patient, who, with much alarm, may start out of bed and rush to the open window. He elevates his shoulders and laboriously draws in his breath, which refuses to enter, except slowly and with a wheezing sound. In severe cases, the face is flushed or livid, the eyes promi-

nent and suffused, and the face expressive of anxiety and terror, while the skin gets cold and clammy.

After the paroxysm there often succeeds a sensation of exhaustion ; but many individuals enjoy perfect health in the intervals between the paroxysms.

Spasmodic asthma, with emphysema or chronic bronchitis, may lead to hypertrophy of the right ventricle, owing to the struggle the heart has to drive the blood through the lungs ; this hypertrophy may lead to tricuspid insufficiency, swelling of the auricles may succeed, and, with chronic bronchial flux, terminate in general dropsy.

In children, asthma may be mistaken for croup, but the disease is comparatively rare in the young.

The popular belief in the longevity of those affected with spasmodic asthma is often ill-founded, but it may in part be true, as a longevity conspicuous in contrast to the apparently extreme weakness of the individual afflicted. It may, however, have some further foundation in the fact of the asthmatical taking great care of themselves, and generally indulging in the constraint of all the appetites. Also, perhaps, because the asthmatic lives a life analogous to that of the reptilia, viz., a life of slow oxydation.

Some asthmatical individuals are much better in winter than in summer, the action of the sun's rays of light or of heat being apparently an injurious excitant.

TREATMENT.

Allopathic treatment.—"If there be great congestion, bloodletting may be advisable." Nauseating expectorants, Lobelia, Squill, Ipecacuanha, Colchicum if the

patient is gouty, Sul. Zinc emetics, Ether, Assafoetida, Musk, strong Coffea, Stannum, Cannabis Indica, Belladonna, Opium ; fumes of burnt brown paper saturated with nitre ; galvanism, making the current between the neck and the epigastrium ; cold dash of water ; feet in hot water and mustard. Chloroform inhalations, cigarettes of Stramonium ; Strychnia, and spinal counter-irritation, &c.

Homœopathic treatment will possess advantages over the above treatment, in such cases especially as are complicated with constipation and dyspepsia, as by the use of Nux Vomica ; and also in the homœopathic use of such of our medicines as are more or less specific to congestions and fluxes in the lungs, as with Bryonia, Aconite, Phosphorus, Ipecacuanha, Arsenicum, or Tartar Emetic.

With regard to purely spasmodic asthma, Nux Vomica in dilutions, from the 3^d decimal to the 30th centesimal, will be generally found more useful than any other medicine, given in doses repeated every quarter of an hour during a paroxysm.

The other remedies to be considered are Belladonna, Sambucus, Moschus, Lachesis, Sulphur, Stramonium, Stannum, &c.

The cold water dash, vomiting caused by tickling the fauces, a cup of strong coffee, may be employed sometimes as palliatives, but can have no claim to the title of curative agents.

Frictions over the spine with oil, or oil and brandy, or camphorated oil, may afford much relief.

Air-baths, of compressed or partially exhausted air, are truly homœopathic in their action, and the former is employed at Benrydding with good results. So also is the popular remedy of burning brown paper and in-

haling the fumes truly homœopathic, and worthy of trial. Inhalation of the vapour of camphor may also be refreshing.

The treatment of difficult breathing from heart disease, and from chronic bronchitis and humoral asthma, have come under consideration elsewhere.

Cases which derive benefit by removing from the country to London, or by removing from the suburbs into the centre of the town, are most probably cases illustrating the homœopathic action of carbonic acid gas or sulphurous vapours; although they may merely be examples of the action of *change* of air.

On the other hand, cases benefited by removal to the country are more likely to be examples of hygienic action.

The food of the asthmatical must be carefully selected, sparing in bulk, and eaten slowly. It should be unstimulating, non-flatulent, and not taken too hot. However, hot draughts of tea, coffee, or gin and water, as expedients, often give immediate relief; but are as much as possible to be avoided, as tending to aggravate the disease itself, and to lead to habits which may be otherwise injurious.

The hot air bath, as an anti-spasmodic in dry asthma, and as a derivative to the skin in asthma complicated with excessive bronchial secretions, is likely to be often beneficial.

ACUTE PLEURISY.

Acute pleurisy is an inflammation arising in the subserous pleural tissue, producing congestion of the minute vessels, generally or in patches, and followed by thickening or opacity from fibrinous exudation; which

exudation may become reabsorbed, or may remain for weeks, for months, or permanently, as an indurated and rough surface producing friction sounds.

During the inflammatory process effusion takes place, chiefly sero-albuminous; but it may be sero-sanguinary, or sero-purulent.

Pleurisy passes through four stages. 1st. The dry stage, when there exists vascularity, and loss of polish on the pleural surfaces, producing grazing friction sounds. 2d. Fibrinous exudation stage, with increased friction. 3d. Effusion of serum, with or without pus, blood, or flocculent matter. This effusion gravitates to the base of the lungs, or, if abundant, rises to the top of the pleural cavity. 4th stage. Absorption of this fluid and complete recovery, or, it may be, a permanent rough exudation remains behind, with more or less condensation of the lung tissue, especially at the base. If the lung has been long compressed by the effusion, it may have lost its elasticity, or become bound down by bands of fibrin, and remain permanently more or less contracted and airless, the chest-walls ultimately sinking inwards, in accommodation to the size of the lung. In such a case, vesicular breathing has disappeared, and the percussion-sounds are hard and dead, except over the large bronchi, where the percussion may be tubular.

If this result has happened at the base of the lung only, the respiration sounds are exaggerated at the upper part of the same lung; or if it have happened over the entire of one lung, then the other lung will yield exaggerated respiration sounds.

A compressed lung being in an abnormal condition, repeated sub-acute pleuritic attacks are apt to re-occur

and the lung is prone to become the seat of tubercle. The general health, in cases of locally collapsed lung, even under the least unfavorable circumstances, is below par, and there readily occur fits of dyspnoea, yet there may be a considerable amount of fair average health.

In cachectic subjects, and those who have a cancerous or tubercular diathesis, or in whom there is Bright's disease, the absorption stage may become a stage of chronic purulent effusion, and lead to chronic abscesses and fistulous openings. Such a result is, however, happily of extremely rare occurrence, comparatively, as a sequel to acute pleurisy.

During the first, or vascular stage, the respiration, owing to the pain produced, is subdued or jerking; percussion yields no perceptible dulness, but grazing friction sounds may be heard.

During the second, or exudation stage, the signs are much as in the first stage, the friction-sounds being coarser.

During the third, or effusion stage, all friction and respiratory sounds disappear as high as the level of the fluid effused; but above this line, friction may be heard, with exaggerated respiration sounds. If the effusion be great, there may be bulging of the affected side, great displacement of the heart, even across the mediastinum, or displacement of the liver or spleen, and even the apex of the lung may be carried abnormally upwards behind the clavicle. In this stage, fluctuation may be detected.

Effusion within three hours of the first symptoms of the attack of inflammation has been known to be so copious as to cause bulging.

In the stage of absorption, the bulging gradually

subsides, friction sounds reappear, and ægophony may be heard. Percussion-sounds recover their clearness, although a certain amount of local dulness may remain for months, or even permanently, from consolidation or fibrinous deposits. The respiration sounds also reappear, but are at first weak or harsh, and may be bronchial or blowing for months.

Pleurisy is generally induced by getting cold and wet, or by walking on damp or cold pavements with thin boots, or from exposure, in spring, to the east wind, or exposure on returning from crowded meetings, churches, or balls; or going to assemblies and shivering in thin low dresses, being accustomed to be over-caudled and clothed at other times. This last is a cause, especially, with little children at Christmas parties.

Pleurisy may follow scarlet or typhus fever, or measles, and is apt to show itself in Bright's disease, cancer, heart disease, and often locally at the region of tubercular deposits.

The Symptoms of Acute Pleurisy.—The first symptom is usually “a stitch in the side,” with rigors. The stitch is usually situated at the anterior or posterior base of the lung. The pain may be intensely acute, or there may be a mere sense of uneasiness; and the aggravation of the pain is no measure of the extent of the inflammation, or the amount of the effusion. Indeed, there may be no stitch, and yet great effusion; and there may be acute pain, and yet little or no effusion, the pains being, it is supposed, chiefly from intercostal neuralgia; an explanation the more probable, when it is known that the stitch may occur in the opposite side to the one where the pleurisy exists.

The breathing, if there be pain and active inflammation, is short and frequent, and there is dyspnoea.

A short cough is a very general accompaniment of pleurisy; but the cough may be entirely absent; and it is important to remember this, as pleurisy may easily be overlooked if there be no cough and but little pain in the side, and the patient, being neglected, may still further expose himself, until very serious symptoms are developed. Indeed, all the symptoms of pleurisy may be latent, until dyspnoea shows itself, caused by the amount of effusion.

During the early stage, the patient usually prefers lying on his sound side; but after effusion has taken place, especially if copious, he prefers lying on his back, with the head raised.

The pulse, in acute pleurisy, is usually quick and hard; the urine, deep-coloured and scanty.

Inflammation in the pericardium and peritoneum may arise from the acute pleuritic inflammation extending to these serous membranes.

In chronic pleurisy, and in the event of the exudation becoming purulent, perforation has occurred from the pleura into a bronchus, and muco-pus has been expectorated. It is also said that, without perforation, what is called "metastatic flux" has taken place, and as much as two pints been at once voided from the lungs, and yet not from a cavity, but from the bronchial tubes only.

In purulent pleurisy gas may be generated, and the upper part of the lung yield tympanitic percussion.

In chronic pleurisy the affected side may become oedematous, and the face puffy. "The opposite lung may become hypertrophous and emphysematous."

In *purulent* pleurisy the pulse and the skin show hectic symptoms. There is general wasting, and the result, which is in the majority of cases fatal, is often hastened by Bright's disease.

In cases not terminating fatally, the pus may become absorbed, or be discharged by external fistulæ.

Chronic pleurisy is chiefly found in cases where there is a cachectic condition from cancer, tubercle, syphilis, or excess.

Acute pleurisy is much more common in men than in women, and fatal chronic pleurisy occurs in males in the ratio of five men to one female; partly because men are much more exposed to cold and wet, and the disease is more apt to be complicated with Bright's disease in men, from habits of intemperance.

Circumscribed pleurisy may occur, owing to plastic adhesions confining the effusion to one district. The upper, middle, lower, and even, theoretically, the mediastinal surface of the pleura may be the seat of such localised effusions; and, in such cases, the disease may be mistaken for abscess, tumor, or local pneumonia.

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DIAGNOSIS OF ACUTE AND CHRONIC PLEURISY.

Pleurodynia or intercostal neuralgia with cough may simulate pleurisy in the dry stage.

Peritoneal friction, or pericardial friction sounds may also mislead into the belief in pleural friction.

Pneumonic consolidation may simulate pleurisy, but the sputa is different, and in effusion there is no local fremitus, and no crepitant rhonchi, but often tubular percussion sound under the clavicle, and bulging of the

affected side. If there be fluid, its exact locality will be altered with the position of the patient.

Enlargement of the liver upwards is distinguished from effusion by the liver being depressed on full inspiration, a result which cannot happen with effusion, and so also with regard to enlarged spleen.

Tubercular dulness, as a rule, proceeds from above downwards, pleuritic effusion from below upwards.

In cases of dull percussion from consolidated lung from pleuritic effusion, the history of the case, together with the aspect of the patient, and the dulness being chiefly at the base, will distinguish it from tubercular, cancerous, or pneumonic consolidation.

Pulsating Empyema.—A circumscribed collection of pus in the pleura, arising from pleurisy, may pulsate, owing to the fluctuating movement given to it by the beating of the heart, and such pulsations may give rise to the suspicion of aneurism. The absence of aneurismal murmur or thrill, and the want of signs of concentric pressure, and the history of the case, will guide the observer.

Pectoriloquy and cavernous breathing may be heard from the lung being condensed by pressure (from a former pleurisy) over an enlarged bronchus; and from the general cachexia the diagnosis may be (erroneously) "tubercular cavity," the history of the case and the absence of signs of tubercle at the apices, will aid the diagnosis, but if tubercle at the apices coexist with pectoriloquy, especially if percussion over the pectoriloquous region be dull, and there be hectic, the diagnosis may be very uncertain.

The allopathic treatment of acute pleurisy, if the

patient be robust, consists in bleeding, cupping, leeching, salivation, blisters and purgatives, &c. "Cover the patient's side with a blister, there is no use of trifling!" is the advice once given me by one of my former teachers, a distinguished London chest doctor.

A certain Frenchman, M. Gendrin, was wont, in the *acute* stage of effusion, *uniformly* to practise perforation of the pleura to draw off the water, "until he was forced to desist from the constant death of his patients," so writes Dr. Walshe, p. 378, and may we not ask why was M. Gendrin not indicted for manslaughter?

Dr. Harper, of Windsor, appears to have been more successful, for in a very interesting paper which he read before the British Homœopathic Society, April, 1859, he gave the history of a case of acute pleurisy, in a lady, æt. thirty-two, threatened with instant suffocation, in which he performed paracentesis, and drew off half a gallon of water to the immediate relief of the patient, who made a complete recovery, and certainly under such circumstances this hazardous operation would appear to be necessary. Dr. Harper allowed the fluid to escape only during inspiration, when the lungs being distended as far as possible, hindered the entrance of air into the pleural cavity.

The homœopathic treatment of acute pleurisy is perfectly simple. During the inflammatory stage Aconite and Bryonia in alternation, the 3 decimal dilution of the tincture, a tea-spoonful of medicine, every half-hour, one, two, or three hours, according to the intensity of the symptoms. In the first stage many would prefer the use of Aconite only; Bryonia being used after effusion has taken place. Belladonna may be used to relieve the neuralgic pains. Arsenicum is also one of

our best remedies in aid of the subsequent absorption process, and Sulphur is also given in this stage.

Acute pleurisy, although it may lead to chronic pleurisy and thus destroy life, is yet, in a purely *idiopathic* form, a disease not often fatal, even under allopathic treatment, unless bloodletting has been pushed to extremities, as no doubt in former days, especially, was often done. Dr. Walshe says he has never lost a case of pure idiopathic pleurisy, but if this be the case a large number of pleurisies must be complicated, because of all pleurisies treated at the general Hospitals of Vienna, the proportion of mortality was from twelve to thirteen per cent., the mortality at the Homœopathic Hospitals in the same city, being about one and a half per cent. (See further, Professor Henderson's 'Reply to Dr. Simpson,' pp. 80, 81.)

I fully believe that under homœopathic treatment *chronic* pleurisy must be, as compared with what happens under the monstrous allopathic treatment, as narrated above, a very rare sequence to acute pleurisy.

That heroic treatment fails to kill in acute idiopathic pleurisy, only proves that the disease is not one of those which seriously affects a vital organ. It is not for instance like pneumonia, which implicates the *substance* of the lungs, but effusion is rather a mere mechanical pressure external to the lungs, and so long as this pressure is not so extensive as to threaten suffocation, the result is more inconvenient than dangerous.

The treatment of chronic pleurisy.—The result in this disease may be—1. Collapse of the lung, and retrocession of the chest walls; or, 2. There may be permanent purulent secretion; or, 3. There may be fistulous

openings through the pleura, or even through the chest walls, which discharge pus.

In the first instance, little treatment may be required, as the sound lung learns to perform double work, and it is only necessary to treat such attacks of pain or pseudo-pleurisy, &c., as may arise in the injured lung, and to attend to the general health.

In the treatment of empyema, or pus in the pleural cavity, allopathy says, "General bleeding may, with caution, be had recourse to;" Iodine, also, rubbed in, "blisters are often signally beneficial." "Issues, setons, moxus, and the actual cautery may be tried."

Who, after this treatment, which is taken from the most "scientific" work of one of the most "legitimate" physicians of the present day, will assert that the barbarisms of old physic are extinct?

Homœopathy, instead of bleeding, blistering, and burning, will try the action chiefly of Silicea, Hepar S., Phosphorus, and Sulphur, for the cure of chronic pleurisy, with secretions of pus, together with Cod-Liver Oil, habitual manual frictions over the diseased side of the chest, with oil and spirits, abundance of fresh air, carriage or horse, or easy walking exercise, and a diet such as can be perfectly digested, if possible, as nothing will more hinder the re-absorption of fluids, or more encourage diseased secretions, than any strain laid on the digestive organs, or any extra labour put on the excretory organs.

Empyema (ἐν, within, and πύον, pus,) is an ancient term, signifying collections of pus anywhere; and Laennec used it in reference to that collection of pus or serum in the pleura which succeeds acute or chronic pleurisy, and threatens to remain unabsorbed. It is

evident that neither the bulging which is thus caused, nor any other sign, can enable us to decide whether the fluid is pus or serum.

Paracentesis has occasionally been successfully employed in drawing off this muco-pus or serum of chronic pleurisy, but the result is more generally the admission of air to the pleural cavity, and the conversion of more or less laudible pus into a pus more or less the reverse; and this is followed by increased hectic, and probably an accelerated fatal termination. Further, as empyema is frequently accompanied by tubercle *in* the lungs, the benefit to be derived from the operation is still further problematical. Paracentesis being an operation which is much shunned, it is possible that the results might be more favorable if it were performed earlier in the disease than usual, and not delayed until the stamina of the patient was exhausted.

The trochar is the best instrument to use, and the space between the fifth and sixth ribs the best, generally, for the puncture, which, however, should be made where the pus is most abundant, taking care to avoid penetrating the diaphragm, and also the lung itself. Total dulness, and the absence of all respiratory murmur, will prove that the lung is not in contact with the costal pleura. An exploring groove needle may be passed before inserting the trochar, if doubts exist as to the presence of fluid in contact with the costal pleura.

In order to prevent the entrance of air, it may be advisable to perform the operation under water, or at least to perform the operation so that the gravitation of the fluid may cover the internal orifice. Why should the fluid not be drawn off by the aid of a suction pump?

HYDROTHORAX.

Hydrothorax is the term given to accumulations of water in the chest from causes other than idiopathic pleurisy, as from the presence of tumors from tubercular or cancerous disease, or Bright's disease, but most frequently this dropsy results from heart disease.

There is lividity of face and dyspnœa, and, if suffocation threaten, paracentesis has been resorted to with temporary relief.

Allopathy recommends cupping and blistering, but the presence of hydrothorax being almost synonymous with a broken constitution, it is not easy to recognise the good anticipated from such depletory measures.

The homœopathist will endeavour to relieve the symptoms by *Veratrum* and *Lachesis*, but chiefly by *Arsenicum*.

Frictions, also, over the back and chest will give relief, and as pure and elastic an atmosphere as can be secured will be sought after. The treatment, in short, will be as for effusion in heart disease.

PNEUMOTHORAX.

Pneumothorax is an accumulation of gas in the pleura, the result, it may be, of external wounds opening into that cavity, or of gangrene, or of tubercular or emphysematous perforation from the lungs, or it may be from the result of decomposition taking place in empyema.

As gas often rapidly forms in the intestines, and occasionally even in the cellular tissue of hysterical women, there is no physiological reason why it may not sometimes arise idiopathically in the pleural cavity,

although there is no proof that such an occurrence has happened. Be that as it may, certainly pneumothorax is, in the great majority of cases, the result of phthisical perforation.

The symptoms of perforation having taken place are generally a sudden and most acute pain, and a sensation of rupture, followed immediately by distressing dyspnœa; but minute perforation may take place and air enter so gradually that dyspnœa may be the first symptom.

The presence of air in the pleura will prevent the full expansion of the lungs. Acting like the irritation of a foreign body, a secretion of fluid takes place, and hydro-pneumothorax becomes established, followed by symptoms of hectic and cachexia.

Death usually results in phthisical cases in from a few hours to ten weeks; but if the accident be in one lung only, and the individual possess the free use of the other lung, life may be long retained, or closure of the perforation and recovery may take place.

Bulging takes place with tympanitic percussion, and respiration sounds cease to be heard unless the layer of air between the lungs and the walls of the chest be very thin.

If effusion coexist with air, the lower part of the lung yields dead percussion. By succussion, the splashing of fluid may be heard, and cough sounds may echo in the air cavity.

Allopathic treatment recommends bleeding, because more fluid is in the circulation than the diminished capacity of the lungs can oxygenate; but the blood of those wasted by phthisis is reconciled, as it were, to defective oxygenation, and all the poor patient's remain-

ing strength is required to enable him, if possible, to recover.

Lachesis and Arsenicum may afford some relief; while comfort will also, most probably, be obtained from bandaging the chest by way of counter-pressure to that from within.

Paracentesis performed below water may be sometimes thought advisable.

HÆMOTHORAX.

Hæmothorax, or the effusion of blood into the pleura, may be the result of wounds, fractured ribs, ruptured aneurism, pulmonary apoplexy, cancer, or scorbutus.

In such cases there must be dull percussion, and difficult breathing.

It will be generally distinguished from pleuritic effusion by its suddenness, the aggravated nature of the symptoms, and the absence of friction sounds.

Army surgeons often meet with hæmothorax, and paracentesis has sometimes been practised with good results.

Civilians less frequently meet with the disease, and then it is chiefly in cases which from their nature generally terminate fatally.

ACUTE PNEUMONIA.

Acute pneumonia (*πνευμων*, the lung), more correctly pneumonitis, is inflammation of the lungs—that is, of the vascular system of the minute tubes and air-cells. Like most other inflammations, it generally results from exposure to cold or wet; it has besides resulted from over-straining the lungs in blowing wind instruments, and from blows, &c. Three stages are recognised in this disease. 1. The stage

of engorgement. 2. The stage of red hepatization. 3. The stage of grey hepatization, or purulent infiltration, from the deposit of pus or exudation matter during the softening of the plastic lymph of the red hepatization.

In the stage of engorgement there is yet sufficient air admitted to the lungs to float them in water, and to cause crepitation on pressure. If cut, they exude a red frothy fluid. In the stage of red hepatization the lung is of the density of liver, sinking in water, while the weight of the entire lung may be six times that of the healthy lung, the air-cells being filled with blood and fibrine, giving a granular aspect to the lung when cut into.

If pneumonia supervene on old standing wasting disease, the texture of the lung is often friable and pulpy, spleen-like; but, if the attack seize lungs previously healthy, the texture is firm and liver-like, and, on being cut into, exudes a claret-coloured fluid, viz., exuded broken down blood as it were, and containing very few air-bubbles.

In the suppurative stage the lung becomes mottled, with interstitial deposits of pus, giving the appearance of grey or red granite, or a general straw colour, if the suppuration be profuse.

These three stages may occasionally coexist in one lung at different parts.

Abscesses may occur, chiefly in the old and decayed, or those much exposed or debilitated by "*over treatment.*" These abscesses may be from the size of a nut to that of an orange, and may rupture into the pleura and cause death, or be voided, and the walls healed by cicatrization. In an average of seven cases, it

is estimated that the right lung will be exclusively attached in four cases, the left lung exclusively in two cases, both lungs simultaneously in one case. Again, by averaging seven cases the upper and lower parts of the lung will be each attached in three cases; the middle part in one case. Double pneumonia is much more rare under homœopathic than under heroic treatment, proving that such heroic treatment tends to extend the disease.

Physical Signs.—In the preliminary stage of congestion there may be no perceptible sign, except weak breathing, probably from a certain soft tumescence in the lungs, or harsh breathing from dry vascular injection.

In the stage of engorgement there is dull percussion. The respiration is weak or rhonchal in the affected parts, and exaggerated in the neighbourhood of these parts.

The true crepitant hair-friction rhonchus of the engorgement stage of pneumonia may escape detection, owing to the rapidity with which the engorgement stage has passed, giving place to the fibrinous exudation stage, by which the entrance of air is prevented into the injected part.

If the hepatization be not so extensive as to block up the bronchia, increased vocal vibration will be detected somewhat in the ratio of the density of the solidification.

Percussion is of various degrees of dulness, but it may be the reverse, if the solidification bring into communication a large bronchus and the chest walls.

Bronchophony will be heard under the same circumstances.

The respiration in hepatization ceases to be vesicular, and becomes tubular over the region thus solidified, but crepitating rhonchus may be heard at the same time in the immediate neighbourhood.

There may be a purulent or other copious secretion into the bronchia, causing bubbling rhonchi; and a main bronchus may become temporarily occluded, accompanied for the time by a cessation of respiratory sounds.

When resolution begins to take place after hepatization, the blowing tubular breathing becomes softer and softer. Crepitant rhonchi somewhat coarser than those produced during the invasion of the disease reappear, and the dulness on percussion gradually diminishes. Thus, in from four to eight days, the lung sounds may be again quite normal.

Instead of resolution occurring, accompanied by an infiltrating form of suppuration, there may, especially in depraved constitutions, occur diffuse suppuration, a very fatal result, or abscesses are formed, yielding dull percussion; and when the pus is discharged, should the patient survive, the cavity may continue for some time, viz., from a few days to three months, or even six months, as in a case recorded by Laennec, to yield cracked pot percussion and cavernous percussion, but such cavities are generally soon closed by cicatrization.

Symptoms.—Like other inflammations, pneumonia is ushered in with fever and rigors. The skin may be dry and acrid. The breathing is short and rapid. There may be fifty respirations in a minute, although the pulse

may be only 100. The face is flushed, and the expression anxious. There is generally a dull pain in the affected part, and there may be headache and vomiting. Typhoid symptoms, in some cases, are so strongly marked that the disease may be mistaken for typhus fever. The pulse may range from 100 to 160, but may be as low as 60.

The cough, at first, is dry and hard; but usually within forty-eight hours it is accompanied by a viscid, rusty, or bloody sputa, of an adhesive, fibrinous nature, and lasting from one to fourteen days, and in recovery gradually becoming less and less bloody, and passing through shades of brown and yellow until it becomes white and bronchitic.

In rare cases, the sputa has not been bloody, and cases occur without any expectoration whatever.

If there be true hæmoptysis, as distinct from bloody sputa, according to Dr. Walshe, the case is complicated with tubercle.

The sputa is fibrinous in quality; and under the microscope, blood-discs, oil-globules, and casts of the minute bronchia may be discovered, but rarely true pus cells. In the third stage, the expectoration is more or less purulent.

Sugar sometimes exists in the sputa, owing, it is believed, to the deficient oxydising process, from the impervious condition of the lungs.

Probably from a like cause, there is sometimes a considerable accumulation of fat takes place in the lung tissue during pneumonia; and often, from the same cause, the expired air, even during the fever, may be colder than natural.

Owing to hepatic obstruction, the right side of the

heart and the jugulars may become gorged with blood, and the blood being highly fibrinous there is a tendency to the formation of coagula in the right side of the heart. The tongue may, or may not, be brown and coated.

If the attack exist in the lower part of the right lung, the liver may become affected, and jaundice follow.

The urine is scanty and acid, but convalescence is sometimes ushered in by a plentiful flow from the kidneys.

“The anatomical terminations of acute pneumonia are—by resolution—or by diffuse suppuration, by abscess, gangrene, or chronic induration; the clinical terminations are by recovery, death, or lapse into the chronic state.”

Resolution, or melting, as it may be called, may take place in the engorgement stage, but usually in the hepatized stage, and generally begins from above downwards. Should the reverse take place, and the apices be the latest to become sonorous under percussion, a suspicion of tubercles in that quarter may be entertained.

Resolution would appear to take place, under homœopathic treatment, in a larger proportion of cases before hepatization has occurred, than happens under blood-letting, &c.

The lung is cleared of the fibrinous deposits partly by absorption, and partly by expectoration.

There may be no positive or exclusive sign or symptom of the formation of abscesses in the affected lung. Such a result rarely occurs, except in broken-down constitutions, when rigors, sordes, hectic and typhoid symptoms may also be expected.

In the old and debilitated, latent pneumonia may occur; the only symptom being rapid breathing.

Professor Henderson showed, twenty years ago, that pneumonia tended spontaneously to cut itself short by hepatization, debarring the further entrance of blood at the inflamed part of the lung.

Resolution consists in the gradual softening and disintegration of the hepatoid substance, and is followed by the expectoration of sputa, which are at first bloody, and fibrinous, and mottled, and terminate gradually in frothy, colourless mucus.

Diffuse, or profuse, or destructive suppuration, on the contrary, usually indicates great depravity of constitution, and is usually fatal. It is not, however, unlikely that these results are sometimes produced by bad treatment.

The average duration of the disease, under allopathic treatment, is about thirty days; the average duration, under homœopathic treatment, is only twelve days.

Convalescence is generally more rapid than might be anticipated from so severe a form of disease; but a certain amount of debility, pain in the chest, shortness of breath, and dulness on percussion, continue for some time, together with a tendency to renewed inflammatory attacks in the lungs, demanding carefulness, especially in severe or changeable weather. Suppuration may take place in the inter-lobular tissue, or such tissue may become the seat of fibrinous induration matter, leading to contraction of the lung tissue, enlargement of the bronchia, and more or less impermeable and dense lung tissue, with weak or tubular breathing.

Diagnosis.—Pneumonia will be distinguished from capillary bronchitis by crepitant rhonchi being generally local, while the sub-crepitant rhonchi of capillary bronchitis is usually pretty general in both lungs. Localised dull percussion is a further distinctive sign in favour of pneumonia. The dull percussion from pleurisy is almost always to be found at the base: it is more absolute dulness than that of pneumonia, and no crepitation is heard. The pleuritic dulness is often also altered by the position of the patient. The “rusty sputa” of pneumonia, with the physical signs, are, however, usually unmistakeable.

Results and Treatment.—Under the allopathic treatment of M. Grisolle, as quoted by Dr. Walshe, “Of 103 convalescents from pneumonia discharged from the hospital between the twentieth and fifty-fifth days of the disease, 37 had no morbid signs remaining, 36 had weak respiration, 14 slightly blowing respiration, 11 redux-crepitant, or sub-crepitant rhonchi, and 5 deficient expansion, with bronchitic rhonchi.” That is, about two thirds of those discharged as convalescents went out with slight morbid symptoms remaining, the greater proportion of which number would probably attain to perfect health.

Death, when it occurs, is usually in the hepatoid stage, and proceeds from gradual asphyxia, viz., deficiency of oxygen, and loss of vital power; but as death often results under allopathic treatment when only the third of one lung is hepatised, it seems difficult to resist the conclusion that such cases are chiefly killed by treatment.

Andral says that recovery is the exception, should the respirations exceed fifty in a minute. But it is to

be remembered, that in the hysterical the respirations may be as frequent with or without inflammation of the lungs, and with no real danger. It is further to be remembered that this is the experience of heroic treatment.

Age is an important element in the rate of mortality. The most fatal cases are those in new-born infants. In them pneumonia is generally double, that is, affects both lungs, but is usually lobular, that is, with interspaces of sound lung. Pneumonia in very young children is also a dangerous disease, because it usually supervenes on some other disease, as measles, hooping-cough, croup.

Pneumonia in infants, according to allopathic authority, is fatal in about 70 per cent. of the cases :

Between the ages of 6 and 12—3 die in 100.

"	"	16 to 20—7	"
"	"	20 " 70—20	"

The disease attacks about 130 males to 100 females ; the male being more exposed, and, as I believe, a more oxygenated being than the female ; but according to Dietl's experience, of the females attacked, the relative mortality is two to one against females as compared with males.

The disease is most fatal in those of a debased constitution—as dram-drinkers, and those with kidney disease.

According to Dr. Walshe, pneumonia does not run a less favorable course owing to the presence of tubercle, nor does pneumonia of small extent, supervening in the phthisical, appear to precipitate tuberculization. "If pneumonia be extensive, rapid breaking up of tuberculised parts may follow."

With the exception of cholera, there probably exists no disease the statistics of which are more copious and

explicit; and with the exception of Asiatic cholera, no disease the relative mortality of which is so triumphantly in favour of homœopathic treatment.

Indeed, pneumonia may be considered as the grand test disease, in the relative success accompanying different orders of treatment.

In 1430 cases collected by M. Grizolle, the mortality was 18 per cent.

M. Louis gives a list of 78 uncomplicated cases, with a mortality of 28 to 30 per cent.

In 126 cases collected by Drs. Walshe, Taylor, and Peacock, 43 died, viz., more than 30 per cent.

Of 1522 cases treated at the Glasgow Infirmary, the General Hospital, Vienna, and by Drs. Walshe, Taylor, and Peacock, 373 died, or 24 per cent.

So far for the results of allopathic treatment.

Dr. Routh, in the 'Fallacies of Homœopathy,' collects 783 cases treated by homœopathy, with 45 deaths, or about 5·7 per cent.

In 41 cases treated homœopathically by Dr. Tessier, of the Hôtel Dieu, Paris, 3 died, or about 7 per cent.

Dr. Fleischmann, of the Vienna Homœopathic Hospital, up to 1856, viz., during twenty years, has treated 1058 cases of pneumonia homœopathically, with a mortality of 48, viz., less than 5 per cent.

The mortality being not 2 per cent. in adults under 40 years of age, having no other disease present.

Thus the mortality under allopathy is from 24 to 30 per cent., while the mortality under homœopathic treatment is from 5 to 7 per cent. only.

So startling, and at first sight so apparently impossible a result could not be credited; and we should have been justified in seeking a solution, in part at least, from the

variable mortality resulting at different ages, and in different towns, and at different periods. Accordingly, it has been attempted by Dr. Simpson and many others totally to ignore the homœopathic statistics, on the ground either of ignorance or falsehood on the part of the homœopathic practitioners making the returns.

Most fortunately, however, for homœopathy, the homœopathic cases have been watched by enemies, with the intention of detecting errors, but without the slightest success.

Still the disparity between the two results is so startling that it could scarcely be fully credited, were it not for the corroborative evidence of Dr. Dietl, of Vienna.

This gentleman, struck with the statements of Dr. Fleischmann and others, but having no faith in homœopathy, resolved to put the matter to the test; and accordingly, for some years previous to 1847, made the following experiments; and being a physician to the General Hospital of Vienna, which contains two thousand beds, he had almost unlimited opportunities in making observations. In 380 cases of pneumonia—

85 Cases were treated by bloodletting, of these 17 died, viz., 20 per cent.					
106	„	tartar emetic in large doses,	22	„	21
189	„	diet only	14	„	7.4

In the forty-third number of the 'British Journal of Homœopathy' is given Dr. Dietl's further experiments between 1847 and 1850. During this period he treated 750 cases of pneumonia by the pure dietetic plan only, with a mortality of 69. The average duration of the disease in these cases was 20 days, viz., from 5 to 8 days of febrile symptoms, and from 7 to 14 days of convalescence.

The expectoration was bloody in 495 cases, and bloodless in 158 cases; absent entirely in 55 cases, and purulent in 42 cases.

The total mortality was 9·2 per cent., viz., in females 12 per cent., in males 6·7 per cent. Of the 69 deaths, 8 died in the stage of red hepatization, 56 died in the stage of grey hepatization, and 5 in the stage of diffuse suppuration, and most of the fatal cases were complicated with other serious diseases.

The average duration of the disease under diet is 20 days, under bloodletting 30 days. Under homœopathic treatment, in 43 cases the average was under 12 days.

Thus it appears indisputable that homœopathy not only shortens the duration of the disease by 8 or 10 days as compared with Dietl's results for diet only, but about 14 days as compared with its duration under drugging or bleeding, and that, as compared with Dr. Dietl's treatment, the mortality is from 2 to 4 per cent. less than his, and from 15 to 20 per cent. less than that under allopathic treatment.

Incredible as it may appear, and notwithstanding the overwhelming testimony thus forced on the mind by the result of the homœopathic treatment and that of Dr. Dietl, yet the latest works on diseases of the chest, and those emanating even from thinking and acute men, advocate "bloodletting especially," from twenty to sixty ounces, as the "grand sheet-anchor" in the cure of pneumonia, together with leeches, cupping, tartar emetic, and blisters!

So perfectly evident is it, from the results following homœopathic treatment and from Dr. Dietl's experiments, that heroic treatment in this disease annually

kills thousands and thousands throughout Europe, that it is only surprising that legislative measures have not, long ere this, been enforced against such homicidal practices.

Homœopathy is deeply indebted to Dr. Dietl for the corroboration which his testimony offers against the active treatment of this, and we may therefore suppose, of all acute inflammations—and the world should also, in this nineteenth century, awaken to the fact that acute disease is not some terrible demon which must infallibly kill man—unless some pedantic and absurd little doctor rushes in to the rescue forsooth, with his lancet, mercury, and cantharides.

In London, the annual mortality from pneumonia is about 4000, of these about 2600 die from October to March inclusive, and about 1400 from March to October. The cold months are thus twice as fatal as the warm months.

As the mortality under allopathic treatment is on the average about 20 per cent., we thus arrive at the calculation that 20,000 individuals are annually attacked in London by pneumonia, and, as we know that the mortality in this disease under homœopathic treatment is only on an average 5 per cent., it follows that instead of an annual mortality of 4000 in London from this disease alone, were all such cases treated homœopathically we are justified in stating that the mortality would probably be reduced to 1000, and 3000 lives be saved annually.

The homœopathic treatment of this disease consists almost entirely in the use of Aconite, Phosphorus, Bryonia, and Tartar Emetic.

Dr. Tessier employs Bryonia, the 24th dilution, almost exclusively; and Dr. Fleischmann, on the other

hand, uses almost exclusively Phosphorus, the 3d or 6th dilution.

If we can judge by the returns, Tessier's success is not equal to that of Fleischmann, and Phosphorus has generally been regarded as the most truly homœopathic remedy for this disease.

For myself, I would use Aconite in alternation with Phosphorus in the more febrile stages, and Tartar Emetic will often be useful in the hacking cough which may accompany the declension of the disease.

I should employ the dilutions from the 3d decimal to the 6th centesimal.

In typhoid pneumonia, or in such pneumonias as may supervene in typhus or scarlet fever, in smallpox or in measles, Rhus and Arsenicum are remedies to be considered, together with those other remedies homœopathic to the primary disease.

In the treatment of pneumonia, as owing to the impervious state of the lung the blood is ill-oxygenated, it must be important to keep up good ventilation in the bed-room. In cold weather by means of a small brisk fire; in warm weather by means of the open window and door, taking care that the current of air do not blow too strongly on the patient, the test of which will be the patient's sensations.*

The disease called pleuro-pneumonia, which has killed so many cattle of late years, would appear more

* See 'British Journal of Homœopathy,' Nos. 31, 42, 43; also Professor Henderson's masterly 'Reply to Dr. Simpson's Burlesque on Homœopathy;' see also Dr. Routh's 'Fallacies of Homœopathy;' also the review on that singular work in the 40th No. of the B. H. Journal—illustrating the total futility of his attack on Homœopathic statistics. Nos. 15 and 16 American 'Homœopathic Journal' (Quarterly).

correctly to resemble typhus fever with pneumonia added.

Mr. Barns, cow-keeper, treats his cows homœopathically in this and all other diseases, with, he says, a success much beyond that of his acquaintances, who follow other methods.

He also, should the epidemic appear in his stables, inoculates his sound cows with some of the purulent matter taken from the lungs of a dead cow. The inoculation is performed at the root of the tail, and the result he affirms to be prophylactic to some extent, but in other cases the tail rots off, and the cows take the disease, and may die of it.

Mr. Moore, veterinary surgeon, believes that inoculation is not yet proved to be prophylactic, but he is inclined to believe that it modifies the disease, should it supervene. He also thinks that a better inoculation would be from an analogous disease occurring in some other species.

CHRONIC PNEUMONIA.

Chronic Pneumonia may occasionally supervene on the acute disease, continuing as the dregs, as it were, of acute pneumonia, accompanied with dyspnoea, cough, and hectic symptoms, and altogether presenting a quasi-tuberculous aspect of things. Local indurations from exudation matter, and depressions—accompanied by dull percussion—weak, or harsh, or blowing, or exaggerated respiration, with, it may be, increased vocal vibrations and vocal resonance, with sub-crepitant rhonchi, if there be bronchitis, or œdema—being also present.

Should this state of things exist, especially at either

apex, it may require much carefulness and discrimination together with attention to the history of the case, to distinguish the affection from that caused by tubercular deposit, and especially if hectic symptoms exist.

Such a state of things may arise from the sequel of purely inflammatory pneumonia. Cancer is another cause. Tubercular deposit, however, is the most frequent course of repeated *local* inflammatory attacks in the lungs.

The Treatment.—This consists in the employment of Phosphorus, Calcarea, Aconite, Arsenicum, daily frictions with oil over the affected parts, but very tenderly applied if there be any pain, and especially if there be spitting of blood.

The further consideration of the medicinal and hygienic treatment will come under consideration when treating of phthisis.

ŒDEMA OF THE LUNGS.

Œdema of the Lungs, like that of the sub-cutaneous cellular tissue, consists in a watery infiltration into the intercellular texture of the lungs.

Under such circumstances the lungs would pit on pressure, and be heavier and denser than in health.

The percussion will be deficient in clearness, and the respiration should furnish fine bubbling rhonchi, like that of capillary bronchitis, with cough and aqueous expectoration.

The Cause may be Bright's disease, general dropsy, bronchitis, or pneumonia, and the condition may exist in typhus or scarlet fever, or from mechanical pressure or obstructions, or from a mere infiltration of serum in emphysema of the lung, or in general debility.

The Symptoms will be dyspnœa and tightness, with a sense of weight ; cough, and bronchial expectoration.

This state of the lungs is rarely met with as an idiopathic disease, and, clinically speaking, must closely resemble æsthenic bronchitis.

Allopathic treatment advises blisters, dry cupping, and tonics.

Homœopathic treatment would consist in the use of Sulphur, Lachesis, but more particularly Bryonia, and most especially Arsenicum, from the 3d decimal to the 12th centesimal dilution.

GANGRENE.

Gangrene, or mortification of the lungs, may be diffused over the lungs in spots, but in almost all cases exist in localised masses. Laennec in twenty-four years met with the diffused form only twice. It is a very rare form of disease, and only met with in children and adults of a vitiated constitution, or in drunkards. In those, in short, in whom the putrefactive process might be anticipated to be rapid.

In such cases it may be the sequel of pneumonia, or it may occur in cancer ; or from the pressure of hydatids, or other tumors on the pulmonary artery, or after measles or scarlet fever, or be associated with cancerum-oris or glanders. Sometimes it is a termination in insanity.

It usually kills in a few days, but chronic gangrene of the lungs is also known.

There may be hæmoptysis, which will be distinguished from that of tubercular origin by the presence of a foetid expectoration and the peculiar leaden aspect of

the patient, together with cadaveric perspirations and a small and rapid pulse, and frothy, purulent, blackish or ash-coloured gangrenous expectoration.

It may, however, happen that the expectoration from a tubercular cavity, especially if there be pieces of decayed tissue present, or in the chronic bronchitis of vitiated constitutions, and sometimes in empyema, will be extremely foetid.

But the progress and history of gangrene is very different from that of tubercle, and tubercular cavity precedes the fœtor in the one case, while fœtor precedes the formation of gangrenous cavity in the other case.

There will be dull percussion, and if gangrenous lung be expectorated, there will be a cavity produced.

The result is almost inevitably fatal, according to allopathic experience, either from general prostration or from the perforation of a blood-vessel.

Allopathic treatment consists in tonics, Chlorate of Potash, Camphor, Yeast, Creasote, Quinine, mineral acids; and if there be inflammatory symptoms, leeching or cupping is recommended.

By the homœopathic treatment of pneumonia, scarlatina, and measles, we might justly expect to prevent the invasion of gangrene in some of the cases in which a very inferior treatment has ended so fatally, and further from the use of *Secale*, *Carbo-Veget.*, *Lachesis*, and *Arsenicum* especially, hopes might be entertained of saving some cases which would inevitably perish under a less searching allopathic treatment.

The diet must be very nourishing, such as beef tea, milk, and wine or brandy.

"Condý's Disinfecting Fluid," viz., permanganate of potash, may be used externally and taken internally, as

a deodoriser, and as its virtue depends on the abundance of oxygen which it contains, it may be useful as a vital stimulant.

HÆMOPTYSIS.

Hæmoptysis, or spitting of blood; hæmotomesis, or vomiting of blood, and pulmonary hæmorrhage, may be considered together.

Blood appearing in the mouth may come from the gums, tonsils, palate, nares, bronchial tubes, or the air-cells, or it may come from the stomach. It may arise idiopathically, as in the hæmorrhagic diathesis; it may come from spongy gums, as in scorbutus; exposure of the tooth-pulp may be the cause; epistaxis, congestion about the tonsils or uvula, or from syphilitic or other ulcerations of these parts.

Blood may be vomited in cancerous or other ulcerative disease of the stomach, or from blows, or from the sudden suppression of the menstrual or hæmorrhoidal fluxes, as after an operation for piles by the knife or caustic, or from obstructions in the spleen, liver, &c.

Blood may come from the bronchial tubes in the violent cough of bronchitis, and especially in plastic bronchitis; but if pure blood appear in this disease beyond a streaked sputa, tubercular disease is to be suspected. Hæmoptysis may further come from the air-cells, after the over-strong or prolonged blowing of wind instruments, or from loud speaking, bawling as on ship-board, or in the cry of the huntsman after the hounds, or in fits of violent passion, or during violent muscular struggles, or from exposure to cold followed by congestion, or from the rupture of an artery

or an aneurism, or from the obstruction caused by tumors in the lungs, or from cancer or hydatids, or mediastinal tumors, or from hypertrophy of the right ventricle. Also in idiopathic and other congestions, or "pulmonary apoplexies," pneumonia. The climbing of high mountains, according to some authorities, is often a cause of hæmoptysis; so also are wounds or blows on the thorax.

Tubercle, however, is by far the most frequent and serious cause of hæmoptysis.

Blood may come from the lungs of the scorbutic, or in purpura, or in the hæmorrhagic exanthemata, and arising in minute points (petechial), yield no physical signs.

Bleeding from what is called pulmonary apoplexy, viz., from local congestions or effusions, produced by hypertrophy of the right ventricle, or from regurgitation from the left ventricle, may also yield no very distinctive physical signs.

Hæmorrhage has been known to take place in the lungs, and passing into the intercellular tissue may even cause fatal engorgement, and yet fail to exhibit itself by hæmoptysis.

Blood coming from the stomach is usually preceded by a sense of weight and sickness, and being suddenly expelled, there may be no more seen at that time. It is generally dark in colour, and mixed either with thick slimy mucus or with food, or is acid from the presence of gastric juice; and if from this source, it may be expected to be found also in the stools.

Blood passing from the nasal membranes through the posterior nares, and getting mixed with frothy mucus, may, when coughed up, closely simulate blood coming

from the lungs, but blood in small quantities from this source is usually mixed with thick mucus.

Boys and girls have frequently bleeding from the nose. About the age of puberty the bleeding is more frequently from the lungs, while in old people bleeding from the stomach is more frequent.

Hæmorrhage caused by aortic aneurism may be merely in the form of a streaky viscid expectoration, or it may come in mouthfuls.

Hæmoptysis from disease of the heart, and from tubercle, does not often coexist in the same person.

But although heart disease and tubercular disease are very rarely actively in progress in the same person and at the same time, yet both diseases at different stages of development may coexist in the same person, although the two diseases are apparently somewhat antagonistical.

We are generally taught that vicarious hæmorrhage from the lungs is not uncommon in cases of scanty or suppressed menstruation, and that hæmorrhage from the lungs in the female is often of much less importance than when it occurs in the male. Dr. Walshe, however, believes that when such hæmoptysis exceeds a mere trace of blood, or when it occurs during violent action, we are justified in suspecting the presence of tubercle.

Yet if we consider how common an occurrence is bleeding from the mucous membrane of the nose, it does appear singular that bleeding from the exquisitely refined tissue of pulmonary capillaries should not be an equally common and unimportant occurrence; and Laennec believed that "the greater number of slight hæmoptyses were *exhalations* from the bronchial mucus membrane, and were often observed to replace the

catamenia, and with a periodicity equally exact." With reference, however, to exhalations from the *bronchial* membrane, modern investigation would appear to be inimical to this idea.

I have at present under treatment a young lady who has been accustomed at intervals from infancy to epistaxis, and being now pregnant she has repeatedly at monthly intervals brought up from about half a pint to two pints of frothy blood. No phthisis exists in her family, and no signs of tubercle can be detected in her lungs. Her pregnancy, and the periodicity of the hæmoptysis, are also inimical to the idea of the simultaneous progression of tubercle. Still it is impossible to assert that tubercle is not the cause of these hæmorrhages.

With reference to hæmoptysis occurring in ascending high altitudes, my relative Mr. Kennedy, who in company with other members of the Alpine Club, has ascended Mont Blanc and other snow mountains in Switzerland (without guides), informs me that he never, even at the greatest altitudes, met with hæmoptysis, or even with any constriction about the chest. Hæmoptysis under such circumstances may, however, we may easily conceive, arise in those who become violently "overblown," or if there be tubercles in the lungs.

Hæmoptysis, if accompanying the expectoration of acute or chronic bronchitis, unless explained by the presence of heart disease, or by the excessive violence of the cough, should lead to the suspicion of tubercle in the lungs.

The expectoration of fluid blood in pneumonia would also justify the suspicion of the presence of tubercle.

Tubercle is undoubtedly by far the most frequent

cause of hæmoptysis, and may from this, as from other causes, be in amount only microscopical, or it may come welling up in mouthfuls, but usually it only tinges the frothy expectoration.

Tubercle may cause hæmoptysis by merely impeding the circulation in the capillaries, or it may disorganize the vascular tissue, and thus lead to oozing of blood. If, however, a larger vessel is penetrated, then hæmorrhage more or less profuse must follow.

Blood coming from the lungs is generally bright red, but it may be dark either because it is venous blood, or it may be because it has not been immediately expectorated after it has passed from the artery.

The sensation in expectorating blood is often as if it came only from the trachea, and it comes up usually with a little short cough, or the first sign may be the frothy saliva being found tinged with blood.

If the blood come from the lungs, there is often a taste of blood precedes its appearance, and a sensation of burning in the lungs.

If tubercles can be detected in the lungs, there is presumptive evidence that red blood, if coughed up, is from that source. But hæmorrhage may be caused by tubercular infiltration, and yet these tubercles be so thinly scattered that no physical signs indicative of their presence can be detected.

If the blood come from the lungs, rhonchi will generally be found.

Treatment.—Allopathic treatment, if congestion or fever exist, recommends bleeding, cupping, leeching, or Tartar Emetic to nauseate. Under other circumstances, watery purgatives, Acetate of Lead, Prussic Acid, Gallic

Acid, &c., are recommended. Dry cupping is used in passive congestions.

Homœopathic treatment—must have a great advantage over allopathic treatment, especially in all cases where debilitating treatment is to be especially avoided, and as probably ninety per cent. of hæmoptysis arises from the presence of tubercle, this advantage must be most important.

Aconite, Arnica, Arsenicum, Phosphorus, and Ipecacuanha, are the chief homœopathic remedies.

Aconite in all cases accompanied by inflammatory or feverish symptoms.

Phosphorus in congestive cases.

Arsenicum in cases of cachexia especially.

Arnica is a remedy in nearly all cases.

Ipecacuanha in cases more especially accompanied by faintness.

China is generally given afterwards to restore strength.

The treatment of hæmoptysis is further considered under the "spitting of blood" in phthisis.

Dry cupping, as sometimes practised by the old school, is a rational method of cure, and by diverting the circulation of the blood may be very successful as an expedient. So also should Junod's boot be often expected to be very serviceable.

The sympathetic action of a little salt, placed on the tongue, may cause a contraction of the bleeding vessels in slight cases.

The third decimal dilution is the one I should in most cases prefer in active hæmorrhage, and a teaspoonful of the solution may be given every five, ten, fifteen, or twenty minutes, in acute cases.

The patient must, during active hæmorrhage, be kept very quiet, avoiding all active motion, especially with his arms. His mind must be kept as composed as possible, and there should not be too much light in his chamber. His food and drink should be as limited as possible during active hæmorrhage, and that which is taken, must be taken cold. In some cases, ice applied over the chest may be advisable, and also between the scapulæ. Sucking ice may also be serviceable. Abundance of fresh air should be admitted to the bedroom, but over-chilling must be avoided as tending to drive the blood inwards. If there be a tendency to spitting of blood, the individual should live quietly, and not indulge in any violent exertion of mind or body, or in excess of any kind, and the patient must be otherwise treated according to the nature of the disease which may be the cause of the hæmoptysis.

PULMONARY APOPLEXY.

Pulmonary apoplexy is the name given by Laennec to nodular, general, or diffuse engorgement of the lungs, followed by hæmoptysis.

Diffuse engorgement of the lungs apart from inflammatory, or cancerous, or other organic cause, is scarcely known.

In nodulated engorgement there are, on *post-mortem* examination, generally found dense masses like clots of blood, from half an inch to two inches in diameter, and from two or three to ten or twelve in number. Such, when found, are chiefly at the posterior base of the lungs.

This condition is chiefly found in connection with hypertrophy of the right ventricle, or in mitral regur-

gitation, and caused, no doubt, by the exudation of blood, from pressure, through the capillaries ; infiltrating into the air-cells, or into the intercellular tissue.

According to Laennec, hæmoptysis from this cause may be profuse, but others hold that it is generally scanty, and may be absent.

The Symptoms are dyspnœa, and dull pain, and hæmoptysis.

There are no reliable *physical signs* to be found if the nodules be small or deep seated. If superficial there may be discovered *localised* dulness on percussion, and absence of respiration sounds.

The treatment will be much the same as for pneumonia and hæmoptysis.

ATROPHY OF THE LUNGS.

Atrophy of the Lungs.—To some extent this is common in old age, viz., the age of repose and slow breathing. In such instances the air-cells may be found diminished in number, and increased in size, while the intercellular tissue is more or less absorbed. Pressure from atrophous emphysema, pleuritic effusions, and infiltration of tubercle, or fibrinous or other deposits are also causes of atrophy of the lungs.

If one lung only be atrophied, or its action impeded by mechanical obstruction, the other is usually developed in action and in bulk by way of compensation.

The respiratory sounds in emphysematous atrophied lung will be at times, in quiet breathing, almost inaudible ; but in full breathing may be harsh, and sometimes tubular, while percussion sounds will be clear, and in some parts tubular.

VESICULAR EMPHYSEMA.

Vesicular Emphysema (εμφυσᾶω, to inflate.) By the term emphysema, is meant that condition of the lungs where the air-cells are increased in size, thereby producing pressure, which tends to obliterate the capillary net-work of vessels, and to cause absorption of the intercellular tissue, whereby the blood becomes imperfectly oxygenated. The lung tissue is deficient in elasticity, and mechanical hindrance is offered to the capillary circulation.

Baillie and others referred to this disease in works of pathological anatomy, but Laennec appears to have been the first to give a name to the disease, and systematically to describe it.

In vesicular emphysema there is general distension of the lungs, causing a bulging of the chest, and an extension of the lungs downwards, whereby the heart may become overlapped, or somewhat displaced.

On opening the chest, emphysematous lungs do not collapse, as healthy lungs do, owing to the air being incarcerated in the enlarged cells.

A certain number of these enlarged cells may coalesce into a still larger cell; and if this be on the pleuritic surface, and ruptured—a rare accident—pneumothorax is the result.

“The upper division of the right lung, and the lower division of the left, seem to suffer most frequently.”

The surface of the lungs, and especially the anterior borders, are the chief seat of the disease.

Pulmonary tubercle, according to M. Louis, is to a

certain extent, incompatible with emphysema of the lungs.

This may be, because two different diseases do not often coexist in the same organ, or because the venous condition of the blood is, as is supposed, unfavorable to the development of tubercle, and as, according to Mr. Rainey, oil-globules are frequently found in conjunction with emphysema, we have here a condition of things producing *oil*, the enemy as it were of *tubercle*. Whether this oil arises from the disproportioned action of the liver, as compared with the lungs, seems to me worthy of investigation.

Emphysema, in the course of years, tends to produce hypertrophy of the right ventricle, congestion of the lungs, bronchitic effusions, and venous congestions in the head.

Emphysematous cells are from the size of millet seeds and hemp seeds, and may become, in isolated instances, as large as walnuts; or air may penetrate into the intercellular tissue, inflating this into irregular-shaped cellular distensions.

Dr. Jackson, of Boston, U.S., found that of twenty-eight cases of this disease, eighteen had one or both parents similarly affected. Further, that if the disease were developed in youth, nearly all such cases had inherited it, while, if it did not appear till advanced life, few of such had it by inheritance.

These facts prove that emphysema occurring in the young is much more a hereditary disease than phthisis, although the disease itself is of course very much more rare than phthisis.

The chief symptom of emphysema is dyspnœa—a dyspnœa which may appear in childhood, and in youth,

after over-exertion, but which increases with age, and becomes habitual, as the disease extends, and the lungs become the seat of excessive bronchial exhalation.

There is a sensation of want of freedom and fulness of breathing, and an often returning tendency to temporary bronchitic exacerbations.

The face may assume a thick dusky expression, from venous congestion.

The bowels are apt to be habitually constipated, while cough, accompanied by a frothy or watery expectoration is, if not generally present, yet very apt to occur on slight derangements to the health.

Œdematous swellings are not apt to appear about the ankles, except in extreme cases, or during exacerbations, as when heart disease and chronic bronchitis co-exist with the emphysema.

Physical signs.—Bulging of the chest may be local or general, and when the disease is small in amount, or there is much atrophy of the intercellular tissue, there may be no bulging. This bulging may be with or without a filling up of the intercostal spaces. Bulging will, on examination, present a very different aspect to the well-developed chest of the strong man, the chest being more round and prominent than in health.

On deep inspiration the shoulders are raised, but the girth of the thorax is little if at all increased by expansion during the effort.

Expiration is very much prolonged in relation to inspiration, owing to the inelastic condition of the lungs, and the tendency there exists for the air to become incarcerated.

The respiratory murmur may be inaudible, or it may

be exaggerated, sibilant, or harsh; the amount and quality of the murmur depending, I believe, a good deal on the force of the respiratory efforts, as well as on the extent of emphysema present.

Occasionally a sound like that of the crackling produced by distending a dry bladder is heard; no doubt from the inspiratory distension of one or more dry vesicles.

Percussion yields abnormally clear sounds, sometimes tympanitic sounds, and if the lungs encroach on the mediastinum, a clearness of percussion, normally absent, will be found in that region.

Laennec believed that emphysema produced friction sounds, but this does not appear to be the case unless in isolated cases, it may be produced by a large and *dry* vesicular prominence.

The vocal resonance may be weak or increased, and vocal fremitus may be increased, or be natural or diminished, depending much on the force of the voice of the patient.

The heart's sounds are feebly transmitted through emphysematous lung tissue, while the heart may be displaced, generally downwards, and the position of its beat thus lowered, but if the emphysema be confined to one lung, the displacement will be lateral.

Emphysema will be distinguished from pneumothorax by the history of the case, viz., the sudden occurrence of, and the more complete tympanitis of the latter, and by the absence of respiratory murmur.

Treatment.—No treatment can be expected to restore enlarged air-cells to their normal size, or to replace obliterated capillaries or intercellular tissue; but treat-

ment may do much to relieve the pressure of symptoms, to control the heart's action, to clear the lungs of congestions or of watery exhalations, and to increase the general tone of the patient.

Allopathy recommends bloodletting and Tartar Emetic, Lobelia Inflata, Ipecacuanha, Stramonium, Cannabis Indica, &c., under different circumstances.

Homœopathic treatment while, condemning bloodletting in all diseases, most emphatically disapprove of it in the treatment of emphysema: a disease so habitually accompanied by a tendency to debility and watery exhalations into the bronchial tubes.

Phosp., Bry., Nux Vomica, Ipecacuanha, Lachesis, and Sulphur, but especially Arsenicum, from the 3d decimal to the 6th or 12th centesimal dilution, are the medicines chiefly to be considered.

This is a disease in which habitual friction over the chest and down the sides of the spine will produce relief, by assisting the capillary circulation in the lungs and giving general tone.

Excessive bodily exertion must be avoided, although relief is often obtained on brisk exercise, by which the heart is stimulated to propel the blood through the lungs.

All food producing flatulence should be avoided, and the patient should be much in the open air, as the blood is in emphysema imperfectly oxygenated. The skin should be kept open by gentle perspiration, if possible, and the hot-air bath, at a temperature of about 120°, will be very suitable in such cases, especially where active exercise is inadmissible.

For the further treatment of this disease, see Asthma and Bronchitis.

Interlobular emphysema is caused generally by rupture of some of the air-cells into the intercellular tissue, caused by violent action or violent straining, as in parturition, or on lifting heavy weights, or from violence of the emotions. Sudden dyspnœa and pain in the chest may be experienced, but this accident is of rare occurrence; and, according to Laennec, the air thus extravasated is always reabsorbed, yet, if air were suddenly and to a great extent extravasated, it is conceivable that death might suddenly result from asphyxia produced by pressure on the lungs.

The physical signs and the symptoms of interlobular emphysema must be very obscure.

CROUP.

Croup is the name given to two different affections of the larynx—viz., spasmodic croup, or laryngismus stridulus; and true inflammatory, or membranous croup.

Spasmodic croup is an affection acting through the pneumogastric, intercurrent, laryngeal, or trifæcal nerves, and causing spasmodic action in the laryngeal muscles.

It comes on suddenly, perhaps in the middle of the night, and wakens up the family often in great alarm.

It is almost entirely a disease of childhood, but may in certain constitutions show itself in adults.

There is a wheezing and a crowing, or hacking sound made, of a sudden explosive character; but there is no inflammatory action.

But as the attack may be the result of worms, teething, or gastric disturbance, there may be a feverish condition present.

Excitement, temper, indigestible food, or exposure to cold, are exciting causes.

Although not in itself a serious affection, it still indicates the necessity for a guarded conduct in relation to the food and regimen of those subject to it.

Allopathy recommends Calomel, Opium, Tartar Emetic, and even leeches.

The *Homœopathic* practitioner will look to the cause of the disease.

If there be teething accompanied with fever, *Belladonna* is the best remedy. If there be hoarseness, *Spongia* may be required. But for the purely spasmodic croup, especially if there be any suspicion of deranged stomach, I have found *Nux Vomica* 6° act in many instances with immediate success.

In those liable to this form of croup the diet should generally be simple and unstimulating. Gas, if burned in the bedroom, is probably in some cases an exciting cause, and must therefore be discontinued, or very sparingly used, or thoroughly ventilated. Abundance of fresh air is a good preventive, although draughts of cold air may often bring on an attack.

Inflammatory, or Membranous croup, is a much more serious form of disease.

To some extent it resembles the laryngitis of adults, there being a wheezing, rasping, sawing respiration, and a loud metallic cough, or a shrieking or barking cough, with, it may be, saccharine expectoration, but usually the cough is dry, or with a flaky mucous sputa. There is restlessness, dyspnoea, and fever.

The leading characteristic of inflammatory croup is the tendency to the formation of a membranous exudation of a fibro-albuminous nature. This takes place in

the larynx and trachea, and sometimes in the large bronchia, extending occasionally into the small bronchia. There is seldom an exudation to be seen on examining the throat, beyond a few patches of an aphthous kind, in the midst of a deep redness of the mucous membrane.

This disease is chiefly found in low-lying, damp regions, especially in sea-port towns, where there is a muddy harbour, and more especially if exposed to the east wind. For instance, croup is much more common in Leith and Hull than in Glasgow. (Dr. Beilbie says inflammatory croup is almost unknown in Glasgow.—‘Brit. Journ. Homœop.’)

The first symptoms resemble those of a catarrh, succeeded in a few hours, or perhaps not for days, by a ringing cough; and if the fauces be examined, there may at first be nothing visible but some redness; and perhaps there may not be any anticipation of danger, and yet the child may suddenly die strangulated; or dyspnœa, blueness of the face, and expectoration of pieces of membrane or casts of the bronchial tubes may take place; but often with no permanent relief, as new membrane is rapidly formed.

The membrane formed varies from the thickness of parchment to that of thin orange-peel.

There may not be much pain in swallowing, but the little patient may gasp for breath, the eyes become prominent, and the head be thrown back, so as to relieve the pressure on the larynx, and the breathing is abdominal.

The disease usually lasts from two to seven days.

A typhoid and malignant form of the disease sometimes manifests itself, less inflammatory, but more insidious and dangerous.

Dr. Cullen, who had considerable experience in this disease,—Leith, the sea-port to Edinburgh, being a good deal infected with it,—says, “ It seldom attacks children till they are weaned, and never occurs after twelve years of age.” From the second till the eighth year is the period children are most liable to it; and it would appear to attack a greater number of boys than girls (as in diphtheria?).

Certain constitutions, in which the glandular system is dominant, would appear to have a predisposition to this disease.

The cold and damp of winter and the cold east winds of spring are the chief seasons for the attack.

The disease may be epidemic, but it is not infectious.

All we can say regarding the pathology of membranous croup is, that it is a specific inflammation, attacking the *sub*-mucous membrane of the larynx of children, and throwing out a false membrane.

The origin of the disease is as obscure as that of measles or whooping cough, but fortunately much more rare, and no doubt often arises because of the neglect of ordinary hygienic rules, either at home on the part of the parents, or abroad on the part of the civic authorities.

The mixing of sea water with fresh-water mud would further appear to be one source of the croupy malaria; and it is not unlikely that the decomposition which results, and the liberation, probably of *Bromine*, is the result which proves so injurious.

In the 41st and 42d numbers of the ‘British Journal of Homœopathy,’ there is a long and minute account given of this disease by Dr. Elb, of Dresden, where the disease is of pretty frequent occurrence.

According to Dr. Elb, no mention is made of this

disease till late in the seventeenth century. He says that if he saw cases at first, the disease was usually cured in three days; and that, under homœopathic treatment, death is a rare occurrence.

The allopathic treatment recommended in this disease consists chiefly in the use of leeches, emetics, and mercury.

The homœopathic treatment is very satisfactory. According to Dr. Elb's experience, few children die of croup under it; and such cases as do die, we may rest assured, must have died under any known treatment; while there remains, after such melancholy result, this blessed consolation, that the last hours of the poor little sufferer were not harassed by the cruelty of severe treatment.

Aconite is used in the acute inflammatory stage, and usually conjointly with Belladonna, Iodine, Bromine, Hepar, or Spongia, Tartar Emetic, or Kali Bichromicum.

Phosphorus and Bryonia are used if the bronchia are attacked, and chiefly Arsenicum in the typhoid form. For myself, I should prefer Aconite, Bromine, and Iodine in the treatment of this^d disease, in the more acute stage, and Tartar Emetic afterwards. The dose may be the mother tincture, or the 3d decimal dilution, and ten drops in half a tumbler of water, a tea-spoonful every twenty minutes, half-hour, hour, two, three, or four hours, according to the urgency of the case.

Mucilaginous drinks may be given, and also milk. In typhoid cases, wine or rum and milk should be given.

Bronchotomy is sometimes had recourse to; but, under homœopathic treatment, would not appear to be considered advisable in almost any case which was

sufficiently inveterate to resist our remedies, such being cases too inveterate for any remedy or expedient. And certainly, allopathy cannot boast of results which are encouraging; for either the operation has been performed where recovery would have taken place without it, or the operation has been of no use; the membranous exudation extending either further down the windpipe, or the child dying either from the exhaustion attending the disease, or from the severity of the operation.

Should there exist a predisposition to croupy attacks, particular attention should be paid to the diet and clothing of the child.

The diet should be nourishing, but not stimulating; animal food should not be taken in excess, a diet in which milk was the leading feature being generally the best.

Few places in England could equal Brighton as a residence for those liable to such glandular affections as may predispose to croupy attacks—it being always remembered that the spring winds are as trying at Brighton as elsewhere.

DIPHTHERIA.

Diphtheria (*διφθερία*, a skin or membrane) is the name given to that malignant form of epidemic sore throat which has prevailed in France for some forty years, and in England for the last three years, viz., since 1856-7, and which is characterised by the formation, by exudation, of an albuminous, fibrinous, or pultaceous membrane.

This disease might be called an epidemic, malignant membranous croup; but, in croup, the disease chiefly affects the larynx; in diphtheria, more prominently, the

tonsils, pharynx, and nasal passages. Still the disease may be regarded as bearing a relation to croup, as close as Asiatic cholera does to diarrhoea.

The disease is not a new one. It was known to the ancient Egyptians and Greeks.

In 1557 it was epidemic in various parts of Europe.

In 1641 it carried off thousands of children.

In 1745 it spread through Europe.

In 1771 it was very fatal in America, and the great Washington died of this disease.

In 1818 it appeared at Tours, and has been epidemic in France ever since.

In 1856-7 it was epidemic at Boulogne, and shortly afterwards appeared on the south-east coast of England, and has remained with us ever since. The mortality from this disease in England and Wales has in two years been about 10,000.* The disease is, however, in intensity, happily on the decline.

The ultimate cause of this disease is as obscure as that of any other epidemic, such as cholera, scarlatina, or small-pox, or the potato disease, or the grape blight. Some French writers attribute its origin to the exhalations from cesspools and privies; and Dr. Kidd believes its appearance in England is owing to *dry* putrescence, as distinguished from *watery* putrescence; the rainfall having been a few inches deficient during the last four years.

But if the disease arises from the exhalations from privies, why has it not *always* been endemic in France, Italy, and other countries; and as *privies*, as a rule, never have had any communication with water, how can

* I have not as yet ascertained the exact number, as the Registrar General strangely classes scarlatina and diphtheria under one head.

it be said that deficient rainfall can affect their condition? and, further, if the disease arises from defective drainage, why should it appear in England at this period, viz., after more has been done to drain our land and our towns than has been previously done for centuries? Trousseau can find no solution of the difficulty, and says that it has equally appeared in low-lying, damp places and high-lying salubrious places; and this is, in certain respects, true of the epidemic in Great Britain.

That filth and decomposition—the stinking privies of France and the imperfectly drained towns of England, by depressing the vital energies, predispose certain individuals to attacks of diphtheria, as of any other current epidemic, may very readily be admitted, without regarding it as proved, that bad smells and decomposition are the *causes* of any known epidemic disease.

Still, if it be granted that the presence of filth, and the hoarding of decomposed excrements, are active agents in assisting the spread or development of diphtheria and other fatal epidemics, surely a sufficient cause is given to stimulate men to free themselves and their dwellings from all manner of uncleanness.

Bad smells, filth, disease, crime, and moral and physical death, ever appear hand in hand; and yet, although it would seem to be most consistent with our ideas of the righteous and retributive government of Providence, that all disease should *arise*, directly or indirectly, from the ignorance or the vices of men, still the law, if it be a law, cannot always be traced. To assert that excrementitious accumulations are the cause of diphtheria, may be an assertion so far beneficial to men, if it induce them to establish good house drainage, where

it did not exist previously ; still, if the assertion be untrue, it will hinder the discovery of the real cause of this and other epidemics ; and thus, like all other mere dogmatism, produce immediate or ultimate evil.

On the other hand, the fact that diphtheria occasionally appears in the midst of refined families, dwelling in noble mansions, situate in the most beautiful and salubrious county districts, is no argument against the doctrine of the excrementitious source of the disease ; for, little as it may be reflected on, it is yet true, that the majority of such mansions have either attached to them, or in their immediate neighbourhood, dry stinking privies ; and I have even met with cases where the house drainage passed immediately into the ornamental fish-ponds surrounding the house, on which ponds the high-born ladies of the house took daily boating recreation, or daily fed the water-fowl !

Such arrangements are highly dangerous, and quite inexcusable, when, at an expenditure of £10, £20, or £50, on glazed tile draining-pipes, the sewage might be conveyed away to some sunk manure-well, half a mile distant from the house, and be there profitably utilised.

Diphtheria, I believe, has been much less frequently met with in the well-drained upland district of Tyburnia than in the low-lying regions of Belgravia.

Another theory concerning diphtheria is, that sea-side places are favorable to its development ; but it is, probably, at least equally true, that at sea-side places many have fallen victims to the disease, because at such places the disease may have been first imported ; or, perhaps, the chief reason may lie in the fact, that

at such places, during the visiting seasons, thousands of children, viz., the most susceptible subjects to the disease, are congregated.

Dr. Madden believes that the growth, not the origin, of the disease may have a fungoid cause—of the genus *oidium*, the same as is found in the potato and vine disease; and, on this theory, he explains the successful results which have followed his use of the local application of the muriate of iron, which destroys vegetable growths. Dr. Black, however, could not detect any fungoid growths on recently formed membrane; and, for myself, I confess that I have no faith in the theory of the fungoid origin of epidemics. Where fungi exist, I believe it is, in every case, because disease has *pre-existed*; the cause of epidemics being as yet too subtle for either the chemists or the microscopists to detect.

In all epidemics, of whatever disease, the first outbreak is generally the most fatal; and if Dr. Madden, at first, lost a large proportion of his cases of diphtheria, and, on a subsequent occasion, under the muriate of iron, lost *no* case, there exists no argument from this result in favour of the *certain* action of the last remedy, but only a proof ~~that~~ the cases were less inveterate; because there exists no illustration in medicine, and still less in diphtheria, of any one remedy being invariably successful.

Diphtheria generally begins like a common cold, accompanied by coryza and a little uneasiness about the throat. The submaxillary glands become swelled, the tonsils are somewhat enlarged, and, on examination, minute aphthous or vesicular spots are discovered, at first, probably, on *one* tonsil only. The exudation, "wash-leather like," then begins generally to spread

rapidly over the tonsils and pharynx. There may be very little constitutional disturbance, and not much difficulty of swallowing; and there may, or may not, be salivation, accompanied by the mercurial-like odour, or the exudation may have a pungent, putrid odour, so strong as to pervade the whole house.

The membrane becomes easily detached in a few days, exposing a surface which may look healthy, or raw, or phagedenic, but it frequently re-forms. Its formation may proceed downwards, and induce violent cough, by which pieces of membrane are detached, and great dyspnoea immediately give place to ease and comfort, or asphyxia may result from the ultimate bronchia being occluded by the exudation. The child may play about, and the medical attendant may pronounce the disease cured; and yet the membrane may re-form, and in a few hours the child may be dead. The exudation may extend to the nostrils, and there may be spongy bleeding from the parts affected. The disease runs its course in from thirty-six hours to fourteen days; the average duration being about a week.

Death may be from asphyxia, or from gradual adynamia, or from sudden collapse.

The disease is one of great prostration of strength, and absence of rallying power.

In a certain number of cases, as pointed out by Dr. Atkin, the urine is albuminous, as in scarlatina.

In France, during epidemics, the diphtheritic exudation has occasionally appeared over cutaneous surfaces injured by blisters or otherwise, and on the vulva and vagina. The disease chiefly attacks infants and young children. Between the fourth and fifth year is probably the age most amenable to attack.

The disease would appear to be contagious, although, on this point, the French writers are not positive; but, perhaps, it is more truly endemic. Dr. Madden gives an instance in which a house appeared to become so infected, that eight weeks after the disease had disappeared from the house, a casual visitor to the house caught the infection and died. Two others, who visited the house two weeks after the first attack, also took the disease and died. Cases analogous to this have often occurred in scarlatina.

Bretonneau says, that if the exudation touch the mucous membrane of the attendant, it produces a diphtheritic condition. Trousseau, however, with the experimental enthusiasm of a Frenchman, having inoculated his own tonsils with the exudation, failed to produce any results.

As the disease at first is accompanied by coryza, as in ordinary catarrh, M. Bretonneau calls particular attention to the fact, that the redness or excoriation is confined to the nostril on the same side in which the tonsil or glands are affected.

The following case, narrated by Dr. Black, in the 'British Journal of Homœopathy,' No. 70, is painfully interesting and instructive, and may be received as a type of certain fatal forms of the disease.

Case iv.—E—, aged 6, whose sister, aged 5, had just died from diphtheria, the exudation in her case being accompanied by "the most pungently putrid smell" Dr. Black ever met with.

E— is a delicate-looking boy, and has had for some time chronic enlargement of the tonsils. He complained of slight sore throat on the 28th of April, and

he looked ill. There are two or three small suspicious points on the tonsil. The throat was freely touched twice with dilute muriatic acid.

29th.—Hoarseness and slight pain in swallowing; the left tonsil is covered with a patch the size of a shilling; slight external swelling under and round the lower jaw; breath *not* offensive. Dilute muriatic acid applied. By noon, the exudation appeared to be spreading. Iod. Mur. Acid applied, and Iod. Mur. 1, 2 grains every two hours to be taken.

30th.—As during the night croupal symptoms threatened, the nurse, as desired, changed from Iod. M. to Iod. 1. During the 29th, he ran about and played: but to-day he looks dull, and is languid; the exudation slowly spreads, and there is increased external swelling, Dil. Mur. Ac. applied, and Mur. Ac. A. given internally.

Vesp.—He looks better. He has spit up a large piece of inodorous, consistent, whitish exudation, like a flat piece of maccaroni. Continued:—Diet, chicken broth and good soup.

May 1st.—He has passed a good night, and has spit up many pieces of membrane. But the cervical region is more swollen; there is frequent gurgling noise in the throat, which is difficult to examine; the exudation appears in the nose, together with an ichorous discharge. Tr. Mur. Fer. applied to the throat; and two hours after to take Kal. Bich. 2, every two hours. Nourishing diet, orange juice freely.

4 p.m.—He is much exhausted; a large portion of membrane has come away; the uvula and right tonsil are now free of exudation; the left is still covered; the submaxillary and cervical glands of left side much

swollen; pulse 130; general restlessness. A glass of sparkling moselle every hour, until the pulse is better. Continued Kal. Bich. 2.

6 p.m.—He has rallied, and feels better.

I sat up with him during the night. About midnight, signs of extension of the exudation to the larynx showed themselves, and rapidly became urgent. Iod. 1 given internally and by inhalation, for three hours, had no effect; but Brom. 1, given internally, and a weak solution of Brom. allowed to evaporate close to his mouth, had in three hours a good effect.

2d.—Stationary; breathes and swallows easily. Continue nourishing food and wine in small quantities. Tr. Mur. Fev. applied to the throat. My notes are indistinct as to what medicine was given. I think, Kali B.

3d.—He looks and feels better, and continued so during the morning; but about noon, while sitting by his bed, I saw him suddenly seized with a fit of choking, which soon abated a little. I at once gave Tar. Emetic A. in repeated doses, to excite vomiting. A quarter of an hour elapsed, and it had no effect; when, in an agony of suffocation, he sprang out of bed and seized me. I pushed my finger down his throat, and tried to detach the membrane from the epiglottis. This action excited frightful fits of coughing and choking; but, at last, he expectorated a large piece of tough membrane, two inches long, with very marked and sudden relief.

After this he steadily rallied, soon sat up in bed, and amused himself, talked and played with those around him. The swelling of the neck subsided much. In the afternoon, he complained of sharp abdominal

pains, and passed a healthy motion, *mixed with many pieces of membrane.*

After 1 a.m., symptoms of laryngeal obstruction again showed themselves; these were relieved by Brom. 1, internally and by inhalation. When daylight appeared, he seemed better; the pulse good, breathing easy; now and then a paroxysm of loud croupal cough, which caused a sense of temporary choking. Swallows easily.

About 8 a.m., he set up in bed, quietly asked his nurse where he should go if he died; she answered, "To heaven." On hearing this, the little fellow quietly laid his head on the pillow, then suddenly and tranquilly breathed his last.

The mortality in diphtheria, as in cholera, ranges within wide extremes; according to the intensity of the epidemic, ranging from 10 to 80 per cent.

In the 33 cases treated by Dr. Belcher, of New York, there were 9 deaths.

Dr. Madden saw or treated 6 cases in 1857, with a mortality of 5 cases. Subsequently he reports having treated *all* his cases (number not given) with muriate of iron, and all successfully. "

Of 5 mild cases observed by Dr. Ozanne, all recovered; but of 8 severe cases, 6 died.

Dr. Kidd treated 4 cases, with 2 deaths.

Dr. Black gives the history of 9 cases, 3 of which were very severe, and 2 died.

The following table is given by Daviot, as the result of 461 cases observed in his district, in 1841-44, viz., 40 deaths in 461 cases—less than 9 per cent.; while the totals do not show that the disease has any preference for male children, as is generally stated.

* AGE.	SEX.		MORTALITY.	
	Male.	Female.	Male.	Female.
8 m. to 5 yrs.	75	73	5	2
5 yrs. to 10 yrs.	59	53	13	10
10 — 15	46	40	2	4
15 — 20	21	25	1	2
20 — 30	12	20	—	1
30 — 40	11	17	—	—
40 — 50	3	5	—	—
50 — 60	—	1	—	—
	227	234	21	19

Vastly more favorable results than were furnished during 39 epidemics from 1557 to 1805, during which, according to Ozanam, 80 per cent. died ; while during the epidemics from 1805 to 1830, 25 per cent. died, as stated by Daviot.

Treatment.—The homœopathic and allopathic modes of treatment of this disease do not differ so materially as they do in almost all other diseases—as in inflammation, for instance, where the two methods are diametrically opposed.

In this disease allopathy refrains from all depletion—the usual chief method in acute disease, and the one most repugnant to homœopathic practice. On the other hand, homœopaths are apparently all in favour of the local application, as well as the internal administration, of palpable doses of medicine.

Homœopathic treatment.—Dr. Madden found, during the first outbreak of the disease, no medicine of any avail, and the mercurials positively injurious. Subsequently, all Dr. Madden's cases have recovered under

muriate of iron locally applied twice a day, with*glycerine also applied three or four times a day. Under this treatment, he says, "the swelling and redness rapidly subside, excessive fetor rapidly decreases, and the deposit gets everted and falls off." He also employed Biniod. of Mer., and Bich. of Pot., and Ars. 3, and Am. Carb. 1, if there was very great prostration.

Dr. Kidd regards Iodine and Mur. Acid as the great remedies, and Arsenic in great prostration, and Mercury in putrid salivation.

Dr. Black uses Iod., Brom.,* and Kali Bich., chiefly ; and Glycerine or Mur. Acid locally.

Dr. Ozanne recommends Bromine of the 2d centesimal and Bromide of Potassium in the 1st decimal trituration.

Dr. Belcher, and other American authorities, strongly recommend Bromine and Brom. of Pot.

Tartar emetic is also recommended, when the disease descends to the larynx.

Nit. Acid, Bell., Lachesis, and Biniod. Mer., are also recommended.

Glycerine, locally applied, is generally allowed to be a solvent of the membranous deposit. A solution of the per Chlor. of Iron, as a *gargle*, should also be used.

If Glanderine could be relied on, the putrid and nasal forms of the disease seem to me to afford a good opportunity for its employment.

The Diet.—All agree that this should be as nourishing as possible. Chicken-broth, beef-tea, the essence of beef, milk and rum, brandy and water, port, sherry,

* The dose of Bromine and Iodine given is about a drachm of the tincture to half a pint of water ; and of this solution, a teaspoonful every quarter of an hour to two hours.

champagne ; and when food cannot be taken by the mouth, Dr. Kidd recommends injections of food, one ounce at a time.

Ventilation should be very freely employed, and the patient can be easily removed from one room to another.

Cordy's disinfectant fluid, viz., the Manganite of Potash, can be used both as a deodorizer in the house and as a deodorizing gargle. It can also be taken as an oxygenating stimulant, and is well worthy of a trial.*

Allopathic treatment.—Dilute Muriatic Acid, applied to the membranous spots ; Nitrate of Silver, solid stick or a strong solution ; ditto, Glycerine.

Calomel, emetics, and tracheotomy.

The French writers appear to have much faith in the use of Nitrate of Silver ; the strength of four grains to half an ounce, applied by a piece of sponge to the tonsils and epiglottis, or injected into the nasal passages.

Tracheotomy has been performed 17 times by Bretonneau, with successful results in 5 cases.

Trousseau has performed the operation 36 times, with success in 9 cases.

The canula used is recommended to be as large as convenient, as it is apt to get closed by membrane.

The French writers also recommend the trachea to be mopped with a solution of Nit. of Silver, through the opening made by the operation.

* See 'British Journal of Homœopathy,' Nos. 66, 68, and 70, for papers by Drs. Madden, Black, and Kidd. 'North American Journal of Homœopathy,' Nos. 8, 11, 12, 20, and 30, and especially Dr. Belcher's paper, in No. 19. Also, especially, the Memoirs of Bretonneau, Trousseau, &c., as translated by the New Sydenham Society, 1859.

PHTHISIS.

Phthisis ($\phi\theta\epsilon\omega$, to consume) is the name given to that "consumption of the lungs" which is the result of the growth and destruction of tubercle.

Tubercle, or scrofulous deposit, as it appears in the lungs, is at first an unorganised, semi-transparent, grey deposit. This gradually consolidates into a yellowish, albuminous, cheesy substance, under the name of *crude* tubercle; and this, in the progress of the disease, having a low vitality, is softened down, opens itself a passage into the bronchia, and is expectorated with its accompanying pus—the result being a cavity large in proportion to the mass of tubercle expectorated.

Tubercles the size of millet seeds, or hemp seeds, may be sprinkled over a district in the lungs, or masses the size of cherry-stones, may be encysted and isolated, or they may appear in clusters; and these clusters generally, after a period of growth, become united into solid masses.

The presence of tubercle, acting as a foreign irritant, will cause cough; at first without expectoration, but afterwards with the expectoration of mucus, tubercular matter, pus, or blood.

The expectoration of softened masses of tubercle must produce a cavity. The walls of this cavity may become lined with a semi-cartilaginous membrane, and be thus healed, or be healed in the form of a cicatrix; or on the other hand, the cavity may continue to secrete pus, until the patient is exhausted by continual irritation and loss of substance and strength.

Physicians speak of three stages in this disease: *first*, the deposit of tubercle; *second*, the softening of

this deposit; and *third*, the expectoration of this deposit and the production of cavities.

Consumption may be acute or "galloping," but in nine cases in ten the disease runs a chronic course.

Causes of Consumption.—Laennec and many others lay much stress on long-continued gloomy passions, bad food, and dark ill-ventilated houses, but Louis thinks these have not yet been *demonstrated* to bear more directly on phthisis than on any other chronic disease.

Dr. T. Thompson says depressing passions, by causing imperfect respiration, most likely predispose to the growth of tubercle; and Dr. Baly says that the inmates of prisons throughout Europe and America are particularly amenable to phthisis. Notwithstanding the scepticism of M. Louis, the universal belief is that all depressing circumstances and passions peculiarly predispose to the production of consumption, and that this belief cannot be demonstrated more perfectly, is one of the most striking illustrations we possess of the extreme difficulties which beset the attempts to demonstrate the truth of theories in medicine.

Dr. T. Thompson gives the subjoined table :

Annual per centage of Deaths from Phthisis.			Per cent. of Illegitimate Children.
	Men.	Women.	
London	·451	·377	3·2
Liverpool	·595	·571	3·6
Manchester & Salford...	·549	·548	5·8
Leeds	·440	·477	6·
England & Wales	·378	·408	7·
Paris	·208	·408	28·

From the above table, Dr. Thompson draws the con-

clusion that the depressing passions predispose to phthisis, the ratio of the female mortality as compared with the male increasing with the proportion of illegitimate children, that is, with the unhappiness of the female part of the population.

I think, however, it may be asked,—Is the male population not the most unhappy part of the community, with their strong passions, excesses, and business anxieties? and is the female mortality in Paris not in excess of the male mortality, because the females are shut up in shops, &c., while the males are much in the open air?

That the disease is contagious to some extent is believed by Laennec, Andral, and others, who would not recommend those of delicate chests to be much in the same atmosphere with the consumptive.

I have seen several instances in which there appeared some corroboration of this view, but I have not seen it anywhere stated that the nurses at the Consumption Hospital are more than normally amenable to the disease.

Hereditary transmission is regarded by M. Louis as only demonstrable in one tenth of his cases, while at the Brompton Hospital one fourth of the cases are said to be hereditary; and certainly, of all predisposing causes, the hereditary taint has always been regarded as the most prominent.

Aggravated cases of syphilis and mercurialism are probably further predisposing causes of tuberculization.

Physical signs.—In no disease is a knowledge of physical signs more imperatively demanded than in consumption; and there is no doubt that without this

knowledge in former days, many individuals were declared to be truly phthysical, and banished to foreign countries, the temporary or persistent wasting of whose bodies arose from diseases having no connection whatever with the growth of tubercle in the lungs.

If an individual be suspected of being phthysical, the region first examined is that in the neighbourhood of the clavicles, and chiefly the sub-clavicular region.

The reason for this is that, if tubercle exist in the lungs, it almost always shows itself in the clavicular region, and if it exists elsewhere in the lungs it is almost invariably to be found in that locality also.

Another reason is, that the presence of the clavicles and their comparative prominence afford a test of the comparative depression existing on either side.

Lastly, the chest walls in this region being thinly covered with muscles, the external form of the chest is a more trustworthy index to the form of the subjacent lung than exists in other parts more thickly covered, and therefore this region is also more amenable to exact auscultation and percussion.

It must, however, be remembered that the right clavicle in right-handed men is often more prominent than the left. Also that if both apices be affected with tubercle, no *comparative* depression may exist on either side. Further, the clavicles may not arch but recede with the corresponding lung and rib depressions. And lastly, the presence of tubercle may cause no depression, as emphysema may coexist in the same region, and more than compensate for that contraction which the presence of tubercle causes, by the occlusion of minute bronchia and air-cells, or by the contraction caused by exudation matter.

The amount of vocal resonance and vocal fremitus yielded by the clavicular region is not a very trustworthy evidence as to the presence or absence of tubercle, because the vibrations of this region are so much influenced by the size of the neighbouring bronchi. It must further be remembered that normally the resonance is greater at the right apex than at the left.

The trained, and quick, and sensitive eye and hand, may detect on full inspiration, if tubercle be present, a movement more resembling an up-heaving than the expansile movement of health, and in making this observation, it must not be forgotten that the normal expansile movement in the upper part of the chest is most conspicuous in the female.

During the early stages of phthisis, when tubercles are thinly scattered at the apex, gentle percussion above and below the clavicle may elicit a fine shade of superficial dulness, and on patting this region with the pulps of the first two or three fingers, this dulness may be rendered more apparent.

In these operations, the proximity of the trachea and main bronchi must be remembered, and, on the other hand, allowance made if the muscular development be greater on one side than on the other.

The larger bronchus of the right side should, theoretically, somewhat modify the percussion sound of the sub-clavicular region of that side.

If any dulness exist in one side on percussion, it will be more manifest after full inspiration and full expiration, as compared with the sound side.

If tubercles be *thinly* scattered, equally below both clavicles, it may be next to impossible *from percussion*

to prove their presence, the opportunity of comparison being wanting.

The greater the deposit of tubercle, the greater will be the dulness on percussion, unless the mass of tubercle reach a main bronchus, when percussion might be tubular, or unless coexisting emphysema mask the tubercular deposit.

If tubercle exist in patches, the respiration will be obscure over such patches, but exaggerated or aspirated in their immediate proximity.

Interrupted, or jerking, and also cogged-wheel respiration, especially if confined permanently to a limited region, is an important sign of tubercular infiltration, but general interrupted respiration is often a spasmodic or nervous symptom, and it exists locally in the regions of pleuritic inflammation.

Dr. Gerhard, of Philadelphia, pointed out that respiration is normally more blowing at the right than the left apex, owing to the larger calibre of the right bronchus.

M. Louis has also shown that in 22 healthy young females, expiration at the apex was inaudible in 13 at the left side, and in only 5 cases at the right side.

If the heart sounds be more audible at the right apex than at the left, the sign may, if others exist, be regarded as corroborative evidence of consolidation.

In forming an opinion on the signs furnished when incipient phthisis is suspected, the possibility of a pneumonic or capillary bronchitic origin to such signs must be considered.

During the second stage, or that of softening of the tubercle, the dulness is increased, and so also by this time has the flattening of the affected part increased;

although from the probable sinking of the clavicle this flattening may be less conspicuous than when the clavicle projected from the chest.

In this stage humid crackling or bubbling rhonchi are also to be heard, and the breathing becomes more or less blowing or bronchial in the affected region.

In the *third* or excavation stage, the percussion may be wooden, but it may also be tubular, if the dense tissue surrounding the cavity communicate with a large bronchus—or if the cavity itself be large, the percussion may be tubular, or amphoric, or of cracked metal sound.

The respiration over a cavity near the surface may be hollow, hoarse, blowing, cavernous or amphoric.

The cough as heard over a cavity is cavernous, and metallic echo or metallic tinkling may also be heard.

The voice may be heard as pectoriloquous, amphoric, bronchophonic, natural, weak, or, if no bronchus communicate with the cavity, the voice may not be heard.

Whispering pectoriloquy, of all signs, is the most unmistakeable sign of a cavity, but if no bronchus communicate with the cavity, from temporary or permanent occlusion, this will be unheard; and in some cases a dilated bronchus, surrounded by indurated tissue, may furnish pectoriloquy, but rarely *whispering* pectoriloquy.

Under happy circumstances, masses of tubercle have become expectorated, and the cavity, being lined with a semi-cartilaginous membrane, or cicatrised, the disease, at least for many years, has made no further progress.

Such being the case, a certain amount of depression, with dulness on percussion, and weak or harsh respira-

tion, may be anticipated as the permanent physical signs, viz., the signs closely analogous to those which might also be left in certain cases by a localised pneumonia.

LOCAL AND GENERAL SYMPTOMS.

Cough.—The cough differs from that of catarrh, being unaccompanied by coryza. It may appear for the first time after exposure to wind, or after severe mental or bodily excitement, and is usually for weeks or months dry and short, or paroxysmal. It is often referred to the throat, the sensation being as if some little phlegm required to be removed from that region. The sensation may also be referred to the pit of the stomach, and a pain is often felt between the shoulders.

The cough is at first dry, or perhaps accompanied by a little jelly or mucilage-like expectoration, there being sometimes a deposit in the expectoration like barley-water—a symptom which Dr. Walshe thinks occurs only in phthisis.

As the expectoration proceeds, it becomes mucous, with white striæ, resembling the expectoration of a severe cold in the head, and from this it becomes more and more purulent, of a yellow, green, or dark grey colour, and is expectorated with jagged or smooth edges, each sputa remaining separate, or the whole forming one mass. Dr. T. Thompson says the expectoration, if delivered into water, assumes the form of balls of cotton wool.

Sometimes profuse purulent expectoration suddenly takes place, either from the abrupt evacuation of a

cavity, or from profuse secretion from the walls of a cavity or from the bronchi.

The amount varies. Young children generally swallow the sputa, and I have known it to be swallowed by a young woman, who died of phthisis, apparently with the intention of concealing from me and others the nature of her disease.

The sputa in advanced phthisis often contains sugar, the result, I believe, of abnormal liver action.

Spitting of blood occurs in four fifths of the cases of tubercle in the lungs. Louis says in two thirds of the cases. It is often the first symptom of phthisis, and may precede all other symptoms for months, or even years. The quantity may vary from a few microscopic spots to streaks of red or yellow in the sputa, or it may appear as pink and frothy spit, or it may be a decidedly bloody spit, or it may be brought up suddenly to the amount of several pints. A drachm to an ounce is a frequent range in a first hæmoptysis.

Spitting of blood is usually more profuse in the male than in the female, and most so in the sanguineous temperament; it is, however, a more frequent symptom in the female than in the male. *.

The cause of blood appearing in the expectoration is either of a tubercular pneumonic origin, or from tubercular destruction of the minute vessels, or perhaps from the pressure on these vessels from the tubercular impediments. Louis believes the majority of cases are by exhalation. The hæmoptysis does not increase with the progress of the disease as might be anticipated, probably because, *first*, the patient lives more carefully; *second*, because the heart diminishes in force with the progress of the disease; *third*, because the tubercular

deposit is at first more in the fine tissue of the lungs, viz., at the extremities of the blood-vessels, than is the case after tubercle begins to be deposited in mass. Sudden death from hæmoptysis from tubercle is almost unknown, and although it may be a sign of rapid excavation, yet in itself the spitting of blood does not appear to hasten the fatal termination of the disease.

Of 300 cases of hæmoptysis, in the experience of M. Louis, 3 proved fatal from the loss of blood only.

The microscope may discover in the sputa blood-disks, oil-globules, calcareous particles, pus-cells, tubercular matter, fragments of lung tissue, of blood-vessels, or of nerves; and the discovery of such substances may in a few cases afford the earliest testimony to the existence of phthisis.

Dr. Walshe has known calcareous particles and masses from the size of a pin's head to that of a pea, to be expectorated for years.

If the stomach be delicate, which is often the case with the phthisical, the cough may induce sickness or vomiting.

Shortness of breath is a symptom which generally shows itself from the beginning; viz., when there may be a mere sprinkling of tubercles, hence it cannot in this stage arise from want of lung tissue, but would rather appear to be from the debility of the muscular tissue generally, and also from the debility of the heart.

Pleuritic or neuralgic pains in the chest are often a premonitory sign of phthisis, and such pains may be referred to the remotest possible position from the spot where tubercle is deposited—for instance, the pain may appear under the short ribs of the right side, when tubercle can only be detected at the left apex.

In about twenty per cent. of the cases there is scarcely any pain, and the pains even during excavation are referred much more to the pleuritic surfaces than to the tubercular cavity itself.

Hectic Symptoms.—Fever and rigors chiefly towards the evening, and night sweats, generally accompany the softening of tubercle, with its accompanying formation of pus.

These sweats may be so violent as to raise the epidermis in blisters.

During this stage the pulse, as a rule, is quick and soft, and there is usually thirst, and perhaps sickness and vomiting, especially if the cough be severe.

The pulse is from 90° to 120°, and this, if persistent, and if no other explanation presents itself, is strongly suspicious of acute tuberculosis; and whereas the pulse in health is usually about one fifth accelerated if the individual rise from the sitting to the erect position, in phthisis it is only accelerated a few beats.

The bowels may be constipated, as during the dry feverish state of the skin; or diarrhœa may come on during the sweating stages. •.

Diarrhœa, however, is often kept up by the presence of ulceration in the ilium, jejunum, colon or rectum, and this ulcerative diarrhœa is frequently the immediate cause of a fatal result. Glandular tissue being especially amenable to tuberculization—the glands of the intestinal canal, mesentery, fauces, larynx, neck and axilla are frequently the seat of disease in the consumptive, but the growth and ulceration of tubercle in the neck or axilla would appear to afford some protection against the development of tubercle in the lungs.

A red or blue line at the edge of the gums, especially opposite the lower incisors, often appears in the phthisical; but it also appears in scurvy, and in many cases of general bad health, and indeed is rarely absent among the middle-aged working classes, or from the gums which are not kept clean and healthy by brushing.

Dr. T. Thompson thinks the sign especially significant of phthisis in the *female*.

The mental condition of the phthisical is in the majority of cases, peculiar and interesting. Hope, faith, refinement, a love of the beautiful and the devout, are often met with.

The personal beauty of the phthisical is also proverbially recognised in their rich hair, clear eyes, transparent teeth, delicate skin, and slender fingers.

In the 'London Journal of Medicine,' 1851, I pointed out in my paper, "The Liver the hydrogenator in animals," the marked antagonism which exists, mentally and bodily, between the subjects of tubercle of the lungs and those afflicted with liver disease; showing that, in the phthisical, beauty of person and piety of mind were as conspicuous as the opposite qualities were in those afflicted with liver disease.

Is this activity of the *glandular system*, so peculiar to the phthisical, the explanation of the transparency and beauty of the tuberculous?

Emaciation is often the first, and it may be for a long time the only symptom observed in the victims of phthisis, and with rare exceptions this increases with the progress of the disease.

The ends of the fingers, generally become bulbous, and the nails large and ovoid, as tuberculization advances.

In some cases the hair becomes thin and falls off;

while in other cases there is a superabundance of thick hair on the beard and head.

Swelling of the ankles is a frequent result in advanced cases. Menstruation generally ceases as severe wasting by sweats and otherwise sets in.

The sexual instinct of the male, and the amatory sentiments of the female, are somewhat actively developed in the early youth of the tuberculous; but the power of the male becomes diminished with the progress of the disease, while the fecundity of the female is probably increased.

The existence of pregnancy is popularly believed to retard the progress of consumption; and, theoretically, this should be true, as two *abnormal* actions, if I may use the expression, rarely co-exist in the same person, and therefore the growth of the fœtus in the uterus should retard the growth of tubercle in the lungs.

In the blood the red corpuscles are somewhat deficient, while the proportion of water is plus.

The urine of the phthisical occasionally contains a minute proportion of sugar, probably, I believe, as with the sugar in the sputa, arising from that altered condition of the liver so frequently met with in the phthisical.

Pneumonia, or pneumonic attacks, are apt to appear during the progress of tuberculization of the lungs—partly because tubercle may act as an exciting cause, and partly because the phthisical are very amenable to the influence of cold.

Pneumonia limited to one apex, may of itself be one of the first indications of the presence of tubercle; but Dr. Walshe has known pneumonic signs limited to the *infra-clavicular* region, and *not* of a tubercular origin.

M. Louis points out that tubercular pneumonia is not so fatal an accident as idiopathic pneumonia—a result which appears to me to be sufficiently explained by the fact that pneumonia occurring in the phthisical would certainly not be treated with that harshness which allopathy employs against the purely inflammatory form of this disease; for as has been often demonstrated, and as is shown in the account of pneumonia in this volume, the active treatment of this disease is directly homicidal.

Pleuritic attacks, with or without effusion, are also frequent occurrences in the progress of phthisis; and M. Louis considers double pleurisy as almost certainly of tubercular origin.

Tubercular perforation may penetrate the pleura, and lead to pneumothorax, accompanied by intense pain and dyspnœa; but such severe symptoms may be wanting, the physical signs of pneumothorax only being present. M. Louis found death to result after perforation, in from twelve hours to eight days, while some survived for months, and cases of recovery have been recorded.

Bronchitis, chiefly of a local origin, must occur during the presence of tubercle in or contiguous to the bronchi.

This localised bronchitis is chiefly to be found at one apex or at one base.

Ulcerations of the epiglottis and larynx, accompanied by pain at the thyroid cartilage, are frequent occurrences in phthisis.

If the chordæ vocales are affected, hoarseness and more or less aphonia, are the results.

Chronic peritonitis is often accompanied with a temi-

fied condition of the abdomen ; and, according to Louis (if kidney disease be excluded), is almost certainly tubercular. Ulceration of the bowels, according to the same authority, occurs in five sixths of the cases, and the phthisical may die from the diarrhœa caused thereby before tubercles have been much increased in the lungs ; but fistula in ano (contrary to the general belief), he says, is of rare occurrence in the history of phthisis.

Fatty enlargement of the liver is a frequent occurrence in the phthisical ; but it is said not to be so generally the result in England as in France.

This fact is very striking, viz., the hypertrophy of the liver when all the other parts of the body are emaciated, and it seems to point out some as yet not clearly demonstrated antagonistic relationship between the lungs and the liver as the two primary constructive organs.

Tubercle in the meninges of the brain, so frequently a fatal occurrence in scrofulous children, is comparatively rare in adults sinking from pulmonary phthisis ; but cephalalgia and delirium are frequently met with towards the final close of the disease.

The phthisical also occasionally perish of cerebral disease before the pulmonary malady has much advanced, the symptoms of which attack very closely resemble those of typhus fever.

Tubercle, and indeed cavities, may exist in the lungs of individuals who may yet assert that they have never had a bad cough, and never suffered from shortness of breath. Yet such individuals have probably suffered from feverishness, debility, loss of appetite, more or less emaciation, restless nights, pains in the bowels, or chronic diarrhœa, viz., a series of symptoms not point-

ing to the lungs as the seat of their origin, until, perhaps, suddenly the expectoration of some blood may reveal the cause.

Before the occurrence of such bleeding, however, "a single tap," says Dr. Walshe, "above the clavicle, will sometimes give a ready clue to what has hitherto been utterly mysterious." In the experience of Louis, *latent* phthisis occurred in 8 cases out of 123.

The chief peculiarity of a case like the above, is the assertion on the part of the patient as to the absence of cough. But it is easy to conceive that tubercle might be deposited and expectorated without producing pain, or any *violent* cough; while the cough sufficient to expectorate the softened tubercle might either be concealed or overlooked.

DIAGNOSIS OF PULMONARY TUBERCULIZATION.

Diseases such as hectic fever, the formation of abscesses, chlorosis—marasmus from the loss of fluids, dyspepsia, or mental depression—chronic bronchitis, or cough, with or without expectoration, from dyspepsia, elongated uvula, and liver derangement, &c., may all produce many symptoms closely simulating those of pulmonary phthisis. And there can be no doubt that in the days gone by, and even at the present day, such cases have often been considered and treated as cases of consumption, and the victims, perhaps, banished to foreign countries, or, if cured, boasted of as illustrations of the cure of consumption effected by some particular man, or under some special line of treatment.

The means of diagnosis furnished by auscultation and

percussion should render such mistakes almost impossible, and yet it is by no means certain that an overweening and perhaps pedantic reliance in physical diagnosis alone, has not sometimes led to a one-sided and false view of the cases submitted to the physician for an opinion.

Statistics do not prove that much assistance in diagnosis can be derived from the statements of hospital patients as to the absence or presence of the hereditary taint of consumption. There is no more general belief than that consumption is hereditary, and yet this belief is very imperfectly borne out by the statements received at hospitals. The ignorance of the bulk of the working classes, viz., such as appear before hospital physicians, as to the nature of the disease their parents, and especially their grand-parents, died of, may explain to some extent the discrepancy between the popular belief and the acquired statistics.

Louis could positively ascertain the fact of hereditary transmission in only one tenth of his cases, while at the Brompton Hospital one fourth of the cases are said to be hereditary.

This, however, is certain, that the carefully brought up children of a consumptive parent do often escape phthisis, while the ill-fed and exposed children of robust parents fall victims to that disease.

The left lung in the female, and the right lung in the male, is respectively, to some extent, most amenable to the growth of tubercle, but pathology does not attempt to explain the cause of this, and not much reliance can be placed in it with reference to diagnosis.

There can be little difficulty in determining the presence or absence of tubercle in the lungs when it has

accumulated sufficiently to yield distinct physical signs, but it is easy to conceive that tubercles may be so thinly scattered over the lungs, or so placed that it may be almost impossible to discover their presence.

In such instances no sensible man would give more than a guarded opinion, and yet it may be under such circumstances that a positive opinion would be most valuable, for it might be then or never that a course of treatment, or line of life, or the choice of a profession, might possibly avert the further spread of the disease.

If there be a short cough—which continues for weeks in spite of the remedies employed—it will be well to inquire as to whether this may arise from stomach or intestinal irritation, habit, elongated uvula, enlarged tonsils, worms, nervousness, liver disturbance, uterine irritation, pleuritic affections, emphysema, heart disease, or *tubercle*.

Cough may arise from tubercle, and yet this be so thinly scattered through the lungs as to yield no physical signs, yet if this cough continue, and especially if it be aggravated on each return of cold weather, and if it be a little short cough, or a paroxysmal cough, and none of the above causes of cough afford evidence of their presence, the probability of tubercle as the cause must be then well considered.

If this cough subsequently be accompanied by a little mucilaginous expectoration, the probability of the presence of tubercle is increased, although a long-continued dry cough, from any cause, may at last be accompanied by sputa of various kinds.

If there be with the above, wandering or local pains in the chest, the probability of tubercle is further in-

creased—but wandering or local pains may be neuralgic or purely pleuritic.

Loss of flesh and dyspnœa are further proofs, although long-continued disturbance from any cough may produce loss of sleep, and of flesh, and the weakness following produce dyspnœa. But if a young adult of regular habits, and free from mental depression, and from spermatorrhœa, or secondary syphilis, or cancerous disease, steadily loses flesh, there is a justifiable suspicion of incipient phthisis.

The expectoration of blood, either frothy or pure, accompanying cough and wasting, be it much or little, is a very important symptom; but blood may come from the nares, gums, ulcerated tonsils, and uvula, or from the stomach. It may also come from the throat, and even from the bronchi with *violent* cough, and blood from the lungs may be vicarious with menstruation, or be the result of heart hypertrophy, &c.

If to the presence of cough, wasting, and bloody spit, even although the merest trace only of blood appear, and that only once, there be added jerking, divided, or harsh, or prolonged respiration, and especially if there be also dulness, ever so slight; at *one* apex, the diagnosis is almost certainly *tubercle*, if cancerous deposit be excluded.

If there be superadded chronic hoarseness of voice—not syphilitic—the diagnosis is further confirmed, and “if to the above,” according to Dr. Walshe, “deep inspiration evoke a few clicks of dry crackling rhonchus the diagnosis is next to absolutely certain, and especially if these clicks subsequently become moist.”

Localised pneumonia may indeed yield signs and symptoms exactly analogous to the above, viz., bloody

spit, dulness on percussion, rough and dry respiration, succeeded by moist clicking, but pneumonia limited to the clavicular region is generally tubercular.

Louis says, "chronic peritonitis in a person aged more than fifteen years, if abdominal cancer be excluded, involves as a necessity the existence of tubercle in the lungs," if, as Dr. Walshe adds, "Bright's disease be also absent."

Pleuritic attacks, with effusion, persisting in spite of treatment, and also chronic diarrhœa, not to be accounted for by liver or other exciting cause, is strongly suspicious of the presence of tubercle in the chest and abdomen.

The presence of cancer, heart disease, emphysema, or leuco-hæmia, are inimical to the co-existence of active tuberculization.

The spirometer affords no trustworthy test of the presence or absence of tubercle in the lungs. A feeble or nervous person will yield small results, while an energetic determined person will yield large results, even although tubercle be present.

Chronic and localised pleuritis, pneumonia, or bronchitis, may be accompanied by spitting of blood, or muco-pus, and yield local dulness on percussion, with wasting and hectic, and thus very closely simulate phthisis; and even if these affections be not suspiciously localised, the effects produced will yet render the physical exploration of the lungs, with reference to tubercle, often difficult and uncertain in the early stages.

The respiratory sounds, especially in hysterical and nervous women, vary widely in the same individual from day to day, and vary with the present energy of the individual from hour to hour, or even within a few minutes, and therefore in doubtful cases repeated and long-

continued auscultation may often be necessary. Dr. Walshe says, "Jerking respiration, even although local, in hysterical women, and harsh respiration limited to the right apex in any woman, or very slight dulness at the right apex in man or woman," is compatible with the absence of tubercle.

Dr. T. Thompson observes that "hysterical women, especially if there be amenorrhœa, may feel pain in the lungs, and have local *hysterical congestions*, and spit blood." On the other hand, hysteria may co-exist with phthisis.

The luxuriance of the hair on the head and on the eyelids, and the transparency, so to speak, of the eyes, skin, and teeth, together with the length of the long bones of the body, viz., the fingers, arms, and legs; may sometimes afford, with the presence of delicate health, and especially cough, a strong suspicion of the presence of tubercle, and no doubt such a conformation is often the subject of phthisis, yet such individuals often contrive to enjoy a long life, while the fat, plump, rosy, and sanguineously robust, may suddenly be seized and die of acute consumption. Yet I think it may generally be observed that those belonging to the latter category, have generally become, "as it were, prematurely ripe and hilarious, and all must have occasionally observed abnormally robust parents of the above hilarious type produce children several of whom have died of early phthisis.

Death from phthisis is generally the result of a slow wasting of the vital energy. It may not take place until the greater part of both lungs has become disorganised, but it often results from that loss of rest and strength which results from the incessant irritation caused by a cavity in one lung.

Superinduced pleurisy with copious effusions, I believe to be a more frequent cause of death under allopathy than under homœopathy.

The same also I think may be said with reference to death from super-induced diarrhœa or pneumonia.

Bright's disease, tubercular meningitis, perforation of the pleura or peritoneum, or general dropsy may be the fatal termination.

Louis gives as the result in 307 cases, noted from the first appearance of symptoms :

4 died within 1 month.		
15	"	3 "
26	"	3 "
98	"	6 "
160	"	9 "
264	"	24 "

That is, 43 out of 307 survived two years, while more than one half died within *nine* months, the weak often living longest.

Of 205 cases—

	Age.	Average duration.
100	15 to 30	11 months 17 days.
68	34 — 45	16 " 20 "
26	45 — 50	17 " 7 "
11	61 — 68	14 "

Of 196 cases—

56 were strong.
87 moderately strong.
53 were weak.

The above average duration of life is drawn chiefly from hospital experience, and no doubt life would be considerably prolonged in those whose circumstances

admitted of carrying out the best hygienic aids—in reference to climate, food, house-ventilation, exercise, &c.

The cases are also drawn chiefly from the lower classes, in whom wasting disease generally runs a more rapid course than in individuals of the middle class.

I am not aware of the existence of any statistics regarding the results of the homœopathic treatment of this disease. But as the intercurrent attacks of pleurisy, pneumonia, bronchitis, and diarrhœa, can all be treated much more successfully by homœopathic remedies than by strong vexatious or depleting measures, it is only a logical inference that life will be prolonged beyond the above periods under the homœopathic treatment of such exacerbations as may occur, and this quite irrespective of the advantages which may result from the general homœopathic treatment of phthisis.

The number who die annually of phthisis in—

England and Wales, including London, is about 50,000									
London	...	...	...	...	...	...	..	7,000	

From which it appears that the mortality from phthisis in London is below the average of all England, town and country.

How mysterious, that so large a proportion of the population should die from a disease the essential cause of which is not fully demonstrated, and the drug treatment of which is so unsuccessful. But what an infinite field for labour in the highest direction which medicine can take, viz., the raising of the social and hygienic condition of the people, and the *prevention* of disease.*

* For ten years I have kept a record of my own personal friends, irrespective of patients, who have died, and I find that of 136 individuals so

ACUTE OR "GALLOPING" PHTHISIS.

Phthisis sometimes runs an acute course, appearing in those previously considered healthy, it may be after some exposure to wet, or after some depressing mental labour, and running its course in from three weeks to six months.

Although tubercles, to a considerable amount, may become developed in a month, yet, in cases of acute phthisis generally, it is most probable that it is not so much the rapid *growth* as the rapid *softening* of tubercle that characterises the disease. It is a disease somewhat analogous in its history to acute consecutive abscesses, which sometimes attack scrofulous children.

From the unexpected appearance, great prostration, occasional delirium, and other acute symptoms of this form of disease, it may sometimes be mistaken for pulmonary abscess, with hectic fever, purulent bronchitis, suppurative pneumonia, or typhus fever.

THE TREATMENT OF PHTHISIS.

The treatment of phthisis has two objects in view; *first*, to arrest, if possible, the *further* development or progress of tuberculization, by improving the health generally; *second*, to treat such symptoms as may arise in the course of the disease.

The first object is endeavoured to be obtained chiefly through hygienic means, the second chiefly through the action of medicinal agents.

recorded, 30, or more than one fifth, have died from tubercular disease. I mention this as the statement that about one fifth of the population die from tubercular disease is to casual observation almost incredible.

The medicinal agents employed in the *allopathic treatment* of consumption are chiefly as follow :

Counter-irritants, in the form of blisters, croton oil, turpentine, and Tartar Emetic, &c.

Stoll, Broussais, and others, have recommended repeated bleedings, the actual cautery, and issues.

Tincture of Iodine is often applied over the seat of active tuberculization or inflammatory action, with the view of arresting their progress.

Laennec recommended a sea-weed ward, and says that of the cases he so treated, some remained stationary or were arrested.

Dr. Ramadge says those primarily chlorotic are never phthisical, and that enlarged tonsils, emphysema, chronic catarrh, &c., as they impede expiration, thus expand the lungs, and therefore no tubercle is developed; and hence the use of his inhaling and exhaling tube, practised from five minutes to half an hour three times a day, prevents the further growth of tubercle, and is not only not irrational, but is analogous to nature's method.

Phthisis is said to be rare in mountainous districts, and I think we may ask, is this merely from the purity of the air, or is it not in part from the full inflation of the lungs which habitual hill-climbing necessitates?

For cough, allopathy recommends Opium, Hydrocyanic Acid, Aconite, Hyoscyamus, and Digitalis. Also the inhalation of Naphtha, Oxygen, Hydrogen, Carbonic Acid Gas, Chlorine, Iodine, chloroform, or steam, or "leeches over the sternal notch," have been recommended.

As tonics, Iodide of Iron, Quinine, bitters, and mineral acids, are given.

Inflammatory attacks supervening "may require cupping, or general bleeding, and blisters."

Dr. Preston, in the 'North American Journal of Homœopathy,' No. 13, warmly advocates the plan of giving medicine by inhalation, and certainly in phthisis this method may have the double advantage of being direct, while the inhaling process will expand the lung tissue.

Spitting of blood is attempted to be controlled by lowering remedies, and sometimes bloodletting, leeches, blisters, or emetics, or ice to the chest, or the inhalation of turpentine.

For Nausea.—Effervescing mixtures, Creosote, iced water, &c., are given.

For Diarrhœa.—Rhubarb, Castor Oil, Opium, rubefacients over the abdomen, and blisters are used. Also Sulphate of Copper, Acetate of Lead, &c.

For Perspirations.—Vinegar and water sponging, gallic acid, mineral acids, &c., are administered. Also Oxide of Zinc, Cod-liver Oil, Quinine, and Nitric Acid.

For Peritonitis.—Rubefacients, blisters, and Morphia, endermically employed.

Fistula in ano, if it occur in those declining with phthisis, is not to be attempted to be cured by the knife.

M. Louis made experiments with all the remedies chiefly used by the French practitioners, such as Protioduret of Iron, Chloride of Sodium, Sal Ammoniac, Sub. Carb. Pot., Chlorine Gas, Chlor. Lime, Digitalis, Hydroc. Acid, Creosote, Iodine, and came to the conclusion that none of these agents, in his hands, did any real service.

The homœopathic treatment of the intercurrent symp-

toms arising in the progress of consumption differs very materially from the above.

But in the first place, during the incipient stage or in those predisposed to* tuberculosis; in conjunction with hygienic treatment, an attempt should be made to retard the progress of tuberculization, by the nightly administration over a lengthened period of remedies, such as Calcareo and Phosphorus in alternation, and with this view I should prefer the 6 centesimal dilution.

Dr. C. Muller (See 'British Journal of Homœopathy,' No. 61) recommends the Chloride of Iron, and Dr. C. Luther, in No. 62, says, that at "Nudersdorf, in Prussia, where there are chalybeate springs, consumption is unknown." This is an interesting fact, well worthy of investigation; but it must be remembered, that at Tunbridge Wells and other chalybeate districts, consumption is not uncommon.

Dr. Churchill, on the ground of Phosphorus being deficient in the blood of the phthisical, advocates the use of the Hypophosphates of Soda and Lime, and lays claim to great success.

Dr. Peters, homœopathist, New York, has long advocated the use of the Phosphates of Iron and Soda, on the ground of Iron and Phosphorus being deficient. (See 'North American Journal of Homœopathy,' No. 30.)

See also Dr. Beneke's paper in the 'British Journal of Homœopathy,' No. 67, on the necessary influence of Phosphate of Lime on cell growth.

Dr. Hitchman lays great stress on Zinc, Nux, Nit. Silver, in the premonitory stage of phthisis.

Dr. Epps speaks highly of Calc., Lycopod, &c.

In the treatment of pneumonic, pleuritic, and bron-

chitic intercurrent attacks, Phosphorus and Bryonia, of the 3^d decimal dilution, will be generally highly serviceable, and are infinitely to be preferred to blisters, leeches, or bloodletting, which must be regarded as especially dangerous in a disease, to arrest which can only be possible if the general strength of the patient is maintained. Indeed, allopathists confess that their treatment of tubercular inflammation is their weak point in the treatment of phthisis.

To allay cough, homœopathy employs:—Aconite, Ars., Bry., Bell., Conium, Hyos., Ipec.; Squill., Sepia, Phos., Lach., Carb. Veg., and many other remedies; and although relief is thus often obtained, and the evil results which the indiscriminate use of Opium entails avoided, yet that incessant *cough* which often occurs in, and which in other words is consumption, viz., the excavation of tubercle and the expectoration of this and pus, cannot, in the majority of cases, be arrested by any remedies, and very frequently cannot even be alleviated.

It is under such circumstances that expedients must be had recourse to, and as cough occurring night after night, must prevent sleep, and the patient become the subject of intense suffering and exhaustion; it is certainly advisable to secure if possible temporary relief by Opium, Hyoscyamus, Conium, or Cannabis Indica, administered in palpable doses of ten or twenty, or more drops of the tincture of the pharmacopœia at bedtime, so as, if possible, to secure some sleep or rest.

These observations have especial reference to the third stage of phthisis, when all hope of saving the patient is abandoned, and when all that can be hoped for, is a little peace and rest for the poor sufferer.

Relief to cough may sometimes be obtained by in-

haling hot-water vapour, and sometimes by manual friction over the diseased parts of the lungs, even although the cause of the cough be a cavity secreting pus.

Milk warm from the cow, will, in some cases, where there is much irritation and cough, be the best diet.

Mucilaginous drinks often afford some relief.

The exhibition of Belladonna, Aconite, Phosphorus, Hyoscyamus, Arnica, Camphor, &c. by hot-water infusions in an inhaler, is worthy of repeated trials.

This, however, must be remembered, that the incessant administration of homœopathic remedies in advanced phthisis will often *irritate* rather than relieve; just as removal even to a fine climate has often hastened the progress of the disease. Under such circumstances our chief efforts must be directed to securing, if possible, quietness and rest for the patient, bodily comfort, and that diet which is most suitable.

Dyspeptic symptoms are relieved by Nux Vom., by Puls., Ars., &c. and especially by Nitrate of Silver, or Sulphate of Copper, if there be an ulcerated condition of the mucous membrane of the stomach or intestines, and by Tartar Emetic and Arsenic for gastritic symptoms, and Ipecacuanha for nausea.

Spitting of blood appears to be often very amenable to Aconite, Arsenicum and Arnica, giving us another great advantage over the blood spitting and blisters of the old school.

In excessive cases Junod's boot, (see 'British Journal of Homœopathy,' No. 43,) or ice to the chest may be employed, while at the time and for days following great quietness should be observed.

Respirators should be worn, while there is a tendency to blood-spitting, during cold windy weather especially, or

in going from hot into cold air, but under other circumstances the respirator should be worn as little as possible.

Diarrhœa, if not ulcerative, responds readily in most cases to Mercurius; and if ulcerative, Mercurius, Nitrate of Silver, and Arsenicum are still very serviceable.

Perspirations are much relieved by tepid sponging with vinegar and water—sponging with hot water, and then changing the night-dress, affords much comfort, while Calc. and Mercur., and Lycopod., are also successful remedies; also dilute Sulphuric Acid, viz., about one drop to the ounce, viz., about the twentieth part of the allopathic dose.

The hot-air bath, at about 120°, might also be tried homœopathically.

Peritonitis is treated chiefly with Lachesis, Ars., Bry., and warm fomentations, and the allopathic blisters and endermic application of morphia, very safely dispensed with.

For restlessness and sleeplessness Coffea in tincture may be used—as already mentioned, opiates may be necessary in the final stages; but sponging the body and abundance of fresh air, are often excellent soporifics.

Cod-liver Oil contains, according to Dr. De Jongh:

Iod.	...	...	·029
Chl. and Brom.			·084
Phos. Acid	...		·053
Phos.	...	...	·007

·173=about 1 part in 600.

Medicinal substances all homœopathic to irritative or inflammatory action in the lungs.

This is a remedy employed by both schools of medicine in the treatment of tuberculization, the difference chiefly being in the size of the dose administered; for while in allopathic practice a tablespoonful three times a day, is a common dose, and sometimes double this amount; for myself, I believe that the merits of the oil are better secured by giving a teaspoonful at night, or twice a day. This small dose rarely interferes with digestion, and I think the medicinal effects of the oil are better secured.

The chief advantages of the oil are that it often arrests emaciation, diminishes the wasting, corrects and improves the appetite, and renders the individual altogether more comfortable.

It agrees generally better with the young than the old, that is, as I should suppose, with those who have most reparative power.

In the 'London Journal of Medicine,' vol. for 1851, I endeavoured to show that the growth and regeneration of tissue in the animal economy, is mainly due to the action of the oil-globules which appear in the chyle immediately after the chyme is mixed with *bile*; and I draw the inference that the merit of Cod-liver oil consists chiefly in its supplying an oil analogous to the oil of chyle.

The Iodine, Chlorine, and Bromine, &c., also found in the liver-oil of fishes, doubtless serves a useful purpose in the tuberculous, just as the presence of such substances infinitesimally in sea air may be useful in glandular disease—but although the chemist can analyse cod-liver oil, and can thus manufacture an oil chemically the same, by mixing the inorganic ingredients with other oils, yet no such mixture has ever been found

equally serviceable to the oil manufactured by nature herself, and found in the liver of fishes.

Dr. T. Thompson, from experiments carried out at the Consumption Hospital, found all vegetable oils very inferior to cod-liver oil, except cocoa-nut oil, which he found in some cases as serviceable as cod-liver oil.

Tubercle being a low organization, and phthisis being the consequence of this, the use of fish-liver oils is both theoretically and practically a scientific work.

Theoretically I should also conclude that the liver of any fish, and, indeed, the liver of young lambs and calves, as a food, would be found serviceable.

The popular remedy of snails boiled in milk, I believe, has the same natural foundation. The snail is an animal whose liver is in bulk about one third of the entire animal, and the snail itself is *therefore* composed almost entirely of fat.

Pulmonary consumption is a rare disease in Iceland, in consequence, some have thought, of the abundant consumption of fish by the inhabitants. Another form of scrofula is, however, present in Iceland, in the form of rickets. I am not aware whether oatmeal is much used in Iceland, but is not rickets a less common disease in oat-consuming Scotland, than in wheat- and bacon-consuming England?

Cream, especially with those who cannot take cod-liver oil, is always regarded as an excellent nourishment for the consumptive; and cases of cure from an exclusive milk diet are recorded "after physicians had pronounced them to be hopeless."

Professor Simpson, some years ago, drew attention to the fact of the wool-workers in the cloth-making districts of Scotland being comparatively free from phthi-

sis ; and he drew the conclusion that this arose from the oily nature of their trade, their clothes being generally saturated with oil ; and he recommended inunction, after the manner of the ancients, as worthy of consideration.

But was phthisis not less common when, before the introduction of cotton, woollen garments were much more universally worn ?—and is this supposed immunity from phthisis among cloth-workers not due in some degree to their woollen garments ?

But however this may be, manual frictions with oil, especially over the chest, perseveringly followed out, are worthy of long and repeated trials, and must, at least, be infinitely more serviceable than the blistering and other counter-irritants often recommended by allopathists.

Dr. B. Richardson recommends inunction with oil at night, and washing with Liq. Ammonia in the morning, by which a soap is formed.

Inunction with the ancients was only a part of the process their skins were subjected to. The more important part was the hot-air or steam-bath, by which the seven million pores of the skin were called into strong depurative action, while the cold water afterwards used braced the cutaneous nerves.

If by these means effete products were eliminated to a very great extent, and the skin thus rendered hardy by the cold water reaction, the process must have been very highly conducive to that health which purification must induce ; while the bracing process must have rendered the subjects of it very independent of change of temperature. That this is the case I have seen illustrated in a manner and to a degree scarcely credible ;

and I cannot but regard the neglect into which this ancient practice has fallen as a great loss to those of the present day, especially to those who now suffer equally from the heats of summer and the chill damps of winter.

This question naturally leads to that of climate, because, if the systematic use of the Turkish bath can render the patient to a great extent independent of changes of climate, the necessity for seeking warmer climates than that of England is, to some extent, obviated.

But *change of air* must, independent of temperature, be regarded as the most truly natural or homœopathic cure for all diseases, and especially of the lungs—just as change of diet is for dyspeptic affections, or change of scene and occupation for nervous brain affections. And it must be remembered that change of air often implies change of scene, change of food, change of one's total surroundings, thoughts, feelings, and state of being.

The general idea on the minds of nearly all, that an *increased* temperature is one of the chief elements sought after for the consumptive, must often be a mistake.

That temperature must be best for the consumptive which is the best for his digestion and the best for his *general* health and sensations; and there are a large number of cases which become rapidly worse when removed to hot atmospheres, but which become invigorated and improved on removal to cold bracing climates.

So much is this the case, that a voyage in a whaler to the North Seas has been known to stop, at least for the time, all the symptoms of a confirmed consumption. And this is to be said in favour of cold clear climates, that

oleaginous food can, in such climates, be more largely taken, and more easily digested than in mild climates.

That climate is the best in which the patient can most enjoy life in the open air.

Cold east winds are almost always detrimental ; and certainly the chief aim in removing to warm climates is that the patient can remain almost every day, and nearly all day, in the open air.

To shut up the patient in warm relaxing rooms must be as bad a treatment as possible, in almost all cases. Daily exercise in the open fresh air should, even during rainy weather, if possible, be persisted in as long as possible.

Italy is said to be too relaxing in hot weather, and too exciting in spring ; while the spring winds are often extremely trying.

The North of Africa, and especially the Nile, are now recommended as preferable to all other places ; but the difficulty of obtaining comfortable lodgings and suitable food must be a serious barrier with the delicate and fastidious against a residence in Algeria. Indeed, Englishwomen, and men also, find almost all foreign places "uncomfortable" and uncongenial.

Children, especially, who show symptoms of tuberculation, should, if possible, reside during the winter in climates sufficiently warm to enable them to be for several hours daily in the open air, and to have open windows when in the house.

To those who can afford the time and expense, and have strength to bear the fatigue and "discomforts," no doubt foreign travel must be a source of great change, and therefore of great pleasure and advantage to the valetudinarian ; but I do not believe that any

country in the world—if the quality of the food and the domestic comforts especially be considered—affords a more desirable residence than that which can be found, according to the season, in the range from the bracing Grampians of Scotland to the sunny and balmy sea coast of the South of England.

Some physicians have spoken highly in favour of daily emetics as a cure for consumption ; but few would be so rash, in the present day, as to have recourse to so rough a measure. Yet a long sea voyage, with its total change of scene and air, and its accompanying vomiting in rough weather, has, with those strong enough to pass through the ordeal, been sometimes highly beneficial.

Dr. Livingstone says that the climate of central South Africa, is perfect—balmy, and yet bracing and elastic—and that consumption is unknown among the negroes of that region.

In No. 31 of the 'North American Journal of Homœopathy,' the negroes of North America are stated to be peculiarly prone to phthisis, proving that the immunity enjoyed by the South African negro is not from race.

Australia and New Zealand are often spoken of in general terms as having a good climate for the consumptive ; but the winds in New Zealand are excessively boisterous, while the towns of Australia have dry, dusty, and exhausting climates, although some of the country districts possess dry and balmy climates.

Generally speaking, the patient must be a better judge of the climate which suits his case than the physician can be, and his choice will depend somewhat on his tastes and habits.

The centre of South Africa might be a paradise to the valetudinarian sportsman, Egypt to the deep student

of the past, and the South of England to the lover of home and its comforts.

Certainly there could be no greater error, and few prescriptions more cruel, than to banish a timid and apparently dying woman to some foreign climate merely because it is warmer, and merely for the chance of prolonging life for a few months.

According to a note, p. 804 of Dr. Ramadge's edition of Laennec—

In Iceland, the mortality from pulmonary consumption is rare.

Rome	"	"	5 %
Stockholm	"	"	6 "
Berlin	"	"	7 "
Vienna and Munich	"	"	10 "
Naples	"	"	12 "
Genoa	"	"	17 "
London	"	"	20 "
Paris	"	"	20 "
Marseilles	"	"	25 "

I think there must be some errors in the above. Vienna is generally considered to have as large a proportion of consumptives as Paris or London, and Rome a larger proportion than 5 per cent. The mortality in London is about 12 per cent.

Mr. Keith Johnson states that phthisis is comparatively rare in Siberia, Orkney, and Shetland. Extremely hot and extremely cold climates would appear to be nearly equally inimical to the growth of tubercle, which flourishes chiefly in the more temperate climates, but especially in those liable to the vicissitudes of temperature.

That climate is not so wonderfully a curative agent as is supposed is strikingly illustrated by the fact, that the proportional mortality for phthisis is nearly equal in all

the temperate climates of Europe—in sunny Italy as well as in foggy England; while the same holds good of the British troops at home or in Malta, Canada, the West Indies, or Gibraltar. Further, in Europe nearly as many cases show the first symptoms in the warm part of the year as in the cold months. The mortality also is nearly as great during the warm months as during the cold months.

For some further observations on climate I refer the reader to a subsequent page in this volume.

I have said that the chief advantage of a residence in a warm climate is, that the consumptive may live comfortably in the *open* air, instead of being obliged to snatch a mouthful of air, as it were, and for the rest shut himself up in warm rooms. This leads naturally to the question of Ventilation.

It is to be regretted that those fiscal powers which impose constraints on the construction of houses, and of house and street drains, do not extend their authority, and insist on all newly-built houses being provided with an approved system of ventilation.

The Arnott ventilation is of use so long as a fire is burning in the grate of the room so ventilated, but is of no use during those seasons when no fire is lighted, or during the night, when the fire is not in operation.

A separate series of ventilating tubes, connecting each room of a house with the kitchen flue, might, when a house was being built, be applied at a trifling expense, and would act as constant ventilators, day and night, summer and winter. I have given a detailed description of this process in the volume for 1857 of 'The Transactions of the Association for the Promotion of General Science.'

It is singular the dread most people have of fresh air, and the constant fear they have of "catching cold," if exposed to the action of air colder than that of the warm room they may be generally sitting in.

Those who brace themselves with cold sponging in the morning, and especially those who take the Turkish bath, have little fear of the bugbear "fresh air," and can, except in thick foggy weather or smoky neighbourhoods, sleep with their windows open all night, in winter as well as in summer.

It is difficult to picture a more ridiculous violation of natural laws than is exhibited at many large "evening parties," when the rooms are crowded with people all vitiating the air, gas flaring up and burning the oxygen, giving carbonic acid, sulphuric acid, and sulphuretted hydrogen in exchange; while the shutters are closed, the curtains carefully drawn, the doors kept shut, and the votaries of amusement choking with heat and "closeness."

Add to this the late hours, the champagne (?) suppers, and the cold drive home, in perhaps a damp cab, and a better prescription could not be given for engendering tubercle in those predisposed to its growth.

Tailors, dressmakers, bakers, flax-spinners, needle-grinders, viz., those most exposed to close air, are most amenable to consumption; while farmers, butchers, and even dustmen, breathing in the open air, are much less liable.

According to Dr. Arnott, of sixty monkeys shut up in "a nice warm room," but without ventilation, fifty died in a month, and all had tubercles in their lungs.

Diet.—The food taken by the phthisical should be

especially well cooked, and, although not stimulating, should yet be varied and palatable, and that which *experience clearly proves* to be most easily digested. I know of no other rule which can be given.

Dr. Gully says, "There never was tubercular deposit with a sound digestion." Certainly there is often tubercular disease with what is called a good digestion; but in the sense of sound digestion, including true assimilation, it is true. Badly-digested food must produce bad tissue.

I believe, however, that many who are persuaded that they cannot maintain their strength unless they partake liberally of "meat" and beer, would find, after a fair trial, that a diet chiefly of milk and farinaceous and vegetable substances would furnish greater powers of endurance, and render the body less susceptible of atmospheric changes.

The best cocoa nibs boiled, and then, if necessary, when cold deprived of their oil, when that cannot be digested, and an infusion, not too strong, with abundance of good milk, is a most admirable beverage.

If there be any one article of diet better than another as the staple food for the phthisical, or those predisposed to tuberculization, it is milk—milk, the most essential and simple of all food—in the desert, the all-sufficient food of children, warriors, old men, and horses; but not that milk which is forced from scrofulous cows, shut up in dark London alleys.

Asses' milk may sometimes be digested when cows' milk is found too heavy; but it should not be forgotten that the donkey, like the cow, is the subject of tubercle in the lungs if kept in close stables; and an ill-used donkey can scarcely be expected to furnish good milk.

Careful mastication and temperance are to be as closely attended to as possible.

Stuffing, with the view of keeping up the strength, is a strange delusion, believed in by most English valetudinarians and by many English physicians. The digestive powers of the tuberculous are often impaired, and therefore, and especially in children, must not be overtasked.

To digest a moderate quantity of food well, must be better than a load of ill-digested food.

The phthisical mother should not suckle her child. That child should be suckled by a strong country woman, or, if this is unattainable, it should be fed on the new milk of one cow.

A certain amount of indulgence, compatible with temperance should be allowed to all valetudinarians, because the pleasure thus derived acts favorably. The moderate use of tobacco, tea, and wine may come under this category—although, strictly speaking, such things should be almost excluded.

Of meats, roast mutton is usually the best. Oysters are often much appreciated ; and veal or chicken-broth, taken slowly, and not too hot, are to be recommended.

Hygiene.—The general hygienic management of those who are supposed to have a tendency to phthisis, or those in whom tubercle has already, to an appreciable extent, become deposited in the lungs, is a subject almost too extensive to enter upon, in a medical treatise on diseases of the chest, because it is a question which embraces the entire education and conduct of the individual from his cradle to his maturity.

Sir James Clark and others have entered largely into

the question; but, probably, Dr. Combe's work on 'Physiology as applied to Health,' is the best book ever written on the subject. It has gone through very many editions, and may be said to have originated in a popular form, in this country, the science of hygiene. Dr. Combe is always in earnest, and yet he never exaggerates. Miss Nightingale's 'Notes on Nursing,' are also full of a surprising minuteness and yet breadth of counsel on domestic hygiene. Some will regard her opinions as extreme; but there are few managers of a household who may not, if willing, derive much profitable instruction from the perusal of her book.

Tubercle may almost be considered the synonym for every error in the moral and physical life and conduct of men, or of society. It is that which thrives in darkness and filth, or in those vitiated by under-feeding or over-feeding, or depressed by lowering passions.

Take the most healthy child, and subject it to bad treatment—feed it on gin and adulterated bad food—clothe it in filth and rags—shut out the air of heaven from its skin and from its lungs—have a cesspool or bad drain communicating with its dwelling—and let its bed be in a dark fœtid chamber, habitually filled with vile men and women, and it will be a strange thing, indeed, if tubercle is not engendered in the lungs, brain, or abdomen of this victim of low life.

Again, select the most beautiful young debutante of the season;—compress her waist, "not much, but only a very little into shape;" let her go the round of a London season, and, during four months, attend one hundred and twenty balls, dinners, and operas, and nightly, for four hours, breathe the fœtid atmosphere of fashionable places; let her go nightly to bed at or

after 2 a.m., partake of green tea, Champagne, and other stimulants, to "keep her up;" lie in bed to breakfast, and for the rest read novels, and it will again be strange if this victim of high life—should there be any predisposition—has not, at the end of the season, more or less tubercle discoverable in one of her lungs.

And so also, take one of the opposite sex, and let him run the course of a "fast young man" for a few years, and he also may congratulate himself if, in sowing his wild oats, he has not also sown the seeds of consumption.

Men have this advantage over women, that by their athletic and field sports they to a great extent counteract the evil physical results of a dissipated life; but they suffer from that loss of vital fluid—begun, perhaps, at school, although ignored by boarding-school masters—which, if excessively wasted, must contribute more than any other cause to lower the vital and manly energies of youth.

Further, although the primary object of marriage—physically considered—is, that the human race may be preserved; and that a race may be reared to "replenish the earth, and subdue it;" yet, of the hundreds of thousands of marriages contracted, how infinitely small is the number of those who take any prospective view of the case in this direction; and, in relation to an offspring, at once good hearted and strong bodied; and how few are there among the upper classes, and these mothers to be—the votaries of pleasure, who, bearing within themselves the germ of some future human being, think it necessary to restrain themselves in their usual routine of worldly amusements; while, with a carelessness approaching to indelicacy, the young

and middle-aged habitually go the round of dancing in hot rooms and at late hours indiscriminately at all periods of the month. Can we wonder, under such circumstances, at the existence of a wide-spread local debility, and at the general incapacity, as mothers, of the *over-civilised* women of our day.

Man has wonderful powers of adaptation, and may enjoy good health under the brilliant heat of the tropics, and in the gloomy regions of the Northern Seas; yet there does appear to our senses to be a purity, freshness, and rosy luxuriance in summer mornings, which makes late hours and the substitution of gas for sun-light something like a sin; and the idea attached to the existence and growth of tubercle, is that of a depraved, dark, foetid, and evil vegetation, as distinguished from the fragrant and rosy growths of the morning.

Dress.—The costume of the phthisical should be such as they can bear with comfort; but, under the regenerating and invigorating influence of early hours, baths, exercise, and fresh air, the mind and body somewhat rebel against all over-caudling. Of dress, generally, it is a curious manifestation of mind, which, under the name of fashion, permits women, strong or delicate, to appear with inconvenient bareness, and demands that strong men should be buttoned up and choked, and made to swelter in rooms full of effete air, in dresses of tight black woollen cloth—with collars to their coats, waistcoats, and shirts, strangulating their necks, and congesting their brains.

As a rule, dress should be as light as it can be worn with comfort; and in hot weather especially, young and

old suffer much in this and other countries from over-clothing—fashion compelling all to go about stifled, as it were with clothes. In cold weather it appears to me even more necessary to have the abdomen warmly clothed than the chest.

Those who are strong repudiate flannel, and it is certainly the fact that most of those who have been induced to relinquish it after a course of “water treatment” rejoice in their emancipation, asserting that they are fresher and freer from catarrhs, &c. Much, however, must depend on the reactive power of the individual; and our army authorities, and Dr. Combe assert, that even in the tropics—some say especially in the tropics, flannel is essential.

Most individuals who are braced at water-cure establishments, or take the hot-air bath, can dispense with flannel to advantage; the *skin* is thus free to *breathe* and to exhale its excretions, while the nerves are less petted, caudled, and spoiled; but the aged and infirm, who cannot take exercise, and some whose reaction is weak, and circulation slow, may find flannel indispensable.

Franklin was in the habit of taking a daily air-bath, that is, he performed his ablutions and exercises, and some of his mental labours with his skin, for a considerable time, exposed to the action of the air. This was a good practice, but how few there are who do not fear this air-bathing of their skins as a something poisonous—this is especially true with regard to children.

The feet especially must be kept dry and pleasantly warm; and young children should be encouraged, especially in warm weather, to run about the house without shoes or stockings; they find this a great luxury. The victims of cold feet might often be cured by

walking about briskly in the house, or even on the grass lawns with naked feet. This advice must appear very dreadful in the eyes of the good old-fashioned mistresses of finishing boarding-schools; at which institutions cold feet and bad digestion are not sufficiently rarely met with. To the sedentary life and cold feet of boarding-schools may often be traced uterine disease, if not consumption.

Every morning and evening, from childhood upwards, the chest should be expanded by the dumb-bell movements, with or without instruments.

The skin should be kept clean and the pores open by frequent washings with soap and water; the daily sponging with cold water when it can be borne; occasionally the warm-water bath, or the hot-air bath. Some children, however, cannot bear much washing, becoming thin and weak if the bath is given night and morning. For girls the skipping-rope should be used backwards, as this throws back the shoulders, and expands the chest.

The running, romping, and loud laughing of young girls is not thought *genteel*; and certainly, when papa is taking his after-dinner nap, is far from being agreeable; but, in its proper time and place, it is good for the lungs.

Horse exercise, not in Rotten-row, but out to Richmond, Harrow, &c., is one of the best expanders of the chest; and cases are recorded, of daily horse exercise in the country curing the symptoms caused by advanced tuberculization. Sydenham considered such exercise a specific in consumption.

The climbing of hilly roads, where there is not active disease, must expand the lungs, and hinder the growth of tubercle.

Swimming, of all exercises, is one which brings the muscles most universally and harmoniously into play, whilst the back is of necessity rightly curved, and the lungs fully inflated.

Fencing, single-stick, rackets, cricket, and shooting, are all excellent exercises for strengthening the lungs.

Round hand bowling, working as it does especially on the pectoral muscles, and therefore on the lungs, must, in moderation, be an excellent exercise.

Rowing, to be of use, must be temperately performed ; excess in pulling and rowing may be useful exercises for the exhibition of pluck, but much mischief is often brought about both to the heart and lungs thereby, and such exercises at our universities should be under the control of an educated anatomist and gymnast.

The Swedish exercises of the poet and philosopher Ling, as introduced into London by Professor Georgii and Dr. Roth, have the great merit of being under scientific control—uncontrolled, physical as well as mental exercise tending, as it often does, to mere dissipation (*dissipo*, to scatter).

But I do not think the mere practice of movements, systematic or unsystematic, can be regarded as so salutary as the practice of such mental and bodily movements as hilarious *out-door* games call into play, and I think it would be well if our professors of movements taught those which would be called into play if the young ladies of the present day took part in household works.

Singing, speaking, laughing, reading aloud, and reciting aloud, cause a ringing and vibrating in the lungs, which experience proves to be good for mind and body.

Of all novels, those of Scott must be regarded as the

most *oxygenated*, sunny and *breezy*, and to read aloud such *poems* at the family circle would not be one of the least useful exercises for the lungs.

All games which require rapid motion, and induce an interchange of pleasant thoughts and words, are good, as compared with the silent, secret, and gambling games.

One drawback to athletic sports among young men is, that they too often lead to beer-drinking and excessive eating—a jollification after a contested game being a part of John Bull's system.

The use of the Turkish bath tends to give a distaste to alcoholic stimulants; and I am persuaded that if at our universities the bathers and water-drinkers would contend with the smoking and beer-drinking section, the victory in most games where endurance was the test, would be with the former.

I have thus entered briefly into a subject which should constitute at least one half of the education of man, viz., how to strengthen and purify his body, and render it less prone to disease, and especially to tubercle.

It is well that Greek, Latin, and mathematics should be mastered, for even as mere difficulties to be overcome the discipline must be useful, but a mere accumulation in the memory of words and facts is a miserable substitute for that education which, together with a pure and strong body, will give a man a generous heart and a clear, manly, mental vision.

The round-backed, smoking, hollow-chested, dyspeptic, and tubercular man of letters, can scarcely exercise a healthy influence on the thoughts or actions of his age—an age which demands that Englishmen at

least shall stand erect on their native shores, it may be rifle in hand (1860), examples to all the world of that which is free, strong, and just.

Curability of Phthisis.—The question of the curability of phthisis has occupied considerable attention on the part of pathologists, and has afforded many opportunities for self-laudation on the part of the credulous or the pretentious.

According to the experience of Dr. Walshe, at the Consumption Hospital, about 67 cases in 100 cases treated were benefited by treatment; about 33 of his cases in a limited period grew worse, and died under treatment, while only 4 in the 100 were restored to apparent health.

According to M. Louis, *two fifths* of the cases dying from *all* diseases at the Hospital La Charité, discovered tubercles somewhere on post-mortem examination.

Dr. Rogee found calcareous deposits, viz., decayed tubercles(?), in one half of the females who died at the Salpêtrière.

Boudet found existing tubercle, or signs of former tubercle, in about three fourths of the cases examined at the Paris hospitals.

Post-mortem examination has further frequently demonstrated the former existence of tubercular cavities long healed; and Laennec gives the curious history of an Englishman having all the signs and symptoms of phthisis, and who was thought dying, who yet recovered and lived an unknown number of years, and in robust health, after coughing up a mass of tubercle the size of an almond, and, as a consequence, retaining permanent pectoriloquy.

Cases also frequently occur in which patients recover from acute attacks of phthisis, and may survive twenty or thirty years, and ultimately become again phthisical, and die.

The inference from these facts is :

1. The existence of tubercle in the lungs or elsewhere, in a large proportion of cases, does not produce fatal results, for whereas tubercle is said to exist in two fifths, or three fourths of all cases dying at hospitals in Paris, only about 25 per cent. of hospital patients die from tuberculosis.

2. The discovery of calcareous deposits and healed tubercular cavities demonstrates that active tuberculization of the lungs is curable, spontaneously or otherwise.

3. That a 4 per cent. recovery, under circumstances so favorable as at the Brompton Hospital, is not encouraging to the usual line of treatment.

We can only add, that it remains yet to be investigated what proportion of cases would recover under homœopathic treatment, aided by the best system of hygiene.

This at least can be proved, that allopathic treatment is very unsuccessful, while hospitals, even the best we have, are *not* favorable places for the consumptive to congregate. The massing of any order of diseases under one roof, and that in a hospital in a densely-peopled city, is on the face of it a violation of the first law of hygiene, viz., that pure, undiseased, and undirtied air is the *first* requisite to human life and health.

Facts extracted from the work of Louis.—According to M. Louis, post-mortem examination of those who

died of phthisis revealed only 2 of 123 cases in which tubercle was not found, chiefly at the apex of one or both lungs; of these cases, 5 only had tubercle limited to the left lung, and 2 to the right; and if tubercle existed throughout the lung, it was usually found to be grey at the lower part, crude or softened in the middle, while cavities existed at the apex.

Recent inflammation of variable extent in one or both lungs and pleuræ existed in one tenth of the cases.

The trachea was softened or ulcerated in one third of the cases.

The larynx was ulcerated in about one tenth of the cases.

The pericardium contained a notable quantity of clear serosity in the tenth part of the cases.

The heart was frequently softened.

The stomach was distended and carried lower down in one twelfth of the cases.

It was softened or red in one fifth, and was perfectly healthy in only one fifth of the cases.

The small and large intestines were softened or ulcerated in five sixths of the cases, and perfectly healthy in only three cases.

The mesenteric glands were tubercular in one fourth of the cases.

The liver was fatty in one third of the cases, viz., in ten males and thirty females. But not in the quadrumania, dying from phthisis.

The spleen was softened, enlarged, diminished, or tubercular, in a great many cases.

The kidneys were tubercular in many cases.

The prostate was tubercular in several cases.

The abdomen contained serous effusion from one to ten pints in one fourth of the cases.

The arachnoid membrane was thickened and studded with non-tubercular granulations very frequently. The lateral ventricles were distended with serous effusion in three fourths of the cases.

Many of these lesions are common to those cut off by other diseases, but ulcerations of the larynx, trachea, epiglottis, and small intestines, and fatty liver, are almost confined to phthisical cases.

M. Louis also found that when tubercle coexisted in other organs besides the lungs, tubercle in the lungs had, with one exception, always advanced further than elsewhere, and he says that if after the age of fifteen tubercle presents itself in any organ, it is almost certainly, likewise, to be found in the lungs; in 328 cases he found only one exception. This is a fact which may furnish valuable aid in diagnosis, and hence he says it warns surgeons to forbear from the removal of tubercular tumours, even although the individual may not suffer from the symptoms of phthisis—except after very mature consideration.

BRONCHIAL PHTHISIS.

Bronchial phthisis, viz., tuberculization of the bronchial glands “is an affection almost confined to children.” In this disease the bronchial glands are enlarged, and it is generally, but not always, associated with pulmonary phthisis.

There may be swelled cervical glands, and a congested aspect, but as children frequently do not expectorate, blood may not be discovered.

There may be a difficulty in swallowing, with harsh breathing, and a modified voice sound.

There may be excess of vocal fremitus, and dull percussion between the scapulæ.

The respiration may be temporarily suppressed if the tumors be sufficient to impede the entrance of air, and there may be pectoriloquy over the seat of the tuberculous deposit from conduction. The symptoms may be those of bronchitis with hectic. The cough may be rough and ringing, and the voice hoarse or inarticulate, and there may be fits of dyspnœa, and symptoms resembling laryngismus stridulus, and symptoms resembling pulmonary phthisis, viz.; hectic sweats, and general wasting. The little patient gradually sinks, or he may be suddenly cut off by profuse hæmorrhage from perforation, it may be, of the pulmonary artery; or he may be cut off by pneumothorax.

If a scrofulous child have a paroxysmal and chronic cough, and there be no tubercles at the apices, but a congested face, and dull percussion between the scapulæ, the most ostensible diagnosis is tuberculization of the bronchial glands.

The allopathic treatment is the same as for phthisis, with iodurated applications between the shoulders.

The homœopathic treatment is also the same as for phthisis, with cod-liver oil frictions between the scapulæ, Iodine, Spongia, Phosphorus, and Calcaria, may also be used; but a long residence at the sea side is much to be desired, and under the best hygienic circumstances incipient manifestations of this disease may disappear.

Mediastinal tumors may be tubercular, fibrinous, or cancerous, or from abscess. If these tumors be small

they may produce little inconvenience ; but if large, and they press on the main vessels or bronchi, cough, dyspnœa, and local and organic congestions may ensue, presenting symptoms analogous to those of concentric aortic aneurism, or chronic pericardial effusion, or enlarged heart.

Tertiary syphilitic deposit in the lungs is a rare affection, but may produce symptoms analogous to those produced by tubercular infiltration.

The history of the case, the cachexia, &c., will assist the diagnosis.

Cancerous infiltration of the lungs, or cancerous local deposit, will be distinguished from tubercle by the accompanying cancerous cachexia, while the expectoration will be muco-pus, or like red or black jelly, and foetid.

Acephalocysts may exist in the lungs, and produce signs and symptoms closely simulating phthisis.

They may be expectorated in minute fragments, or as much as a pint at a time has been expectorated.

Dr. Walshe says, "Of *nine* recorded cases, three only died from the disease, and five recovered perfectly."

Acephalocysts have been known to penetrate from the liver into the lungs, producing violent constitutional symptoms. Under these circumstances they have been coughed up tinged with bile, and death has been the usual result.

APPENDIX.

VENTILATION OF DWELLINGS.

NEXT in importance to good food is good air. Indeed, good air may be said to be of prior importance ; for while many men can enjoy perfect health either on an exclusive milk, vegetable, or animal diet, or on a mixed diet, or, indeed, live for days without food, no good colour can come to the skin, strength to the mind, or vigour to the body, unless the individual breathe an abundant and constant supply of fresh air.

Foul air is the very nourishment of scrofula, typhus, and other poisons, while fresh air is the very life of purity and strength.

In a certain building in Glasgow, inhabited by 500 of the working classes, prior to 1832, 100 cases of typhus occurred annually. This building was then ventilated by Mr. Fleming, at an expense of £50, and in the eight following years, instead of 800 cases of typhus occurring, only 4 cases occurred.

In the Dublin Lying-in Hospital, within a certain period, of 7650 children born, 2944 died within fourteen days of their birth ; but *holes* were then made, I believe, in the window-frames, because the nurses would not allow the windows to be left open, and the mortality at

once declined to a proportion which proved that 2000 of the children had been poisoned by bad air.

One night, during 1756, Englishmen, 146 in number, were shut up in the Black Hole of Calcutta, 18 feet square, with two small windows on the same side, and in the morning 123 were found dead and rotten, and 23 only were alive. It is less easy to enumerate, but not less certain, that thousands and thousands are slain annually, although gradually, from being shut up in ill-aired ball-rooms, or within curtains, shutters, and padded doors in our snug English homes. 1000 cubic feet, viz., a room 10 feet cube, is given as a good allowance of space to each patient in a hospital; but, as Dr. Bence Jones happily puts it, "a fish might enjoy good health if shut up in a tube through which water constantly passed over its gills; and so a man might have abundance of good air, although living in a room six feet square, if that room were efficiently ventilated;" the inconvenience being, that small rooms must be draughty if the air be freely admitted.

The Legislature compels all citizens to remove dust-heaps, cesspools, and other nuisances from their dwellings; and if it is so demonstrable that an ill-ventilated room is a destroyer of health, why does the Building Act not compel builders to contrive for the ventilation of those houses which they throw up broadcast over this great Babylon?

The Glasgow building holding 500 working people, I have said, was ventilated at an expense of £50. If so, why should modern houses, while being built, not have provision made for ventilation, at an expense say of £10 or £20 each? The only answer I can find to this question is, that as houses are now "run up" by hun-

dreds, a few pounds saved on each, at the expense of the lives of the people, is only "all in the way of trade."

In the first volume of 'The Transactions of the National Association for the Promotion of Social Science' I have a paper on this subject, in which I propose that houses should be ventilated by carrying pipes between the rafters from the centre of the ceiling of each room, viz., above where the gas or other chandelier hangs, into a main pipe, which should terminate in an iron pipe passing up the kitchen chimney. The kitchen chimney being in operation summer as well as winter, and on an average, probably, twenty hours out of the twenty-four, viz., so long as the chimney contains air warmer than the air of the house or the external air.

In summer, or during warm weather, the best method of ventilation is the natural method, viz., open windows. Windows of bedrooms, when the weather is warm, should be open all night; and if the individual dislikes the air blowing on the face, this may be prevented by a curtain or a screen. Many individuals can bear the bedroom windows open even in winter nights, and perhaps all could rejoice in this, if seasoned to it gradually; but it certainly does appear that certain individuals have *naturally* a very slow reaction against the influence of cold air or water.

Gas produces, on combustion, sulphurous and carbonic acid and ammoniacal vapours, and these, if not carried off by ventilation, are highly injurious. The pipe plan, as above proposed, would remedy this; but gas could be burned with complete impunity if a bell-shaped tube were suspended immediately over the burner, and this tube connected with the pipes, as above described. This would frequently interfere with

design ; and certainly there is much room for ingenuity and taste in the construction of gas-chandeliers. The vast majority of those now existing are as vulgar and inappropriate as it is almost possible to conceive.

Gas, if burned slowly, is less injurious than if burned quickly and imperfectly, and it is therefore good economy to burn two or more lights slowly than one quickly (flaring). The recent invention of a moderating burner prevents the flaring, and is so far good ; but I believe that one larger apparatus on the same principle, attached to the supply pipe, would serve the same end, and would not interfere with design as at present. Gas is purified at the gas-works, by its being made to pass through solutions of lime, &c. ; but if there be a great demand for gas, as in dark weather especially, there is then no time to purify the gas adequately, and I do not know why individuals should not have small purifying apparatus attached to their own supply-pipes.

Gas, as now supplied and as *not* ventilated, is certainly much more destructive of air than oil-lamps or candles, and those with delicate lungs should prefer oil or candles, but gas is so extremely convenient a light, that we would much desire that it should either be supplied in much greater purity, or so ventilated as to be innocuous.

A patent was lately taken out to supply hydrogen gas, which, being burned inside a cage of fine platinum wire, this platinum became *white* hot, and a most beautiful and perfectly steady light was the result, and as the combustion of hydrogen could not produce deleterious gases, watery vapour only being produced, the light appeared to be most desirable.

The Great Western Railway terminus and hotel were to have been so lighted, but, from all I can learn, it appears that either the cost would be too great, or the difficulty of making the supply pipes sufficiently tight (the gas being highly volatile), or some other opposing interest or reason has deferred the present execution of the plan.

With regard to Arnott's chimney ventilation, it should act well so long as there is a fire burning in the grate ; but in summer, when there is no fire, and in bed-rooms, where generally there are no fires, it only makes a flappy noise, and lets in smoke, and is of no use as a ventilator.

So also of the Arnott grate—where the fire burns from above downwards—it has the merit of producing less smoke than an ordinary grate ; it is also economical, and it is not liable to “go out,” but as the fire is virtually a coke fire, the least whiff of coke fumes into the room, very greatly deteriorates the air of the room. As now constructed, the open fire-place, notwithstanding all its waste of fuel and heat, is in a hygienic point of view the best means of warming and ventilating rooms which we yet possess, although I cannot believe that so clumsy a contrivance is to remain the ultimatum.

Cravats and shirt collars, as worn by men, always appear to me to act as carbonators of the blood, by interfering with the free circulation between the brain and the lungs, and may thus be regarded as obstacles to the free ventilation of the blood.

The hard student in his closet, and the hard rower of race-boats, alike remove this barrier to free oxygenation ; but it were better for the man himself that no barrier

at any time should be put on the free oxydation of that blood which goes to refresh and invigorate alike his body, brain, and thoughts.

COUGH.

In aid of diagnosis it may not be superfluous to enumerate the sources from which cough may arise, and very briefly to describe the anatomy, physiology, and pathology concerned in the act of coughing.

The parts concerned in the act of coughing are the diaphragm, the pectoral and abdominal muscles, the lungs, and the glottis.

The diaphragm is usually said to be the chief agent in the production of cough by its spasmodic contractions; but as in another part of this volume I have given my reasons for believing that the muscular tissue of the lungs was the chief agent in the act of respiration, so also I believe that coughing and sneezing are chiefly produced by the spasmodic action of the same tissue, by which the contained air in the lungs is driven violently through the glottis, and expelled through the nose in sneezing, and through the mouth in coughing.

Cough is usually an effort to expel from the lungs gases or fluids foreign to these organs. For instance, carbonic acid gas, or even very cold air, if accidentally inhaled, or phlegm, mucus, or pus, which may be secreted there in disease.

Cough, however, will be caused by any condition of things which irritates the lungs, directly or indirectly. Directly, as in the irritation caused by deposits, as in tubercle, cancer, or pneumonic consolidation or congestion.

Indirectly, as in pleuritic irritation.

As the pneumo-gastric and sympathetic nerves are intimately united, and supply the tonsils, uvula, larynx, trachea, lungs, heart, liver, and stomach; and as the mucous membrane lines continuously the respiratory and digestive organs; if any causes of irritation exist in any of these parts, the pneumo-gastric nerve must receive intelligence of the fact, and the lungs must sympathise with the condition of things, and thus coughing must be a very general result—indicating a desire, expressed more or less loudly, to expel the offending agent from the body.

The spinal nerves call into action the pectoral and abdominal muscles to aid in this work. The act of coughing, as thus excited, is called a reflex act of the excito-motory system.

So intimate, indeed, are the sympathies of all the organs of the body, that even the smarting of corns may be a cause of coughing in a susceptible individual.

The following affections are causes of coughing:

Enlarged, or inflamed, or relaxed tonsils.

Elongated uvula.

Inflamed, ulcerated, or relaxed larynx.

Catarrhal secretions. Influenza.

Bronchitic inflammation, or bronchial secretions.

Congestions of the lungs.

Pneumonia.

Pleurisy.

Tubercle in the lungs.

Pus secreted in the lungs.

Emphysema.

Retarded circulation through the lungs from weak heart or valvular disease.

Aneurism. Enlarged, inflamed, or displaced heart.

Œsophageal irritation.

Indigestion. Gastric inflammation.

Liver inflamed, enlarged, or irritated.

Spleen ditto.

Diaphragm, irritation of, in itself, or from liver or stomach.

Worms, or intestinal irritation.

Enlargement, displacement, or irritation of the womb, hence pregnancy cough.

The mere inhalation of cold air is a cause of cough. Cold applied to the skin, checking skin exhalations, and thus throwing extra work on the lungs, is the constant cause of cough in winter.

Piles, or accumulations of hard fæces, are a cause of cough.

Croup, laryngismus stridulus, measles, smallpox, hooping-cough, &c., &c.

Teething.

“Old man’s cough” is generally from a lethargic state of the circulation through the lungs, and from bronchial secretions.

Hysterical cough may be from local irritation, from love of sympathy, from habit, or from a hundred causes, and may be accompanied by hoarseness and loss of voice.

Cough, as the result of most of the above affections, has, in this volume, been noticed in treating of these; and if we only reflect, that long-continued cough, as in hysterical or nervous and susceptible individuals, accompanied by loss of sleep, pleuritic stitch, and even suspicious emaciation, may be a purely *reflex* action, we may not only succeed much better in treating certain ano-

malous coughs, but will be able the better to quell the apprehension of those who may continue to cough for years.

Anomalous dry coughs, by which I mean those which cannot be accounted for by the symptoms, or by physical examination, are frequently cured by *Nux Vomica*, from the 3° to the 30° dilution, because, as I believe, that drug is the most active of all known substances in its power over the excito-motory system.

CLIMATE.

The following brief notes are founded chiefly on opinions expressed in Sir James Clark's excellent work on climate.

Penzance is a mild and delightful winter residence, and possesses beautiful green scenery; but much rain falls there, and it is exposed to cold winds in spring. The winds are often very violent. The climate does not suit relaxed habits, but it is suitable for those who like a mild, moist atmosphere, and is suitable for irritable coughs.

Torquay and Dawlish have climates analogous to Penzance. Sidmouth is recommended for summer and autumn, rather than for winter, when it is damp.

Guernsey and Jersey have climates analogous to that of Penzance.

In the south-west of France, at Nantes, La Rochelle, Bourdeaux, the climate resembles that of the south-west of England, but is somewhat milder.

Hastings possesses a mild, although somewhat relaxing climate, and is a suitable winter residence. It is protected from the north and north-east winds, and is surrounded by fine scenery.

The south side of the Isle of Wight, viz., Undercliff, Bonchurch, St. Lawrence, is the finest winter climate in England. It is nearly as mild as Penzance, and is less rainy and less relaxing, and as patients can drive or ride to the east or west side, or on the upper downs, a more bracing air can be obtained when desired.

Ilfracombe, Linton, Clifton, and Malvern, Abergavenny, and Tenby, are mild, yet bracing summer residences.

Eastbourne, Benrydding, Bræmar, &c., are bracing residences in summer.

Brighton is a suitable residence in autumn and winter, mild yet bracing; but, in spring, it is much exposed to cold winds, and in summer is hot. Nighton, Cows, Shanklin, Ryde, are suitable summer residences.

The south-east of France has a dry, hot, harsh, and irritating climate, while it is liable to periods of cold cutting winds. Its climate is, therefore, unsuitable for the phthisical, but Montpellier or Marseilles might suit those with relaxed habit and chronic bronchitis. Nice is good for some cases of chronic bronchitis, having a bracing climate, but in winter and spring it is subject to cold, strong winds. Nice is good for scrofulous children.

Genoa is relaxing in hot weather, and the winds at other times are cold.

Florence is very cold in winter and spring, and very hot in summer. Phthisis is a frequently occurring disease at Marseilles, Genoa, and Florence.

Pau is recommended as a spring residence, but at Pau chronic rheumatism is said to be almost endemic.

In the Pyrenees are many delightful summer residences, as at Bonnes and Caunterets.

Mont d'Or in Auvergne, or Vichi, are also fine summer residences. It is the practice at Geiss to take a course of goat's whey.

Pisa is mild in winter and spring.

Rome is the most desirable winter residence in Italy. The climate is mild, though somewhat heavy. Phthisis is a much rarer disease there than in Florence. Sir James Clark recommends Rome as a winter residence, in chronic rheumatism, chronic bronchitis, and incipient phthisis, &c.

At the baths of Lucca a mild summer residence is to be found, but it is not sufficiently bracing for the majority of the British race.

Ischia is recommended as a summer residence.

Switzerland would be a delightful summer residence for an invalid if the sudden changes of temperature and high winds could be provided against.

Funchal, in Madeira, has a winter climate of about 60°, in summer it is about 80°, with cool winds. Phthisis is rare among the native population of Madeira, although hundreds of the consumptives who go to Madeira are carried off in a few months. Those with incipient phthisis are enabled to be all day in the open air, and the majority of such are much benefited by a residence in the island.

The West Indies are too hot. The discomfort from insects is also great; while many negroes die in these islands of phthisis.

In St. Kitt's, Spooner's Level is 1400 feet above the sea, and is said to be a paradise on earth, in winter and spring. In the highland part of Barbadoes, 800 feet above the sea, the climate is also very fine.

Ems, on the Rhine, is a good summer residence.

Algiers, Egypt, and some parts of Australia, possess warm and dry atmospheres; suitable for some forms of the relaxed habit, and chronic bronchitis.

The climate of Nubia is said to be perfect in winter.

A long sea voyage is popularly believed to be very advantageous in consumption. The individual being many hours daily on deck, together with the total change of life and scene, the constant motion of the vessel, and it may be the stimulus given to the glandular system by the sea air, and even by the act of frequent vomitings, may sometimes lead to very favorable results.

Doubtless long sea voyages have done good when all other means have failed, and that not only with those having considerable stamina, but with the very delicate.

In some cases this might be an inducement to emigration to Australia. The discomforts of a long voyage, and the arriving in a strange and distant land, it may be without friends, must, however, be well considered.

Travelling for the benefit of health, will almost always benefit all those who are not too weak to endure the toil and care accompanying it.

Those who dislike change, who despise all things foreign, and who growl and grumble at foreigners and foreign food, beds, and hotels, and who like caudling, and who "cannot sleep in strange beds," are not likely to be benefited by travelling.

At the best, travelling is cold in winter, and hot and irritating to all invalids in summer—and what with passports, hotel bills, and ill-understood foreign languages, insects, &c., there are annoyances which even the strong and philosophical cannot always bear with patience.

When travelling it is necessary to eat and drink temperately, as the irregularity of the life, or the change of food or water, often interfere with the digestion; while the sedentary life led during active travelling tends to constipate the bowels. On arriving at the end of a journey, if heated and care-worn, a warm bath with soap and water is an excellent restorative.

The inhabitants of the northern parts of Great Britain will usually find a sufficiently mild climate when desired, by removing to the south of England; while the inhabitants of the south of England may require a warmer foreign climate.

In advanced phthisis, Sir J. Clark appears to think that removal to warm foreign climates rather hastens than retards the progress of the disease.

Much is said and written against the climate of Great Britain, yet consumption is not more frequent here than in some of the finest parts of France and Italy.

This, at least, is certain, that the average duration of life is greater in this country than in France, Italy, or Germany; while I think all will admit that, physically, the inhabitants of these islands, male and female, are the finest race in Europe, if not in the world.

THE TURKISH, OR HOT-AIR BATH.

Repeated allusions being made in the foregoing pages to the hot-air bath, it is necessary that I should give a brief account of that method of applying *heat* to the body in health and in disease.

Many eloquent and elaborate accounts have been written by the frequenters of the Turkish Bath, an

“institution” which appears to instil into its votaries much enthusiasm.

The Turkish bath, with some modifications, is the legitimate descendant of the old Roman bath, and those now existing, especially at Constantinople, are many of them very splendid establishments.

Briefly stated, the hot-air bath consists of a sweating room, or two sweating rooms of different temperatures, heated by flues; a washing-room, and a cooling-room. But the sweating-room and washing-room may be in one, while a very excellent substitute for the cooling-room is to be found, while reclining on a seat in the open air, as in a garden.

The temperature of the bath is generally from 120° to 160° , although as an experiment, and in disease, a temperature as high as 250° has been submitted to.

The Turkish bath contains some fine steam. In the hot-air bath there is either no steam or only a very little, produced by sprinkling a little water on the hot plates of the flue.

The time the individual remains in the bath is generally from twenty minutes to one hour; although in certain diseases the patient might beneficially remain hours in the bath, being occasionally relieved, if faint, by drinking cold water, or removing for a minute or two into the cold or open air.

The bath should be taken deliberately and quietly, all haste being inimical to a favorable result. From one to two hours are required to take the bath effectually.

After the individual has been sweated sufficiently, he is usually shampooed, then washed with soap and hot water, then washed down with tepid or cold water, after which he reposes in the cooling-room.

The human skin contains about 2,000,000 pores, and about 30 miles of sweating ducts terminating in these pores. Normally, if a man take 95 ounces of food and drink in a day, he will pass off by his lungs about 15 ounces, by his kidneys about 30 ounces, by his bowels about 10 ounces, and by his skin about 40 ounces. It is thus evident that the skin is a most important depurative organ.

Further, the skin is composed of an infinitely minute and sensitive network of nerves and capillaries, and therefore presents a surface of wonderful extent and sensibility for the operation of heat and cold.

The main objects of the hot-air bath are—1. To stimulate the skin, and to sweat out effete matter, and thus depurate the blood. 2. To relax spasm, or overtonicity produced by mental or bodily excitement, if such exist. 3. To restore vigour to the body, *bruised* as it were, or exhausted by bodily and mental labour. 4. To draw the blood to the skin, and thus relieve internal organs of congestion.

By the operation of the sweating process, followed by washing, the skin is rendered purer than it can possibly be rendered by the hot water and soap bath. The glands of the skin are also stimulated by the hot-air bath, while they are rather relaxed by the hot-water bath.

The exposure of the skin to the cool fresh air, after the pores are fully opened by heat, is extremely exhilarating and tonic in its action; and most probably the direct action of the light and oxygen of the air have on the freely *opened* skin further beneficial effects.

The skin is so stimulated by the hot air, that almost any degree of cold can be borne for some time after-

wards, not only without any chance of "catching cold," but with positive pleasure. The writer of this has sat after a bath in a garden, with his skin freely exposed for half an hour to the frosty wind of a January morning, and this with positive pleasure and benefit.

I would not advise the novice, however, to begin with extremes. He should begin with a temperature about 120° , and remain only so long in the bath as he feels not faint—and if he have a slow reaction he may feel disposed at first to shun cold water or cold air after his bath.

The invalid especially, I believe, should begin carefully, although instances in which unpleasant symptoms have succeeded the bath are quite exceptional.

The votaries of the bath are often enthusiastic in their admiration of its merits as a regular daily bath, and assert that they could scarcely endure life without it.

My own experience does not lead me to so enthusiastic an admiration; for although I found that a course of these baths improved my appetite, and increased my flow of spirits bodily and mentally, yet this result did not continue, and I do not now feel disposed to take the bath more than once a week.

I believe, however, that the plethoric, and the sedentary especially, might take the baths more frequently, and with advantage; while I have witnessed many instances of the bath being taken daily with apparently only good results; and where such baths can be had at home, they are doubtless taken with much satisfaction, especially by those who are easily chilled, and susceptible to coughs, colds, and pleuritic attacks in cold damp weather.

I consider the inhalation of pure air, and the exposure of the body to pure country air, a great desideratum after the bath, and hence, that much more good will be derived from such baths in the country or in the suburbs, than in the centre of the town.

The most perfect ventilation of the hot chamber is also very important; and if any flaws exist in the flue, by which carbonic acid, carbonic oxide, or sulphurous vapours escape into the chamber, the consequences are very prejudicial, producing headache and faintness. Were hot steam pipes used as the heating means, all effluvia from gases or brick vapour would be avoided.

The walls and floor of the hot chamber should, if possible, be such as do not absorb the exhalations from the body, and such as can be easily washed and kept sweet. White tiles have been tried; but such have the disadvantage of neither absorbing nor radiating heat readily. They also produce echoing of the voice too freely. Otherwise the material is very clean and sweet.

Hot water and hot *thick* steam-baths, appear to me relaxing, while the hot-air bath is stimulating. In the treatment of certain forms of disease, the hot-air bath has this advantage, that it can be borne at a temperature of 250° , while the thick-steam bath can scarcely be endured at 115° , or the hot-water bath at 100° .

Hot water, sufficient for even one bath, is further a difficult thing to obtain in a private dwelling; while hot water for baths for an entire household is almost an impossibility. The hot-steam bath has also the disadvantage of creating a certain amount of dampness in a house. There are, however, individuals who take steam baths with pleasure, but who cannot endure the

hot-air baths as now constructed in London ; but then the hot-air baths, by sprinkling water on the hot bricks or iron of the flue, can always at pleasure be converted into a hot *thin*-steam bath.

The objections offered to the hot-air bath as taken in health are, that it is unnatural, that it weakens, and that it causes headache.

But to go into a hot-water bath *seems* equally unnatural. To kill oxen and eat their flesh *seems* unnatural on the part of a rational, a spiritual, an immortal being. Is it not, on the other hand, unnatural to *abstain* from cleansing the skin by the best means we possess? We overclothe the body, and tie it up in close-fitting garments, carefully shutting out the air ; the majority shun soap and water ; and fashion envelopes the body of the female in a fantastic *machine* called dress.

Could anything be more unnatural than that the chief energies of the age should be directed towards money-making, which, when got, increases the circumference of man's anxieties, or procures luxury, or induces indolence, or begets selfishness, or enslaves the world to fashion, and all at the expense of health, and comfort, and happiness ?

When men and women make it a business to find out and follow nature, they will then be more competent to pronounce on the naturalness or otherwise of the hot-air bath.

The entire arrangements of civilised life are more or less unnatural, and may call for somewhat unnatural remedies as a compromise.

"By the sweat of thy brow shalt thou eat bread," is the present law of nature. Where this law is not, or cannot be followed, the artificial sweating produced

by the bath may sometimes not be a bad substitute. The bath may disagree with some, and produce weakness and headache; but thousands of others, after fifty years' experience, as in Constantinople, have quite as much faith in its power to refresh and invigorate the body, as the uncleansed inhabitants of this country have in beer and cheese, or in Port wine and mutton chops.

The bath attendants spend ten or twelve hours daily in the bath, and they are vigorous and healthy men.

The bath does occasionally produce languor and headache with beginners, viz., before the skin has learned to respond freely to the action of the sweating process. The baths also, as already said, will produce languor and headache if not sufficiently ventilated.

It is, however, as an agent in the cure of disease, that I draw attention to the bath in the pages of this volume.

I believe, that for chronic and acute rheumatism, and gout, we possess no remedy equal to it; and if so, this has a direct bearing on the tendency to heart disease.

Large quantities of uric acid are sometimes found, on evaporating to dryness the copious perspiration poured out of the rheumatic patients, while in the bath.

For chronic skin diseases, I further believe we have no remedy equal to the hot-air or hot-steam bath.

The bath has the power of drawing the blood most actively to the surface, and therefore must be most useful in all cases of internal congestion.

It would, therefore, be most useful in the cold stage of severe ague, death often resulting, notwithstanding Quinine, from the congestion of internal organs in this disease, and especially in the tropics.

The bath is also worthy of trial in all fevers, as in typhus and scarlet fever.

In tetanus and hydrophobia the higher temperatures are well worthy of a trial, also in cholera collapse.

By the power the bath has of deriving to the skin, it should be very useful in chronic bronchitis, and even in acute suffocative bronchitis.

The gentle use of the bath should also be very useful in all cases where the circulation is impeded from heart disease, and especially in such cases of heart disease as prevent the patient taking sufficient exercise to aid the circulation of his blood; or to obtain the natural relief from the normally produced skin exhalations.

Congestions of the liver, such as often exist in chronic bronchitis and heart disease, would also doubtless be much relieved.

A large number of the phthisical suffer from cold, and hence eagerly emigrate to warmer climates; but the hot-air bath, certainly at least for a time, and many assert permanently if habitually taken, renders the skin quite indifferent to changes of temperature. For those who have the means, and can afford to go abroad, a residence in a warm climate may be the very best thing that the incipient consumptive can do. But the great majority can neither afford the time nor the money to go and reside in warm climates, and for such, I believe, the hot-air bath, taken at a moderate heat, would fre-

quently so stimulate the skin, and so relieve internal congestions or irritations, that many might not only be enabled to remain with comfort in this cold, damp, and changeable climate, but might be thus enabled to take daily and ample exercise in the open air, and at the same time enjoy all the comforts of *home*.

The bath has been established at the Newcastle Infirmary; and Sir John Fife, physician to the infirmary, speaks highly in its favour in skin diseases, rheumatism, heart disease, and varicose veins.

Hot-air baths have been for some years extensively used in the establishment of Dr. Barter, at Cork.

Dr. M'Leod has lately fitted up a very spacious one at Benrydding, where I am told it has become the favorite part of the establishment.

Dr. Wilson is also, I am told, introducing it at Malvern, and Mr. Smedley at Matlock.

In many respects, indeed, the hot-air bath may be regarded, if I may use the expression, as the *short way* to the "water cure."

These baths are also extensively used at Manchester and Sheffield, and are there taken by pugilists and runners, a sufficient guarantee that they are not found to be weakening.

In London, several gentlemen have erected these baths in their own houses; and, when this can often be done at an expense of £10 or £20, and when the bath can be kept in operation for hours, at an expense for coals of about fourpence; and when we reflect, that by this means the entire household, viz., servants, masters, and children, can be kept in a state of surpassing cleanliness; while a remedy is always at hand in case of acute disease, or mere illness, I think the public will soon learn

that no house should be constructed without provision for these advantages.

In winter the hot room could not only be used as a bath, but the entire house could be heated by the same contrivance.

The early riser in a cold winter morning, after taking a hot-air bath, could then sit down in comfort to his studies for hours, enjoying a pleasant glow of mind and body.

Hot-air baths should certainly be erected at all our hospitals.

The hot-air bath is so great a luxury that it only requires to be known to be universally adopted by all classes. The social and sanitary results it would produce, especially with the hitherto unwashed classes, are well worthy of full consideration by all philanthropists; while the extreme economy of the hot-air bath should be considered by all who interest themselves in baths for the people.*

* Public hot-air baths already exist in London, at 4, Bell Street, Edgeware Road; 11, Paddington Green; Palace Street, Pimlico; and 42, Somerset Street. And it is further in contemplation to erect at some convenient place in London, by Joint Stock Company, a large and splendid establishment. The expense of a bath is from one to five shillings; but baths, as a charity, could be given to the poor, if a proper establishment existed, at an expense of one penny each.

The best account of the Turkish bath is to be found in Mr. Urquhart's pamphlet, published by Bryce, Paternoster Row.

LIST OF MEDICINES

RECOMMENDED IN THIS VOLUME.

	DECIMAL		DECIMAL		DECIMAL
Acid. Nit.	3.	Colchicum.	3.	Manganese c.	3.
Acid. Sulp.	3.	* Coffea.	3.	* Mercur. Corr.	3.
Acid. Phos.	3.	* Cobra. Trit.	3.	Mer. Biniod.	3.
* Aconitum.	3.	* Chamom.	3.	* Nux Vom.	3 & 12.
* Arsenicum.	3 & 12.	Cup. Sulp.	3.	* Opium.	3.
* Aurum.	6.	* Digitalis.	3.	* Puls.	3.
* Argent. Nit.	3.	Drosera.	3.	* Phos.	3.
* Belladonna.	3.	* Ferr. Carb.	3.	* Rhus.	3.
* Bryonia.	3.	Guaiac.	3.	Sabina.	3.
Baryta Carb.	3.	* Hepar.	3.	Sepia.	6.
Bismuth.	3.	* Hyos.	3.	Silic.	12.
* Bromium.	3.	* Ignatia.	3.	* Spigelia.	3.
* Calcar. Carb.	6.	* Ipecac.	3.	Stannum.	6.
Calcar. Phos.	6.	* Iodium.	3.	Stramonium.	3.
Carb. Veg.	6.	* Kali Bich.	3.	Squilla.	3.
Cannabis.	3.	* Lachesis.	6.	* Spongia.	3.
Cina.	3.	Lobelia.	3.	* Sulph.	3 & 12.
Cocculus.	3.	Lycop.	3.	Veratrum.	3.
* Conium.	3.	Moschus.	3.	Zinc.	6.
* China.	3.				

Those marked * are the most important.

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