Synopsis of the diseases of the larynx, lungs and heart : comprising Dr. Edwards' tables on the examination of the chest with alterations and additions / by F. De Havilland Hall.

DISEASES

OF THE

LARYNX, LUNGS, & HEART

DE HAVILLAND HALL

SYNOPSIS OF THE DISEASES

OF THE

LARYNX, LUNGS, AND HEART

COMPRISING

DR EDWARDS' TABLES ON THE EXAMINATION OF THE CHEST

WITH

ALTERATIONS AND ADDITIONS

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PREFACE

THE valuable tables "On the Examination of the Chest," drawn up by the late Dr. Edwards, of St. Bartholomew's Hospital, having been out of print for several years his executors kindly gave me permission to make what use I pleased of them. In the present edition are comprised all the original tables, with such alterations as were deemed necessary, together with additional tables on the Diseases of the Larynx, Heart, &c.

The two charts on Aortic and Mitral Disease are inserted by the kind permission of Dr. Andrew.

F. DE HAVILLAND HALL.

QUEEN ANNE STREET;
January, 1878.

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* These tables are not in Dr. Edwards' book, the others are the original tables with modifications and alterations.

I.—SYMPTOMS OF LARYNGEAL DISEASES.

Symptoms.	*Cause.**	*Examples of disease.*
Dysphonia	Alteration in the vocal cords from thickening, ulceration, diminished tension, morbid growths, &c.	Acute and chronic laryngitis. Laryngeal phthisis. Papillomata, &c.
Aphonia	Non-approximation of the vocal cords, either mechanical or due to paralysis of some of the muscles attached to them.	Cicatrisation. Swelling of arytenoid cartilages. Tumours. Hysteria. Pressure on recurrent laryngeal nerves, &c.
Dyspnœa	Narrowing of the orifice of the glottis.	Paralysis of muscles opening glottis. Laryngismus stridulus. Œdema, growths and cicatrices contracting rima glottidis, and pressure external to larynx.
Stridor	Always accompanied by dyspnœa, and produced by the same causes.	As in dyspnœa.
Cough	Irritation of the laryngeal mucous membrane, or the nerves of the larynx.	In most laryngeal diseases. It is of a peculiar shrill, brazen character.

* It must be understood that reference is here made only to laryngeal affections.

II.—SYMPTOMS OF ACUTE LARYNGITIS.

Local.	*General.*	*Laryngoscopic examination.*
Pain in the region of the larynx, increassd by pressure externally, with dryness, soreness, and roughness felt internally, and a sense of constriction. Voice hoarse, cracked, and frequently lost. Cough hoarse, deep, hollow, or brazen like that of croup, paroxysmal, sometimes becoming aphonic, painful, attended with hardly any expectoration; sometimes dysphagia; dyspnœa in severe cases.	When not of traumatic origin the disease is ushered in by chilliness, followed by more or less pyrexia. Full pulse and flushed face. If the disease advances unchecked, the countenance becomes anxious, or pale, or somewhat livid; pulse feeble and irregular, and the usual signs of carbonic acid poisoning.	The mucous membrane of the larynx fiery red and swollen. Epiglottis sometimes so much swollen as to prevent an examination of the interior of the larynx. The mucous membrane covering the ary-epiglottic folds, arytenoid cartilages, cartilages of Santorini, ventricular bands, and sometimes even the vocal cords, is often much swollen. Rima glottidis frequently reduced to a mere chink.

III.—CHRONIC LARYNGITIS.

Symptoms.		*Laryngoscopic examination.*
Local.	*General.*	
Sense of uneasiness and tickling in the throat, which causes a frequent desire to cough to clear the throat. Expectoration is scanty, consisting of mucus or muco-pus, rarely containing blood. Voice and cough hoarse.	None of any importance unless there exists complication in the lungs or elsewhere.	Mucous membrane of the larynx more or less congested, varying in colour from the normal pink or red up to a purplish red. Both the cords may be red, or only one or part of one. Small pellets of mucus may be seen adhering in places to the mucous membrane, especially in the arytenoid commissure.

LARYNGEAL PHTHISIS.

Symptoms.		*Laryngoscopic examination.*
Local.	*General.*	
Those of chronic laryngitis, with the addition of difficulty in deglutition and violent fits of coughing from food getting into the larynx. Dysphonia in the early, aphonia in the later stage; often great dyspnœa.	Those of pulmonary consumption.	At the commencement the same as in chronic laryngitis. Later on there is pyriform swelling of the ary-epiglottic folds, and a swollen condition of the cartilages of Santorini. Eventually there may be ulceration attacking any part of the mucous membrane.

The chronic laryngitis of syphilis cannot with certainty be distinguished from the other forms of chronic laryngitis without inquiry into the history of the case.

In tertiary syphilis there is deep and extensive ulceration not necessarily preceded by thickening, the epiglottis is attacked early, the ulceration is often followed by cicatrisation and contraction, causing stenosis of the larynx.

IV.—REGIONS OF THE CHEST.

Region.	*Contents.*	*Resonance on percussion in health.*	*Auscultation in health.*
1. Cervical . .	Larynx and trachea.	...	Tracheal breathing and voice.
2. Supra clavicular .	Apex of lung.	Clear.	Very pure vesicular murmur (scarcely audible); voice scarcely audible.
3. Clavicular . .	Clavicles and vesicular structure of lung.	Clear.	Pure vesicular murmur and scarcely audible voice, except at the sternal end, where there are bronchial breathing and bronchophony.
4. Subclavian . .	Vesicular structure of lung.	Clear.	Pure vesicular murmur and scarcely audible voice. Heart sounds on left side below.
5. Mammary . .	Vesicular structure of lung. Heart on left side.	Clear on right side. Dull on left, in greater part of region.	Pure vesicular murmur above. Heart sounds below on left side, and feeble vesicular murmur on right. Voice scarcely audible.
6. Infra-mammary .	Anterior portion of base of lung. Stomach below, on left side, liver on right.	Generally tympanitic on left side; dull on right.	Distant vesicular murmur. Voice scarcely audible.
7. Superior sternal .	Division of trachea, aorta, and great vessels.	Clear.	Bronchial breathing and bronchophony.
8. Inferior sternal .	Anterior mediastinum above. Stomach below.	Clear above; tympanitic below.	Pure vesicular murmur above, becoming feeble below. Voice scarcely audible.
9. Axillary . .	Vesicular structure of lung.	Clear.	Pure vesicular murmur. Voice scarcely audible.
10. Lateral . . .	Vesicular structure of lung.	Clear above; dull below on right side.	Pure vesicular murmur. Voice scarcely audible.
11. Supra-scapular .	Apex of lung.	Clear.	Pure vesicular murmur. Voice scarcely audible.
12. Scapular . .	Vesicular structure of lung.	Rather less clear.	Pure vesicular murmur. Voice scarcely audible.
13. Inter-scapular .	Roots of lung and large bronchi.	Clear.	Bronchial breathing and bronchophony.
14. Infra-scapular .	Base of lung.	Clear.	Very pure vesicular murmur. Voice scarcely audible.

V.—PHYSICAL EXAMINATION.

Method of examination.	*Shows*	*Instruments used.*
1. INSPECTION	Form, symmetry, and capacity of the chest. Local bulging, depression or retraction. Condition of intercostal spaces. Character and frequency of respiratory movements. Comparative size and degree of movement of the two sides. Position and extent of impulse of heart.	
2. PALPATION (*Application of the Hand.*)	Comparative movement of the two sides. Vibration communicated to the chest-wall by the voice (vocal vibration or vocal fremitus). Force of the heart's impulse. Occasionally certain morbid phenomena, as pleural and pericardial friction, valvular thrill.	
3. MENSURATION—		
(*a*) *Of Size.*	Comparative size of the two sides of the chest.	Graduated tape.
(*b*) *Of Movement.*	Actual and comparative movement of the chest in respiration.	Cyrtometer.* Dr. Sibson's stethometer. Dr. Quain's „ Dr. Edwards' chest calipers. Dr. Hutchinson's spirometer.
4. PERCUSSION	Degree of resonance in various parts of the chest. Extent of cardiac dulness.	Plessor.—A hammer tipped with india rubber. The first and second fingers of the right hand will be found to be the best plessor. Pleximeter.—A thin plate of ivory or bone. The forefinger of the left hand will be found to be the best pleximeter.
5. AUSCULTATION	Character of respiratory murmur. Abnormal respiratory sounds. Heart sounds. Abnormal cardiac sounds.	Stethoscope.—Made of wood, metal, or vulcanite. Dr. Scott Alison's bi-aural stethoscope.
6. SUCCUSSION	Presence of air and fluid in pleural cavity.	

PERCUSSION may be—(1) *Immediate.*—Where the chest is struck *directly*, without the interposition of any pleximeter.
(2) *Mediate.*—Where an instrument termed a pleximeter is interposed between the chest and the substance with which the stroke is made. This may be either a thin plate of ivory or bone, or, still better, the first and second fingers of the left hand.

AUSCULTATION may be—(1) *Immediate.*—Where the ear is applied *directly* to the walls of the chest.
(2) *Mediate.*—Where the stethoscope is interposed between the ear and the walls of the chest.

* See Note 1 in Appendix.

VI.—NORMAL RESPIRATORY SOUNDS.

Sound.	*Situation where heard.*
Vesicular Breathing .	All over the chest except the upper part of the sternum and the space between the scapulæ, the inspiratory sound being louder, and three or four times longer, than the expiratory.
Puerile Breathing .	Is the loud vesicular breathing of children, audible over the same parts of the chest as in ordinary vesicular breathing.
Bronchial Breathing .	Upper part of the sternum and the space between the scapulæ in many healthy persons.
Tracheal or Laryngeal Breathing .	Over the trachea and larynx.

NORMAL VOICE SOUNDS.

Sound.	*Situation and character.*
Ordinary Vocal Resonance . . .	Is the voice sound heard over the pulmonary regions where vesicular murmur is audible. A muffled, diffused sound ; the articulation of the voice is not appreciable.
Natural Bronchophony . . .	Heard over the upper part of the sternum and between the scapulæ in a certain number of healthy persons. A more distinct and concentrated sound than the last variety.
Laryngophony and Trachophony . .	Voice-sounds heard over the larynx and trachea. Voice transmitted imperfectly articulated to the ear of the observer, with so much loudness and concentration as even to be painful.

VII.—ABNORMAL RESONANCE ON PERCUSSION.

Resonance.	*Cause.*	*Examples of disease.*
DIMINISHED in various degrees, or altogether ABSENT.	Deficiency of air in the lung beneath the part percussed, or solid or liquid matter between the walls of the chest and the lung containing air; or extreme distension of the chest with air.	Pneumonia, first stage. Phthisis; contracted lung, with thickened pleura. Œdema and congestion of lung. Tumours. Collapse of lung. Pneumonia, second and third stages. Intra-thoracic tumours and aneurisms. Effusions into pleural cavity, or its extreme distension by air.
INCREASED .	Air increased in quantity, or air in pleural cavity.	Emphysema. Tubercular cavity, having thin walls, and situated near the surface.
TYMPANITIC .		Pneumothorax. Extreme emphysema.
AMPHORIC .	A large cavity (or conditions resembling it) with very tense walls, containing air.	Upper part of lung compressed by fluid below.
BOX-LIKE .		Pneumothorax. Cavities.
CRACKED-POT SOUND	Air expelled from cavity by sudden pressure.	Cavity of considerable size, with large bronchus opening into it, mouth of patient being open.

VIII.—MODIFICATION OF NORMAL RESPIRATORY SOUNDS.*

	Sound.	*Chief causes.*	*Condition of organs.*	*Examples of disease.*
I. Changes in Intensity.	Feeble Breathing	Air entering the air-cells in diminished quantity and force.	Lung partially solidified, either by increase of solid or fluid within it, or by pressure from without; dilatation of the air-vesicles; in some cases lungs not affected.	Incipient phthisis. Bronchitis. Pneumonia, 1st stage. Tumours. Pleurisy. Emphysema. Pleurodynia.
	Extinct Breathing	The presence of a non-conducting medium between the lung and the chest-wall, or some impediment to the entrance of air into the bronchi.	Lung solidified by pressure upon its surface; plug of mucus, fibrinous exudation, or foreign body in the bronchi, or tumour compressing the bronchi.	Pleuritic effusion. Pneumothorax. Plastic bronchitis. Tumours.
	Puerile / Supplementary Breathing	Air entering the air-cells with increased rapidity and force.	Healthy.	Disease of opposite lung or of other parts of the same lung. Met with as a normal condition in childhood.
II. Changes in Rhythm.	Interrupted / Jerking / Cogged-wheel Breathing	Respiratory movements restrained by pain, or mental emotion, or some temporary local obstruction of the air-tubes.	Varies with the disease causing it.	Pleurodynia. Pleurisy. Debility, with palpitation. Hysteria. Incipient phthisis. Spasmodic asthma.
	Prolonged Expiration	Loss of elasticity in the lung tissue.	Thinning of the walls of the air vesicles, with dilatation and destruction of the alveolar septa.	Emphysema.
III. Changes in Quality.	Exaggerated / Coarse Breathing	Increased friction in the air-cells and smaller bronchial tubes.	Lung not solidified (soft sound).	Generally consistent with health and supplementary. Heard in cases of uræmia and other blood poisoned diseases, and in hysteria and nervous diseases.
			Lung solidified or bronchial tubes obstructed (harsh sound).	Incipient phthisis.
	Blowing / Tubular or Bronchial / Cavernous Breathing	Friction of air in the bronchial tubes, or in cavities of the lung.	Condensation of the lung between chest-wall and the larger bronchi or cavities.	Phthisis. Pneumonia. Tumours. Tubercular and other cavities.
	Amphoric Breathing	Air passing into a large cavity with dense walls.	Cavities with dense walls.	Pneumothorax. Dilated bronchi. Large cavities.

* See Note 2 in Appendix.

IX.—ABNORMAL RESPIRATORY SOUNDS (DRY).

Sound.	*Situation.*	*Cause.*	*Example of disease.*
Sibilus	Lesser bronchial tubes.	Vibration of thick mucus attached to the wall of the tube, or contraction of the tube, due either to swelling or spasm; not easily removed by cough.	Bronchitis. Emphysema. Asthma.
Rhonchus . . .	Larger bronchial tubes.	Vibration of thick mucus in tubes; generally easily removed by cough.	Bronchitis.
	Clicking or Crackling.		
Dry Crackling .	Smaller bronchi.	Separation of the adherent walls of the bronchi — the dry tending to pass into the moist variety.	Incipient phthisis.
Humid Crackling	Smaller bronchi.		Phthisis, 1st stage.
Pleural Friction Sound . . .	Layers of pleura	Movement of opposed surfaces of pleura, roughened by the deposit of lymph or tubercle.	Pleurisy, before effusion has commenced, or after absorption of the fluid.
Creaking Sound .			

X.—ABNORMAL RESPIRATORY SOUNDS (MOIST).*

Sound.	*Situation.*	*Cause.*	*Examples of disease.*
Crepitant Râle (*Fine or pneumonic crepitation.*)	Air-vesicles.	Opening up of collapsed air-cells, or separation of their adherent walls.	Pneumonia in first stage. Œdema of lungs. Collapse.
Subcrepitant Râle (*Medium crepitation.*)	Smaller bronchial tubes.	Bursting of air-bubbles in fluid.	Capillary bronchitis. Phthisical bronchitis. Resolution of pneumonia. Œdema of lung. Pulmonary apoplexy.
Mucous Râle (*Large crepitation.*)	Larger tubes and small or moderate-sized cavities.	Bursting of air-bubbles in fluid.	Phthisis. Bronchitis. Hæmoptysis.
Gurgling or Cavernous Râle.	Large cavities (or number of small cavities).	Bursting of air-bubbles in fluid.	Phthisis (3rd stage). Bronchiectasis. Abscess of lung.
Churning Sound.	Lung in a state of disorganisation.	—	Gangrene of lung.

XI.—ABNORMAL SOUNDS (AMPHORIC).

Splash on Succussion.	Cavity of pleura or large cavity.	Sudden disturbance of air and fluid existing together in the pleura.	Pneumothorax with effusion. Very large cavity.
Bell Sound.	Cavity of pleura.	Auscultation of an air-containing cavity whilst an assistant uses two coins, one as a hammer, the other as a plexímeter.	Pneumothorax.
Amphoric Echo and Metallic Tinkling.	Cavities.	Vibration of air in large cavities with tense walls. The former may be produced by râles and rhonchi in the chest, by the voice, and by the act of coughing; the latter requires, in addition, a little fluid at the bottom of the cavity, set in vibration by a momentary impulse, such as the fall of a drop of fluid, and is essentially the echo of a bubble.	Phthisis with very large cavities. Pneumothorax with effusion.

* See note 3 in Appendix.

XII.—ABNORMAL VOICE SOUNDS.

Sound of voice.	*Character of sound.*	*Cause.*	*Examples of disease.*
Feeble or Absent Vocal Resonance . . .	The obscure humming or buzzing noise heard over the normal chest either very feeble or altogether absent.	Primary bronchus obstructed ; non-conducting medium in pleura or rarefied condition of lung.	Tumours compressing, or foreign body in bronchus. Pneumothorax. Hydrothorax. Pleuritic effusion. Emphysema.
Exaggerated Vocal Resonance	Voice-sounds unaltered in quality or distribution, but louder and of greater intensity than natural.	Increased resounding or conducting power, due to consolidation of the lung, or to the formation of abnormal spaces.	Incipient phthisis. Dilatation of bronchi.
Bronchophony .	Voice-sounds heard louder, clearer, and more vibratory than natural, but unattended with articulation or tactile sensation to the ear.	Much increased resounding or conducting power.	Cavities due to phthisis or dilatation of the bronchi. Consolidation of the lung resulting from collapse, hæmorrhagic infarctions, pneumonia, phthisis, cancer, &c.
Pectoriloquy .	Voice-sounds distinctly articulated and concentrated, and as if spoken into the end of the stethoscope.	Large abnormal cavity with dense walls.	Phthisis, dilated bronchi, &c.
Amphoric Resonance or Echo	A ringing metallic sound, resembling that produced by speaking into an empty jar.	The voice reverberating in a large cavity with a small aperture.	Phthisis. Pneumothorax.
Œgophony . .	A tremulous vibratory sound resembling the bleating of a goat, or the nasal Punchinello voice.	A thin layer of fluid in the pleural cavity, with condensed lung behind.	Pleurisy with effusion.

XIII—ASSOCIATION OF PHYSICAL SIGNS.*

Percussion.	*Auscultation of respiration.*	*Auscultation of voice.*	*Vocalfremitus.*	*Physical condition.*
Clear . .	Vesicular murmur or its modification.	Normal vocal resonance.	Unimpaired.	Lung-tissue healthy or nearly so; at any rate, no increased density of lung-tissue from pressure.
Dull . . .	Bronchial or harsh respiration.	Bronchophony	Increased.	Solidification of pulmonary structure.
	Absent respiration.	Absent voice.	Diminished or absent.	Effusion into pleural sac.
Tympanitic .	Cavernous or feeble according to cause.	Uncertain; cavernous or diminished.	Uncertain; mostly diminished.	Increased quantity of air within the chest, or air confined in particular points; states commonly due to a cavity, or to overdistension of the air-cells.
Amphoric or Metallic.	Amphoric or metallic.	Amphoric or metallic.	Mostly diminished.	Large cavity containing air, with elastic walls.
Cracked-metal Sounds	Cavernous respiration.	Cavernous voice.	Uncertain.	Generally a cavity communicating with a bronchial tube.

* Taken from Da Costa's 'Medical Diagnosis.'

XIV.—ACUTE BRONCHITIS.—CHRONIC BRONCHITIS.

Disease.	*Symptoms.*	*Physical signs.*	*Post-mortem appearances.*
Acute Bronchitis: 1st or Dry Stage.	Chilliness, followed by frequent pulse and febrile symptoms; pains in limbs. Substernal pain. Hoarse dry cough. Feeling of oppression and tightness about the chest.	Breathing hurried. Rhonchal fremitus may be felt. Resonance on percussion unimpaired. Feeble vesicular murmur, mixed with rhonchus and sibilus. Puerile breathing in unobstructed parts of lung. Vocal resonance not materially altered.	Congestion of mucous membrane of bronchial tubes, with some degree of swelling and dryness of surface.
2nd or Moist Stage.	Cough, with expectoration of frothy, transparent mucus, mixed with air-bubbles of various sizes, and occasionally tinged or streaked with blood. Urgent dyspnœa, often amounting to orthopnœa. Lividity and febrile symptoms increased. Restlessness at night.	Breathing hurried. Rhonchal fremitus may be felt. Resonance on percussion clear or only very slightly impaired. Feeble vesicular murmur mixed with rhonchus, sibilus, and mucous râles. Vocal resonance unaltered.	Lungs do not collapse when the chest is opened. The mucous membrane of the bronchi is red and swollen, and the tubes filled with frothy, adhesive mucus.
3rd Stage (Termination favorable).	Gradual remission of the symptoms. Expectoration becomes thick, greenish, and opaque, and sometimes nummulated.	Less amount of sonoro-sibilant and mucous râles, with return of normal vesicular breathing.	—
(Unfavorable).	Dyspnœa very urgent, signs of impending suffocation. Profuse cold sweats. Sinking, drowsiness, and delirium. Less cough, absence of expectoration.	In addition to the signs of the 2nd stage tracheal râles may be heard.	—
Chronic Bronchitis	Two chief forms, the one characterised by the sputa being expectorated with great difficulty, consisting of small, grey, semi-transparent pellets, and tending towards emphysema; in the other the sputa are abundant, muco-purulent, and brought up with ease; dilatation of the bronchi frequently associated with this form. The cough generally comes on at the approach of winter; with the history of former attacks. Dyspnœa; lividity of surface; and in some cases the symptoms resemble those of chronic phthisis, as wasting, with night sweats and hectic.	Respiration laboured and abdominal. Vocal fremitus not materially altered; rhonchal fremitus can generally be felt. Impairment of resonance or a hyperresonant note according as collapse of lung and consolidation or emphysema predominate, the former most marked at the bases, the latter at the anterior part. Feeble vesicular murmur. Rhonchus, silibus, and mucous râles. Vocal resonance varies.	Lungs generally much congested, presenting a dark livid hue, with portions collapsed, and others emphysematous. Bronchial tubes frequently dilated. Mucous membrane thickened, uneven, sometimes ulcerated, covered by a thick, puriform secretion or sparingly coated by a tenacious, glairy, semi-transparent substance.

XV.—PHTHISIS.

Stage of disease.	*Symptoms.*	*Physical signs.*	*Post-mortem appearances.**
PHTHISIS: 1st stage (incipient).	Cough at first dry, then with expectoration of mucus, frequently streaked or dotted with blood, or with copious hæmoptysis. Dyspnœa. Pains in various parts of the chest, especially on the affected side. Dislike to fatty articles, and other dyspeptic symptoms; tendency to vomiting after paroxysms of coughing. Night-sweats. Emaciation. In females, disturbance of the catamenial functions. Occasionally hectic.	Diminished movements. Increased vocal fremitus. Loss of resonance, rise in pitch, or a boxy, wooden note beneath the clavicle or in the interscapular region. Feeble, coarse, or interrupted vesicular murmur, with prolonged expiration. Increased vocal resonance. Occasional sibilus or creaking friction sound. Heart sounds abnormally loud over affected side. Subclavian murmur. Puerile respiration on sound side.	Usually most marked at, or even confined to, one apex, where are to be seen grey, semi-transparent nodules, varying in size from a small pin's head to a hempseed; the lung-tissue around these nodules may be healthy, but is generally hyperæmic and congested, slightly increased in density. In more advanced cases, in addition to the miliary nodules, there may be small, yellow masses, less defined but larger than the grey variety. Both kinds may either be scattered or several in one group, forming a considerable mass.
2nd stage (confirmed).	Cough more severe, with puriform expectoration, of a yellow or greenish hue, and often bloody. Profuse night-sweats and rapidly progressive emaciation. Pinched and anxious expression. Loss of appetite. Thirst. Diarrhœa. Sometimes hectic.	Greater diminution of movement of the affected side, and some amount of flattening. Increased vocal fremitus. Increased dulness, extending downwards. Bronchial breathing, mixed with mucous râles or with click at the end of each inspiration. Bronchophony.	Commencement of caseation and softening in the consolidated portion, inflammation of the surrounding parenchyma, together with obliteration of the blood-vessels and formation of cicatricial tissue.
3rd stage (advanced).	Cough rather looser, still with puriform (nummular) expectoration, or attacks of copious hæmoptysis. Extreme emaciation and debility, with or without night-sweats. Voice husky and hollow. Aphthæ on mouth and fauces. Hectic. Clubbed nails.	Scarcely any movement of the affected side. Marked flattening. Increased vocal fremitus. Dulness less marked. Box-like resonance or cracked-pot sound. Cavernous breathing, with gurgling and splash on cough. Occasionally metallic sounds. Pectoriloquy.	Cavities of various sizes and forms, and either single or numerous, generally containing puriform fluid. Ulceration and dilatation of the bronchial tubes. Lung indurated and puckered in proportion to chronicity of disease.
Complications not restricted to any particular stage of phthisis.	The chief of these are:—Affections of the larynx and trachea, especially ulceration; bronchitis, pneumonia, or pleurisy; perforation of the pleura, with pneumothorax; enlargement of the external absorbent glands, or of those in the chest and abdomen; tubercular peritonitis; ulceration of the intestines, especially the ileum; fatty or amyloid liver; fistula in ano; various forms of Bright's disease; diabetes; pyelitis; tubercular meningitis, or tubercle in the brain, and thrombosis of the veins of the legs.†		

* See Note 4 in Appendix. † From Robert's 'Handbook of Medicine.'

XVI.—DIAGNOSIS BETWEEN INCIPIENT PHTHISIS AND BRONCHITIS.

Incipient phthisis.	*Bronchitis.*
1. The cough commences gradually, without marked disturbance or coryza, often preceded by slight loss of flesh and strength.	1. The cough commences suddenly, and is usually ushered in by feverishness and coryza.
2. The cough is generally dry and hacking at commencement, followed by the expectoration of a thin mucous fluid, which soon becomes thick and opaque or is slightly streaked with blood.	2. The cough is accompanied by expectoration almost from the first; generally abundant; frothy or muco-purulent; not often blood stained.
3. Examination by the microscope shows portions of lung tissue (yellow elastic fibres) in the sputa.	3. No evidence of destruction of lung tissue on microscopic examination.
4. Pain of a wandering character about the chest, especially under the clavicles or between the shoulders.	4. A feeling of tightness and rawness behind the sternum, aggravated by coughing.
5. Evening rise of temperature.	5. Elevation of temperature not particularly marked at night.
6. The morbid physical signs are usually confined to the upper lobe of the lung, and are often confined to one side of the chest; they are very persistent, and even, if met with on both sides, at first, are apt to subside partially or wholly on one side, whilst they continue, or even increase on the other.	6. The morbid physical signs usually predominate in the lower lobes, and exist equally on both sides of the chest; they are of temporary duration, and subside gradually and equally on both sides of the chest.
7. The family history and general appearance of the patient may assist in arriving at a definite conclusion. Most frequent about puberty.	7. No marked hereditary tendency, and not confined to any particular time of life.

(Modified from Dr. FULLER.)

XVII.—ASTHMA.

Symptoms.	*Physical signs.**	*Post-mortem appearances.*
There may be premonitory symptoms, such as gradually increasing dyspnœa or the passing of a large quantity of limpid urine; but the attacks usually come on suddenly at an early hour in the morning; the patient awakes in a start, with a sensation of suffocation and oppression at the chest; he either sits upright in bed, or sometimes stands holding on to some piece of furniture, so as to bring into play the accessory muscles of respiration. Countenance pale and anxious; in bad cases, cyanotic. Skin covered with sweat; the extremities cold. Pulse frequent and feeble. The attacks generally terminate with the expulsion of tough, ashy-grey pellets of mucus.	Chest greatly distended, though there is scarcely any expansile movement. Recession of the intercostal spaces, supra-sternal, and supra-clavicular fossæ and epigastrium during inspiration, which is short and jerky, while expiration is prolonged and wheezing. Vocal vibration not markedly affected. Rhonchal fremitus may be felt. Resonance on percussion increased all over the chest. Almost complete absence of vesicular murmur. Every variety and kind of sibilus and rhonchus, whistling, squeaking, cooing, snoring sounds, and occasionally mucous râles towards the termination.	As asthma is essentially a neurotic disease, and due to spasm of the muscular fibres of the bronchial tubes, and as a fatal result very rarely, if ever, occurs as a direct consequence of the disease, the appearances found after death are principally the result of chronic bronchitis and emphysema, with dilatation of the right side of the heart.

* It must be borne in mind that the physical signs of asthma change their seat with considerable rapidity, a quarter of an hour being quite sufficient to cause breathing sounds to reappear where before they had been absent, and *vice versâ*.

XVIII.—EMPHYSEMA.

Disease.	*Symptoms.*	*Physical signs.*	*Post-mortem appearances.*
EMPHYSEMA (Vesicular).	Habitual shortness of breath, with occasional paroxysms of urgent dyspnœa, most frequently supervening on catarrh. Cough, with or without expectoration of thin, transparent, frothy mucus. In the last stage of the disease there are symptoms due to interference with the circulation, as palpitation, cyanosis, general dropsy, and congestion of the abdominal viscera.	Chest "barrel-shaped" and almost circular. Sternum projecting forwards. Scapulæ and clavicles raised and ill-defined. Ribs more horizontal and intercostal spaces widened. Respiration abdominal. Movement of chest much diminished. Heart beating in the epigastric region. Resonance on percussion greatly increased or tympanitic. Feeble inspiration, prolonged expiration, the former wheezing, the latter generally with rhonchus or sibilus. Vocal fremitus and resonance usually deficient.	Lung does not collapse as usual when the chest is opened, but, on the contrary, may rise up and bulge out of its cavity. It is pale and anæmic, and does not crepitate when pressed, but feels soft and downy, and is drier than ordinary. The air-cells are dilated, or several have become one cavity from the rupture of the septa between them. Cells vary from the size of a millet-seed to that of a swan-shot, or larger.
EMPHYSEMA (Interlobular).	Urgent dyspnœa and oppression, generally occurring suddenly after some violent effort, the subcutaneous areolar tissue frequently becoming œdematous.	Percussion tympanitic over the affected part.	Bead-like bubbles of air seen through the pleura, or partitions between the lobules much widened. Sometimes air is found beneath the areolar tissue of the neck.

XIX.—PNEUMOTHORAX.

PNEUMOTHORAX.	Generally sharp, stabbing pain, with the sensation of something having given way. Urgent dyspnœa and evidences of shock. More or less cyanosis. Posture assumed by patient varies. Pulse frequent, weak, and small. Respiration may be 40 to 60 in the minute. Troublesome cough without expectoration. In some cases of phthisis, or where there are extensive pleural adhesions, pneumothorax has come on quite imperceptibly, and has only been discovered on making a physical examination.	Dilatation of the affected side, with obliteration or bulging of the intercostal spaces. Movement on respiration diminished or absent. Increased elasticity of the walls of the chest. Feeble or absent vocal fremitus. Clear tympanitic resonance on percussion. If the amount of air is extreme there may be dulness. No true vesicular murmur; bronchial breathing may be heard along the spine. Amphoric sounds, with inspiration, voice, and cough, also a metallic echo; the bell-sound may be elicited. The viscera are displaced to a variable degree.	Lung collapsed, lying near vertebral column, unless bound down by old adhesions to some other part of the chest wall. The gas is composed chiefly of carbonic acid and nitrogen, and contains but little oxygen, and occasionally some sulphuretted hydrogen.
PNEUMOTHORAX (with effusion).	Symptoms as above, except that the cough is usually attended by fœtid, puriform expectoration. The patient lies on or towards the affected side.	Same as in true pneumothorax, except that percussion is dull in the lower part of the chest, and tympanitic above the level of the fluid. Metallic tinkling and splashing sound on succussion are also frequently heard.	Lung collapsed. Air, mixed with fluid, in pleural cavity. Mostly arises as a termination of phthisis, a superficial cavity becoming ruptured. May occur in pneumonia, emphysema, or gangrene of the lung, and more rarely in other diseases.

XX.—PNEUMONIA.*

Disease.	*Symptoms.*	*Physical signs.*	*Post-mortem appearances.*
			Lungs.—
PNEUMONIA: 1st Stage. (Engorgement.)	Single, severe rigor (or convulsions in children), followed by heat of skin. Increased frequency of pulse. Respiration greatly accelerated, with consequent disturbance of the pulse-respiration ratio. Dyspnœa. Pain in the side, increased by cough or deep inspiration. Cough, at first dry, with rusty sputa about the second or third day. Inability to lie on affected side. Dilating alæ nasi. Herpes about lips. Frontal headache.	Diminished movement on the affected side. Respiration abdominal. Vocal fremitus normal. Percussion note not materially affected. Feeble vesicular breathing. Fine crepitant râle, most frequently heard at base of lung and at the end of inspiration.	Engorged with frothy and bloody serum. Dark-red colour externally, and on section. Crepitating less and heavier than sound lung, but still floating in water. Pulmonary tissue slightly softened.
2nd Stage. (Red hepatisation.)	Increased distress and dyspnœa. Respiration and speech panting. Cough more urgent, and sputa still rust-coloured, extremely viscid, and tenacious. Absence or deficiency of chlorides in the urine.	Very slight movement. Vocal vibrations well marked. Dulness on percussion. Tubular breathing and bronchophony, generally accompanied by some râles, if at the commencement of the 2nd stage of a crepitant character, and afterwards of a mucous nature.	Red externally, red or mottled and granular on cut surface, and of liver-like solidity. Easily torn, and with fluid exuding on pressure less abundant than in first stage, but thicker, and towards the end of this stage becoming purulent. Not crepitating, and sinking in water.
3rd Stage. (Gray hepatisation.)	Aspect much distressed. Face pale and livid. Great failure of vital powers. Hectic and delirium. Cough continues, and the sputa are either absent, or sometimes they remain rust-coloured; at others becomes purulent or dark like prune-juice, thin and fetid.	Absolute dulness on percussion. Tubular breathing and bronchophony, frequently with gurgling râles where the lung is disorganised.	Reddish-yellow or grey. More rotten and friable. Purulent fluid exudes from the cut surface; and, on pressure, the whole lung may be reduced to a pulp-like mass.

* See Note 5 in Appendix.

XXI.—PLEURISY.

Disease.	*Symptoms.*	*Physical signs.*	*Post-mortem appearances.*
PLEURISY: 1st Stage, or Stage of Hyperæmia.	Rigors, or more frequently mere chilliness. Sharp, stabbing pain in the side, increased by deep inspiration or cough, accompanied generally with some tenderness on pressure. Breathing short and hurried. Respiration chiefly abdominal, with inability to lie on the affected side. Short, dry cough. Pulse full and bounding. Febrile symptoms.	Diminished movement on the affected side. Friction fremitus may sometimes be felt. Percussion sound not materially altered. Vesicular murmur feeble and jerking in rhythm. To-and-fro friction sound.	Pleura opaque and drier than natural, roughened and highly vascular, and presenting a close network of blood-vessels with ecchymoses.
2nd Stage, or Stage of Effusion.	Cough, dyspnœa, sense of weight and fulness of the affected side. Febrile symptoms less marked. Patient lies toward, not on, the affected side. Complexion inclined to be dusky.	Almost total absence of movement of the affected side, which is unduly prominent, the intercostal spaces being obliterated or even bulging. Integuments occasionally œdematous. Vocal vibrations absent. Complete dulness on percussion, most marked in the dependent portions of the chest, and sometimes altered by change of posture. Heart pushed over to sound side, and diaphragm pushed down, so that the liver and stomach descend lower into the abdomen than in health. Vesicular murmur almost, or quite, absent. Frequently bronchial breathing along the spine. Puerile breathing in sound lung Voice sounds absent or feeble, except when the layer of fluid is thin, and then there may be œgophony.	Fluid, either serous or purulent, mixed with shreds of creamy lymph, in the cavity of the pleura. Lungs pushed upwards and backwards towards the spine, its surface coated with a layer of lymph of the same kind as that mixed with the fluid. The lung collapsed and carnified.
(Empyema).	More decided febrile disturbance of a hectic type, night sweats. Morning remissions and evening exacerbations. Face puffy and semi-transparent. Clubbing of the finger-ends. If pointing inwardly, abundant purulent sputa.		
3rd Stage (Resolution after Effusion).	Gradual diminution of the cough, dyspnœa, and other symptoms. Returning ability of the patient to lie on the sound side. Gradual return of displaced organs to their normal position.	The movement of the chest gradually increases. Return of vocal vibration and friction fremitus. The dulness on percussion diminishes from above downwards, but the resonance generally remains box-like for a considerable period. Gradual restoration of the vesicular murmur, at first weak and distant, then somewhat harsh, and subsequently of a normal character. Reappearance of the friction sound for a time. Pseudo râles occasionally to be heard. Œgophony sometimes to be heard, more often bronchophony, and ultimately normal vocal resonance.	If the effusion has been of long duration the lung remains carnified and bound down by adhesions, and the chest-wall undergoes retraction or depression, the ribs overlap and there is more or less lateral curvature of the dorsal spine towards the diseased, and of the lumbar towards the healthy side.

XXII.—DIAGNOSIS BETWEEN PLEURISY WITH EFFUSION AND PNEUMONIC CONSOLIDATION.

Pleurisy.	*Pneumonia.*
Begins with	Begins with
1. Chilliness or several slight rigors.	1. A single severe and protracted rigor.
2. Sharp, catching, stitch-like pain in the side.	2. Pain does not catch the breath, more of a dull character.
3. Cough dry or with a little mucous expectoration, very painful, and repressed by patient.	3. Cough frequent and severe, with rusty viscid expectoration.
4. Pyrexia is not great, and the skin may be moist.	4. Great febrile disturbance, skin hot and pungent.
5. Excretion of chlorides not affected.	5. Diminution or absence of chlorides in urine.
6. Pulse-respiration ratio not affected.	6. Pulse-respiration ratio may fall to two to one.
7. Affected side rounded; intercostal spaces bulge; displacement of heart.	7. No alteration in the shape of the chest or of the intercostal spaces; heart not displaced.
8. Feeble or absent vocal fremitus.	8. Vocal fremitus usually much intensified.
9. Absolute dulness on percussion, transgressing the median line in front.	9. Less intense dulness, not transgressing the median line.
10. Feeble or absent vesicular breathing; bronchial breathing at the root of the lung.	10. Marked tubular breathing, often of a metallic character.
11. Vocal resonance absent, sometimes œgophonic.	11. Loud bronchophony.

XXIII.—PRÆCORDIAL REGION.

Region.	*Situation.*	
Apex of Heart	Between fifth and sixth ribs on left side, about two inches below the nipple and one inch on its sternal side.	Let it be remembered that the tricuspid orifice is the most superficial, then the pulmonary, next the aortic, and deepest of all is the mitral orifice. Ranged from above downwards the pulmonary orifice comes first, then the aortic, then the mitral, and lastly the tricuspid.
Base „	On a level with the third costal cartilages.	
Tricuspid Orifice	Extends from the junction of the fourth left costal cartilage with the sternum, behind that bone to the articulation of it with the sixth right cartilage.	
Mitral Orifice	To the left of the tricuspid valves, immediately behind the fourth costal cartilage.	
Pulmonary Orifice	Immediately behind the left border of the sternum at the junction of the third costal cartilage with that bone.	
Aortic Orifice	About half an inch lower than and to the right of the pulmonary orifice, behind the sternum, on a level with the third interspace.	

PHYSICAL EXAMINATION OF PRÆCORDIAL REGION.

Examination by	*Shows*
Inspection	Form of chest. Point at which the apex of the heart strikes the wall of the chest. Regularity of impulse, and extent over which it is perceptible.
Palpation	Force and regularity of impulse. Presence or absence of purring tremor or of friction fremitus.
Percussion	Extent and intensity of præcordial dulness.
Auscultation	Character of rhythm. „ sounds, normal or abnormal.

AREA OF SUPERFICIAL CARDIAC DULNESS.

Is roughly triangular in shape, the right side of the triangle being the midsternal line from the level of the fourth chondrosternal articulation downwards; the hypotenuse being a line drawn from the same articulation to a point immediately above the apex-beat; the base being a line drawn from immediately below the apex-beat to the point of meeting between the upper limit of liver dulness and the midsternal line (Dr. Gee).

XXIV.—SOUNDS AND IMPULSE OF HEART.

Sound.	*Character.*	*Point of greater intensity.*	*Cause.*	*Time.*	*Condition of circulation.*
First sound (Systolic).	Dull and prolonged.	Fourth and fifth intercostal spaces just within left nipple line.	Closure of auriculo-ventricular valves, and, perhaps, muscular contraction of the ventricles themselves.	$\frac{4}{10}$	Contraction of ventricles, dilatation of auricles. Closure of auriculo-ventricular valves, openness of arterial valves; propulsion of blood into the arteries. Impulse of the heart immediately followed by pulse at the wrist.
First pause	...	...	...	$\frac{1}{10}$	Auricles dilating.
Second sound (Diastolic).	Short and clear.	Base of heart, opposite the third costal cartilage.	Sudden closure of the aortic and pulmonary valves.	$\frac{2}{10}$	Dilatation of both auricles and ventricles. Closure of arterial valves, opening of auriculo-ventricular valves.
Second pause.	...	...	...	$\frac{3}{10}$	Complete distension of auricles, followed by their contraction, and distension of ventricles. Auriculo-ventricular valves open, arterial valves closed.
Impulse.	...	Between fifth and sixth ribs on left side, about one and a half or two inches below the nipple.	In part due to the tilting upwards of the apex, but chiefly to the change in shape of the heart, which during the systole becomes harder and more globular, and bulges forwards.		

XXV.—ENDOCARDIAL MURMURS.

Time.	*Situation.*	*Orifice.*	*Nature.*
Systolic 1 .	Basic.	Aortic.	Obstructive.
2 .	,,	Pulmonary.	,,
3 .	Apical.	Mitral.	Regurgitant.
4 .	,,	Tricuspid.	,,
Diastolic 1 .	Basic.	Aortic.	,,
Presystolic 1 .	Apical.	Mitral.	Obstructive.

Pulmonary regurgitant murmur (diastolic) and tricuspid obstructive murmur (presystolic) are very rarely met with clinically, and for all practical purposes they may be disregarded.

The most frequent combination of these murmurs are—

1. Combined aortic obstruction with regurgitation.
2. Mitral obstruction and regurgitation.
3. Various combinations of the two preceding forms, the aortic and mitral valves being both diseased.
4. Mitral obstruction with dilated right ventricle, and consequently tricuspid regurgitation (Dr. Aitken).

Order of frequency of endocardial murmurs, commencing with the most common :—

1. Mitral regurgitant.
2. Aortic constrictive.
3. Aortic regurgitant.
4. Mitral constrictive.
5. Tricuspid regurgitant.
6. Pulmonary constrictive.
7. Pulmonary regurgitant.
9. Tricuspid constrictive.

Order of relative gravity :—

Tricuspid regurgitation.
Mitral constriction and regurgitation.
Aortic regurgitation.
Pulmonary constriction.
Aortic constriction.

"Estimated not only by their ultimate lethal tendency, but by the amount of complicated miseries they inflict."—Dr. Walshe.

XXVI.—AORTIC

	Obstruction.	*Incompetence.*
Effect on heart	Hypertrophy of left ventricle.	Hypertrophy and dilatation of left ventricle.
Apex displaced	To left.	Downwards and to left.
Cardiac dulness increased	To left, greatly.	Downwards and to left, more increased than in obstruction.
Impulse	Forcible.*	More forcible than in obstruction and over wider area.
„ where?	To left of sternum.	To left of sternum.
Murmur, its direction	Onward, ventriculo-aortic.	Backward; aortic-ventricular.
Murmur, time	Systolic; loudest at beginning of systole.	Diastolic; post-systolic; loudest at beginning of diastole.
Point of greatest intensity	Right border of sternum, in second intercostal space.	Right border of sternum opposite third intercostal space.
Direction in which propagated	Upwards to right sterno-clavicular articulation.	Downwards along sternum and towards apex.
Character of sound (very uncertain and of little value for diagnosis)	Loud, harsh, or blowing.	Of higher pitch than in obstruction, and loudness decreases rapidly from commencement.
Relation to normal heart sounds	Replaces first at base.	Replaces second at base, and occupies more or less of the pause.
Effect on second sound †	Depends on condition of valves, but aortic second sound generally feeble.	Apparent intensification of pulmonary second.
Thrill	Systolic; in second right intercostal space.	Down sternum; diastolic.
Effect on pulse—		Visible pulsation in arteries (locomotive pulse).
Frequency	Normal, or perhaps decreased.	Normal, or perhaps decreased.
Volume	Diminished.	Increased.
Power	„	„
Rhythm	Regular.	Regular.
Duration	Slow.	Quick.
General tendency to	Arterial anæmia; angina pectoris often present.	As in obstruction, but sudden death more common than in any other form of valvular disease.

* See note 6 in Appendix.

† See note 7 in Appendix.

XXVII.—MITRAL

	Obstruction.	*Incompetence.*
Effect on heart	Hypertrophy and dilatation of left auricle and right chambers.	Hypertrophy and dilatation of all four chambers.
Apex displaced	To left and slightly downwards.	To left and downwards.
Cardiac dulness increased	To right of sternum, also to left at base, greatly.	To right of sternum, and also to left and downwards.
Impulse	Feeble, undulating, and diffused.	Most of all.
,, where?	To right of sternum and in epigastrium.	Generally increased all over cardiac region.
Murmur, its direction	Onward; auriculo-ventricular.	Backward; ventriculo-auricular.
Murmur, time	Diastolic, præsystolic, loudest at termination of diastole.	Systolic, loudest at beginning of systole.
Point of greatest intensity	A little within and upwards from apex beat.	A little outwards and upwards from apex-beat.
Direction in which propagated	Upwards and inwards towards right base.	Upwards towards left base, and backwards into axilla, and behind.
Character of sound (very uncertain and of little value for diagnosis)	Generally rough and harsh.	Blowing, bellows murmur.
Relation to normal heart sounds*	Immediately precedes the first at apex, which is often very loud.	Replaces first at apex.
Effect on second sound	Intensification of pulmonary second.	Intensification of pulmonary second.
Thrill	Præsystolic; upwards and inwards from apex.	At apex and towards axilla.
Effect on pulse—		
Frequency	Increased.	Increased.
Volume	Diminished.	Somewhat diminished.
Power	Diminished greatly.	Diminished a little.
Rhythm	Very irregular.	Somewhat irregular.
Duration	Quick.	Nearly normal.
General tendency to	Pulmonary and venous congestion and slow death by asphyxia.	As in obstruction.

* See Note 7 in Appendix.

XXVIII.—PULMONARY OBSTRUCTION.

Murmur—its direction .	Onward, ventriculo-~~aortic~~. *pulmonary.*
time . .	Systolic.
Point of greatest intensity	Left border of sternum, in second interspace.
Cause	Generally anæmic. May be due to pressure of solidified lung (phthisical or pneumonic) upon the artery. Rarely organic, and then usually congenital.
Associated signs . .	Frequently bruit de diable in the jugular veins.

TRICUSPID REGURGITATION.

Murmur—its direction .	Backward, ventriculo-auricular.
time . .	Systolic.
Point of greatest intensity	Base of ensiform cartilage.
Cause	Generally secondary to disease of lung or of left side of heart.
Associated signs . .	Systolic pulsation of the distended jugular veins.

XXIX.—PERICARDITIS.

Stage.	*Symptoms.*	*Physical signs.*	*Post-mortem appearances.*
1st stage (inflammation without effusion.)	If occurring during the course of acute rheumatism the disease may come on insiduously. Pain and tenderness in the cardiac region. Palpitation. Increased frequency of the pulse. Shortness of breath. Anxiety. Pyrexia.	Greater extent of visible impulse than natural, and on palpation the impulse is found to be more forcible, but unequal. Friction fremitus rare. Area of dulness not altered. Single or double friction sound, often preceded by a cantering* action of the heart. Heart sounds may be unchanged or even louder than in health, or they may be masked by the friction sounds.	Pericardium is dry, inflamed, and has lost its polish. Exudation of lymph on both surfaces, but more on the visceral. The membrane may have a shaggy appearance.
2nd stage (with effusion).	Less pain. Pulse small, frequent, and sometimes irregular. Dyspnœa and often orthopnœa. Irritable cough. Loss of voice. Dysphagia. Fulness of veins in the neck. Duskiness of complexion. Great anxiety. Sleeplessness. Delirium.	Bulging of the præcordial region. Impulse displaced upwards and outwards; undulatory. On palpation, feeble and sometimes not perceptible; irregular. Area of cardiac dulness increased, first noticed at the base of the heart, and afterwards extending to left of apex beat, increased by the recumbent posture. Heart sounds feeble, distant and muffled at apex, louder and more superficial at base. Friction may or may not be heard.	Fluid in variable quantity in the sac of the pericardium. Usually sero-fibrinous, containing floculi of lymph. It may be purulent or blood stained.
3rd stage (resolution).	A gradual subsidence of the symptoms of the second stage.	Diminution of the dulness from above and laterally. Heart sounds become clearer. Friction sounds may be heard with increased intensity.	Organised lymph on the pericardium with or without adhesions between the two surfaces, which may be intimately adherent or united by mesh-like adhesions.

* See note 8 in Appendix.

XXX.—DIAGNOSIS BETWEEN ACUTE ENDOCARDIAL AND EXOCARDIAL SOUNDS.

Endocardial.	*Exocardial.*
1. A blowing sound, soft and bellows-like; not affected by pressure.	1. A creaking, rubbing, rough, to-and-fro sound, intensified by pressure of the stethoscope and by the patient bending forwards.
2. A thrill may be felt on palpation.	2. On palpation friction fremitus may be felt.
3. The sound appears distant.	3. The sound appears near.
4. May exist only with the systole or the diastole.	4. Exists with diastole as well as systole.
5. Accompanies the heart sounds.	5. Does not correspond with the rhythm of the heart.
6. Heard along the course of the great vessels, or conducted round to the back.	6. Confined to the region of the heart and limited to site of production.
7. Persistent character.	7. Rapid and frequent change in character; here to-day and gone to-morrow.
8. Area of cardiac dulness not altered.	8. Increased area of dulness, if fluid be also present.

APPENDIX

1. Dr. Gee describes the cystometer of Woillez as consisting "of a number of small pieces of whalebone rivetted together so as to form two jointed girths, which may be accurately applied to the two sides of the chest, and which are easily fastened and unfastened before and behind by a simple arrangement," but he suggests that "a cheap and perfect cyrtometer may be made by two pieces of composition gas-pipe, drawn out to a diameter of the eighth of an inch, and united by a piece of caoutchouc tubing." I generally use myself an instrument made for me by Mr. Hawksley, of Oxford Street; it consists of two narrow bands of pewter united by a piece of elastic webbing. I find that this answers better than the tubing, especially in fat people, as it lies flatter on the chest.

2. In discussing the respiratory movement allusion must be made to that peculiar type of respiration which goes by the name of the "Cheyne-Stokes respiration." Dr. Stokes gives the following description of it:— "It consists in the occurrence of a series of inspirations, increasing to a maximum, and then declining in force and length, until a state of apparent apnœa is established. In this condition the patient may remain for such a length of time as to make his attendants believe that he is dead, when a low inspiration, followed by one more decided, marks the commencement of a new ascending and then descending series of inspirations." It has been met with in various diseases of the heart and in affections of the nervous system.

3. Among doubtful râles Dr. Gee mentions "the dry crepitant râle with great bubbles, as Laennec named a sound resembling that produced by

inflating a dried bladder, and probably really due, as he supposed, to distension of the enlarged air-sacs of emphysematous lung."

4. It is impossible in a tabular form to give a description of all the post-mortem appearances likely to be met with in a patient dying when the physical signs are such as I have indicated under the head of the first stage of phthisis; I have therefore described the changes met with in the tubercular form. When the disease is of an inflammatory origin, occurring as a sequel to an attack of croupous or catarrhal pneumonia, the morbid appearances are not so frequently confined to one apex, and consist in a softening liquefaction, or caseation of the inflammatory products.

5. This table solely refers to acute, lobar, or croupous pneumonia, and has no reference to catarrhal or lobular pneumonia.

6. According to Traube ('Collected Works,' vol. ii, p. 831) in aortic stenosis there is deficient and not a heaving impulse, as is usually stated.

7. For the sake of clearness the murmurs are tabulated separately, but it must be borne in mind that aortic stenosis is generally combined with a certain amount of regurgitation, and a presystolic murmur very often passes indistinguishably into a systolic murmur.

8. Cantering action of the heart, besides being met with in commencing pericarditis, is also caused by reduplication of the first or second sound of the heart, or by an abnormal impulse of the heart against the thoracic wall at the moment of diastole, generally due to pericardial adhesions.

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